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# Original Articles.

## CASES OF RUPTURE OF THE SPINAL LIGAMENTS.[1]

BY CHARLES F. PAINTER, M.D., AND ROBERT B. OSGOOD, M.D., BOSTON.

We have to report 4 cases of injury to the spine in which there was kyphosis without tuberculosis or other disease of the vertebræ; in which there were symptoms of pressure upon the cord, which pressure symptoms were relieved and the patients entirely recovered, functionally, in the course of a few months after treatment with plaster or leather jackets was commenced.

In addition to 2 cases reported by Dr. Myers before this Association 2 years ago, we have found 15 others which, with 2 or 3 exceptions, seem to us to be uncomplicated ruptures of the spinal ligaments. In the long bones it is well known that oftentimes fractures and luxations will occur before the ligaments rupture. This is, we believe, not so generally true in the case of the bones of the vertabral column and its ligaments.

In the cadaver Wagner and Stolper have shown that with dorsal and cervical muscles dissected off, the spine can be flexed forward so that the chin rests on the breast without any rupture of the ligaments. If in addition to this forward flexion there be added some side flexion, the spinal ligaments will give way. It is fruitless, however, to argue from this what would happen to a living being whose muscles were in place and whose trunk was subjected to an unexpected application of force. In other words, we do not place any relience upon experimental studies upon the cadaver.

Courtney has very carefully studied this question, and has embodied his conclusions, based upon the study of 2 cases, in an article entitled "Distortions of the Spine, with Report of Two Cases, etc."

The following is the report of cases above referred to. These represent all the cases in the literature classified by the authors as "injuries to the spine accompanied by ruptured ligaments." This, in their minds, as well as ours, is not intended to include either luxations or fractures, though, as you will see, there are two or three exceptions.

Case I. Female, 32 years of age. Has never been a very strong person; had nervous prostration three or four years ago, but has always worked and for some years has earned her own livelihood. In the spring of 1900 she had measles, and while delirious fell from a third-story window and sustained a compound fracture of the right leg just above the ankle. At that time there was an injury to the back which seemed insignificant compared with the injury to the leg. The patient was unconscious for a day or so, and was paralyzed from the waist down for several days, but gradually got back the power. She had a great deal of pain in her back during her stay in the hospital, while the fracture was uniting. After her discharge from the hospital the patient got about a little with crutches, but there was a great weakness in the back and legs and much pain. She also noticed a projection in the back which when first detected was soft, but subsequently became hard. I first saw her in August, 1900, when she presented the following symptoms and physical signs:

Physical examination: Heart and lungs normal. At the level of eighth dorsal vertebra is a well-marked kyphos with muscular spasm. The right leg between the knee and the ankle is three inches shorter than the left, the knee joint is stiff and motion of the spine is limited by muscular spasm, relaxing on firm pressure. Much relieved by plaster jacket. Discharged relieved, Sept. 8, 1900.

On lying down the kyphos entirely disappeared, as it did also on standing up with trunk hyperextended. It was only when standing unsupported or sitting in chair unsupported that the knuckle was evident. A plaster jacket gave immediate relief to the weakness and pain in the back, and in the course of three or four weeks she was able to get about of her own accord and care for herself. There is still a slight, though very much less of a kyphos.

This case illustrates an uncomplicated rupture of the ligaments. The condition was unrecognized for several weeks. During this time she was confined to bed. The deformity was reducible at will without any evidence of a luxation. Pressure symptoms were produced by any move that brought out the deformity and were relieved by reduction of the deformity. Case was entirely relieved by use of spinal support.

Case II. Traumatic kyphos. Male, 35 years of age; married. Lost an arm and received other injuries on Feb. 18, 1900. While in hospital had severe pain in back for five weeks. After getting home his right foot troubled him by being numb and going to sleep. At night both legs twitch, and he has sensations of burning and soreness in the leg. Better when lying down, but has been able to walk as much as half a mile.

In this, as in the previous case, the kyphos was much less in the hyperextended position, and a jacket was put on in this position. This at once relieved the numbness and weakness in the legs. This was changed to a leather jacket, and for a time it was possible to bring on his numbness by allowing him to flex the trunk. Under the use of the jacket this has entirely disappeared, and he had entirely omitted the support a year after it was applied, and was at work railroading again.

Case III. Male, 39 years. This patient, while standing, was struck in the back of neck and shoulders by the under part of a slowly-moving freight elevator. He was knocked down, sustaining a severe shock and concussion, but his extremities were not paralyzed. In a few weeks he was out and about. He had been a very tall man

[1] Read before the Orthopedic Association at Niagara, in June, 1901.

and quite erect, but after the accident he was considerably shorter, because he could not stand erect. His greatest difficulty in doing his work was that he had difficulty with respiration, not being able to go up a few steps without great dyspnea. This, he noticed, was relieved by anything that would hold his head and shoulders back. He liked to get himself in a position where the upper portion of the trunk was held in the maximum position of extension. This was finally successfully accomplished by the use of a leather jacket.

The point illustrated by this case is that the patient sustained an injury to the spine, causing a forcible bending of the column forward sufficient to cause him to assume a stooped position several months after the injury had been sustained. This position was partially correctible. The curve was a long sweeping one; no sharp knuckle. Patient sought relief from sense of respiratory difficulty on even slight exertion; this was accomplished by application of a jacket in an hyperextended position.

CASE IV. Female, age 17; delicate. Strain in lifting a barrel. The consequences were not felt at once. She was well for 6 or 7 months; then felt violent pain in lifting, referred to the last lumbar vertebra. Pain always recurred on lifting, so that she gave up occupation and became a seamstress, but pain still continued. Gradually a crooked position began to be noticed. At the end of a year the examination revealed the fact that pressure on either side of the spinous processes was painful, and she was practically confined to bed. Under general treatment she improved. Deformity still persisted, much relieved by tight corset.

This case is instructive as suggesting a partial ligamentous rupture made complete by a subsequent exertion; the production of a bone deformity which was relieved though not obliterated by a tight corset. In this case it would seem that the gradual development of the deformity without any bone disease being present was most suggestive of a ligamentous rupture.

CASE V. The patient, a male 27 years old, was a miner by occupation. He was seated on a board over a pit, and was struck in the region of the scapulæ by a rock weighing several hundred pounds. The body was bent forcibly forward. He fell a few feet into the pit below. Examination showed an anteroposterior curve of the low dorsal and upper lumbar regions, the spinous processes bulging upward. Complete paralysis of lower extremities. By pressure of the hands against prominence some reduction of the deformity was accomplished; still enough curving backward to look like a well-marked case of Pott's disease. Paralysis of motion, sensation and the sphincters; temperature 103. By fixation in bed the patient underwent gradual recovery. He was unable to walk for 18 months; then a spinal support like those applied in cases of Pott's disease was used, and the patient could walk at once without canes. At the end of the 18 months he worked without a support in the mine. The deformity was most marked from the eleventh dorsal to the third lumbar and projected 2½ inches. The deviation of the curve was 2½ inches. The diagnosis made partial dislocation backwards of the last two dorsal and upper two lumbar vertebræ.

In this case there is undoubted evidence of partial dislocation, and it is cited here only to show that considerable deformity may persist without causing pressure symptoms in a case of dislocation, where it is difficult to see how there can fail to be a considerable narrowing of the vertebral canal. It cannot be proven in this case that the failure to completely reduce deformity may not have been due to a fracture.

CASE VI. The patient fell 40 feet and was unconscious for 3 days. Slight loss of power and sensation in left leg. No effect on the sphincters. A deep depression could be felt between the first, second and third lumbar vertebræ, due to a rupture of the ligaments. There was a great deal of pain; the patient was confined to bed. A plaster-of-paris splint was applied to the back, soon after which he got up out of bed, walked well and went on to complete recovery.

In this case there is no departure of the vertebræ from their normal relations — the rupture of the ligaments allowed the fingers between the spinal processes. Immediate restoration of function followed fixation of the trunk. The temporary lack of power and loss of sensation may of course have been due to a temporary injury caused by a dislocation, but may equally well have been due to the flexion force causing rupture of the ligaments, or to hemorrhage.

CASE VII. Man, 34 years old. He was jammed, with a hyperflexed trunk, beween a low archway and the seat of a cart. Immediately there was loss of all motion in the lower extremities, but no loss of sensation. A large swelling over the second lumbar vertebra at the time of accident. As this subsided the spinous process of the second lumbar vertebra was seen to be especially prominent. The pain gradually subsided and sensation remained good, but no motion in the legs. In 2 weeks the thighs became flabby and atrophied. There was no pain on pressure over the prominent vertebræ. Under galvanism to the muscles of the lower extremities, strong contractions took place and there was a gradual return of power. After 19 weeks he was up and resumed his occupation of driving a van.

Another case where rupture of ligaments and partial dislocation concurred, showing that injury to the cord resulted from the vertebræ being forced against it at the time of the injury, and also that the persistence of a partial dislocation is not necessarily competent to keep up pressure symptoms. These symptoms may be due to a hemorrhage into or about the cord, as has been demonstrated in other cases.

CASE VIII. Man, 42 years old, had a fall of 25 feet, striking on his feet and then bending very far forward. Great weakness and pain in

the back, but examination was negative. Could not hold himself erect without support. A month after accident there was a slight kyphos over the twelfth dorsal and first and second lumbar. A "spinal assistant" applied, and cure resulted.

Dr. Myers' case seems to us to be one of pure ligamentous rupture, proven by the fact that the deformity did not exist at the time of the accident, but did some months afterwards, having been slowly increasing until checked by Dr. Myers' treatment. Assumption of a fracture which has not united is not necessary to account for this.

Case IX. A man, 20 years old, slipped while carrying weight and was thrown backward. He felt something give way in the lumbar region, and sensation of pins and needles in the feet was noticed for a short time. The back gave way 5 times in exactly the same manner. Examination showed slight kyphos of the twelfth dorsal and first lumbar. The knee jerks were exaggerated. There was some paresthesia and twitching of the legs. He was put to bed, a plaster-of-paris jacket applied, and he recovered.

The author (Dr. Myers) seems to believe that in most of these cases there is an unrecognized fracture and for the time there is nonunion. Here, in this second case, there was slight kyphos noticed. A pure uncomplicated rupture of the ligaments would account for this case. It was probably a rupture of the ligaments within the canal which caused the pressure symptoms because of a slight flexion in the canal. The prominence of the two vertebræ could be accounted for in that way.

Case X. Man, 32 years old, a brick layer. He had a fall of 30 feet. Examination made in bed. Angular projection of the last dorsal and first lumbar, while there was a depression of these vertebræ, one inch in depth. The transverse processes were prominent; the pain was chiefly from the other bruises and not at the seat of spinal lesion. There was no paralysis; the chief discomfort was that he was unable to stand erect. He assumed the following position when on his feet: he stood beside a low table, leaned forward with his chest on the table; walked by grasping the front of both thighs with the knees bent. Six months after the accident he resumed his former occupation; walked some distance to his work, although the back was still flexible at the seat of injury and the kyphos still prominent. Feeling of weakness in the back relieved by lying down.

This case is of interest because of the extreme grade of bony deformity without pressure symptoms and the persistence of the fissure at the seat of the spinal injury, which would indicate a failure to unite on the part of the vertebræ if it were a fracture, but the same would be caused by the stretching out of a ligamentous rupture which had healed. It would seem as though a fracture could hardly have failed to have given rise to some signs of callus.

Case XI. A man, 29 years old. About a half a ton was sustained by the arms, shoulders and back of this man for half a minute before help came. He felt something give way in the back and he became insensible; recovered his senses, was helped home for a mile, and then became unconscious. He was paralyzed from the dorso-lumbar region downwards. He remained thus for two weeks; gradually sensation returned, and although weak in the back he started on a horseback ride, but on his return he became paraplegic and then entered the hospital.

Well-nourished man, paralyzed in the lower half of the body; no displacement of the spine; no control over bladder or rectum. Electricity, tonics, etc., without relief, tried for six weeks. Application of Sayer plaster-of-paris jacket. The symptoms improved and he left the hospital. After eight weeks he was so much better that he removed the jacket and applied an improvised support himself. The symptoms returned. At this time he was given by mistake an overdose of morphine and died, and at autopsy it was found that the third lumbar vertebræ was partially dislocated over the fourth.

This illustrates the fact that deformity is not necessary for the existence of a dislocation, though it does not prove that dislocation existed at the time of the original injury. Rupture of the ligaments may have allowed the vertebræ to slip past each other at some time subsequent to the first injury.

Case XII. A blacksmith, aged 23, was on the top of a pleasure van when the driver attempted to go beneath a low archway. The patient stooped and was drawn through the arch with the spine forcibly flexed. Dyspnea; left leg was paralyzed; hyperasthesia. Opposite the spines of the tenth, eleventh and twelfth dorsal vertebræ, a prominence which terminated below in a slight depression. In five days he was much better, and in one month he was discharged convalescent.

This case shows the manner, more or less usual, in which this class of injuries is produced, namely, the force being brought downwards upon the partially flexed spine, the two extremities of the column being crowded together.

Case XIII. M. Lasalle reports a case of the rupture of the posterior ligament of the spine in the cervical region and intervertebral muscular fibres from simple muscular action in a case of acute mania. Death which followed was due to hemorrhage into the cord.

In this case there was no fracture or dislocation. No outside influences were brought to bear, and yet rupture of ligaments and hemorrhage, sufficient to cause death, ensued.

Case XIV. Male, 20 years old, strong, athletic and muscular. Roof of a flat boat fell on patient, forcing his chest down between his legs upon the floor. The immediate symptoms were violent concussion, insensibility, intermitted respiration, bleeding from the eyes and ears. Examination showed the spine apparently entire and uninjured except at articulation between last dorsal and first lumbar. Integuments were here contused; articulation completely torn assunder and

a rupture of the ligaments. The spinous processes were broken off. Articulating surfaces were two inches apart. The patient was turned on the side and there was an angular projection at this point of 100°, but to the surprise of the attending physicians he gradually improved under simple rest treatment and being placed flat on his back on a hard surface. In two weeks he sat up; in four weeks he returned on foot to the flat boat, a distance of half a mile. Thirty-two days after the injury he was apparently well. There was a slight deformity at the seat of the injury. Up to this time he had done no lifting. Several weeks later, after some slight exertions, there was reported considerable backward curvature at the seat of the lesion. Otherwise apparently perfectly well.

This is the most remarkable of the series and was observed carefully by two or three competent physicians. It cannot be proven that there was no dislocation, but there certainly was a rupture, and the fracture was confined to the spinous processes, so far as known, and for that reason it seemed fair to report it in this series.

CASE XV. Male, 73, fell three feet from carriage striking on head. Head bent forward. On sitting up there was almost a right angle flexion in the neck. Two hard bodies could be felt. Slight lateral movement between the atlas and occiput. Paralysis from third rib down; feeling gone also. Intellect intact; respiration imperfect. Lived 18 hours.

*Post mortem: vertebral column.*—No fracture; blood extravasation. Posterior ligaments so lacerated as to allow finger to enter the canal. In front the transverse ligaments were torn at the level of fourth and fifth cervical vertebræ. The body of the fourth was entirely bare. Spinal dura intact. Interlaminal ligaments torn. The muscles were all that held the fourth and fifth cervical vertebræ together. Ligamentum flavum completely torn off. Dura colored with blood; no exudate. Cord removed. Hyperemic; medulla not torn, and in centre blood extravasation three inches long on posterior surface, extending through cortex and destroying nerves.

No microscopical examination. Intervertebral cartilages torn in shreds.

This shows conclusively, we think, the possibility of an uncomplicated rupture of the ligaments, and offers a possible explanation of the pressure symptoms in many of these cases. The hemorrhage here was sufficient to cause death very soon, but had it been of less extent or in some other portion of the cord, it is reasonable to suppose it might not have terminated so disastrously. It is furthermore not irrational to assume that serious effusions following a forcible flexion of the column might cause temporary pressure, and this become absorbed and symptoms disappear.

CASE XVI. An elderly shoemaker was sitting at his table using a drawshave on a piece of wood, one end of which rested against his chest; this slipped causing him to fall suddenly forward. As a result, there was a slight deformity in the mid-dorsal region; no paralysis; great pain and weakness in the back. He was treated by being placed on his back in bed with a pillow so placed as to arch his back up directly beneath the deformity. By keeping in this position for seven weeks he was able to get up and get about at his work again.

CASE XVII. Wagner and Stolper report rupture of ligaments of odontoid, and lateral ligaments between the atlas and axis; luxation with compression of cord, but no fracture or crushing of the cord. Recovery. Lived a year and died of cerebral tumor.

This case illustrates again the possibility of compression of the cord after rupture with luxation, and is cited simply because an autopsy was performed which showed the rupture of the ligaments, the luxation having been reduced at the time of the accident. This is not an uncommon result, of course, and plenty of cases of the sort could be cited from the literature of spinal luxations, but not many with autopsy so long after the injury where the rupture of the ligaments were carefully noted.

CASE XVIII. Male, aged 32, telephone lineman. In January, 1901, fell from telephone pole as a result of contact with "live wire," striking on frozen ground upon the back of his neck; was stunned, and taken to the hospital, where he was suspected to have a fracture of the upper dorsal spine, and was so treated. In three weeks he was put in a plaster jacket and discharged. He wore the jacket for some months and then had a back brace made. He complained of pain referred to the seat of the injury; numbness and tingling in the legs and inability to stand erect. He was a tall, well-built man. There was no deformity in the back. The line of the spinous processes was regular, no sign of luxation. Long rounded kyphos in upper dorsal region. This could be partially corrected by extension.

A jacket was applied standing, correcting as much as he would bear. This entirely relieved the pain and numbness, but as it did not wholly correct the kyphos a second attempt was made two weeks later, this time with the patient on his back upon the frame. This caused so much pain that it had to be cut off within a few hours, and we went back to the erect position. Six weeks later we were able to fit him with a leather jacket which is holding him entirely erect and relieves his symptoms, though when it is removed he does not seem to be able to hold himself wholly erect as yet. This will probably come, however, if the jackets are worn long enough.

An analysis of these cases, from the pathological point of view where this has been possible and from the clinical and anatomical point of view in other cases, would seem to justify the following conclusions:

(1) Spinal ligaments, during life, may be ruptured without fracture or dislocation.

(2) Nerve pressure symptoms may occur from a simple flexion of the vertebral column.

(3) Recovery in these cases requires prolonged rest in a position which favors the repair of ligaments, and that the effects of treatment speaks more for the ligamentous rupture than for luxation or fracture.

(4) The force which commonly produced the injuries (when stated) was one which, *a priori*, would be most likely to produce ligamentous rupture.

The cases which may prove the first point are: Cases I, II, IV, VI, VIII, IX, XII, XIII, XIV, XV and XVII—in all, 11 cases. In one of these we have the photograph of a very careful dissection made post mortem. In another, a rupture of the ligament was shown post mortem, and this occurred from muscular exertion wholly. Further discussion is not necessary in regard to this point, as such facts conclusively show that it is possible to have such an injury.

In support of the second point we can only say that in the four cases of our own here reported, the production of deformity (flexion of the column) would bring on pressure symptoms which could be immediately relieved by hyperextension, and there was no apparent lateral deviation of the spinous processes and nothing to suggest that there was any forward displacement of the individual vertebræ at the seat of the kyphos. There was no suggestion of thickening from callus in any of these cases. Of course it must be admitted that every luxation must be accompanied by a rupture of the ligaments, and that it is possible for forward flexion in these cases to have caused a slipping out of the vertebræ which would then exert the necessary pressure for the production of numbness and weakness. One would hardly expect this, however, without some other external evidence.

In regard to the third point it is to be noted that in the case where a period of some months has been devoted to fixation of the spine, fresh ruptures are likely to occur bringing back the old symptoms. Were these cases of ununited fracture of the vertebræ they would naturally be fractures of the spinous processes or the laminæ, and usually some evidences of bony consolidation ought to be found. That did not occur, or at least was not noted, in any of these cases. Furthermore, in the four cases which we report from our own observation, the patients had been in more favorable conditions for union of a bony rupture before the spinal lesion was noted than they were allowed to be in afterwards.

And lastly, in regard to the manner of production of the injuries, there seems to be a rather striking uniformity in the way these patients sustained their ruptures: Cases III, IV, V, VII, VIII, IX, XI, XII, XIV, XV and XVI are the only ones, except Case XIII, in which the nature of the injury is given. In Case XIII muscular action alone was responsible for the rupture. In all of the others the force applied was invariably either from above downward upon a flexed vertebral column, or from below upwards. And this is precisely the sort of injury one would expect to tear ligaments. If it is possible, as is shown by Case XIII, to produce within the body, through its own exertions, sufficient force to rupture the spinal ligaments without fracture or luxation, it would certainly seem that the proper combination of external and internal conditions would be forthcoming a sufficient number of times to make this lesion one which is not so very uncommon. Particularly would this seem to be true when one recalls the not infrequent occurrence of ruptures of large tendons, for example, the quadriceps extensor, the patellar, etc., without any fracture of the neighboring bones or even luxation of them.

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A reward of 3 cents per head has been offered for every rat brought to an officer of the Sanitary Board of Hongkong, China, and by this means more than 50,000 rats have been collected and destroyed during the first half of the current year. — *American Medicine.*

# THE TREATMENT OF PLACENTA PREVIA.[1]

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THERE are few more interesting topics of discussion for the obstetrician than the treatment of placenta previa, and although many papers have been written on the subject in recent years, yet there still exists a wide difference of opinion and of practice with respect to the methods to be pursued in the treatment of the condition.

Recently several papers have appeared advocating Cæsarean section as the best method of treatment for placenta previa, but the arguments in its favor are far from convincing that the operation is a suitable one, or that its results will be attended by a lower rate of mortality than is obtained under other methods. A very few cases of placenta previa have been reported in which Cæsarean section has been performed, but the results of these are not at all promising.

Certainly any procedure which can be shown to hold out promise of a material diminution in the maternal or even in the fetal mortality is worthy of serious consideration and trial, but under the present methods of conducting labor cases among the vast majority of people, the early diagnosis and treatment of placenta previa, by which I mean the recognition of the condition before labor or hemorrrhage begins, is only rarely possible. For this reason most cases of placenta previa are first seen in more or less unfavorable conditions for good results by any method of treatment, without adding the additional shock of an abdominal operation.

In this connection the mortality results of placenta previa at present, under the methods of treatment which have been in general use are particularly valuable, owing to the fact that earlier statistics were gathered at a time when puerperal sepsis played an important part in the convalescence of all obstetric cases, and especially so in placenta previa and other operative conditions. At present, however, the question of death from septic infection may practically be eliminated from consideration in determining the mortality from placenta previa, as that now usually constitutes the least of the obstetrician's worries, and a small proportion of the aseptic precautions necessary for abdominal section renders the vaginal delivery free from all danger of infection.

By this I would not wish to be understood as making light of aseptic practice in obstetric work, but that as the advocates of abdominal section put forward the liability of puerperal sepsis in vaginal delivery in placenta previa as one of the leading arguments in support of the practice, I would say that the same precautions which we adopt in abdominal surgery, if used in obstetrics, would undoubtedly absolutely stamp out puerperal sepsis, and yet peritoneal infection not very infrequently occurs in abdominal work in the most careful hands in spite of every precaution.

I have recently collected the cases of placenta previa at the Boston Lying-in Hospital and found altogether 75, of which 56 were treated in the hospital wards and 19 in the Out-Patient Department at patients' homes.

Among the 56 house cases there occurred 6 deaths — a mortality of 10.7%; all the fatal cases were complete placenta previa except one. Of the 19 out patients there were 2 deaths, 1 of the complete and 1 of the incomplete variety — a mortality of 10.5%. Taking the whole 75 cases together, there were 8 deaths — a mortality of 10.6%.

This mortality is somewhat higher than should occur under normal conditions with careful treatment in private practice, since a large proportion of these cases are sent into the hospital by outside physicians in Boston and vicinity, for delivery after severe hemorrhage has occurred. As under these circumstances the hospital receives and cares for many very unfavorable cases, some of which are in a desperate state before any treatment can be undertaken, it would be natural to expect that the mortality of the hospital cases would be above normal, and that any supposed advantage to be gained by hospital treatment and skilful operating, is more than counterbalanced by what amounts to early neglect. Upon prompt attention and treatment and the prevention of antepartum hemorrhage, a low maternal and fetal mortality largely depends.

For this reason the mortality of the Out-Patient Department, in which the women are seen and cared for usually after the onset of hemorrhage or labor and are treated without being subjected to the delay and danger incident to removal to the hospital, would seem to offer a fair basis for comparison with the house cases, inasmuch as the out patients are usually of the poorest class and often suffer from lack of the necessities of life. It is rather curious, however, to observe the slight difference of mortality which exists between the house and out-patient cases — only two-tenths of 1%.

There are some interesting points in connection with the 8 fatal cases which can only be brought out by reviewing them briefly:

CASE I. Eight months pregnant. At entrance weak, anemic and much exhausted, having had copious hemorrhages for 1 week; version. Very slight postpartum hemorrhage, easily controlled, but mother and child died within 2 hours.

CASE II. At 7 months. Poor condition at entrance. Two severe hemorrhages outside hospital. No postpartum hemorrhage; version. Baby stillborn. Mother collapsed and died within 2 hours.

CASE III. At 8 months. Moderate hemorrhage for 2 weeks, considerable 1 day, considerable during labor, no post-partum. Collapsed and died 12 hours after labor.

CASE IV. At 7½ months. Considerable hemorrhage for 4 days. Condition poor; marked pallor. Pulse 120. Primipara. Manual dilatation requiring only 9 minutes, version and extraction only 3 minutes, whole labor 9 minutes. No hemorrhage after delivery and placenta allowed to remain 1 hour. Died in 10

[1] Read before the Obstetrical Society of Boston, May 21, 1901.

hours of profound anemia. This was 1 of the 2 fatal cases in which the previa was incomplete.

Case V. At 8 months. Severe hemorrhage for 7½ hours before entrance, beginning with labor. Was given whiskey, digitalis, and nitroglycerine, and vagina packed by physician outside. Condition at entrance poor; blanched, and patient fainted. Pulse 156. No post-partum hemorrhage. Uterus packed. Fibroid in anterior wall of uterus interfered with delivery and packing. Died 2½ hours after delivery.

Case VI. At 9 months. Hemorrhage considerable for 1 day before delivery, and post-partum, requiring packing which controlled it. Patient did well for 3 days, then developed abdominal symptoms, vomiting, distention and a rapid pulse. Died suddenly on the 5th day. Autopsy showed a diphtheritic colitis with secondary infiltration of perinephritic tissue. This death was not traceable to the placenta previa or to the delivery, and might perhaps be excluded without inviting criticism, but I have included it as 1 of the 8 fatal cases.

Case VII. At 5½ months. Considerable hemorrhage for 1 day. Out-patient case. Did not send for assistance till late. Condition poor. Pulse 129. Severe post-partum hemorrhage, packed, but did not control hemorrhage very well. Died several hours after delivery. Second case of incomplete previa.

Case VIII. At 9 months. Hemorrhage began 5 days before labor, moderate but increasing in amount and was severe for 1 day. Pulse 148. Fainted before delivery. Packed, but there was no post-partum hemorrhage. Very weak, and died in 12 hours.

These fatal cases suffice to show the desperate condition in which many patients are received at the hospital. There were a number of others seemingly quite as bad but which survived under similar treatment. The state of indifference or neglect which many of these women allow themselves to fall into with respect to hemorrhage seems incredible. I suppose it is due to the fact that they become accustomed to seeing considerable loss of blood about a quarter of the time during most of their life, and an increase in the amount does not impress them as of serious importance until they begin to notice the weakening effect.

In only one of the fatal cases, the seventh, was there a severe post-partum hemorrhage which was difficult of control, the others having little or none. This illustrates a fact which I wish to emphasize strongly, namely, that while post-partum hemorrhage may be an active danger and one always to have in mind to be guarded against, it is not nearly as dangerous an element in placenta previa as continued antepartum hemorrhages, which so weaken the patient as to render any form of delivery dangerous.

Only one primipara died out of 16, and her death seems to have been directly due to the exhaustion from the antepartum hemorrhages. The dilatation and delivery were easy and rapid, as they were in all of the 7 primiparous cases in which version was performed. Eight primiparæ delivered themselves without difficulty, and the labors were comparatively short for primiparæ, averaging not over 10 hours, undoubtedly due to the softness of the os and the easy dilation characteristic of placenta previa.

Version, then, usually contra-indicated in a primipara because of natural difficulties, is easily performed in placenta previa.

In any of these 8 fatal cases which I have reported it does not seem as if the most enthusiastic advocate of Cæsarian section would care to do the operation under the conditions in which the patients were received. Moreover, 6 of the labors were premature, only 2 being at term, prematurity generally, I believe, being a contra-indication to abdominal delivery except when possibly in rare instances it might be done in behalf of the mother.

The operations at the Boston Lying-in Hospital were performed by as many as eight different members of the staff, so that the credit either of the good results or of the deaths cannot be attributed to the work of any one man. The only suggestion that I would offer in regard to the treatment of the hospital cases is that possibly some of the patients might have been gotten into better shape by delaying operation for a while. by packing the vagina tightly to control hemorrhage and to allow dilatation, while the patient is being stimulated and strengthened and brought into better condition.

With regard to the general maternal mortality from placenta previa, it was without doubt formerly high, probably between 20 and 30%, but these early percentages were obtained from cases collected at a time when puerperal sepsis was frequent, and was an important factor in the maternal mortality from childbirth, especially so after placenta previa and other obstetric conditions requiring operative interference. But nowadays, with the practical elimination of puerperal infection under aseptic precautions, and with marked improvement in operative technique, the maternal mortality has been greatly reduced, and under favorable conditions and good treatment it is probably below 5% in placenta previa.

That the mortality ever reached the 50% attributed to it by Tait I cannot substantiate by any record of cases I have been able to find. Simpson's figures which Tait mentions placed it at 29%. The earlier editions of Lusk, published nearly twenty years ago, place the maternal mortality at 25%, and the conservative writers of the present day give the earlier mortality at about these figures, while under modern methods authorities agree that it is very low.

Hirst, in his textbook, says that under modern methods the mortality almost disappears, and reports 104 cases which he has collected, 16 of which are his own, with only 1 death. Nearly 10 years ago Barnes, in 67 cases, lost only 8.8% of the mothers. Murphy, in 1893, had 61 cases with only two deaths, and one of the two was moribund when first seen. Noble says the mortality to the mother is probably 5%. Recently Hirst says he has met with 24 cases without having lost any, and he thinks the mortality is about 1%. Recently the mortality statistics at the Rotunda Hospital have been published. It is 4% in 74 cases in the last 10 years.

In considering the question of superseding the present methods of operating in placenta previa by Cæsarean section, it is desirable to see upon

what grounds its advocates base their arguments in its favor, as well as to consider the results likely to be attained.

Lawson Tait, although not the first, seems to have been the most prominent advocate, and his communications chiefly have been quoted by recent writers. Early in 1899 Tait, in a short communication published both in the *Lancet* and the *Medical Record*, "On the Treatment of Unavoidable Hemorrhage by Removal of the Uterus," advocates the Porro operation for enucleation of the uterus, and reports a successful case. His patient was in her fourth confinement, with a history of one post-partum hemorrhage and several miscarriages. The operation was performed because, in his words, "It would save the child, it would probably save the mother, and it would relieve her of the condition of perpetual misery and risk in which she had been living for years, and would therefore assist her in properly rearing the children she had, rather than tend to procreate others to whom she certainly showed no likelihood of ever being able to give proper care."

The foregoing are his reasons for removing the uterus in place of the classical Cæsarean section; but I desire also to call your attention to his arguments in favor of abdominal delivery in general. These are: "In looking up the authorities on placenta previa for some assured statement concerning its mortality, there is nothing more definite than is to be found in Simpson: 'All obstetric authorities seem to agree on this point, that there is no one complication in midwifery attended with more anxiety to the practitioner, and few, if any, with more real danger to the patient, than cases of unavoidable hemorrhage from presentation of the placenta.' He proceeds to give figures which go to show that the fatality is close on 40%, but I gather from the smothered confessions of other writers and the open admission of my friends who have had large obstetric experience, that it really is much higher; and in spite of the sound principles laid down for its treatment and the improvement therein made by Simpson himself, it is probable that more than half the cases die."

The above was published by Tait in 1899, while the quotation which he uses from Simpson's writings was first published in March, 1845, or fifty-four years before. As a matter of fact, in this very paper from which Tait quotes, Simpson reports 654 cases which he collected, with 180 fatalities. Simpson's words are: "One in every 3.6 of the mothers perished in connection with this complication." This is a mortality of 29%, and Tait magnifies it to 40%, and says he believes it should be 50%. This not only amounts to a distortion of the facts, but goes back over half a century to quote opinions and figures, which at the present time are of absolutely no value except for purposes of comparison. It would be as fair that we should cite the maternal mortality of Cæsarean section of a half-century ago, which was practically 100%, to refute such arguments.

As I said before, these distorted facts as given by Tait have unfortunately been frequently quoted by later writers, and of course without adding to the value of their arguments.

Dr. Dudley, in the *New York Medical Journal* (Nov. 3, 1900), quotes Tait and argues in favor of the elective Cæsarean operation on every case of placenta previa, qualified neither by the degree of previa nor by the development of the fetus, so far as I am able to make out. He believes that the diagnosis should always be made antepartum and before hemorrhage, that the patient should then be removed to a hospital and the operation made elective. Under these conditions he believes success would invariably attend. His ideas with respect to antepartum diagnosis and removal to a hospital for skilful treatment would be ideal if they could be carried out, and would reduce the maternal mortality from placenta previa to almost nothing by almost any method of treatment, but unfortunately these conditions are far from possible at the present time. Dudley, moreover, does not take into account the fact that in 62% of the cases of placenta previa labor occurs and the child is born premature, and also the extremely high mortality of premature babies. He does not report having done the operation himself for placenta previa.

Dr. Donoghue also quotes the mortality figures of Tait and from them argues for abdominal section in placenta previa under certain conditions as opposed to version. He has had one successful case which he reported. Since the report of his first case he has had another operation which terminated fatally, but which I am at liberty to mention. He has not as yet published this second case, but I presume his experience with it and the fact that it was not successful have caused him to materially modify his views with respect to the extreme safety of the operation which he recommends.

Dr. Hare also has had 1 fatal case of Cæsarean section.[2] The mother died in 11 hours after delivery and the premature child of 7⅓ months lived 13 days. Here, then, are 3 cases operated upon in this immediate vicinity within the past few months with a maternal mortality of 66.6% as a direct result of recent advocacy of this treatment. Doubtless there are many other cases with equally appalling results but which will never be published, owing to the well-known and unpleasant odium attached to fatalities by any new and radical procedure. Hare says that so far as he knows his was the fifth case to be treated by Cæsarean section. Dr. Sligh of Montana performed the first one in 1891 for a rigid os, which he claimed was an absolute indication for the operation. The child was stillborn and the mother lived 12 hours only. Another one said to have been performed by Drs. Hypes and Halbert of St. Louis, but not published in detail, also proved fatal. Dr. Bernays of St. Louis, in 1894 (*Journal of the American Medical Association*), publishes a case which he says was the first successful case of Cæsarean

[2] Boston Medical and Surgical Journal, Feb. 14, 1901.

section for placenta previa. His success lay in the recovery of the mother, for the child, premature at 8 months, died in a few hours. He also remarks that his case was an ideal one so far as the condition of the patient was concerned.

Bermays says the reasoning which led him to perform Cæsarean section in this case was based on the brilliant results of this operation in the hands of expert operators in recent years, and that the statistics of the mortality of placenta previa, when treated by the Braxton Hicks method in the hands of experts, are not as favorable as those of the Cæsarean section under the same conditions.

This statement on its face appears plausible and might possibly prove true in exceptional cases, although as yet no large series of Cæsarean operations have been performed by any one man, the 20 of Reynolds so far being the greatest. Dr. Reynolds' cases, however, were all carefully selected and performed under the most favorable circumstances without previous shock, hemorrhage or exhaustion from long continued labor. These are conditions of selection which it is impossible to attain in placenta previa. The Cæsarean operation for contracted pelvis is an operation of election, and the results can no more be compared with the mortality results of placenta previa, than can the result of appendix operation in the interval be compared with operation in the attack, or the results of operation for extra-uterine pregnancy before rupture be compared with those after rupture.

That the elective operation of Cæsarean section is a relatively safe and easy one in skilful hands in suitable cases is fortunately true, and that it may be performed many times without high mortality is also conceded, but that it is often indicated or justified in placenta previa, or that it will reduce the percentage of mortality in this disease, is far from likely.

Dr. Reynolds, one of the strongest advocates of the operation of Cæsarean section for contracted pelvis in selected cases, says that at present even the maternal mortality is probably not less than 25% in all reported cases, and that in the unfavorable cases it reaches the prohibitive figure of 33.3%; also that when the conditions are such that the child can be delivered with anything like reasonable ease by forceps or version, one of these operations is preferable to any cutting operation.

Hirst says that under favorable circumstances and in the hands of skilful operators the mortality of Cæsarean section may be very low, perhaps below 5%, but in general practice the mortality of the operation remains high and will probably continue so. In America the mortality, according to Harris' statistics, ranges from 30 to 40%. At the Boston Lying-in Hospital, within a period of about 5 years, there have been 32 Cæsarean operations, all carefully performed with scrupulous care and surgical cleanliness on selected cases at full term, and supposedly favorable from the standpoint of maternal and fetal condition and with the patients free from exhaustion, infection or hemorrhage. Under these conditions, then, conceding the claims of those earnest in urging the safety of the operation, there should have been neither maternal nor fetal mortality in these cases. There were, however, 3 maternal and 3 fetal deaths, a mortality of 9.3%; in 1 case mother and child both died, in two cases the mothers died and the babies lived, and in 2 cases the infants died and the mothers recovered. As the mothers and babies did not die in the same cases, it can be said that the failures were not due to poor judgment in operating, but from the fact that such results will happen, as we all know, in abdominal work, seemingly after every precaution has been exercised. I believe the general mortality in Cæsarean section under favorable circumstances will run about 10%. With great care, exceptional skill in operating, and the most rigid scrutiny of the cases, it may in the hands of a few operators be almost nothing, just as series of 100 cases of general abdominal operations have been reported without mortality or with from 2 to 5% only; but such are not the prevailing conditions.

It has always been assumed that the prognosis for the child in Cæsarean section is entirely favorable, as one man has expressed it that "the Cæsarean baby is gently lifted up into the world." This in my experience is far from being true, and I have heard others comment on the fact that Cæsarean babies rarely cry out on birth or seem to have the vigor of those born by the natural passage. That there is some cause for this not yet explained, and that it is due to something more than the etherization, I feel confident. After high forceps operations or versions the babies cry out and breathe quicker, and the delivery usually requires more time than the Cæsarean delivery, and the patient is under ether longer before delivery. I believe I have seen 25 Cæsarean sections, and it is exceptional that the child does not cause more anxiety at the time of operation than the mother, or that it does not have to be resuscitated with great care and by prolonged immersion in hot water. One of the children's deaths at the hospital was in my own case, and the fetal heart was beating strongly for a considerable time after delivery. The child simply could not be resuscitated, and there was no apparent cause. Dr. Reynolds will also, I think, recall a case of his in which he and I together worked for about two hours on the infant before it was in a satisfactory condition. It is said that only 90 or 95% of Cæsarean children are saved. Robb gives the infant mortalty as 13%.

Another aspect of the disease which we have not as yet considered, nor have I found that it is mentioned by other writers, but a side which appeals at once to the obstetrician and to one having much to do with young babies, is the large percentage of premature births in placenta previa. Müller says that only one-third ever reach maturity. In 74 cases at the Rotunda Hospital 62% were premature, and I have found precisely the same percentage in the 75 cases at the Boston Lying-in Hospital.

The mortality of premature infants is so high under the most favorable conditions, that it is unadvisable to subject the mother to the danger of an abdominal operation for anything less than a full term child can scarcely be questioned. Statistics in regard to premature infants are not frequently given, but at the Paris Maternity the mortality is over 70%; at the New York Nursery and Child's Hospital it is 60%.

The fetal mortality in placenta previa is conceded to be very high, probably from 50 to 60%, and very likely will always remain so, unless the percentage of premature births, now 62%, can first be diminished. The large proportion of premature births in itself is a sufficient cause of very high infant mortality, and when combined with prenatal hemorrhage and asphyxia, but little if any improvement can be expected. It is difficult to see how Cæsarean section can solve this problem to any appreciable extent.

It is fast becoming evident that Cæsarean section, as advised and performed by some operators, is seldom indicated or justified, and it would appear fitting at present to utter a word of warning against its indiscriminate and almost reckless performance at times. It seems to have almost reached the point of being recommended as the panacea for every serious condition of pregnancy. It has been so widely advocated and performed in recent years, and appears so easy and simple, that it is now brought forward to replace obstetrical expedients of long-recognized value, by surgeons and others of small obstetrical experience. We see reported cases in which it has been done not only for placenta previa, but for eclampsia, for face presentations and for other conditions even when the child is supposed not to be alive or not viable. It would not be surprising then to learn that it was being done for other serious pathological conditions in the mother, such as grave cardiac or lung diseases, in which induced labor sometimes becomes necessary.

It is a fair assumption that any operation which is relatively safe, and which bids fair to improve existing conditions, is justifiable. We shall hear of sporadic cases of the successful performance of Cæsarean section, even after severe hemorrhage has occurred, but the operation is to be deprecated under such circumstances, as it can terminate in the long run only in deplorable results. In any of these 8 fatal cases which I have reported it does not seem as if the most enthusiastic advocate of Cæsarean section would care to do the operation under the conditions in which they were received into the hospital. I believe that the hospital mortality in these 75 cases is greater than should occur in private practice under careful management.

My own opinion is that the results of Cæsarean section under favorable conditions, and of placenta previa in general under present methods are substantially the same, and that both will vary, according to circumstances, up to 10%, but that in Cæsarean section for placenta previa, under the unfavorable conditions in which it would generally have to be performed, it would be 2 to 3 times greater.

Many pages might be written on this subject, but one paper would not convince the unbelieving any more than the result of one favorable operation proves that the treatment is for the best interests of mother and child.

However, if this proceeding as a general resort in placenta previa gains a recognized standing in the profession at large, it will soon be done by general practitioners everywhere, and its consequences, unpleasant to contemplate, can readily be foreseen, and it will be true, as has already been very properly stated by Dr. Dewis, that "The time cannot be far distant when it will be considered necessary for the general practitioner who does obstetrical work to be competent to do this operation."

The rational treatment of placenta previa depends more or less upon the circumstances arising in each case.

Every patient, after the appearance of the first hemorrhage, and the diagnosis is established, should be put absolutely at rest and kept under most careful supervision, with every provision at hand ready for immediate interference. The first hemorrhage is practically never fatal, but a dangerous one may ensue at any time without warning. Before the fetus is viable or nearly so, unless the patient can be transferred to a hospital or surrounded by proper safeguards in her own house, induction of miscarriage is the only safe method of treatment and is practically without mortality to the mother if properly performed. After the viable period is reached, in the interest of the child it is advisable to defer delivery as long as possible with safety to the mother, but only when she can be at rest and carefully watched. Any other methods of procedure entail grave danger to both lives, and involve the physician with anxieties and risks which he himself should be unwilling to assume.

An important point to always keep in mind in deciding upon the methods of treatment is that if hemorrhage does begin early, it is rarely possible, even under the most favorable auspices, to prolong the pregnancy for any great length of time; a few weeks at best can only be secured. Miscarriage and hemorrhage may begin even while the patient is sleeping quietly.

The only safe way is to terminate pregnancy as soon as the diagnosis is established after the end of the seventh month, as after this time a hemorrhage may occur without warning, severe enough to cause ultimate death. After delivery is decided upon, if the patient's condition is in any way precarious from previous hemorrhage, and the bleeding continues, the membranes should be ruptured, and with the woman in Simms' position the vagina should be tightly packed with pieces of dry, baked gauze, which, if well applied, controls hemorrhage by pressure and by the styptic action of the dry gauze. The patient is then kept under careful observation, brought into better condition by stimulants and saline infusions.

The gauze will efficiently control hemorrhage for from 4 to 6 hours, and may safely be left in that length of time unless it soaks through before. The packing is of no value unless firmly applied. Under its use dilatation goes on with labor and practically without hemorrhage, the cervix being compressed between the packing and the presenting part. If the packing method was faithfully followed in every case as a routine measure, many cases which now bleed during dilatation till their condition becomes serious, would be kept in good condition for their subsequent operative delivery. Moreover, after removal of the gauze, the head, if presenting, not infrequently is found to be engaged, and normal labor or an easy forceps operation results.

The other expedient is bipolar version by the Braxton Hicks method, the os being dilated sufficient to admit two fingers, which are passed into the uterus, seizing a foot and extracting it until the knee appears outside the vulva. Moderate traction on this leg brings the breech against the placenta, controls hemorrhage and hastens dilatation, and extraction becomes safe usually after an hour or so.

In concluding, I would say that I believe it is clearly demonstrated, on study of the conditions, that under modern methods of treatment and reasonable aseptic precautions, which it should be scarcely necessary now to mention, the mortality from placenta previa is not over 10% in general, and under favorable circumstances, in skilful hands, it is below 5%; that abdominal section is rarely ever indicated; that it does not even in favorable cases hold out promise of better than 10% mortality; that its risks are much greater, and in unfavorable cases its mortality is prohibitive.

In my opinion the only cases of placenta previa in which Cæsarean section are ever justified, are those at full term, with complete previa, with a rigid os and seen before the occurrence of any severe or dangerous hemorrhage, and with the mother and fetus in good condition. Such cases would offer the best opportunities and conditions for the recovery of both mother and child, would allow sufficient time for thorough preparation, and would, perhaps, be justified, and in the hands of experienced operators the mortality would be low.

## PRIVILEGED MEDICAL COMMUNICATIONS.

BY ARTHUR H. NICHOLS, M.D., BOSTON.

At the last meeting of the Councillors of the Massachusetts Medical Society an appeal was made [1] in favor of a statutory provision designed to eliminate from our civil courts a certain class of medical evidence. This appeal will impress the careful reader, first of all, as novel, in that this proposed legislative action is invoked in behalf of physicians; whereas, all similar legislation elsewhere has been framed ostensibly upon grounds of public policy. Our society is thereby asked to act in disregard of the theory virtually adopted under our government, namely, that a statute obviously enacted to favor any class without due consideration of the rights of the public would be unconstitutional. While it is not to be apprehended that such class legislation will be solicited on a question which is purely ethical, it is equally important that we should avoid becoming involved in the promotion of ill-considered measures which have been tested and found unsatisfactory in other states.

[1] See p. 444 of the Journal, Oct. 17, 1901.

The proposition laid down by Hippocrates, as to the sacredness of professional secrets, is based upon an abstract principle which commends itself to all. Nor is this salutary law applicable to physicians and the clergy only. The same ethical rule prevails, though doubtless to a less extent, in certain business relations. The banker, for instance, may not disclose the account or dealings of a depositor or client; the trustee is likewise bound to secrecy as to matters pertaining to his trust; and the bookkeeper should not betray the financial status or transactions of his employer.

Physicians are, however, especially prompted by instinct, sympathy, custom and even by self-interest to protect their patients. There exists, indeed, an implied understanding that revelations imparted by the *patient*, even when not for the sole purpose of facilitating proper treatment, are to be regarded as confidential and sacred, and whenever the gossiping physician unduly divulges medical secrets he disgraces himself and dishonors the profession. On the other hand, it is well understood, and is presumably appreciated by the patient beforehand, that circumstances may at times justify or even demand a departure from this unwritten rule; for in civil as well as in criminal actions, medical men, when best qualified to elucidate the truth, owe to the public also a duty which may become paramount to all other obligations. Thus under the common law of England, which until recently has prevailed throughout this country, it has been held their duty, in order to prevent serious damage to innocent parties, to expose by their testimony when summoned fraudulent attempts to exploit or conceal maladies or the effects of injuries.

A considerable experience in court trials has led me to the conclusion that the exceptional admission of such evidence has worked favorably to the best administration of justice, and to physicians themselves it has proved of value in providing, at times, the main defence in the vexatious suits for malpractice which, of late years, have so greatly multiplied. There is no contention, on the other hand, that our present rules of evidence have proved detrimental to the community or to the profession, that any serious public or private evil or grievance has been inflicted, or, indeed, that any exigency has arisen adequate to call for a radical change in our law. I am tempted, therefore, to reply to the arguments or reasons adduced in favor of this movement, considering them in

the order in which they appear in the paper above referred to.

(1) "The lawyer holds all communications from his client as privileged, even though the latter is a criminal." The theory of this immunity, as indicated by its origin and history, is founded on the necessity of securing the rights of those persons who are under the protection of the court. On this subject Lord Brougham says: "If such communications are not protected, no man would dare to consult a professional adviser with a view to his defence or to the enforcement of his rights, and no man could come safely into court either to obtain redress or to defend himself." The intent, then, is to protect the client and not the lawyer who is regarded as his *alter ego*. Attorneys, like judges and jurors, are thus held to be a part of the machinery of the court, or agents in the administration of justice. The physician forms no part of that system, nor are his relations with his patient analagous. The idea that persons afflicted with certain diseases might, as is sometimes feared, refrain from applying for medical treatment through fear of publicity, is not in accordance with clinical or other experience; but even if correct, it would hardly be claimed that a sentimental regard for the feelings of a few individuals, especially of certain morally delinquent litigants, should outweigh the interests of the mass of the community.

(2) "The confessor in the Roman church is not to divulge the confession of the penitent, even of a criminal. In the Anglican church the priest is protected by the hierarchy in refusing to make public secrets confided to him as a clergyman." Rules of the church would hardly avail in court, though doubtless the laws of evidence, which within certain limits are elastic, would be interpreted liberally with due regard to the dignity of the clergy.

(3) "In this respect Massachusetts law differs from the rule adopted in the courts of New York, where the doctor is not only protected, but even forbidden to testify as to his knowledge obtained in a professional capacity." This statement is based upon a plain misinterpretation of the New York law. Repeated judicial *dicta*, and the unequivocal declaration of the originators and revisers of the statute, put it beyond the possibility of question that the intent of this law is to protect *patients*, not physicians. Indeed, the latter acquired no rights whatever under this statute, and whenever the privilege is waived by the patient, and at times when it is not so waived, the physician *must* testify. But it is pertinent in this connection to enquire what is the result of thus suppressing medical evidence, as determined by its practical operation in New York, where decisions have been rendered so absurd as to embarrass the administration of justice and virtually put a premium on artifice, rascality and fraud; and now that repeated amendments to this statute have failed to afford adequate relief, there is agitation for its complete repeal. Without adverting to any of the numerous recorded instances in which this law has caused mischief, I will cite in illustration the criticism of O. A. Boston, Esq., the well-known writer on forensic medicine: "The law in New York formerly cut off the safest means of ascertaining the mental condition and competency of a testator; it now precludes a physician from disclosing the condition of his patient who is a lunatic or habitual drunkard; it shuts out much testimony tending to show fraud in insurance cases; it precludes a physician from stating the cause of his patient's death, though there is no longer any secrecy connected with it; for the law renders it the duty of the physician to make, for filing with the local board of health, a certificate of the probable cause of the death of a patient."

In a paper read before the Medico-Legal Society,[2] giving in detail some of the preposterous results obtained under this law, Albert Bach, Esq., says: "I am convinced that with very rare exceptions, so rare, indeed, as not to weigh in the balance of justice, it is against public policy to prohibit the giving of such evidence, and that greater evils result from its rejection than from its admission." In commenting upon a manifestly unjust decision rendered under this statute, Mr. Bach writes: "By such rulings in testamentary cases you actually hold that disclosures, insignificant in themselves, and of no force as involving the moral turpitude of the testator, are more harmful than the deprivation of rights under the statute of distribution, and under the laws of nature, as to the proper channels in which a man's property should go." It is furthermore noted by the same author, that no more emphatic animadversions have been directed toward the obnoxious provisions of this statute than those emanating from the very courts charged with its enforcement. Thus Judge Earle, in declaring a judgment of the Appellate Court, adds the following: "It is probable that the statute, as we feel obliged to construe it, will work considerable mischief; in testamentary cases where the contest relates to the competency of the testator, it will exclude evidence of physicians, which is generally the most decisive and important. In cases upon policies of life insurance, where the inquiry relates to the health and physical condition of the insured, it will exclude the most reliable and vital evidence which is absolutely needed for the ends of justice."

Similar testimony abounds, but the above will suffice to show that under this law the chief object of a trial, which is the ascertainment of the truth, cannot at times be accomplished, when a litigant is permitted to present so much of the truth as he desires and withhold the remainder.

(4) "In many other states the physician is protected. Here, if he refuses, he is held to be in contempt, and is fined and imprisoned." The laws of certain other states have been copied from those of New York and are interpreted in the same way, as indicated in most instances by declarations of policy explaining the reason of

[2] Medico-Legal Journal, x, 92.

the prohibition of disclosures; and whatever protection is conceded to the physician is therefore purely vicarious. The nominal penalty of fine or imprisonment has, I believe, never been imposed in this State, though its infliction was indeed apparently threatened in the case of the late Dr. Arnold. But in deference to the dignity of the profession and the honorable scruples of the physician, a way out of the dilemma was suggested by the presiding judge, the result being that even in this instance the law worked well, its action serving to solve a mystery and shield the patient from undeserved condemnation.

(5) "In England he may be prosecuted in a civil suit for damages, if he tells the private affairs of his patients." Here is a total misapprehension as to the law. A malicious or wanton breach of confidence upon the part of a physician in the ordinary walk of life, defaming, or materially damaging a patient, would render the former liable under an action of libel or slander in any locality.[3] In England, however, the medical man, when summoned into court, *must* testify, the authority of the court being paramount to all other considerations. It has been stated by an eminent jurist that "in yielding to such an authority, a professional man will be fully acquitted even in the opinion of those who may be sufferers by his evidence. The expressed opinion of the judge will be a full indemmity for the witness."

Professor Tidy, though taking exceptions to this law, states it in the clearest language: "The highest legal authorities in England have decided that medical men enjoy no special privilege with regard to secrets of a professional nature. In other words, no practitioner can claim exemption from answering a question because the answer may or would involve a violation of secrecy, or even implicate the character of his patient."

Lord Mansfield said: "In a court of justice medical men are bound to divulge secrets when required to do so. If a medical man were voluntarily to reveal these secrets, to be sure, he would be guilty of a breach of honor and of great indiscretion; but to give that evidence which, by the law of the land, he is bound to do, will never be imputed to him as any indiscretion whatsoever."

(6) "This anomaly of our laws at first sight seems wholly wrong. It is nearly so." No such anomaly exists. The present rule of evidence in Massachusetts is identical with that of England, of most of the countries of Europe, of every other New England State and of about one-half of the United States. It is based upon the common law which for centuries has determined this question, and in a manner that has rarely called forth adverse criticism other than of an academic character. It is rather the experimental abrogation of this law, with its extraordinary results, as seen in New York, that in reality would seem to constitute the anomaly.

[3] Under this head falls the *cause célèbre* of Dr. Playfair, in which the unprecedented award of £12,000 was returned. In the voluminous literature stimulated by this trial will be found the most complete discussion of the question of privileged medical communications.

(7) "We instinctively, as physicians, can recognize but only one side, the sacredness of professional secrets." Seventy-five years ago this censure may have been largely merited; but with improved educational methods there has been developed physicians of different type, with faculties trained to accurate observation, and the cultivation of a judicial temper combined with a delicate perception of professional honor. To what extent such competent witnesses are capable of assisting to solve the scientific problems of the court room is perhaps best exemplified by the work of our Board of Medical Examiners. And such experience soon convinces that ethical rules which tend to obstruct an impartial judgment and facilitate actions of gross injustice, may be at times with propriety suspended.

Few physicians appreciate the extent of the tacit combinations between certain unscrupulous legal and medical experts for the purpose of soliciting and promoting bogus claims for personal damage, in which a better class of practitioners in both professions is often unwittingly involved. Surely no safer impetus to this reprehensible business could be devised than the suppression of the testimony of the medical attendant, or, in malpractice suits, of the defendant, which has thus far assisted in combating this evil. Nor should it be overlooked that the damage to individuals, and especially to physicians, may be more serious in civil than in criminal suits.

In conclusion, as regards any amendment to our present rules of evidence, I believe that the whole matter of privileged testimony can be safely entrusted to the discretion of the presiding judge, with the understanding that in the interest of public morality it would be a distinct advantage if evidence affecting the honor or social standing of individuals or families could be given in private before a referee. (?)

## TRAUMATIC APNEA OR ASPHYXIA.

BY H. L. BURRELL, M.D., AND L. R. G. CRANDON, M.D., BOSTON.

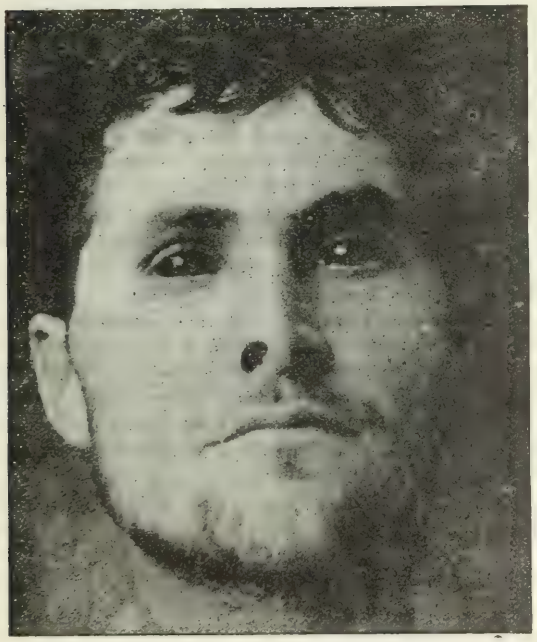
This extraordinary case is recorded because so-termed traumatic apnea or asphyxia is rarely seen in the living, and because of the importance of the subject from the point of view of the surgeon and of the medical jurist.

E. F., 22 years old, single, was brought to the Boston City Hospital on Dec. 7, 1900, having sustained a crushing injury to the chest. The detailed history is as follows: One hour before admission the patient, in a standing position, had been caught between an electric car and the doorpost at the entrance to the car house. His chest had been compressed anteroposteriorly; the head and pelvis were not caught. He was held as in a vise fully 3 minutes before the car was moved. He then fell unconscious.

*Physical examination* on the accident table showed a large muscular man with especially well-developed thorax. He was entirely unconscious;

pulse 100, weak but regular; respirations 30, shallow, with a groan at the beginning of each expiration. The hands and nose were cold. There was slight bleeding from both ears and both nostrils, and blood in the mouth; no wounds on the head; pupils small, equal, and did not react; excessive chemosis. Knee jerks were absent, other reflexes present but diminished.

In the region of the left lower ribs anteriorly, about the seventh, eighth and ninth, near the nipple line, was an undetermined fracture of one or more ribs — undetermined with exactness because of a considerable area of subcutaneous emphysema. This air under the skin extended over the whole left front chest, and made palpation and auscultation of this area of little value. There was slight general abdominal spasm, but no unusual dulness, nor was there any vomiting.



TRAUMATIC APNEA.— This cut, from a photograph taken on the fifth day, fails to show the mottled skin. The subconjunctival blood may be seen, however.

The most striking feature of the case, however, was the condition of the man's skin. From the level of the third ribs, upwards over the neck and face and into the scalp, the skin presented a dusky, bluish, mottled appearance. This color became only slightly paler, if pressed with the finger, and when the pressure was removed, it slowly regained its former tint. At first it was thought that the patient was cyanotic, but, as the color was not universal over the body, as it did not disappear on pressing the skin, and as it persisted even after the patient's general condition improved, it was evident that cyanosis was not the cause. Examined more closely it could be seen that uniformly distributed all over the dusky skin were minute (.5 to 1 mm.) areas of natural skin-tint, each surrounded by a poorly-defined bluish border — these borders uniting in a meshwork. This condition extended over the red edge of the lips and on the mucous membrane of the mouth to a slight degree. In the eyes there was a considerable subconjunctival hemorrhage, homogeneously distributed over as much of the scleræ as is exposed by the open lids and not extending to the parts covered by lids. There were minute retinal hemorrhages.

The patient was in a condition of extreme shock, and stimulation to the extent of nitroglycerine $\frac{1}{200}$ gr., atropine $\frac{1}{60}$ gr., and strychnine $\frac{1}{15}$ gr. was given subcutaneously, with ice-cap to head and heaters to body. At the end of 4 hours consciousness returned and there was considerable improvement in the character of the respiration and pulse. About the chest was applied a broken-rib corset, so laced as to limit respiratory movements near the injured part of the chest.

The urine on the day of the injury was dark red, acid, specific gravity 1.028, with a large trace of albumin. The sediment was abundant, consisting of normal and abnormal blood. It cleared rapidly, however, for the next day it was smoky, 1.025, trace of albumin and less blood, and in a few days was normal.

After 3 days the patient was relatively comfortable; respirations were 30, pulse 80, good volume and tension, sensorium clear, vision slightly blurred. The dusky, livid appearance of the skin of face and neck was unchanged. Five days later, 8 after the accident, the blue color began to fade, the tint, however, remaining as at first, and not going through the usual modifications of a cutaneous hemorrhage. The subconjunctival clot persisted and had not gravitated, as is usual, to the inferior angle of the conjunctiva. Eleven days after the injury the unnatural color of the skin was practically gone and the eyes had begun to clear. After 3 weeks the patient got up and in a few days was discharged practically well.

Accidents of this nature are not uncommon, the most frequent kind being pressure in a struggling crowd. Classic and horrible examples of this are to be found in: (1) The rush of the mob at the Champ de Mars, June 14, 1837, where 23 persons were crushed; (2) the Pont de la Concorde panic in Paris, Aug. 15, 1866, where a mob crowded 9 of its number to death; (3) the Vienna Ring Theatre Fire, Dec. 8, 1881, with nearly 1,000 fatalities; (4) the panic at Victoria Hall, Sunderland, June 16, 1883, where nearly 200 children rushed into a closed corridor and were asphyxiated by crushing; and most recently, at (5) the Charity Bazaar fire, in Paris, May 4, 1897.

Numerous post-mortem examinations by most careful observers have given us a picture of what must have been, to a diminished degree, our patient's pathological state.

Of these reports, that of Ollivier, quoted by Beck, is the most detailed and complete. Speaking of the Champ de Mars catastrophe in 1837, where 23 people lost their lives from pressure in a crowd, Beck says: "All of them, 11 men and 12 women, died standing, so that more that 1 corpse

was borne along in this attitude by the crowd. Dr. Ollivier, of Angers, who examined the bodies, states that in all, without exception, the skin of the face and neck was of a uniform violet tint spotted with blackish ecchymosis. In 9 there was infiltration of blood under the conjunctiva of the eye; in 4 there was serosanguineous froth running from the mouth and nose; in 4, blood flowing from the nostrils; in 3, blood flowing from the ears; in 7, fracture of the ribs. In females the sternum was fractured. There was no mark of either strangulation or wounds, although several bodies bore marks of being trodden under foot after death. The cause was evidently asphyxia produced by violent and continued pressure on the chest; and the violence of this must be estimated by the fact that in one-third of the cases the ribs were fractured. Sixteen bodies were opened. In all the blood was black, diffluent, and filling all the large veins which enter the heart. The pulmonary tissue was mostly of a reddish brown, and in three-quarters of each lung, posteriorly, there was a considerable accumulation of black and diffluent blood; but there was no ecchymosis on the surface or in the substance of the lungs, except in 1 case. In all cases where the conjunctiva was raised by infiltrated blood and in those where the blood had flowed from the ears, the vessels of the pia mater and of the substance of the brain were gorged with blood."

Tardieu goes into the matter with much detail after examining the victims of the Pont de la Concorde. He notes punctate effusions of blood in the loose tissues of the pericranium, under the visceral pleura, and on the surfaces of heart and abdominal viscera. In the two heads he opened there were no effusions of blood, and latest data seem to show that the brain and its vessels suffer little permanent injury, although a temporary circulatory change must take place. The infiltrations of the conjunctiva of eyes, and of lids, and the punctate condition of face, neck and chest, of which all observers have spoken, may be seen also in women after a prolonged effort in labor, and in patients suffering from epileptic and other convulsions. Subconjunctival hemorrhage occurs not infrequently as a result of violent coughing or vomiting. The color may vary from light red, through dark violet, even to black, and the amount of color seems to increase with the amount of resistance the individual offers against the compressing force.

As to the minute phenomena which take place between the application of the compressing force and of the appearance of the skin-color, authorities differ. Respiration is stopped, the blood becomes carbonized, and the blood tension, at first raised, rapidly drops. There is an undoubted escape of blood under the conjunctiva, but in the skin, while there may be true hemorrhage, the fact that the color fades somewhat on pressure, and that the color does not go through the changes of tint usual in a skin hemorrhage, favor the theory of Ollivier and others that the skin appearance is largely stasis of carbonized blood in dilated and temporarily paralyzed capillaries.

The *diagnosis* of traumatic asphyxia in a person still living should not be difficult. History of compression in a crowd, the overlying of an infant by an adult or a domestic animal in bed, the knees of a would-be murderer on the chest, or such pressure as in our case, is nearly sufficient. It must be remembered, however, that syncope, cerebral apoplexy, an epileptic or other convulsion, may take place in a crowd; indeed, fear or some other emotion may simulate the symptoms of absence of respiration, unconsciousness and apparent death. But the victim of overcrowding, besides his inevitable contusions and possible broken ribs and sternum, presents the localized coloration already described, which is to be distinguished from cyanosis, and is stupid up to insensibility, has no delirium, no convulsion, no paralysis.

The indications for *treatment* are manifest and may be well divided into the immediate and the secondary. The secondary, or late, treatment, that which is given some minutes or even hours after the accident, is often, unfortunately, all that a surgeon has an opportunity to carry out. This delayed treatment is merely to combat shock; the subcutaneous use of nitroglycerine, atropine or strychnine, as soon as possible, heaters and quiet.

The immediate treatment, that which should be carried out if the patient is seen directly after the injury, is of the utmost importance. The patient is suffering from the mechanical suppression of the phenomena of respiration. Artificial respiration should be at once begun and prolonged, as in the treatment of persons apparently drowned. In fact, there are many instances in the disasters cited above where the patients treated at once near-by in this manner recovered perfectly, while many who died showed only the lesions of suffocation.

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## RENDERING FIRST AID IN RAILROAD WRECKS.

BY LUCIEN LOFTON, A.B., M.D., EMPORIA, VA.,

*Ex-President Seaboard Medical Association of Virginia and North Carolina.*

It is more than passing strange, when one considers the vast strides made in recent years by the great railroad corporations throughout the country in the way of fast travel, convenience in

transportation, and so forth, that little, if any, consideration has been given that all-important subject — the inevitable accident, which comes at a time when least expected, when no medical assistance can be obtained, and at the most remote and inaccessible portions of the line. But such a state of affairs as a rule exists, has existed, and probably will continue to exist, and hundreds of lives annually will pay the penalty, while the courts will remain congested with damage suits year in and year out, unless the railroad authorities apply the antidote. As a practical suggestion, it has occurred to the writer to briefly outline a simple and effective proposition, whereby both railroads and humanity may profit at a very nominal pecuniary expense to the former.

Before venturing further, it cannot be denied that a great many railroad companies have splendidly equipped hospitals in order that the injured may be taken care of in the course of time, but what is needed is immediate intelligent action in wrecks. Minutes wasted may mean death oft-times, while hours of waiting in severe injuries, nearly always are synonymous with fatalities. I speak advisedly. My proposition is as follows: Every system of railroad should be equipped with a chief surgeon, and local surgeons distributed judiciously along the line most convenient to the road's hospitals. These men should be first class in every acceptation of the term, and well organized for any emergency. It should be the duty of the chief surgeon and his assistants to thoroughly drill every member of a train's crew quarterly, or oftener if necessary, in the art of rendering first aid to the wounded. Vital parts of the human anatomy may be easily taught to any man of average intelligence in a comparatively short while. The question of hemorrhage, by far the most important routine of this work, should be the cardinal feature of the entire scheme. The location of the vessels, the method by which they may be controlled in case of laceration, is, to my mind, a feature on which too much stress cannot be laid. Then again the manner of bandaging a wound, looking towards preventing infection and preservation of the parts which may be mangled, is of vital consideration always.

The conductor, acting in the capacity of chief, should carefully render whatever aid possible, assisted by his crew, and in the order of official seniority should the work be carried on when the conductor is disabled. Every man of a crew should be compelled to know how to render first aid to the wounded. This should be part and parcel of his work, and no member of any crew should ever become impotent in this capacity.

The chief surgeon should have the men, both white and colored, report to him or his assistants regularly at stated intervals for examination. Maps, charts and other definite means could be arranged to facilitate or simplify the work; or have the men, in the presence of the examining surgeon, go through various practical maneuvers upon each other. Method should be the order of the work, and ere long this most important innovation would become a permanent fixture of the transportation department, in which every man connected therewith will take an especial pride and interest.

How many men become exsanguinated within a few short minutes, when the larger vessels are severed or torn? Hundreds of lives are lost yearly by this means alone. If a hurt man can save his blood, eight times out of ten you can save his life, even if his wounds be many and seemingly dangerous.

Every train should have its first aid surgical chest, which should contain: Three dozen one-yard, half-inch rubber tubing (for stopping flow of blood); 3 dozen 2-inch bichloride bandages; 3 dozen 2-inch lint bandages; 10 yards of bichloride gauze (of 1,000 to 2,000 strength); 2 spools of 2-inch adhesive plaster; 1 pair 4-inch surgeon's scissors; 1 hypodermic set containing 100 one-fourth gr. sulphate of morphia tablets, 100 one-sixtieth gr. nitrate of strychnia tablets, 100 150th-gr. of sulphate of atropia tablets, 1 pint of sterilized water for hypodermic injections; 1 quart of pure brandy, and one-half dozen rubber bags for hot water stimulation.

Employees could be taught to know when and how to stimulate patients judging by their pulse action, and by their appearance. They should be taught the great necessity for relieving pain, and placing the wounded in the most favorable and comfortable position looking towards reaction. All of this could be taught scientifically, and I venture the assertion that mortalities in railroad wrecks would be lessened 85 %.

The cry of the railroad surgeon is, "Death was due to shock." True, but hemorrhage from lack of appliances and immediate attention will cause this condition in 90% of all cases.

If you prevent bleeding, shock in this particular will practically become an obsolete term. I appeal to the great railroad bodies in behalf of humanity, to adopt this method of caring for their maimed and mangled passengers and employees. It is practical, inexpensive and, above all, it is humane.

The writer has given this subject many years of earnest study, which covers a most valuable experience in railroad surgery, and in this brief way begs to draw to it the sincere attention of all in whose interest this article is written.

## Reports of Societies.

### THE OBSTETRICAL SOCIETY OF BOSTON.

MALCOLM STORER, M.D., SECRETARY.

MEETING of May 21, 1901, the president, DR. G. J. ENGELMANN, in the chair.

DR. F. A. HIGGINS read a paper entitled

THE TREATMENT OF PLACENTA PREVIA.[1]

[1] See page 6 of the Journal.

Dr. Worcester: I agree with the reader as to the importance of this question, and am especially interested in his concluding sentence in which he speaks of Cæsarean section for placenta previa as being justified under certain conditions. I have had no personal experience with the operation for this indication, but am a strong believer in the wisdom of making it one of election.

Three years ago, at the April meeting of this society, I reported a case of placenta previa centralis, in which, after treating the case in the recognized way, I had lost both mother and child. Having then another case under observation in which placenta previa was suspected, I asked if any member could suggest a more satisfactory method of treatment. One of our guests stated that he had seen in such a case vaginal ligature of the uterine arteries successfully performed. A few weeks afterwards, when this case came to labor, having plenty of assistance and every possible advantage, I again lost both mother and child — two disasters within six weeks of each other. This set me thinking there must be something wrong with the canonical methods of treatment. Mindful of the ease with which the uterine arteries can be ligated in abdominal work and the simplicity and ease of Cæsarian section, I made up my mind that in face of such a case again I should resort to that operation.

I cannot help thinking that it was unfair of Dr. Higgins to compare the mortality in 3 cases with that in 75. Of course, that may be all right theoretically, but it is not practically right. When a new operation is under trial three cases are not enough to base statistics upon. It is unlikely so unusual an operation as Cæsarean section will be consented to by the family until the patient is in a serious condition, and, of course, then the conditions for operation are not ideal. In the first operations for appendicitis the mortality was great because the operation was not resorted to until the condition was very grave. Later reports, now that knowledge of the operation is more widespread and it is performed so much earlier, give entirely different results.

In a case of central placenta previa it takes much obstetrical skill to rupture the membranes without causing hemorrhage, and it also takes great skill to bore through a placenta and do version and deliver a living child.

While it is true that if this operation becomes general it will be performed by men who are not skilled abdominal surgeons, it is likewise true that the operation for placenta previa as advised has to be done by men who are not especially skilful obstetricians; and I think the average general practitioner can avoid sepsis more easily in abdominal work than he can in obstetrical work. There is not so much danger from a clean abdominal wound and uterine incision as there is from the damaged tissues of a mother who has undergone forcible delivery. It seems to me that the common practice must be condemned because it is intrinsically unreasonable and unsurgical. Think of the condition: the placenta, instead of being attached to a part of the uterus that, after delivery, will be wedged down into the pelvis so as to close the torn sinuses, is so situated that when the uterus is empty there will be no pressure upon the placental site.

The reader has said that in placenta previa the cervix is easily dilated; I should say rather that it is easily torn. It seems to me an unsurgical procedure to run the risk of tearing through highly vascular tissue and laying open vessels when by the abdominal operation these vessels can be brought within the possibility of efficacious ligature. Hemorrhage is controlled only by pressure — to control thoroughly the pressure must be applied above the opening of the vessel. Pressure applied at the open mouth of the vessel is unscientific. Now that we do exploratory laparotomies to determine even the necessity of a more serious operation, I believe that in a case of central placenta previa it would be justifiable and wise to make a preliminary abdominal incision, and have an assistant's hand down on the uterine arteries ready to compress should an alarming hemorrhage follow the boring through the placenta and the delivery by version.

My few cases may have been more disastrous than the average, yet I consider the average mortality far larger than that in the experience of the Boston Lying-in Hospital. I find the general practitioner far more afraid of a central placenta previa than he is of anything else, for in his experience he is pretty sure to have had cases to justify his fears.

I am sure that while a child "lifted out of the uterus" by Cæsarean section may be slower about breathing vigorously than one born naturally, it is not by any means in so great danger as a child whose placenta has been bored through, or who has been delivered forcibly by forceps or version.

The proper treatment is to insist that on the first suggestion of a placenta previa being present the woman should go into the hospital instead of waiting at home in the hope that when the fearful gush comes the physician may get there in time. We should recognize that hospital observation and treatment is indispensable in these cases.

If the bleeding happily comes from a lateral attachment (which can be proved only when labor has begun), I agree entirely with the wisdom of conservative treatment; but if on the dilatation of the os it be found that the placenta is absolutely central, I protest with all possible emphasis against the canonical treatment, if it be, as I understand it, to bore through the placenta, to do version and to deliver. This is unsurgical and against all the world has learned about proper methods of preventing and controlling hemorrhage.

It is not surprising that any radical innovation should meet the wise conservatism of the Boston Obstetrical Society. I remember being advised by a previous president of this society not to expose the patient during labor. When I asked about possible damage to the perineum I was told that in his vast experience he had "never rup-

tured a perineum." I also remember the skepticism with which my early attempts at vaginal antisepsis were met by a distinguished member. Conservatism is all very well in its way, and it is of course necessary to consider well every new method, but it is senseless conservatism to hurl statistics before there are any. I would, by the way, call attention to the fact that in the February number of the *Obstetrical Journal* Dr. J. C. Webster published a successful case which Dr. Higgins did not mention.

To sum up, I am sure that we ought to agree on some change of procedure in view of the unsatisfactory nature of the treatment in vogue, and we ought to emphasize the wisdom of packing the vagina firmly at the first slight hemorrhage, before the great one comes, and the necessity of sending these cases to the hospital, where, with proper means at hand, there will always be the greatest chance of saving life in such cases.

DR. F. D. DONOGHUE: My experience with placenta previa is limited to four cases, which I will run over briefly:

(1) Seen in 1893. Case of lateral attachment with severe hemorrhage. I perforated the membranes and allowed the head to come down. A natural labor followed.

(2) Case seen last summer, in which I did Cæsarean section and saved mother and child.

(3) Case seen last December. The woman, 40 years old, was a sufferer from bronchitis for more than a year and had over an eighth of albumin in urine. Called late at night; I found a complete placenta previa. While taking ether the patient became much cyanosed and a Cæsarean section was performed practically under primary anesthesia. The woman's condition was such that the operation had to be much hurried to get through with her still alive. The hemorrhage from uterine incision and placental site was very slight. She did poorly, and two days later I was forced to open the abdomen, and found a complete stoppage of the intestine. There were adhesions of the omentum to the abdominal incision and to the incision in the uterus. She died on the fourth day. The child is still alive.

(4) This case was seen last February. The woman, pregnant for the thirteenth time, had had one severe hemorrhage. The edge of the placenta could be made out easily. The family were insistent upon an operation to save the child, but as I could not make out a fetal heart, and not believing section necessary in most cases of incomplete previa, I refused to operate and punctured the membranes. Natural delivery of a dead child followed in about 40 minutes.

The death of my second case may fairly be laid to faulty technique incident to hurried work on account of the condition of the patient; but in both cases the result aimed at — the saving of the child — was accomplished.

In my paper read some months ago I advocated Cæsarean section, but only for selected cases, in which ordinary methods of delivery must be difficult and be attended by high maternal and fetal mortality.

I believe in these indications for Cæsarean section for placenta previa:

(1) When it is complete. It should not be done for incomplete, except

(2) When malpositions are present (24% of the cases of placenta previa are attended by malpositions); and

(3) In cases where previous treatment has been operative, showing a probable relative disproportion between child and pelvis. Williams and Dorland have shown that in contracted pelvis the greatest death-rate is not obtained in the major degrees of contraction, but in cases of disproportion. Given, then, in a case complicated by placenta previa a history of operative delivery, Cæsarean section should be done.

(4) In incomplete placenta previa with prolapsed funis. While with version the mortality is fair as regards the mother, it is anywhere from 80 to 95% as regards the child. I have here some letters I have received from physicians. Take this one, for instance: My friend reports 6 cases, losing 100% of the children and 33⅓% of the mothers. All the men who have written to me tell about the same story.

Dr. Dudley, quoted by Dr. Higgins, while not having done Cæsarean section for this condition, bases his argument for Cæsarean section upon 9 cases of incomplete previa treated by version. All the mothers lived, but only 3 children survived. Dr. Gillette of Toledo, Ohio, has had another case of successful operation as regards both mother and child, which he will soon report at length. He was obliged to remove the uterus to control the post-partum hemorrhage.

The question of the removal of the placenta in these cases is an important one. There is great danger of hemorrhage if it be removed before the uterus has had time to contract and retract. I see no reason why the sinuses, either high or low, will not close if the placenta be left undisturbed until the normal amount of contraction and retraction takes place. I think no person, however, should attempt a Cæsarean section, for this or any other condition, who is not competent to do a hysterectomy. In addition to the indications already mentioned, I would surely do Cæsarean section for cases of previa in primiparæ, when signs of fetal or maternal exhaustion are evident, and in all cases when the condition of rigid os is present.

DR. CHARLES M. GREEN: I confess that I am one of those not yet convinced that Cæsarean section is the elective operation in cases of placenta previa. I would like briefly to consider Dr. Donoghue's indications in favor of delivery by section.

(1) As to the rigid os in primiparæ with placenta previa. I can only say that I have never seen a case of placenta previa in a primipara, in which the os uteri was rigid. Prof. William L. Richardson tells me that his experience is the

same. I do not say that the condition never exists, but I have never seen it.

(2) As to displacements and malpositions of the child. It is usual in placenta previa for the child to be displaced from its normal, longitudinal position; and the more central the implantation of the placenta, the greater the fetal displacement, since the lower segment, the normal place for the fetal head, is more or less occupied by the placenta. Oblique or transverse positions of the child, however, are not indications for Cæsarean section, in essentially normal pelves; some form of version would be the elective procedure in such cases.

(3) As to relative disproportion. In cases of relative disproportion between passenger and passage, I recognize an indication for Cæsarean section, when the disproportion forbids successful delivery by minor operation. If placenta previa complicates a case of relative disproportion, the indication for section lies in the disproportion, and not in the complication.

The fate of the child is very uncertain under any form of treatment for placenta previa: it may be lost by asphyxia, if a large portion of the placenta is separated; by hemorrhage, if the placenta is torn in operating; or by both causes combined. In many cases, seen late or badly handled, the child is dead or in an extremely enfeebled condition before delivery is attempted, and would not be saved by whatever form of operation. In cases seen early, when the child is found in good condition, it runs no special risk in skilful delivery by podalic version, especially if care is taken not to tear the placenta or bore through it, when central; in central previa, it is wiser to pass the hand up the uterine side where there is least attachment, and then to rupture the membranes and extract promptly; the cervix affords little or no resistance to speedy delivery, especially in marginal or central attachment, where the tissues are soft and yield readily.

As to the mother, if she is in good condition when seen, there is small risk to life in skilful delivery by version and manual extraction; the subsequent danger from port-partum bleeding is the same whether she is delivered by version or by Cæsarean section. If the woman is enfeebled by hemorrhage when seen, she is in no condition to withstand the shock of abdominal section; and if it should seem best to deliver immediately, version is much quicker than the more speedy Cæsarean delivery, since an emergency abdominal section requires some time for preparation. Moreover, when the woman is in very poor condition and perhaps still bleeding, the blood loss may be held in check by a firm gauze vaginal packing, and time thus gained for stimulation and reaction to take place, and put her into a condition to stand a short delivery by version. After delivery, whether by version or by section, there is risk of hemorrhage, owing to the fact that the lower segment does not retract as well as the part above the contraction ring. But this risk is in no way minimized by Cæsarean section. After delivery by version, if bleeding had ceased, I would not hasten to remove the placenta, but would, in the absence of hemorrhage, give time for uterine retraction and for thrombosis in the lower segment. After the extrusion or removal of the placenta, I would pack the uterus and vagina from the fundus to the vaginal introitus, and I would remain with the patient until I was sure there was no leakage. I would not care to pack firmly a uterus that had been sutured after section.

It is not my wish to oppose progress; but I am not convinced that Cæsarean section for placenta previa is progress. For successful results the section requires not alone a good technique, but a patient in good condition. A woman with placenta previa, if in good condition, can be safely delivered by the normal passage, as a rule; if in poor condition, she is ill prepared to withstand the peritoneal shock. In either case the fetal result is doubtful, and when doubtful should play no part in influencing the choice of operation as against the chances of maternal life.

Dr. W. E. Boardman: The subject is of course today, as it has been for the last 150 years, one of great interest, and it is surprising that in 125 of those years so little progress should have been made. Rigby, the first to describe the condition, got as good results as anybody during the century that followed him — about one death in three. His operation was turning and delivery. Probably the faulty and too hurried method by which this was done may have been responsible for many deaths. No change was made until the time of Simpson, who advocated removal of the placenta, disregarding the child absolutely. It has remained for our day for a better line of practice to be followed, that is, manual dilatation. Following this method, Hofmeier twenty years ago reduced the maternal mortality practically to nothing, but he, too, disregarded the child, losing some 70%, so that no real gain was made. In these days of aseptic surgery I had looked with hope to Cæsarean section as the ideal and proper method of treating placenta previa. I have had no personal experiences with it, but it does seem reasonable. The reader speaks of the condition of the child when delivered by Cæsarean section as differing from that of a child delivered by other means. There seems no reason why this should be, and I should be apt to regard it as an accident that the children he saw happened to be so.

The improved Cæsarean section should reduce the mortality of both mothers and children. The point the last speaker made about the placenta is an important one. Most operators, in their hurry, have removed the placenta too rapidly, and many of the deaths have been practically from postpartum hemorrhage. At the same time the condition of the patient has to be taken into account. This, however, comes in only in desperate cases, and it comes in such cases just the same when you are considering delivery by other means. The interest of the child is now more strongly considered by the profession than ever before. It is

deplorable to read the literature of the past and see how absolutely the children have been disregarded.

DR. J. B. SWIFT: My experience with placenta previa has fortunately been very small and I have not done Cæsarean section for this indication, but the operation appeals to me as the proper one to be done when it can be done. I think I could control hemorrhage better by going through the abdomen than I could by starting a procedure of doubtful effect and consequences. The only case I have seen of complete placenta previa was treated with packing and version. Both mother and child were lost. I have decided in another such case to do Cæsarean section.

DR. C. E. STEDMAN: I am confident that if the statistics from private practice were collected, the fatality as regards both mother and child would be simply appalling. I remember a case reported some time ago at the Dorchester Medical Club that was saved by the intra-uterine injection of hot water.

DR. F. B. HARRINGTON: The question is of great interest to me as a surgeon. The statistics of Dr. Higgins would seem a perfectly convincing argument for the adoption of the conservative method, were it not that unfortunately there is not any statement as to what proportion of his cases were central, consequently they cannot be used. We cannot judge a new operation by its first results. Take, for instance, Dr. Homans' first five ovariotomies — all fatal, as he frequently tells. The question comes up, too, of what would have been the result in Dr. Higgins' fatal cases had Cæsarean section been performed. He says they would not have stood an abdominal operation, yet we all know how cases of extra-uterine pregnancy sometimes pull up when apparently hopeless as soon as further loss of blood is stopped.

DR. G. J. ENGELMANN: This reminds me of the first operations for the removal of the appendages. Shortly before Battey's first successful case, Hegar had a case which he lost and did not report for fear of legal complications, and had not the report of Battey's successful case appeared, the knowledge of Hegar's case would never have leaked out.

DR. H. T. SWAIN: The point as to the possibility of controlling a post-partum hemorrhage after a Cæsarean section seems worth considering. There is great danger of it, and to control such a hemorrhage by merely packing the vagina, would be difficult, yet it is not desirable to pack a uterus after a Cæsarean section.

DR. J. G. BLAKE: This operation has appealed to me very strongly since I have seen the ease with which Cæsarean section has been performed. The added possibility of saving children is of vast importance. I do not think that there is much to be learned as to the old method of treatment. I am favorably disposed towards Cæsarean section, and should hope for better results with more experience, and at all events to a much less infant mortality.

DR. WORCESTER: In answer to Dr. Swain's point, I am quite sure there is no real danger of post-partum hemorrhage after Cæsarean section, if due attention be paid to Dr. Donoghue's precaution of leaving the placenta to separate practically of itself. If, after the uterus be emptied, time be allowed for contraction and retraction, the placenta will be detached as naturally if it be in the lower segment as if it were in the upper. As Dr. Harrington points out, patients will recover from an extreme loss of blood if only you prevent any further loss. Death in placenta previa managed in the conservative way is apt to come from the loss of blood after delivery. Hemorrhage cannot always be controlled by packing the uterus. I have had a woman bleed to death while I was actually stuffing the gauze into the uterus, which was shapeless, sôft, and reaching to the ensiform.

We advocates of radical treatment rest our case on the facts that we do not thereby occasion further loss of blood by a premature and unnatural detachment of the placenta, that in the operaeration we advise the uterine arteries are under control, and, finally, that by the Cæsarean delivery the child has its best possible chance of living.

DR. F. A. HIGGINS: As Dr. Worcester has said, a comparison of three cases with seventy-five is unsatisfactory, and is not to be considered in any sense the final word, although at present it is the only evidence that we have. In my paper I have not intended to place so much importance on the relative mortality of the different procedures in these two sets of cases as upon the high mortality which I feel sure will follow the indiscriminate performance of Cæsarean section for placenta previa and the unfavorableness of most cases for the operation. In regard to hemorrhage during delivery by version or the Braxton-Hicks method, the same gentleman would have us infer that the bleeding continues from the cervical vessels from the time of beginning manual dilatation till delivery is accomplished and the cervix closes down again. As a matter of fact, this is not so, for, in the first place, the hand in the vagina acts as a very good plug, largely helping to control the hemorrhage, and, in the second place, as the cervix is dilated its sinuses are stretched out and become practically obliterated after a little so that there is no more hemorrhage from them. It does not seem to me that tearing of the cervix is so very common, otherwise we should see more cases in which suture of the cervix was necessary to control the hemorrhage from it. This, so far as I know, has never been done or required in placenta previa. Moreover, in the Braxton-Hicks method, which is quite universally regarded as the safest method of treatment, the cervix is only dilated manually to about the size of a silver dollar to admit two fingers to bring down a foot. Of course, if the previa is complete it may be necessary to go through the centre of the placenta; but this is an easy matter and does not cause any loss of blood to the mother, as it is a well-known

fact that the mother does not bleed through the placenta or the cord.

As to the difficulty of packing after delivery, Dr. Green has fully covered that point, and I would only add that it is absolutely necessary to control the fundus from above, otherwise it will expand up to the diaphragm, but with one hand on the fundus and the other pressing in the gauze from below, any desired amount of pressure can be obtained and any hemorrhage controlled.

Some one has mentioned previous operative delivery at term in a patient with placenta previa as an indication for Cæsarean section. This would not hold, because operative delivery is never difficult in placenta previa, and so many of the babies are small and premature. As to prolapsed cord being an indication, it is an impossible condition in complete previa, and in the others the child would probably be dead in nine cases out of ten from pressure on the cord before one could prepare for an abdominal operation.

In answer to Dr. Harrington's question, about 33% of these cases were complete placenta previa. As to his remark that Cæsarean section results may be compared with early abdominal operations when the mortality was so high, I would say that the operation of Cæsarean section is as much perfected now as any abdominal operation and is simple and safe enough when properly performed in suitable cases.

I have been rather surprised that more gentlemen have not considered the large proportion of premature births in placenta previa and the high mortality of the ordinary premature baby, when advocating Cæsarean section.

## Recent Literature.

*Essentials of Obstetrics.* By Charles Jewett, A.M., M.D., Sc.D., Professor of Obstetrics and Gynecology in the Long Island College Hospital and Obstetrician and Gynecologist to the Hospital, assisted by Harold F. Jewett, M.D. Second edition, pp. 386, with 80 woodcuts and 5 colored plates. New York and Philadelphia: Lea Bros. & Co. 1901.

This small book on obstetrics, just appearing in its second edition, makes no pretense of being a complete textbook, but, as the author states in the preface, its object is to place the essential facts and principles of obstetrics within easy grasp of the student as an introduction to the more elaborate treatise and as a guide in following the didactic and practical teaching of the college course.

Necessarily, from a book of this size, many of the essential features of a reliable treatise or textbook must be omitted, and in this feature lies the chief reason for criticism of this work. Many books of this kind, however, have been published, and obstetrics seems to be the particular branch of medicine in which they find a fertile field. It is a matter of doubt, however, if abbreviated books should ever be recommended to the use of medical students, as the knowledge of the average student is quite apt to be superficial enough without encouragement in this direction.

The text is clear and conservative, and all the material which it contains is of value; moreover, it is systematically arranged and of easy access.

*Obstetric Clinic.* By Denslow Lewis, M.D., Ph.C., Professor of Gynecology in the Chicago Polyclinic, President of the Staff of the Cook County Hospital, Chicago, etc. Octavo, 640 pages. Chicago: E. H. Colgrove. 1901.

This book is a compilation from the stenographic reports of 39 clinical lectures on subjects in practical obstetrics in connection with clinical material, delivered to students and practitioners in the Cook County Hospital, Chicago. Several chapters have also been devoted to the consideration of certain allied subjects, such as venereal diseases and their relation to pregnancy and the puerperal state, the restriction of prostitution, criminal abortion, infanticide and illegitimate pregnancy.

No effort has been made at a systematic arrangement of the material in the book along the lines necessary for a reference or textbook, and it was evidently not the intention of the author to have it such.

The text is essentially that of a modern lecture delivered in connection with the exhibition of patients, and the lectures as such are interesting to read and also instructive. A book of this kind has really but little intrinsic value and does not interest extensively either the specialist or the general profession. To those, however, who have been undergraduate or post-graduate students under the instruction of the author, and have been privileged as such to listen to the delivery of the lectures, the volume will undoubtedly be of much value, and the lectures will be more highly prized because of possession in a more permanent form.

*Lessons on Massage.* By Margaret D. Palmer, Masseuse and Manager of the Massage Department of the London Hospital. New York: William Wood & Co. 1901.

This is a small volume of 234 pages, containing a glossary and good index. The book is intended to serve as a guide to those who intend taking up the work of massage. In addition to the technical portion which particularly relates to the subject of massage, introductory chapters on elementary anatomy and physiology are introduced for the student's guidance. The book is systematically arranged, well bound and printed, and should find a place of usefulness among those of its class.

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It is stated, according to the annual report of the medical officer of London, Eng., that the average length of life is increasing in that city.

THE BOSTON

# Medical and Surgical Journal.

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283 WASHINGTON STREET, BOSTON, MASS

## THE PRODUCTION OF VACCINE LYMPH.

PREVIOUS to the general introduction of bovine vaccination, in the latter half of the 19th century, the methods of producing lymph for vaccination were very crude, and were insufficient in character to meet the demand which often arose in consequence of the repeated prevalence of smallpox. During the first half of the century smallpox at no time prevailed with as great severity as during the 18th century. The methods of obtaining lymph were chiefly limited to its collection upon quills or other convenient vehicles from the arms of healthy infants. The first vaccine lymph received in America by Dr. Waterhouse at the close of the 18th century, was sent upon threads which had been moistened, or saturated, with lymph, and similar methods were employed by Dr. Waterhouse in transmitting a supply to President Jefferson, who by this means became the principal agent in introducing vaccination into the Southern States.[1]

After the establishment of district medical societies in Massachusetts, about the middle of the century, physicians often distributed such scanty supplies of lymph to each other as they had been able to collect. Two methods of use were then commonly employed: one by means of bits of quill, sharpened at the point, and charged from a vesicle upon the arm of a child upon the seventh or eighth day after its vaccination, and, secondly, by means of the crusts or scabs, which were usually removed from the arm about 17 to 20 days after vaccination. The latter method was open to the objection of liability to contamination by rupture of the vesicle.

To facilitate the distribution of vaccine material, an Act of Congress was passed as early as 1813 or 1814, the intent of which is set forth in the following advertisement:[2]

> The subscriber, having been appointed by the President of the United States agent for vaccination, hereby gives notice that genuine vaccine matter will be furnished to any physician or other citizen of the United States who may apply for it. A fee of $5 must be forwarded for the same. . . . All letters to and from the undersigned on this subject, and not over one-half ounce in weight, are carried by mail free of postage, in conformity with the late Act of Congress to encourage vaccination.
>
> [Signed] JAMES SMITH,
> United States Agent for Vaccination,
> Sept. 6, 1814. Baltimore, Md.

In the rural districts vaccine material was not easily obtained, and does not appear to have been made a commercial article of sale for many years, to a great extent. In the large cities, however, there were a few depositories of lymph supply. The first advertisement in this Journal appears in vol. xii, p. 308, June 17, 1835, wherein the editor offers ten vaccine quills for a dollar, "positively genuine and recently taken."

Dr. Seaton, in his excellent handbook on vaccination, published about 1867, in the chapter on the maintenance of the lymph supply, alludes to some of the difficulties attending its uninterrupted continuance. It was chiefly for this reason that the national vaccine establishment of England was instituted, to encourage vaccination and to keep a constant supply of lymph on hand. A similar succession of humanized lymph was continued in Providence, R. I., until within a few years.

At the beginning of the Civil War, in 1861, smallpox was quite prevalent, and there was much difficulty in obtaining sufficient humanized lymph for vaccinating the soldiers. This was sent mostly in the form of crusts of uncertain age and source, obtained in northern cities.[3] A considerable quantity of vaccine from the heifer was resorted to in the last year of the war, as stated by Surgeon Milhau in the "Medical and Surgical History of the War," vol. iii, medical volume, p. 634.

With the rapid growth of the country and the dense aggregation of the population into cities, which had taken place at the time of the widespread epidemic of smallpox in 1872 and 1873, there came a sudden demand for vaccine material, far beyond the possibilities of the limited supply which could be casually obtained from the arms of healthy infants.

Dr. H. A. Martin of Roxbury had already begun the vaccination of a series of heifers, and was very soon followed by many others in different parts of the country, notably by Dr. F. P. Foster

[1] "I have this day impregnated some thread and half a dozen toothpicks with matter."—Letter of President Jefferson to Dr. Waterhouse, dated Aug. 21, 1801.

[2] From the Concord (N. H.) Gazette of Sept. 10, 1814.

[3] At a recent meeting of the Boston Society for Medical Improvement Dr. Adams of Framingham states that at one time during the Civil War he was compelled to make a single vaccine crust and half of another one answer for the vaccination of 700 soldiers.

of New York City, and by Dr. Griffin of Fond du Lac, Wis. The advantages of having young and healthy animals under control, each of whom will yield sufficient vaccine material for the vaccination of several thousand people, is apparent when compared with the uncertain mode of depending upon the appearance of a mother with the vaccinated infant at the precise day for taking the lymph, and also frequently with a decided unwillingness to allow the child's arm to be disturbed by the irritation consequent upon taking a large supply from a more or less scanty vesicle.

With the coming of the next epidemic of smallpox of a more limited character in 1880-1881, a demand for vaccine material again arose. Bacteriological investigation was in its infancy, and the gospel of cleanliness began to be preached everywhere; the shortcomings of the various establishments for the production of vaccine lymph were a subject of discussion, not only in the medical journals, but in the daily press. One needs only to consult the "Fourth Annual Report of the State Board of Health of Connecticut," or the third volume of the "Bulletins of the National Board of Health" (1881), to learn that there was much room for improvement, in matters of cleanliness at least.

The science of bacteriology has accomplished very much toward perfecting the methods of vaccine production, and has shown the necessity of absolute cleanliness above all things in this important department of sanitary work.

The principle objection to the production of vaccine by private producers is the damaging effect of commercial competition. The liability to deterioration in consequence of sharp rivalry, and the sudden and spasmodic demand which often occurs coincident with smallpox epidemics, occasionally leads producers to unscrupulous methods, not only in the matter of production, but also of advertising their wares. For example, a recent advertisement states that "glycerinated vaccine is composed of pus, blood and broken-down vaccine crusts, soaked and largely diluted with glycerine and water." The statement is false and misleading, since glycerinated lymph is recommended and used by the highest modern authorities for good and sufficient reasons, as preferable to any other form of lymph.

Another producer in an advertising circular denounces certain neighboring producers for using what he erroneously terms the "pus-layer" for the collection of vaccine material, entirely ignoring the fact that the highest modern authorities, after thorough investigation, recommend the practice which he condemns.

With reference to the best methods of producing and distributing vaccine lymph in foreign countries, a great change has taken place within the past 25 years, since such experts as Cory of London, Chambon and Ménard of Paris, Haccius of Geneva, and the Imperial Board of Health of Germany have taken up the subject and devoted their time and strength to this important work.

In France, where vaccination is mainly voluntary, but not sufficiently carried out to prevent the occurrence of frequent epidemics of smallpox, the system of vaccine culture has been conducted for many years under the charge of voluntary organizations. Those in Paris are the Institute Vaccine Animale and the Académie de Médecine. Glycerinated lymph is here employed almost exclusively, when required for storage, except in those cases where, especially in times of epidemic, the animal is driven from house to house in a specially constructed wagon or van, and large numbers are then vaccinated with fresh lymph direct from the animal. Messrs. Chambon and Ménard attach much importance to this practice. They say that, "Under the immediate influence of existing smallpox, large numbers are willingly submitted, both to primary and secondary vaccination, who would otherwise escape, and they are of opinion that certain classes who might object to be vaccinated with lymph from an unknown source, find all their objections on this score removed when they actually see the calf which serves as a vaccinifer." [4]

Lymph which the English Commission of 1897 took home to England was tried upon 96 children, five insertions each, and in every insertion was successful (480 insertions).

These calves, after the lymph is collected, are sent to the abattoir and slaughtered under the personal supervision of a medical man, whose report is made before the lymph is distributed. If disease should be found, the lymph is destroyed. This practice appears to have been adopted rather for the purpose of satisfying public sentiment than otherwise, since the occurrence of disease in calves at the age usually adopted for vaccination is very rare indeed. We learn that a similar practice is now adopted at one or more American establishments.

At Brussels the production, storage and distribution of animal vaccine are essentially the same as at Paris, and are carried out at the Ecole Vétérinaire under the supervision of Professor Degive. Each calf is first tested with 1½ cc. of tuberculin, which seems almost a needless procedure, considering the extreme rarity of tuberculosis in calves, as well as the improbability of its transmission, even when existing in an interior

[4] From Report of an Inspection by Drs. Thorne and Copeman as to vaccination arrangements in foreign countries with special reference to the preparation and storage of glycerinated calf lymph; 26th Annual Report of Medical Officer of the Local Government Board, London, 1897.

organ. Dr. Warlomont of Brussels was one of the earliest to introduce bovine vaccination, and established a Belgian vaccinal institute under government supervision in February, 1865. His work on animal vaccination is one of the first which was published on this subject.

The most complete national system of vaccine production is that of Germany, where the Imperial Board of Health exercises supervision over this work, and issues an annual report upon it.[5] These reports give all the facts relative to the production of animal lymph in each of the 22 principal cities of the German Empire. The items presented are the salaries of officials, the expense of purchasing calves and keeping and feeding them, the preparation, collection and distribution of the lymph and all other essential particulars of the work. The quantity of the lymph obtained is stated, and the amount issued monthly. It appears that by far the largest amount was obtained in the month of May, 1900.

In Berlin, in 1900, 51 calves were employed during the year; in Königsberg, 121; in Cologne, 83; in Munich, 81; in Dresden, 115, etc. At Berlin all lymph is now tested bacteriologically by means of plate cultures before it is distributed. This is done in consequence of the recommendation of a scientific committee, of which Professor Koch was a member, and which recently convened at Berlin to inquire into the whole subject of the collection, purification and preservation of vaccine lymph. In the three months of May, June and July sufficient lymph is provided for use during the whole year throughout one of the largest of the eight districts into which the kingdom of Prussia is divided for vaccination purposes.

After the collection of the lymph at Berlin the calves are sold to the Jewish rabbi to be slaughtered for food. A larger price is given for them than usual, owing to the fact that they are in fine condition, as the result of good feeding while at the station.

For many years, in America, succeeding the introduction of animal vaccination, a superstitious reverence for the so-called Beaugency stock appears to have prevailed, and an unbroken pedigree from this historic heifer was considered a *sine qua non* of vaccinal purity.[6] That this curious fetish of the 19th century has gained no standing among German authorities is shown by the fact that humanized lymph from healthy infants is preferred to any other for the vaccination of calves for a new supply. For example, in Munich, in 1900, out of 81 calves vaccinated, 53 were inoculated with humanized lymph from healthy children.

In Switzerland, the Institut Vaccinal Suisse is at Geneva, under the charge of Prof. Charles Haccius, who founded the establishment in 1882, and distributed free of cost all the lymph required in the various cantons. Four weeks are allowed to elapse after the collection of the lymph and its preparation as a glycerinated emulsion before it is sent out for use.

In Japan bovine lymph has been used since 1874. For a time the production was in the hands of private parties, and the last "Report of the Sanitary Bureau" calls attention to the bad quality of the material produced and the necessity of government control. The cabinet decided to place the production in charge of the government in 1895. The average number of persons vaccinated in the past 10 years was 3,938,038 per year, and as the population is about 42,000,000, the Japanese should now be an unusually well-vaccinated nation.

In the city of New York animal vaccination has been practiced under the charge of the city Board of Health for some years with marked success, and the plan of producing the supply for any state or large city under the charge of experts in this line of work is gaining ground, as a better means of encouraging vaccination, and consequently of diminishing the prevalence as well as the mortality from smallpox.

Vaccination with bovine lymph has now almost completely taken the place of arm-to-arm vaccination in most countries of the world. In Germany, since its introduction within the past 30 years, it had so rapidly increased that in 1887 the proportion of vaccinations with calf lymph amounted to fully 90% of the total, while in 1898 this number had risen to 99.9%, the whole number of vaccinations performed in that year with calf lymph being 2,680,182, while those with humanized lymph were only 448.[7]

The failure to vaccinate successfully in primary cases is due almost invariably to faults in the production, storage or distribution of lymph, and these are susceptible of remedy. In proof of this, the medical officer of the local Government Board of England says in his report in 1896 and 1897 (p. 8), when comparing the success of the board's officials with that of others: "While 3,032 medical certificates of insusceptibility were granted in different parts of England and Wales, . . . the board now has record of 101,487 consecutive primary vaccinations performed by their own officers, among which no single instance of insusceptibility has been found."

[5] Die Thätigkeit der im Deutsch. Reiche errichteten staatlichen Anstalten zur Gewinnung, v. Thierlymphe während des Jahres, 1900, Berlin, 1901.

[6] A firm in Pennsylvania recently advertised lymph from heifers vaccinated from the "only spontaneous case of cowpox in America," a statement which any dairyman of large experience and careful observation knows to be incorrect. The term "spontaneous" as applied to infectious diseases is also questionable. See Wood's Reference Handbook, vii, 539.

[7] Die Ergebnisse des Impfgeschäftes im Deutsch. Reiche f. das Jahr., 1898; Berlin, 1900.

Much of the so-called insusceptibility is due to the method of distribution and the consequent age of the lymph produced. The physician in general practice, or possibly the agent of a local board of health, obtains his supply of vaccine from a local apothecary, who in turn gets his supply of a wholesale druggist, and he in turn receives it from an agent of some private producer of vaccine. The package of lymph in question is either stamped with a date which represents, not the date of its production, but that of its sale to the final customer; or possibly it is stamped with a date "Not to be used later than Dec. 25." The physician uses it on Dec. 10 or 20, and wonders why it fails "to take." He considers it as a possible case of "insusceptibility," not recognizing the fact that the package in question may have been six months old, or may have been subjected to many variable changes of temperature upon the shelves or in the drawers of a local apothecary shop, or in the pockets of a traveling agent.

Far different from this was the method witnessed some years since by the writer at the vaccine station in London conducted by Dr. Cory, where scores of infants were daily vaccinated from the fresh lymph obtained from the calves kept at the same station. It cannot be wondered at that under this system Dr. Cory had at that time himself vaccinated an unbroken succession of over 30,000 infants without a failure.

Such success as this might be secured under a careful system of government control.

## MEDICAL NOTES.

Cancer in Germany.— Through researches recently made under the auspices of the German Imperial Health Department it appears that in Germany, as in other European countries, there has been an increase in the prevalence of cancer in recent years.

Smallpox in London, Eng.— Late returns show a diminution in the number of cases of smallpox in London. On Dec. 7, 8, 9, 10 and 11, the number of cases reported was, respectively, 19, 11, 18, 9 and 15.

Decrease of Smallpox in Philadelphia.— Health reports from Philadelphia show a decided decrease in the number of cases of smallpox.

### BOSTON AND NEW ENGLAND.

Acute Infectious Diseases in Boston.— For the week ending at noon, Jan. 1, 1902, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: Diphtheria 62, scarlatina 25, measles 107, typhoid fever 6, smallpox 34.

Vaccination.— The Boston Board of Health has passed the following order: *Whereas*, smallpox has been prevalent to some extent in the city of Boston, and still continues to exist, although the number of cases has much decreased owing largely to the voluntary vaccination of the great majority of the inhabitants, and, *Whereas*, it is necessary for the speedy extirpation of the disease, that all persons not protected by vaccination or revaccination should be vaccinated, and, *Whereas*, in the opinion of this board, the public health and safety require the vaccination or revaccination of all the inhabitants of Boston, *Therefore*, be it ordered that all the inhabitants of this city who have not been successfully vaccinated since Jan. 1, 1897, be vaccinated or revaccinated forthwith.

A Centenarian.— Maine's oldest woman, Mrs. Eliza Pinkham of Milbridge, has died at the age of 106 years, lacking 2 weeks. She was born Jan. 7, 1796, nearly 4 years before Washington's death and almost a quarter of a century before the Province of Maine was set apart from Massachusetts. She had but one surviving son, who, though blind, is known as a designer and boat builder of distinction.

A Possible Gift to the Boston Medical Library.— We desire to correct our statement made in last week's issue that the Boston Medical Library had received $50,000 from the Billings' estate. The circumstances do not warrant so positive a statement. The actual fact is, that the library may receive this amount from this source in the not distant future.

Report of Inspector of Animals, Cambridge, Mass.— According to the annual report of the inspector of animals of Cambridge, Mass., the cattle of the city are free from tuberculosis. Glanders among horses has been less frequent than in previous years.

Out-Patient Department, Boston City Hospital.— It is announced at the City Hospital that the Out-Patient Department of that institution, which has been closed several weeks on account of smallpox in the city, has been reopened.

Bequests to Hospitals.— By the will of Mrs. Susan Warren bequests are made as follows: $20,000 to the Massachusetts General Hospital; $2,000 to the Boston Home for Incurables.

### NEW YORK.

College Gymnasium Directors.— The annual meeting of the Society of College Gymnasium Directors was held at Columbia University on Dec. 27 and 28. Dr. R. Tait McKenzie, of McGill University, presiding. Reports from a number of committees were received and among

the papers read were the following: The Physical Supervision of College Men, by Dr. C. P. Linhart, of Ohio State University; the Ethics of Physical Training, by Dr. James A. Babbitt, of Haverford College; Some Experiments with a New Muscle Bed, by Dr. William G. Anderson, of Yale; The Strength Test as an Argument, by Dr. Watson L. Savage, of Columbia. Dr. Dudley A. Sargent of Harvard was reappointed chairman of the Committee on Strength Tests and Supervision of Instruments.

THE POST-GRADUATE MEDICAL SCHOOL.— The seventeenth annual report of the New York Post-Graduate Medical School and Hospital shows that more than 600 doctors in medicine attended its courses during the past year, who paid for their tuition the sum of $39,726. Of this sum only $3,017 was paid to certain professors for special services in operative courses and in the anatomical rooms and laboratory, and but 13 professors and instructors received any fees for their services.

DIRECTOR OF NEW YORK PATHOLOGICAL INSTITUTE.— Dr. Adolf Meyer, of Worcester, Mass., has been appointed by the New York State Lunacy Commission to the directorship of the reorganized Pathological Institute for the Insane. Dr. Meyer's training and attainments admirably fit him for the responsible position to which he has been elected. We have no doubt that the wisdom of the choice will be amply demonstrated in the work of the Institute.

THE RISKS OF CHRISTMAS TREES.— Miss Madeline Sammons, a nurse in the Laura Franklin Free Hospital for Children, under the management of the P. E. Sisters of St. Mary, was fatally burned on Dec. 24 while, as Santa Claus, she was distributing presents from a lighted Christmas tree to patients in the hospital.

GIFT TO NASSAU COUNTY HOSPITAL.— William C. Whitney has made a Christmas present of $6,000 to the Nassau County Hospital at Mineola, Long Island. Last year he gave a similar amount to the institution.

COMMISSIONER OF STREET CLEANING.— Mayor-elect Low has appointed Dr. John M. Woodbury commissioner of street cleaning.

## Miscellany.

### THE PHYSIOLOGICAL EFFECTS OF BALLOON ASCENTS.

AT a recent meeting of the Paris Academy of Medicine M. Gaule laid before the Academy of Sciences, as reported in the *Lancet*, the result of some researches which had been undertaken by himself with a view to ascertain whether the results of a balloon ascent were comparable with those obtained at a high altitude on land — for example, at the top of a mountain. The most notable of these is a marked augmentation in the number of red corpuscles. Viaux and sundry observers who followed him have ascertained that at a high altitude there is a great increase in the number of red corpuscles. Thus in the Cordilleras, at a height of 4,000 metres, Viaux found 8,000,000 red corpuscles per cubic millimetre.

M. Gaule wished to see whether in a balloon ascent, where ascension is very rapid and entails no muscular exertion, a similar phenomenon would occur. He made two investigations at heights of 4,200 and 4,700 metres, and found in himself 8,000,000 red corpuscles per cubic millimetre. Further, M. Gaule, at a height of over 4,000 metres, made some blood-films stained after Ehrlich's method with eosin and hematoxylin. He found numerous red corpuscles which showed a nucleus colored blue by hematoxylin. This nucleus was in many instances segmenting, and also groups of three or four corpuscles were seen as if they had undergone subdivisions. Similar preparations made before the ascent showed no such appearances. M. Gaule therefore considers that at high altitudes there is an actual formation of red corpuscles and that this takes place with great rapidity.

At the following meeting, M. Tissot and M. Haillon gave an account of researches on a somewhat analogous subject. On Nov. 21, they undertook some researches at various altitudes into the physics and chemistry of the respiration. Experiments were made at the following heights: 1,350 metres, 2,600 metres, and 4,450 metres in the case of M. Tissot, and at 1,700 metres and 3,500 metres in the case of M. Haillon. The chemical phenomena of the respiration did not vary appreciably at these different altitudes. The respiratory rhythm, however, was greatly modified. Although the total quantity of air entering the lungs was less, the number of respirations was not sensibly altered. It would thus appear that at high altitudes the air is purer and more completely used.

### LAPAROTOMY FOR PERFORATION IN TYPHOID FEVER.

DR. C. E. BRIGGS of Cleveland, Ohio, reports[1] 6 cases of laparotomy for perforation in typhoid fever, from the surgical clinic of Dr. Dudley P. Allen at the Lakeside Hospital. One case entered the hospital as general peritonitis. In 1 case, no perforation was found, and there was an apparently normal peritoneal cavity.

Of the other 4 cases, in 1 there was a good recovery after operation. In this case the operation

[1] American Journal Medical Sciences, January, 1902, p. 38.

was performed 3 hours after the first appearance of symptoms, and under local anesthesia. The patient was a lad 17 years of age, and his condition very favorable for operation. One of these 4 cases was operated on 8 hours after definite symptoms first appeared, and the other 3 cases 3, 4 and 5 hours respectively.

## Obituary.

### THOMAS WATERMAN, M.D.

Dr. Thomas Waterman died in Boston on Dec. 14, 1901. Had he lived till the 17th of the month he would have been 59 years of age.

He was born in Boston, and was the son of Thomas and Joanna (Towle) Waterman. He attended the public schools of Boston and fitted for college at the Boston Latin School. He entered Harvard in 1860. While in college he was a good student; was fond of athletics and public speaking, and developed a tact for natural history. He sometimes gave lectures on that and kindred subjects, to help pay his expenses. During his whole life he manifested interest in those studies, and had it not been that he felt that he must follow his profession closely for an income, he could have distinguished himself as an investigator and a student. He graduated from college in the class of 1864, and has always kept a cordial intimacy with his classmates.

The summer after his graduation he was in the employment of the United States Sanitary Commission in Virginia. In the fall of that year he commenced the study of medicine under the charge of Prof. Jeffries Wyman, in Cambridge, and attended lectures at the Harvard Medical School during that winter. From May 1, 1867, to May 1, 1868, he was house surgeon at the Massachusetts General Hospital. He received the degree of doctor of medicine in July, 1868. He commenced practice in Boston at once. In March, 1869, he was appointed one of the physicians to the Dearborn Branch of the Boston Dispensary. In August, 1869, he was appointed medical examiner of the North Western Life Insurance Company. In January, 1870, he was elected curator of mammal and comparative anatomy in the Boston Society of Natural History, and on May 18, 1870, he was elected a member of the committee on mammals. In 1871 he was appointed physician to the central office of the Boston Dispensary, and in 1874 he became surgeon to the Dispensary, and held the position for ten years, then declining a reappointment. In 1873 he was appointed instructor in comparature anatomy in Harvard University for the years 1873 and 1874. In 1879 he became assistant in anatomy in the Harvard Medical School and held the office three years. He served as censor and councillor of the Massachusetts Medical Society, and was a member of the Boston Society for Medical Improvement and the Boston Society of Medical Sciences.

He became a Free Mason in 1864, and held many offices of responsibility in that order, reaching the highest and last degree — the thirty-third.

In July, 1881, he was elected an examining physician to the public institutions of the city of Boston, which position he held through the various changes in the departments, till the time of his death, a period of more than 20 years. His entrance upon the duties of this office changed very much the character of his professional life. There were brought under his observation a majority of the insane of Suffolk County who were committed to insane hospitals, and he had many private consultations. In these duties he manifested much patience, deliberation, thoroughness and kindness, and during the last years of his life became well known as an expert in mental disease, whose services were sought for and whose opinion was much respected, not only in Massachusetts, but in neighboring States, where he took part in several important trials. His honesty, self-possession and carefully weighed testimony made him an excellent witness. At the time of his death he was a member of a commission to examine convicts, supposed to be insane, at the Massachusetts State Prison, the Concord Reformatory and the Prison for Women at Sherborne.

His death occurred after an illness of five days.

Genial and friendly in spirit, he had many friends and no enemies. He was buried from the Old South Church on Dec. 18. The funeral was under the auspices of the Masons. He leaves a widow and two daughters.

## RECORD OF MORTALITY

For the Week ending Saturday, Dec. 21, 1901.

| Cities. | Estimated population. | Reported deaths in each. | Deaths under five years. | Percentage of deaths from | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | Infectious diseases. | Acute lung diseases. | Typhoid fever. | Diarrheal diseases. | Diphtheria and croup. |
| New York . . | 3,437,202 | 1,238 | 385 | — | 15.50 | 1.13 | 2.66 | 3.22 |
| Chicago . . | 1,698,575 | — | — | — | — | — | — | — |
| Philadelphia. | 1,293,697 | 432 | 95 | 21.02 | 14.78 | 1.15 | .46 | 3.93 |
| St. Louis . . | 575,238 | — | — | — | — | — | — | — |
| Baltimore . . | 508,967 | 175 | 46 | 19.98 | 18.27 | 1.71 | 1.71 | 2.85 |
| Cleveland . . | 381,768 | — | — | — | — | — | — | — |
| Buffalo . . . | 352,387 | — | — | — | — | — | — | — |
| Cincinnati . | 325,902 | — | — | — | — | — | — | — |
| Pittsburg . . | 321,616 | — | — | — | — | — | — | — |
| Washington . | 278,718 | — | — | — | — | — | — | — |
| Milwaukee . | 285,315 | — | — | — | — | — | — | — |
| Providence . | 175,597 | 47 | 11 | 12.76 | 19.14 | 2.12 | — | — |
| Boston . . . | 560,892 | 234 | 59 | 23.94 | 17.51 | .43 | .43 | 1.28 |
| Worcester. . | 118,421 | 43 | 12 | 9.30 | 18.60 | 2.32 | — | — |
| Fall River. . | 104,863 | 33 | 12 | 18.18 | 6.06 | — | 6.06 | 6.06 |
| Lowell . . . | 94,969 | 54 | 24 | 16.65 | 24.05 | 3.70 | — | 7.40 |
| Cambridge . | 91,886 | 20 | 8 | 30.00 | 20.00 | — | — | 20.00 |
| Lynn. . . . | 68,513 | 20 | 5 | — | 25.00 | — | — | — |
| Lawrence . . | 62,559 | — | — | — | — | — | — | — |
| New Bedford. | 62,442 | — | — | — | — | — | — | — |
| Springfield . | 62,059 | 24 | 4 | 8.33 | 12.50 | 4.16 | — | — |
| Somerville . | 61,643 | 12 | 3 | 25.00 | 16.67 | 8.33 | — | — |
| Holyoke . . | 45,712 | 11 | 5 | 27.27 | 9.09 | — | — | — |
| Brockton . . | 40,063 | 11 | 2 | 27.27 | — | 9.09 | — | — |
| Haverhill . . | 37,175 | 13 | 2 | 23.10 | 23.10 | — | — | — |
| Salem . . . | 35,956 | 11 | 3 | — | 9.09 | — | — | — |
| Chelsea. . . | 34,072 | 15 | — | 13.33 | — | 6.66 | — | — |
| Malden . . . | 33,664 | 10 | 2 | 10.00 | — | — | — | — |
| Newton. . . | 33,587 | 15 | 2 | 20.00 | 6.67 | 6.67 | — | — |
| Fitchburg. . | 31,531 | — | — | — | — | — | — | — |
| Taunton . . | 31,036 | 11 | — | 27.27 | 18.18 | — | — | — |
| Gloucester . | 26,121 | 5 | 2 | — | — | — | — | — |
| Everett. . . | 24,336 | 6 | 1 | — | 16.67 | — | — | — |
| North Adams | 24,200 | 7 | 3 | — | — | — | — | — |
| Quincy . . . | 23,899 | 4 | 1 | 25.00 | 25.00 | — | — | — |
| Waltham . . | 23,481 | 7 | 1 | 42.90 | 14.30 | — | — | — |
| Pittsfield . . | 21,766 | 3 | 1 | 33.33 | — | 33.33 | — | — |
| Brookline. . | 19,935 | 7 | 1 | — | 14.30 | — | — | — |
| Chicopee . . | 19,167 | 5 | 4 | 20.00 | 20.00 | — | 20.00 | — |
| Medford . . | 18,244 | — | — | — | — | — | — | — |
| Newburyport | 14,487 | 7 | 2 | 14.30 | 14.30 | — | — | — |
| Melrose . . | 12,962 | 1 | — | — | — | — | — | — |

Deaths reported 2,514; under five years of age, 699; principal infectious diseases (smallpox, measles, scarlet fever, cerebrospinal meningitis, diphtheria and croup, diarrheal diseases, whooping cough, erysipelas, fevers and consumption) 420, acute lung diseases 395, consumption 159, scarlet fever 23, erysipelas 9, typhoid fever 33, whooping cough 10, cerebrospinal meningitis 8, smallpox 23, measles 27, diarrheal diseases 42.

From whooping cough, New York 6, Philadelphia 3, Boston 1. From cerebrospinal meningitis, New York 3, Baltimore 1, Cambridge, Holyoke, Weymouth and Southbridge 1 each. From scarlet fever, New York 14, Philadelphia 5, Baltimore 1, Boston, Holyoke and Waltham 1 each. From erysipelas, New York 3, Philadelphia 2, Baltimore 1, Worcester, Haverhill and Waltham 1 each. From measles, New York 22, Philadelphia 1, Boston 3, Lowell 1. From smallpox, New York 1, Philadelphia 10, Boston 12.

In the thirty-three greater towns of England and Wales, with an estimated population of 11,463,026, for the week ending Dec. 7, the death-rate was 19.5. Deaths reported 4,292; acute diseases of the respiratory organs (London) 470, whooping cough 64, diphtheria 70, measles 135, smallpox 16, scarlet fever 50.

The death-rate ranged from 13.6 in Croydon to 29.3 in Norwich; Birkenhead 18.3, Birmingham 21.7, Blackburn

28.6, Bolton 19.5, Bradford 15.3, Brighton 19.4, Bristol 16.0, Burnley 19.8, Cardiff 19.6, Derby 14.3, Huddersfield 15.4, Hull 17.7, Leeds 19.6, Leicester 15.5, Liverpool 22.5, London 19.5, Manchester 23.0, Newcastle-on-Tyne 17.7, Nottingham 20.2, Oldham 23.9, Plymouth 17.9, Portsmouth 14.0, Preston 18.0, Salford 21.7, Sheffield 19.5, Swansea 20.9, West Ham 19.0, Wolverhampton 19.3.

## METEOROLOGICAL RECORD

For the week ending Dec. 21, in Boston, according to observations furnished by Sergeant J. W. Smith of the United States Signal Corps:

| Date | Barometer | Thermometer. | | | Relative humidity. | | | Direction of wind. | | Velocity of wind. | | We'th'r * | | Rainfall in inches. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Daily mean. | Daily mean. | Maximum. | Minimum. | 8.00 A.M. | 8.00 P.M. | Daily mean. | 8.00 A.M. | 8.00 P.M. | 8.00 A.M. | 8.00 P.M. | 8.00 A.M. | 8.00 P.M. | |
| S...15 | 29.72 | 42 | 62 | 21 | 100 | 65 | 82 | S | N W | 24 | 18 | R. | C. | 1.26 |
| M..16 | 30.02 | 16 | 21 | 12 | 72 | 44 | 58 | N W | N W | 24 | 18 | C. | C. | |
| T..17 | 30.02 | 13 | 16 | 10 | 53 | 89 | 71 | N W | N | 9 | 19 | O. | O. | .0† |
| W.18 | 30.07 | 18 | 24 | 13 | 81 | 73 | 77 | N | N W | 15 | 7 | O. | C. | .09 |
| T..19 | 30.24 | 19 | 25 | 13 | 90 | 90 | 90 | N W | W | 6 | 9 | O. | O. | T. |
| F..20 | 30.30 | 19 | 24 | 14 | 82 | 66 | 74 | W | N | 7 | 10 | O. | O. | |
| S...21 | 30.28 | 18 | 24 | 13 | 82 | 65 | 74 | N | N | 12 | 13 | O. | C. | |
| ☞ | 30.09 | | 28 | 14 | | | 75 | | | | | | | 1.36 |

*O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow. †Indicates trace of rainfall. ☞ Mean for week.

## CHANGES IN THE MEDICAL CORPS OF THE NAVY FOR THE WEEK ENDING DEC. 21, 1901.

JOHN B. BUCHANAN, assistant surgeon. Appointed from Nov. 23, 1901.

R. C. PERSONS, medical director. Commissioned from Nov. 3, 1901.

E. H. GREEN, medical inspector. Commissioned from Nov. 3, 1901.

L. G. HENEBERGER, medical inspector. Commissioned from Oct. 29, 1901.

H. H. HAAS, passed assistant surgeon. Commissioned from Dec. 28, 1901.

C. A. CRAWFORD, passed assistant surgeon. Commissioned from June 1, 1901.

E. THOMPSON, passed assistant surgeon. Commissioned from April 19, 1901.

D. G. BEEBE, assistant surgeon. Resignation accepted, to take effect Nov. 30, 1901.

A. L. GIHON, medical director. Retired, died Nov. 16, at New York City.

E. DAVIS, assistant surgeon. Died Nov. 15, at East Las Vegas, New Mexico.

## OFFICIAL LIST OF THE CHANGES OF STATION AND DUTIES OF COMMISSIONED AND NON-COMMISSIONED OFFICERS OF THE U. S. MARINE HOSPITAL SERVICE FOR THE SEVEN DAYS ENDING DEC. 19, 1901.

CARTER, H. R., surgeon. Granted leave of absence for 10 days from Dec. 26, 1901. Dec. 17, 1901.

STIMPSON, W. G., passed assistant surgeon. Detailed as inspector of unserviceable property at the San Francisco quarantine station. Dec. 18, 1901.

GREENE, J. B., passed assistant surgeon. To proceed to Malone and Rouses Point, N. Y., for special temporary duty. Dec. 18, 1901.

GRUBBS, S. B., assistant surgeon. Granted leave of absence for 9 days from Dec. 26. Dec. 13, 1901.

ANDERSON, J. F., assistant surgeon. Relieved from duty in the office of the U. S. Consul at Liverpool, England, and directed to return to the United States. Dec. 13, 1901.

FRICKS, L. D., assistant surgeon. Granted leave of absence for 30 days from Dec. 16. Dec. 16, 1901.

HOEDY, W. C., assistant surgeon. To proceed to Jacksonville, Fla., for the purpose of making a physical examination of the local inspector of Hulls at that port. Dec. 19, 1901.

FOX, CARROLL, assistant surgeon. Assigned to duty in the office of the U. S. Consul at Liverpool, England, relieving Assistant Surgeon J. F. Anderson. Dec. 19, 1901.

GOLDBERGER, JOS., assistant surgeon. Granted leave of absence for 14 days from Dec. 21. Dec. 17, 1901.

BOGGESS, J. S., assistant surgeon. Ten days' extension of leave of absence granted Assistant Surgeon Boggess by Bureau telegram of Dec. 10, revoked. Dec. 19, 1901.

GOODMAN, F. S., hospital steward. Relieved from duty in the Hygienic Laboratory, and directed to proceed to Key West, Florida, and report to medical officer in command for duty and assignment to quarters. Dec. 16, 1901.

WATTERS, M. H., hospital steward. Relieved from duty at Boston, Mass., and directed to proceed to Washington, D. C., and report at the Bureau for orders. Dec. 16, 1901.

## SOCIETY NOTICES.

SUFFOLK DISTRICT MEDICAL SOCIETY. SURGICAL SECTION.—The next meeting of the section will be held on Wednesday evening, Jan. 8, 1902, at 8.15 P.M., at the Medical Library, 8 The Fenway.

Papers: "The Suture of Arteries," by Dr. J. C. Hubbard; "A Contribution to the Study of Catgut as a Suture and Ligature Material," by Dr. Hugh Cabot; "A Neglected Method for the Sterilization of Gum Elastic Catheters," by Dr. F. C. Cotton.

F. S. WATSON, M.D., Chairman.
F. B. LUND, M.D., Secretary,
529 Beacon Street.

BOSTON SOCIETY FOR MEDICAL IMPROVEMENT.—The annual meeting of the society will be held in Sprague Hall, Medical Library Building, 8 The Fenway, on Monday evening, Jan. 6, 1902.

Papers: Dr. Francis D. Donoghue, by invitation, "The Practical Development of Ambulance Service"; Arthur K. Stone will present a sketch of the Harvard Medical School from the point of view of the Development of the Department of Theory and Practice.

ARTHUR K. STONE, Secretary, 543 Boylston Street.

## APPOINTMENTS.

DR. EDWARD O. OTIS has been appointed Professor of Pulmonary Diseases and Climatology and DR. HENRY J. BARNES Professor of Hygiene at the Tufts College Medical School, Boston.

## RECENT DEATH.

DR. AMOS C. LEWIS, of Fordham Heights, Borough of the Bronx, New York, died on Dec. 28, at the age of 59. He was graduated from the Cincinnati College of Medicine and Surgery in 1871, and was a specialist in diseases of the skin. During the years that the New York Skin and Cancer Hospital maintained a country branch in the Bronx he was medical superintendent of that institution, the site of which is now occupied by the New York University, and at the time of his death he was attending dermatologist to the city's Fordham hospital.

## BOOKS AND PAMPHLETS RECEIVED.

The Harvard University Catalogue, 1901-02.

Thirty-second Annual Report of the State Board of Health of Massachusetts.

Perineal Prostatectomy. By Parker Syms, M.D., New York City. Illustrated. Reprint. 1901.

Dermoid Tumors. By William Davis Foster, M.D., Kansas City, Mo. Illustrated. Reprint. 1901.

A Manual of the Practice of Medicine. By Frederick Taylor, M.D., F.R.C.P. Sixth edition. Philadelphia: P. Blakiston's Son & Co. 1901.

Kirkes' Handbook of Physiology. By W. D. Halliburton, M.D., F.R.S. Seventeenth edition. Illustrated. Philadelphia: P. Blakiston's Son & Co. 1901.

Index-Catalogue of the Library of the Surgeon-General's Office, United States Army, Authors and Subjects. Second Series, Vol. VI. Washington: Government Printing Office. 1901.

Venereal Diseases. A Manual for Students and Practitioners. By James R. Hayden, M.D. Third and revised edition. Illustrated. Philadelphia and New York: Lea Brothers & Co. 1901.

Manual of Physical Diagnosis for the use of Students and Physicians. By James Tyson, M.D. Fourth edition revised and enlarged. Illustrated. Philadelphia: P. Blakiston's Son & Co. 1901.

## Original Articles.

### REMARKS ON THE DIAGNOSIS BETWEEN ACUTE APPENDICITIS AND SOME ATYPICAL CASES OF TYPHOID FEVER.

BY MAURICE H. RICHARDSON, M.D., BOSTON.

When, for chronic appendicitis or for suspected chronic appendicitis, the appendix is removed, the patient is to be congratulated, even if his appendix proves on careful laboratory investigation to be normal. When, during an attack of typhoid fever, a normal appendix is removed under the mistaken diagnosis of appendicitis, grave apprehensions as to the immediate outcome cannot but arise. Both patient and surgeon are indeed to be congratulated if recovery follows. Fortunately, operations in the initial stages of typhoid are as a rule well borne — and it is the initial stages of the unusual and atypical cases that most frequently suggest appendicitis. A brief and uncomplicated appendectomy, performed in the first weeks of a typhoid, would probably have little unfavorable influence upon the subsequent course of the disease. In the case of death in the course of the disease, however, there could never be, in the minds of either the surgeon or the patient's friends, the consoling thought that the early operation had nothing to do with the fatal termination.

When a late perforation in an unrecognized typhoid, by pain, tenderness, rigidity, and other symptoms of general peritonitis, demands operation for supposed appendicular peritonitis, the prognosis is indeed grave and the result usually fatal. The difference is that in the former case laparotomy is a useless — indeed, a worse than useless — interference with the natural course of the disease; in the latter it is an imperative procedure if the lesion is appendicitis, and the only chance of recovery if it is a typhoid perforation.

Operations in the later stages of typhoid, even those operations which in themselves are comparatively slight, have a high mortality, as Dr. Cheever remarked some years ago in a discussion upon operations for typhoid perforations. The surgeon must always be on his guard lest he fail to recognize typhoid fever, not only in its ordinary forms, but in its unusual and atypical, and subject his patient to an operation which, even if apparently made necessary by the clinical evidence, is entirely unjustified by the pathological findings.

A familiarity with typhoid, and indeed with other zymotic diseases, gained in general practice, is of great advantage in the education of the surgeon, for he learns much of constitutional disturbances under the influence of widely differing diseases dependent upon micro-organisms of great diversity; he observes the symptoms and course of infections in organs beyond the surgeon's reach, as well as in organs easily accessible; he sees, for example, the effects of the pneumococcus in the lung, as well as in the peritoneum; the gonococcus in gonorrhea, as well as in joint infections, and even in peritonitis; the typhoid bacillus in typhoid fever, as well as in infections of the gall bladder. Though the surgeon may have had considerable previous training in medical wards or in general practice, he does not, with acute infectious diseases like typhoid fever, gain that familiarity by which almost imperceptible signs suggest the true lesion; he lacks that sharpness of trained observation in medical cases so essential to the ready and skilful clinician who, between two possible lesions — between typhoid fever and appendicitis, for example — which to the ordinary observer would perhaps be indistinguishable, is able almost at a glance to differentiate.

Even if the surgeon is already familiar with typhoid fever in its atypical as well as in its commoner aspects, he should, whenever possible, seek the aid of an experienced physician. Unfortunately, he cannot always have the medical man at hand; he must often make the diagnosis himself, and without delay; he must bear the whole responsibility of decision for or against operation — a decision which may withhold an urgent operation in appendicitis, or impose a worse than useless one in typhoid fever.

Until very recently I had heard of but two abdominal emergencies which were supposed to be appendicitis, and were operated upon as appendicitis, but which proved to be typhoid fever. One patient recovered, and one died. During the past month I have had good reason to suspect typhoid in 4 cases, if not in 5. The first case presented such strong evidence of typhoid that I postponed operation only to find, at the end of 48 hours, an acute intestinal obstruction caused by a band. In the 3 other cases I was called by experienced physicians to decide the question of operation — the symptoms in all suggesting acute appendicitis, or some other obscure abdominal lesion. Two of these developed typical typhoid fever; the third proved to be a simple and transitory fever dependent upon overtraining and injuries in the football field.

There are three considerations of importance in connection with this subject, as illustrated by the histories which follow: (1) There is a strong possibility of mistaking a case of typhoid fever, in which abdominal pain is a conspicuous feature of onset, for an acute appendicitis, even if the observers combine a large experience in both the medical and the surgical aspects of the disease; (2) the consequences of error are so serious and so humiliating that the surgeon may go to one extreme, and, hesitating about his diagnosis, may lose precious time; (3) or, by going to the other extreme, he may fall into the error of meddlesome and hasty intervention. Between his fears of making an unnecessary and possibly fatal exploration, and his fears of withholding the patient's only chance of cure, the surgeon's anxieties are excessive, for upon him, after all, must rest the chief responsibilities of decision.

CASE I. A boy of 4, living in a community where typhoid fever was prevalent, for a week had had, when walking, pain in the abdomen; there was also moderate fever. There had been more or less constipation, and on the day of my first examination there was vomiting. There had also been some nosebleed. The pulse had been from 120 to 130; the temperature from 99° to 100°. The boy had never had an attack like this before. The family history was good. The abdomen was generally distended and tympanitic, but not tender, and there was no flinching or evidence of pain during the examination. The bowels had been moving previously, and constipation was not a marked sign. There was painful and visible peristalsis, which suggested an intestinal obstruction. There had been no vomiting. The constitutional symptoms were not marked. The area of splenic dulness was increased. There were suspicious rose spots. Rectal examination was negative.

The diagnosis upon the strength of which we were called was acute appendicitis with general peritonitis. It seemed to me clear that the lesion was not appendicitis, for there was no local tenderness either in the right iliac fossa or by rectum; that it was not a general peritonitis, for there was neither localized nor general tenderness, no rigidity and no vomiting.

This child presented abdominal symptoms with fever. Pain was a prominent feature, and the only one which suggested a possible surgical lesion. The facies, the pulse and temperature, the full abdomen, the splenic dulness — all suggested typhoid.

In a neighboring town some years before I had explored the abdomen in a case of suspected intestinal obstruction. The patient, a young girl, was supposed to have appendicitis. It seemed to me a case of intestinal obstruction, and I therefore operated. I found nothing sufficient to explain the symptoms, though the gastro-intestinal tract was thoroughly explored. The child, unfortunately, died.

This case was vividly recalled by the present illness. It seemed wise to delay operation long enough for a careful blood examination. Dr. Hugh Williams made this, and reported a doubtful Widal reaction. Two days later I felt obliged to operate for continuing evidence of intestinal obstruction. The constitutional signs, too, had been increasing in severity, though the temperature was only 102°, and the pulse was from 130 to 140. Operation showed a thread-like band running from mesentery to mesentery across a coil of small intestine near the ileocecal valve, and producing complete obstruction. There was no necrosis of intestine, no localized peritonitis; in fact, nothing connected with the obstruction to account for the constitutional signs. Division of the band relieved immediately the obstruction, the freed coil rising into its normal position and relations. The band had, however, made a deep sulcus in the coil. Above and below this sulcus the intestine was distended. The collapse usually in the coils beyond a complete obstruction was not present in this case. The appearances suggested a general distention pulling against a transverse band and producing the appearances of a deep obstructive sulcus. There was, nevertheless, a complete mechanical closure of the intestinal lumen. On several presenting coils of the small intestine Peyer's patches could be seen, in marked contrast with the surrounding translucent bowel. In abdominal operations upon children I have had opportunities of observing the small intestines under many conditions of acute and chronic disease; but never before have Peyer's patches been conspicuous, or even visible, through the intestinal walls. I had never opened the abdomen in children, however, when typhoid fever was suspected, though in the fatal case mentioned the possibility of typhoid was considered. The areas seen in the present case were situated in the intestinal wall, opposite the mesenteric insertion. They were from 1 1-2 to 2 inches long and less than an inch broad. The peritoneum over them was not injected, roughened or adherent. The whole patch was opaque. No enlargement of the mesenteric lymph glands was observed.

Several interesting questions arise in connection with these opaque areas. Were they Peyer's patches? If so, were they abnormal? Who is to say whether they were abnormal or not, in view of the fact that so few observations can have been made during life upon the intestines of children in the early days of typhoid fever? Regarding the Peyer's patch in healthy intestines, does the increased translucency of great distention make it visible, while contraction renders it invisible? In adults no such appearances exist, even when the small intestine is extremely dilated.

What are the appearances of the small intestine in adults during life in the early days of typhoid fever? Observations must be extremely infrequent at this stage, when the surgical emergencies of typhoid scarcely ever arise. During the first three or four days is the patch more conspicuous than in health, and is the peritoneum over it changed in color and in translucency?

It seems a reasonable supposition that this child had typhoid fever, as we suspected, and that the obstruction, evidently congenital, was precipitated by the changes in the small intestine, especially the distention, owing to the typhoid. The distention, by increasing the pressure against the band, began an obstruction, which at first was incomplete, but which with increasing distention became absolute.

If typhoid fever was not the exciting cause of the obstruction, two valuable days were lost in making a positive diagnosis. The fear of making a meddlesome — not to say a fatal — exploration may by delay have turned the scale; and yet the patient lost but little by the delay, for the lesion was a simple obstruction without bowel necrosis or peritonitis. Moreover, the symptoms of obstruction were such as are sometimes safely withstood — by adults, at least — for days or even for weeks.

CASE II. The patient, a boy of 18, under the care of Dr. Walker of Concord, N. H., was severely injured one Thursday on the football field at St. Paul's School. He was knocked unconscious in the struggle, and was dazed for some time after regaining consciousness. The next day he developed a temperature of 103.5°, and complained of obscure pain in the lower abdomen. Before the game he had for some days complained of a general malaise. The game itself was exciting and severe, and was to this boy a source of great mental distress and possible mortification. The high temperature of Friday was accompanied by headache, and by tenderness in the lower abdomen and in the left thigh. For some days previously the right heel had been sore from a blister. This had entirely healed, however, and there were no enlarged or tender glands in the right groin.

From Friday until Sunday night the temperature was from 104° to 105°. The symptoms were abdominal, cerebral and constitutional. There was tenderness over the right pelvic brim elicited only by deep pressure, marked tenderness on slight pressure over the bladder, and exquisite tenderness over the left pubic spine. The left adductor group of muscles also was extremely tender. No tumor could be detected. Rectal examination was negative. The spleen was enlarged. There were no rose spots. There had been no vomiting. The abdomen was neither distended nor rigid. The pain was dull and obscure — not sharp nor well defined.

Dr. F. C. Shattuck saw him on Sunday morning, and, though he felt quite positive that no surgical lesion existed, thought it better to suggest a surgeon. I saw the patient on Sunday night. There was marked tenderness over the bladder and over the left adductor group of muscles. The abdominal tenderness had been more marked on the left side than on the right. The temperature was 105°. The blood count showed 5,000 whites.

The possibilities considered were: Injury to bladder or to intestine with beginning peritonitis; an inflamed appendix, centrally situated, that had started a peritonitis in the left side; an atypical typhoid fever; simple fatigue and excitement combined with severe accidental violence.

We were prepared to operate on the spot, but no clear indications for intervention were present. The suspicion of typhoid fever was strong, though there had been no cases at the school. There were several reasons why intervention seemed inadvisable. The temperature was too high for an ordinary appendicitis, especially in the absence of rigidity or tumor. A spreading peritonitis from a ruptured viscus was hardly to be thought of, when, three days after the supposed rupture, no rigidity, distention or vomiting was present. The blood count of 5,000 was against appendicitis, though in acute appendicitis with an overwhelming general peritonitis I have seen such a count.

I decided against operation. The next morning the temperature had fallen from 105° to 104°, and the boy was reported as more comfortable.

On my way to Boston Monday morning, influenced by the grave responsibilities of leaving the boy unoperated upon, I wrote the following notes:

This case illustrates one of the most difficult aspects of abdominal disease, for it presents no definite and unmistakable evidence as to the lesion, and therefore no guiding signs as to the treatment. In the diagnosis we must consider an acute febrile disturbance preceded by a few days of malaise, and ushered in by a severe and exciting game of football, which in this particular instance was a source of great mental distress and possible mortification. Immediately following a severe blow on the head, which dazed the boy, came a train of symptoms, chief of which were headache and high temperature, with tenderness in the lower abdomen and pain in the left thigh. Preceding these symptoms there was a sore heel (right) caused by a blister. I found the blister entirely healed. There were no enlarged inguinal glands on either side, but the right groin had been tender. There were no inflamed lymphatics, no injected glands. There was no redness and no swelling. The sore heel could be eliminated as a possible cause of the symptoms. The next possibility in this case was that of a traumatic peritonitis. Such an infection can occur only from a ruptured viscus,—intestine, stomach or bladder. No such injury could have happened,—at least no rupture of intestine,—for there was no general peritonitis and no rigidity, no vomiting, no distention, no peristaltic paralysis. The possibility of a ruptured bladder and a slight extravasation of urine must be borne in mind, for a moderate extravasation might account for the pain and the tenderness over the bladder and in the groin. We must leave a urinary extravasation as a slight possibility. If there is any extravasated urine it is in the perivesical spaces, and will show itself later. The deep tenderness over the appendix suggests appendicitis with acute toxemia and no general peritonitis,—an appendix rapidly absorbing, from a virulent micro-organism, without general peritonitis,—perhaps necrotic throughout, perhaps necrotic only in internal areas. Appendicitis of a rare type is not beyond the possibilities.

Here is a boy who, after a few days' malaise, is injured in a violent football game, whose temperature the first time that it is taken is 103°, whose headache and malaise continue, and whose temperature keeps at 104° to 105°, with one degree of variation morning and evening; whose symptoms are abdominal, cerebral and constitutional, but who has also a sharp local tenderness. We must, therefore, before assuming the typhoid fever, which the symptoms strongly suggest, explain the local tenderness, which is extreme and distinctly confined to the lower central abdomen. The tenderness is elicited by deep pressure over the right pelvic brim; by slight pressure over bladder. It is exquisite on pressure over the left pubic spine; it extends down the adductor region, and is marked in the tendons of the adductors near the pubes. There is no tumor; the tenderness is decreasing; there is no rectal tenderness or tumor. The spleen is enlarged. There are no rose spots.

These local signs are, I believe, the result of violent muscular strain received when he was suffering from a beginning typhoid. The diagnosis is, therefore, typhoid fever.

On the other hand, why has he not simple febricula from cold, overexertion, muscular strain, and blow on the head? The diagnosis lies between that and typhoid. The next few days will decide the diagnosis.

The fear of typhoid fever proved groundless. Lesions of bladder, appendix, and peritoneum did not exist. The temperature remained at a high point for several days; then gradually fell to normal. Under salicylates the pain and tenderness rapidly disappeared. Dr. Walker rightly concluded that the symptoms were caused by a severe blow on the head in a young boy who, after a few days' malaise, had become completely exhausted by a trying game of football.

Though the contra-indications to operation in this case seemed clear and were rightly interpreted, it would not have been surprising had a serious local peritonitis, and possibly a grave general one, been found under full headway during the twenty-four hours after my examination. It was with some misgivings that I left him, and I could not but feel deeply impressed by the responsibility of decision. Fortunately, in cases of such grave doubt one seldom errs in withholding intervention when there are no well-defined localizing signs of appendicitis; for this disease, even if it shows itself in regions remote from the usual seat of the appendix, presents almost unmistakable signs of a localized peritonitis,—signs which in this patient were not in the least conclusive.

Case III. The third case, a patient of Dr. W. D. Swan of Cambridge, was that of a gentleman of 34, whom I saw on Tuesday, Nov. 27, 1900.

On Sunday night (Nov. 25) he was uncomfortable, with oppression in the lower chest. There was slight pain, with fulness in the stomach. The temperature was 101°; the pulse 80. The pain and discomfort continued through the day, and, though difficult of localization, seemed chiefly around and above the umbilicus. On Monday he was sent to bed. The temperature was then 102°, the pulse 88. On Monday night he took 1 gr. of calomel in divided doses. Tuesday morning the bowels moved. The temperature was 102°, the pulse 90. At 10 A.M. the white count was 15,000, the temperature 103°, the pulse 100. At 1 P.M. he was in great pain, which, however, was sufficiently relieved by one-fourth gr. of morphine, so that he went to sleep. At 5 P.M. the temperature was 103° and the pulse 100. At 9 P.M. the temperature was 104°, the pulse 108. He indicated the seat of pain by putting his hand over the region of the appendix. The bowels had not moved since morning, but he had passed gas. The bowels were never constipated.

The patient himself said that on the preceding Friday night, after eating heartily of a rich dinner, he had felt sick, and had been obliged to lie down. There was no abdominal pain or discomfort. On Saturday he felt miserable, and had but little appetite for lunch. Before dinner he had some discomfort, but it was a faint and "gone" feeling, rather than a pain. In fact, there was no sharp pain. He ate a good dinner, however, and worked late that night. On Sunday morning he felt miserable, but worked hard until 11, when he went out. On Sunday he began to have pain, but it was in no particular spot. The pain and discomfort continued through Monday, as described.

On Tuesday morning, between 9 and 10 o'clock, he was in agony. The pain was in the epigastrium, and later in the right iliac fossa. There was no nausea or vomiting.

On Tuesday evening (Nov. 27) at 9 o'clock, when I first saw the patient, I found neither tenderness, rigidity nor tumor. There was perhaps a slight resistance high up in the right side of the abdomen. The temperature was 104°, the pulse 100. The tongue was clean. There was much rumbling of gas in the bowels.

The history of this case, with the malaise and high temperature, suggested a typhoid of rapid onset. Although there had been pain and discomfort, it was unlikely that these symptoms were dependent upon an appendicitis. The fact, however, that absorption from the interior of an appendix, without perforation or localized peritonitis, may cause severe constitutional reaction, with but trivial local pain, made the diagnosis of appendicitis in this case a possibility. This possibility, remote though it was, became a strong one when, on Tuesday morning, violent pain started in the epigastrium and concentrated itself in the right iliac fossa. This symptom is so characteristic of appendicitis that Dr. Swan, though he felt convinced that it could not be appendicitis, felt unwilling to take the responsibility of not calling a surgeon. The history strongly indicated the onset of an acute appendicitis after a few days of indigestion and malaise. The physical examination of the abdomen was the chief reliance in excluding appendicitis. Pain which is described as an "agony" that is excruciating and unbearable, cannot fail, if owing to an extravasation of septic fluids, to give unmistakable physical signs. There must be rigidity and tenderness, even if there is no tumor, or even if the seat of the extravasation is deep and beyond palpation. An extravasation from the posterior wall of the stomach into the lesser omental cavity cannot fail to cause rigidity and tenderness in the epigastrium; a perforation of the appendix in the depths of the pelvis cannot fail to cause rigidity and tenderness in the lower abdomen; if there is no rigidity, there can be no peritonitis, if no tenderness, no peritonitis. The physical evidence of local peritonitis being conspicuous by its absence, the strongest possible doubt of appendicitis was raised, for the violent pain could not possibly be caused by any lesion confined to the internal layers of the appendix itself. The pain, on the other hand, if not confirmed by physical signs in the abdomen, was certainly far from being suggestive of typhoid fever. Indeed, had it not been for the pain, there would have been little doubt in the minds of anyone that a typhoid was in progress. The malaise and the high temperature strongly suggested it. Moreover, the high temperature itself threw a strong doubt upon the diagnosis of appendicitis long before the pain became acute. Appendicitis, even in its worst forms, seldom shows so high a temperature, and the occurrence of such a temperature should always lead to especial care in excluding the common zymotic lesions. The absence of rigidity, tenderness, tumor and resistance at once threw out an appendicitis, for, as I have just stated, an appendicitis that could cause agonizing pain, could not possibly fail also to cause reflex muscular rigidity and tenderness on deep pressure.

A hasty interpretation of the symptoms in this case would have led many a zealous advocate of universal operation for appendicitis into a meddlesome surgical interference. Fortunately, the doubts as to diagnosis were strong, and the contraindications to operation imperative. The patient was seen the next day by Dr. F. C. Shattuck, who made the diagnosis of typhoid fever. The disease resulted favorably, though the patient was very sick.

CASE IV. The last case was that of a boy of 11, who, when I first saw him, was about to be placed upon the operating table. Everything had been prepared for exploration and for removal of the appendix. One year before, on Thanksgiving day, he had had an attack of what was called colitis. There was pain, tenderness, and some muscular rigidity in the right lower quadrant of the abdomen, where there was also an ill-defined tumor. The temperature ranged from 101° to 105°. He was sick 10 days, when he developed an osteomyelitis, for which he underwent several operations. From that time to Thanksgiving of the present year there had been no bowel trouble. The history in detail is as follows: He was said on Thanksgiving day to have eaten to excess. His mother, however, said that he ate so little that she was worried about him. He complained of his head that day, as well as on the following day, Friday. Friday afternoon he rode on horseback. In the evening he had no appetite and went to bed. The temperature was 104°. *There was no pain* except from an enema which was followed by the passage of a mass of currants and raisins. After the passage *there was no pain*. Saturday morning the temperature was 102°; later Saturday the temperature was 104°. Sunday the temperature was 103.2°. There was no pain except from movements of the bowels. There was *no marked pain* at any time. On Sunday he began to have loose stools. All this time there had been general abdominal tenderness — more in the region of the appendix than elsewhere. On Monday night the highest temperature was 104.8°. There were eight loose watery movements on Monday. There had been no nausea or vomiting at any time. On Sunday a tumor had been discovered in the right iliac fossa. It was said that the old tumor had persisted. He had never been a robust boy.

On examination at midnight of Tuesday I found a well-nourished, stout boy, sound asleep. He was easily aroused, and seemed bright and without anxiety or distress. The abdomen was full and soft. Deep pressure was everywhere possible, but it caused expressions of pain. The first deep pressure over the region of the appendix brought out the cry, "Oh! that hurts awfully!" That seemed to settle the diagnosis of appendicitis, till similar pressure in the left iliac fossa brought out even more forcible expressions of tenderness; so in the epigastrium and about the navel. Rectal examination was painful at the anus, but not at the finger's tip. There was no rigidity, no tumor, no cake, no resistance, no dulness. Over the

epigastrium there were spots which suggested rose spots. The splenic dulness was increased. The temperature had dropped from 105° to 104°; the tongue was slightly furred. The general condition was excellent. The surgeon who had been called, and who was present at this examination, was sure that he had detected a tumor about the appendix. I could find nothing that satisfied me of the existence of any tumor, or even of any increased deep resistance I advised against operation on the ground that there was no appendicitis, or, if there was, that no operation was indicated.

On Wednesday evening I examined the boy again, and I was more than ever convinced that the constitutional symptoms were not dependent upon appendicitis, and that there were no physical signs dependent upon that disease. Operation was again decided against.

The next I heard of the boy that he was running a typical typhoid. There was a sustained high temperature. The bowels moved once in 24 hours. There were two or three hemorrhages from the bowels. About a month later the boy developed pneumonia. His temperature ranged about 104°. He eventually made a good recovery.

This case is a conspicuous example of the difficulties sometimes met with in the diagnosis of acute abdominal diseases, especially when the onset and the early development of the disease — whether typhoid fever or appendicitis — are decidedly unusual. The possibilities of error are great, and mistakes cannot always be avoided even by the most experienced and the most careful diagnosticians. This is especially true when the signs characteristic of one are mild, while those suggesting the other are pronounced; — when, for example, in a case of true typhoid, malaise, high temperature, rose spots, and enlarged spleen are inconspicuous, while local pain and tenderness are pronounced; so in a case of true appendicitis, when pain and tenderness are mild, while constitutional symptoms are severe. If the surgeon, however, in the absence of well-defined local signs, withholds his hand, he will avoid the worse than useless exploration of typhoid fever.

In making the diagnosis of acute abdominal lesions it is essential to give each symptom and group of symptoms as accurately as possible its real weight. Nothing is easier, however, than to overestimate or to underestimate the value of symptoms. A correct appreciation of them can be gained only by large experience. The significance of pain alone, for example, is very hard to estimate, unless the observer has had abundant opportunity of observing how well the patient bears pain. The family physician can often gauge pain much better than the consultant. Suffering which may to the surgeon seem acute and hard to bear, may to the attending physicians appear — and probably correctly — of trivial significance. The pain experienced in the early days of a typhoid may be described by the patient as an agony, and unbearable. The consultant, relying on the accuracy of the patient's description, will sometimes be deceived. Pain alone, unattended by other and confirming signs, will often mislead.

In acute abdominal lesions, considered from the surgical point of view, 4 symptoms have especial weight. In various combinations these symptoms indicate about every acute surgical lesion, except perhaps simple hemorrhage. These symptoms are pain, tenderness, muscular rigidity and fever. Take the lesions attended by peritonitis, localized or general. They all are attended by pain, tenderness, muscular rigidity, and fever. The absence of any one of these symptoms throws doubt upon the diagnosis of peritonitis, and therefore upon every lesion in which an infection of the peritoneum must needs be present. For example, no lesion of the appendix sufficiently extensive to affect the peritoneum can possibly exist without either pain, tenderness, rigidity or fever. Let any one of these symptoms be absent, and doubt as to the existence of an acute appendicitis arises. Suppose there is pain, tenderness and fever, without rigidity of the overlying muscles. A peritonitis localized about the appendix is at once excluded, though it is more than likely that there is some intra-appendicular lesion. So with pain and rigidity in the right iliac fossa, the absence of tenderness would at once raise serious doubts as to the existence of appendicitis. Again, tenderness, rigidity and fever, without pain, would immediately throw doubt upon the localized peritonitis of an acute appendicitis. Pain, rigidity and tenderness, without fever, would be the least doubtful combination, for absence of fever is sometimes conspicuous in really serious local infections of the peritoneum.

When typhoid fever is suspected, one or more unusual combinations of the four symptoms just mentioned will prevail. The accurate observer cannot but be on his guard. For example, let there be pain and tenderness in the right iliac fossa, with fever but without rigidity. The surgeon *must account* for the absence of rigidity before he opens the abdomen. He must inquire into a previous malaise. He must inquire most minutely into the history of the pain itself, its manner of onset, its relations with temperature and pulse, its early and its late situation. He must inquire about the prevalence of typhoid in the community. Every abdominal and thoracic organ must be carefully examined. He must, furthermore, make exhaustive examinations of the blood. All this care is made imperative in the absence of a single symptom — rigidity of abdominal muscles.

Another example: Assume that in a questionable case of acute abdominal disease there has been no pain, but that there is tenderness, rigidity and fever. The absence of painful onset and of present pain at once suggests something out of the common. A temperature of 104°-105°, with gradually appearing tenderness and rigidity, is so unusual in appendicitis that that disease can be almost certainly ruled out owing to the absence of pain alone. Tenderness and rigidity must be accounted for by other lesions. Indeed, it is so hard to imagine a disease in which, without pain at one time or another, there is fever, local tenderness and rigidity, that one can almost say that the combination of these three symptoms alone — fever, tenderness

and rigidity — is an impossible one in acute abdominal disease. When, as in Case IV, there is no pain; when tenderness is so slight as to be hard of detection, and when the existence of rigidity is absolutely denied, by one consultant at least, the presence of a local peritonitis of any origin must be denied.

To take one more example: Suppose there is pain and rigidity in the right iliac fossa, and fever, without tenderness. This combination is, too, almost unsupposable, for a lesion which causes rigidity causes also tenderness. If the lesion is an infection of the peritoneum, it causes also fever. The absence of tenderness in a localized rigid area which is the seat of pain, suggests disease of the abdominal wall, a distended intestine, a new growth, but never a localized peritonitis. It also suggests hyperesthesia, exaggeration, or even malingering. If rigidity be present in an anomalous typhoid, it is to be explained only by the theory that rigidity helps to immobilize and protect the subjacent seat of typhoidal ulceration. Rigidity and tenderness without pain, in the course of a typhoid, is more supposable than rigidity and pain without tenderness, for, in the former case, the near approach of the typhoidal ulceration to the peritoneal surface may be sufficient to cause both tenderness and reflex rigidity.

After all, the main point to be emphasized in the discrimination between typhoid and appendicitis is that, when any of the local signs mentioned are absent, especially tenderness and rigidity, fever strongly suggests typhoid, and the case must be studied with special care lest typhoid be overlooked; so, too, when the constitutional signs outweigh the local.

Finally, a few facts should be emphasized. Without pain at some time in the course of the disease, there can be no acute surgical lesion of the abdomen; temperature with pain, but without rigidity or tenderness, means typhoid fever or simple continued fever; very high temperature should excite suspicion if pain and tenderness are present but not marked, for acute appendicitis has usually a moderate temperature; a soft abdomen with a high temperature is a suspicious combination, even if there is pain and tenderness; when typhoid is suspected, the pain and tenderness must be distinctly localized in the appendix, and confirmed by rigidity, resistance or tumor, before operation for appendicitis is justifiable.

When there is doubt as to typhoid, the operation should be postponed if constitutional signs are severe, and local ones hard of detection. When the abdominal symptoms — pain, tenderness, rigidity, with or without distention — call loudly for operation, the abdomen must be opened, in spite of the possibilities of typhoid; but cases suggesting typhoid as strongly as appendicitis, should, until the diagnosis is perfectly clear, be carefully observed.

During a railroad journey to a distant city I spent several hours in revising the manuscript of the foregoing pages. The patient that we were about to see was a girl, aged 21, who was said to have appendicitis. The attending physician wished an early operation if any operation at all, and the consultant also, although the latter was not impressed by any urgency in this particular case.

CASE V. The patient, a college girl, aged 21, was seen by Dr. Jones and myself on Thursday, Jan. 17, 1901. On the preceding Friday she had a headache. Up to that day, however, she had been in her usual health, except that for about a week she had had a cold and slight bronchitis. On Saturday, Jan. 12, the headache still continued. On both Friday and Saturday her diet had been chiefly milk. About noon on Saturday she began to have pain in the abdomen. The attending physician saw her Sunday noon. At that time the temperature and the pulse were normal. There was a localized area of sensitiveness at McBurney's point. There had been no nausea or vomiting. On Sunday afternoon Dr. ———, from a neighboring city, saw the patient in consultation. She then had vomited after taking medicine. The abdominal pain, which had been continuous since the first onset on Saturday noon, had gradually increased. On Monday the temperature was one degree above the normal. The pain was on the right side of the abdomen and extended upward under the ribs and downward into the groin. There was no jaundice, tympanites or rigidity. For the next 3 days the temperature was a little higher in the afternoon than in the forenoon. The 8 o'clock temperature on Wednesday morning was 101.4°; evening temperature, 103.4°. Thursday morning it was 100.8°. At this time there was but little pain, but what pain there was was in the right iliac fossa. The patient herself said that she was not sure about the beginning of the pain. Her father and mother were living, and well. A paternal aunt, a paternal uncle, and her paternal grandfather died of consumption.

The attending physician said that she did not remember much about the inception of the pain; that no morphia had been required except on the way to the hospital, when the patient was given one-eighth of a grain. There had been loss of appetite and slight constipation.

On physical examination I found a well-nourished, healthy-looking girl, with red cheeks and good pulse. The abdomen was soft; the tongue furred; deep pressure in the right iliac fossa caused pain; so also in the left iliac fossa and epigastrium. There was no tumor to be detected in the right iliac fossa, nor was anything to be felt by rectum. Pressure could not be made as deeply in the right as in the left iliac fossa. Repeated examination showed the same results. The area of the splenic dulness seemed to me increased, though the edge of the spleen was not perceptible under the rib margin. There were many papules over the left scapula. The examination of the blood was very unsatisfactory, for we had no apparatus for counting. Such as it was, the examination showed no increase in the leucocytes.

I felt very suspicious of typhoid, and my first impulse was to come home without operating. The patient was far away, however, and it seemed only right to stay long enough in the town to make repeated examinations and to talk the case over. I examined for local signs again and again, and always with the same result. There was a deep tenderness in the exact region of the appendix. It was impossible to get the fingers in as deeply on that side as on the left side. I decided, finally, to examine her under ether. Under ether there was the same sensation of deep resistance on the right. A case very similar to this in my own family, in which I was for a week fearful of typhoid, and in which there was the same absence of distinct and definitely localized physical signs, proved, at a very successful operation by Dr. Cabot, to be an appendix buried deeply behind the cecum, surrounded by a considerable collection of pus. The case under consideration reminded me so much of my son's that I

finally decided to examine under ether. Dr. Jones favored the diagnosis of appendicitis.

I then proceeded, though with great misgivings, to open the abdomen.

A small cut was made through the right rectus, large enough to admit the finger. I felt at once an irregular, hard mass, near the ileocecal valve, in the usual position of the appendix. The tumor was not outside the cecum, but rather behind it, and suggested strongly an inflamed appendix buried in a retrocecal pouch and resting on the psoas muscle at the outer border of the lumbar bodies. The presence of this mass at once demonstrated, as I thought, the existence of an acute appendicitis. Pulling out the caput ceci, however, brought immediately into view an appendix which seemed perfectly normal. I then enlarged the incision so that I could bring out the whole ileocecal coil. The tumor was found to be a conglomeration of small, reddish, friable lymph glands in the ileocecal mesentery. The largest of these glands was about the size of a filbert; the smallest, the size of a pea. The appendix was tied at its base with silk, and cut off close to the ligature with the actual cautery. Its base was depressed into the cecum and buried there with fine silk sutures. I removed the appendix because I was not sure that it was not the source of the lymph gland infection. After completing the appendectomy I incised very carefully the peritoneum over the tumors, and removed with the blunt dissector 4 or 5 enlarged and juicy lymph glands. All that could be felt were removed.

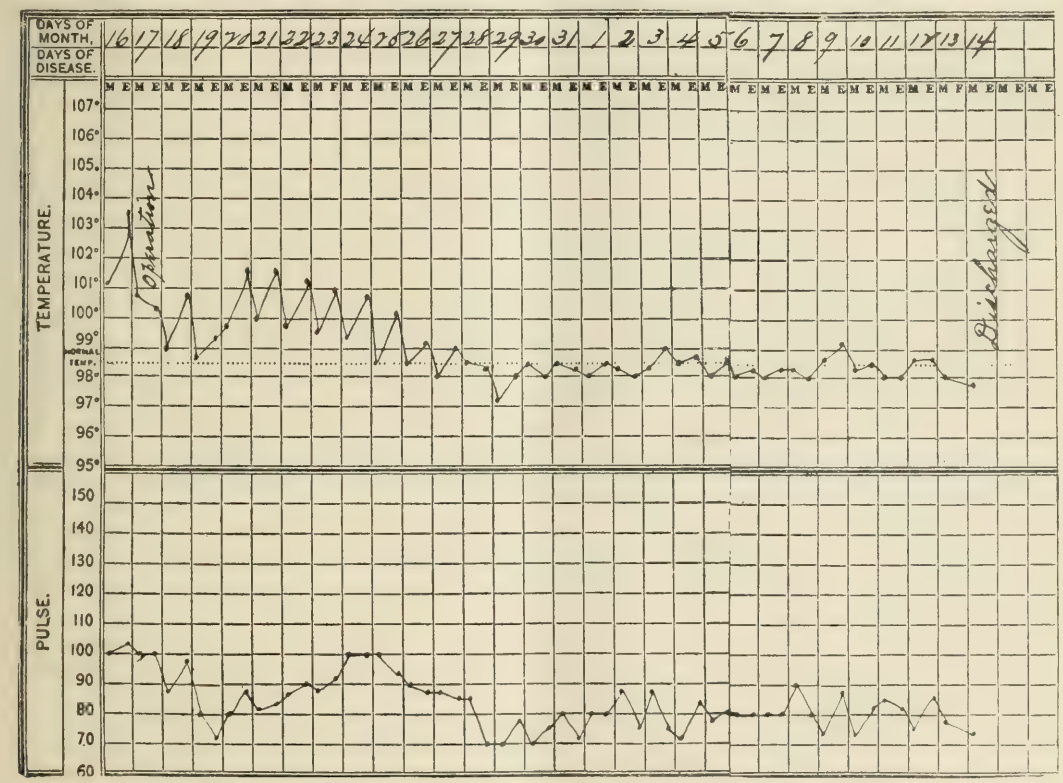
The lower end of the ileum was then examined for evidence of typhoid fever. The small intestines were collapsed and seemed to be perfectly healthy. In the mesenteric portion of the ileum, close to its insertion into the cecum, there was a peculiar mass — a flattened, resistant mass in the intestinal wall. This, I repeat, was on the mesenteric side of the small intestine, and not on the side opposite the mesenteric insertion. The tissues over this indurated mass were in no way changed, but the fold between the ileum and the cecum was somewhat edematous, and the opposing peritoneum at that fold slightly adherent. One or two bleeding points were tied with silk. Connected with the omentum there was a small, reddish polypus, which was removed. The stomach, even when the patient was in the Trendelenburg position, came down well below the navel. There was marked dilatation and tortuosity of the colon. The abdominal incision was closed without drainage. The pulse when the patient was put to bed was 120.

The glands were submitted to Dr. Whitney, and in a few hours I received the following message:

"Dr. Whitney congratulates Dr. Richardson on making the earliest diagnosis of typhoid on record. The glands sent Dr. Whitney show on examination histological characteristics of typhoid."

On the following morning the temperature went to normal. Then for 2 or 3 days it rose gradually; then fell to normal and remained there.

After hardening, the glands were again thoroughly examined, and Dr. Whitney made the following report:




Boston, Feb. 14, 1901.

Dear Dr. Richardson: The lymph-nodes removed Jan. 18, 1901, were several in number, the largest the size of a bean, soft, and of a red medullary aspect.

Examination of the fresh tissue under the microscope showed large, mononuclear cells, among which were many containing more or less degenerated red corpuscles and fragments of leucocytes.

Microscopic examination of the hardened section showed the follicles, in places, distinct. The pulp was increased everywhere, and there was a marked proliferation of the endothelial lining of the lymph sinuses, with irregularly scattered accumulations of endothelial cells, the size of miliary tubules. In places these cells were more or less fused together, having a homogeneous hyaline appearance; in others there was a fibrinous network among them, while some areas were remarkable for fragmented nuclei scattered through them, giving to the spots the appearance of "focal necroses," such as are seen in the liver.

The condition is that of a proliferation of endothelial cells with phagocytic properties and centres of hyaline degeneration and focal necrosis.

These appearances are perfectly characteristic of the changes in lymph-nodes produced by typhoid fever.

The cultures on blood serum were sterile.

Yours very truly,

(Signed) W. F. WHITNEY.

The patient made a rapid convalescence after the operation.

This case seems to me one of very great interest. Coming as it did after I had thought much on the subject, after I had written a letter to the *Medical Journal* upon it, and had prepared the MS. of the preceding cases, this case presented, it seems to me, the greatest difficulties. Had the patient been close at hand, where I could have watched her, I should undoubtedly have postponed operation. As she was far away, a student in a college at some distance from Boston, and as her father and mother were missionaries in India, we felt deeply the responsibilities of the case. The operation was not performed hastily; it was only after the most careful deliberation that it was decided upon. Even then, however, the diagnosis of appendicitis was made when appendicitis did not exist.

The only evidence of typhoid fever in this case is Dr. Whitney's report on the histological elements of the glands. I supposed at the time that this was an acute tuberculosis of the ileum near its insertion into the cecum, with secondary infection of the mesenteric lymph glands, the focus of invasion being the already described resistant mass at the insertion of the mesentery of the ileum. The case suggested strongly that of a boy upon whom I had previously operated for supposed appendicitis.[1] There was, however, no evidence of tuberculosis in the present case. Dr. Whitney's opinion was very strong that the glands were themselves typhoidal. No germ of typhoid fever was detected; the cultures were sterile, and no bacilli were found in the tumor.

Assuming that this was a case of typhoid fever,— and the only positive evidence in this case points to that diagnosis,— what effect did the operation have upon the disease? The temperature immediately fell to normal; it then rose for two days, gradually fell to normal, and the convalescence was perfectly satisfactory. No evidence of ulceration was discovered anywhere in the intestine, except, as I have said, near the ileocecal valve. The lymph glands were probably dependent upon the lesion felt in the small intestine. If this was a typhoidal ulcer, it was on the mesenteric side, and the glands were presumably engorged with the products of germ growth. Is it fair to assume that the removal of these glands exercised any effect, and, if so, was that effect a beneficial one or not? If this case was one of typhoid fever, it was a typhoid of the mildest form. The operation did not seem in any way to imperil the patient's life; on the contrary, the subsequent course was a remarkably favorable one, even assuming it to be typhoid.

Of the foregoing cases, Case III and Case IV were unquestionably typhoid. Case I was possibly typhoid, but Case II certainly was not. That Case V was typhoid, I do not myself feel absolutely convinced.

The cases were all puzzling, and the responsibilities of decision were great, especially in opposing, at possibly the one favorable moment, an operation for what might well have been a beginning peritonitis. Owing to recent deplorable experiences in delayed operations for appendicitis, I had been impressed by the grave prognosis in certain types of cases, especially in those which presented a good general appearance and a moderate constitutional disturbance, and yet which were extensive general infections — fatal in spite of early operation.

The responsibilities of advising against operation in these cases seem to me greater than those of favoring it, first, because, if there is a mistake in diagnosis, it is much more likely that one is overlooking a case of appendicitis than one of typhoid; secondly, because the dangers of an unnecessary operation in the early stages of typhoid are less than those of a delayed one in general peritonitis.

The environment of the patient may add greatly to the responsibilities. If the question arises in a hospital close at hand, where consultations can be had at any moment, and where the most exhaustive scientific investigations can be made, the policy of delay is unquestionably the best. When, however, the patient lives at a distance, and 24 hours perhaps must elapse from the beginning of bad symptoms to the time of operation, when there is no expert in blood examinations and no bacteriologist to rely upon, one must take chances which under other circumstances he would not take.

In reviewing my experience of the past 10 years one fact is conspicuous — that the disasters in acute abdominal surgery come, not from too early intervention, but from too late. I have opened the abdomen a few times — perhaps half a dozen — when I have found nothing to justify the exploration. Two of these patients died. The experience of these two cases has led me to be, in times of doubt, too conservative. I am positive that these two deaths have been indirectly the cause of other deaths. The shock to a community caused by an unnecessary and fatal exploration is so great that it is almost impossible in that community to convince patients of the necessity of operating in a perfectly plain case. Under such circumstances there is no question that an unnecessary exploration is followed by many deaths from the want of a necessary one.

The chief deduction to be drawn from the foregoing remarks is that one should proceed in doubtful cases with extreme caution; that every means of investigation should be exhausted before sub-

[1] See "A Case of Acute Tuberculosis of the Mesenteric Glands of the Ileocecal Coil; Removal; Permanent Recovery," published in the Philadelphia Medical Journal of Dec. 1, 1900.

jecting the patient to an operation. In those cases in particular in which the suspicion of typhoid fever is present, the abdomen should not be opened unless the indications are strong. When, in spite of repeated examinations and the greatest care, the surgeon is convinced that typhoid fever is not present, exploration, even if it proves him wrong and shows that typhoid does really exist, loses the sting of carelessness and haste. The blunders that mortify are those which would be unnecessary were the examination painstaking.

## UNNOTICED FRACTURES IN CHILDREN.

BY F. J. COTTON, M.D., AND R. H. VOSE, M.D., BOSTON.

The title of this paper refers not to the gross errors in diagnosis, which are not common, but to those fractures which may readily be overlooked because of the relative absence of symptoms. Now that fractures are being studied more systematically with the aid of the x-ray, we are in position to confirm what has long been held but insufficiently demonstrated,— that fractures not infrequently exist with but slight symptoms, that mere cracks may readily be overlooked, that incomplete fractures or complete fractures without displacement are commoner than was formerly supposed, and that such fractures may not infrequently exist without being suspected by the patient. That even the physician may overlook them is shown by the not inconsiderable number of cases that come into the public clinics which have already been seen, but apparently not diagnosticated, by the family physician.

This overlooking of fractures is especially likely to happen in children, not only because they are less able to be exact in their complaints, but even more because many fractures in children show disproportionately little pain or reaction. Why this is so is somewhat hard to explain. To be sure, the violence producing these fractures is usually not great, and in green-stick and other incomplete fractures there is damage only to a portion of the cortical bone, practically without injury to the periosteum and soft parts; but even if the fracture be complete, the child is often surprisingly tolerant.

It is only when one happens to be seeing a considerable number of injuries in young children that one comes to appreciate that a relative lack of symptoms does not bar out fracture. If this is not borne in mind and a child is brought to the surgeon with the question of injury to a limb which shows no deformity and can still be used fairly freely without any considerable pain, it may readily happen, and does happen, that it be let go without the detailed examination such cases deserve, only to have the existence of the fracture discovered days or weeks later. It is true that such fractures are of minor importance and that the end result is good anyhow, but neglect of fixation usually involves excessive callus formation and an increasing lameness from attempted use that may be avoided.

It is the belief of the writers that the danger of overlooking these cases lies not in the actual difficulty of diagnosis, but in the fact that the relative frequency of such fractures is not borne in mind, and in our unconscious adherence to the general notion of disability and pain as accompaniments of fracture. There is also a tendency to overlook the relative frequency of complete or incomplete fractures, in children, in which there is little or no displacement and none of the bowing of the classical "green-stick" which most men instinctively expect as the form of fracture especial to children. One of the writers has in a previous note called attention to these forms of "subperiosteal" fracture.[1] They are particularly common in children, and most of the cases to be cited would properly come in this class.

In the subjoined list of cases all questions of doubt were submitted to the skiagraph, but in all cases only after the clinical diagnosis of fracture had been made. In only one case seen by the writers did the skiagraph fail to confirm the clinical diagnosis of fracture.[2]

In examining these patients, even if there be no complaint of pain, there is nearly always some difference in the use of the limb on the two sides or some limitation of range of motion. In some cases this is due to reflex muscular spasm of the same sort as is seen in joint disease. In part, the limitation is voluntary as a result of pain, but in many cases there is only a curious disinclination to use the limb apart from any sign of pain whatever. With a fractured clavicle, for instance, it happens that if the child be asked to raise both arms he lifts one hardly more than half as high as the other, nor can he upon urging raise it any further, though the arm can be moved to the full limit passively without pain or spasm. The same painless or seemingly painless disability is seen in the limp of certain fractures of the tibia, and in the loss of grasp in case of green-stick fracture in the forearm. The writers have seen no explanation of this. It is hard to say whether it is to be classed as a reflex or as a voluntary inhibition — certainly if voluntary it is not necessarily a result of pain consciously felt.

Passive motion in these cases may or may not be painful. If painful, the pain is likely to be only on extreme flexion or extension, etc. In some cases no complaint of pain can be brought out by movement.

On palpation, however, there will always be found a localized tenderness, which may be slight though definite. Sometimes there is deformity appreciable by careful palpation (typical green-stick fractures with deformity are, of course, not likely to be overlooked); now and then we find a wholly unexpected crepitus.

Frequently, where days or even weeks have elapsed, we find a well-defined small (usually ring-

[1] Boston Medical and Surgical Journal, Nov. 29, 1900.

[2] This case, supposed to be a fracture, proved to be a localized periostitis of traumatic origin.

like) callus and local tenderness. Where this condition exists the skiagraph is hardly needful to an absolute diagnosis; where there is only local tenderness with a history of trauma, a diagnosis of probability is justified and may be made with a good deal of confidence.

In the abridged histories of cases[3] which follow, the records of treatment are omitted; in all cases it was a matter of simple fixation for two to four weeks, and in all cases practically perfect results were attained.

CASE I. A. H., age 4 years. Fell one week ago. Yesterday mother first noticed in lifting the child by the left hand that she complained of pain. Examination showed an obvious callus at the middle of the left clavicle — not very tender — no displacement, but definite crepitus, and on forced manipulation the fragments could be made to move on one another. Evidently this was a subperiosteal complete fracture. *All* motions of the arm and shoulder carried out by the child without wincing.

CASE II. L., age 1½ years. Fell seven days ago. Mother noticed no immediate disability, but since then the child always cries when dragged by left arm. Child lifts arm to face and uses it fairly freely. There is a transverse midclavicular fracture with freely movable fragments.

CASES III. A. C., age 6 years. Child with hip disease. Supposed to have fallen while in the hospital ward. On reaching home could not use crutches. Twelve days later came to the Out-Patient Department. Diagnosis of "nerve affection" said to have been made by the family doctor. Proved to have an obvious fracture of the clavicle without any considerable displacement; marked callus, no mobility. Disability relatively slight.

CASE IV. W. D., age 1¾ years. Fell yesterday out of his brother's arms. Nothing noticed except that child cries as if in pain when lifted. No swelling. All motions can be carried out passively and apparently without pain. Active motion somewhat limited. Over the centre of the right clavicle is a point which is particularly tender and where there seems to be a little thickening. No mobility. Nine days later the callus was increased and definite.

CASE V. P. L., age 4 years. Had a fall, the mother thinks, about four weeks ago; for the last 2 weeks has complained of pain in the shoulder, and the shoulder has been "stiff." No treatment. Examination shows fracture of clavicle near the middle — solid callus the size of a finger.

CASE VI. J. K., age 3 years. One week ago fell out of bed; since then has cried when handled and cried out at times at night. No treatment. Fracture of clavicle at the outer and middle third,— a little displacement of ends,— now firm, but there was evidently a complete fracture.

CASE VII. J. S., age 4 years. Fall of unknown date a few days ago. Has had no treatment. Incomplete fracture a little outside the middle of the right clavicle with marked callus. Little tenderness. Disability only partial.

CASE VIII. G. M., age 3½ years. Fell 4 days ago. No treatment. Complains now of some pain. Incomplete fracture of right clavicle, middle third. Moderate callus.

CASE IX. G. H., age 4 years. Fell 3 days ago. Since then no complaint except when lifted. No treatment. Callus at outer and middle thirds of right clavicle. No crepitus; localized tenderness is moderate. Carries out all motions voluntarily, but the range of motions less on the right. No resistance to passive motion. Neither active nor passive motion painful.

[3] Seen by the writers at the City and Children's hospitals, and in the x-ray room of the Boston Dispensary, and reported by courtesy of the surgical staffs of these institutions.

CASE X. A.M., age 5 years. Fall 5 days ago. No treatment except rubbing. Has had a little pain, referred to somewhere about the shoulder. Right clavicle shows definite callus in middle. No mobility of fragments.

CASE XI. M. M., age 1 2-12 years. Three weeks ago fell on the floor. Has not used the right arm freely since. Examination shows a green-stick fracture of both radius and ulna on the right; ether; reduced.

CASE XII. W. B., age 1 4-12 years. Fell down stairs 4 days ago. No treatment. Apparently no pain or tenderness, but mother noticed that arm was not used as freely as usual. Some swelling of forearm, slight tenderness to palpation, definite green-stick fracture (with outward bowing) of ulna. Reduced without ether.

CASE XIII. R. K., age 1 1-2 years. Fell on the floor 6 days ago. Now seems to have some pain. Green-stick of both bones of right arm, with bowing outward, at upper and middle third.

CASE XIV. L. M., age 4 years. Fell yesterday and refuses to walk. Will not put left foot down even to stand. No bruise or ecchymosis or swelling. Outlines normal, but point of tenderness marked a few inches above malleolus on tibia. Forcible flexion causes pain, but child will not point out the exact locality. X-ray demonstrates crack or fissure, oblique, and extending through tibia at the mentioned locality.

CASE XV. G. D., age 5 years. Fell yesterday. Child complains of pain on standing or walking. No bruise or swelling. Outline of tibia normal and fibula springs normally under pressure. There is a tender place on tibia 3 inches above malleolus. X-ray shows an oblique crack through tibia at this locality.

CASE XVI. J. C., age 11 years. Three weeks ago a carriage wheel fell on his right foot. Has had no treatment. Has been lame, but has been walking about. Foot swollen, and a slightly tender mass at middle of shaft of right second metatarsal, apparently callus. Walks with moderate limp. Diagnosis of fracture made. The skiagraph showed a complete fracture, with some displacement and much callus. This boy was allowed to walk with felt pads and strapping, and did well from the time of beginning treatment.

CASE XVII. H. C., age 5 1-2 years. Run over by a wagon 1 week ago. Mother complains that child walks lame. Child insists she has no pain, nor will she admit any tender point, but her evident increase of interest when the foot is pressed over shaft of fourth metatarsal and a slight suspicion of callus at this point suggest fracture. Fracture was demonstrated by x-ray.

CASE XVIII. W. R., age 5 years. Fell 5 feet 2 weeks ago, and walks with stiff and slightly everted foot. No bruise; no pain. Tenderness only when foot is squeezed together. Pain is then referred to middle of foot just below base of metatarsal joint. Nothing felt. X-ray demonstrated a complete fracture, with beginning union, at the base of the third metatarsal.

In addition to these may be noted a fracture of a metacarpal seen at three weeks, an incomplete fracture of the tibia found after one week, and a green-stick of the fibula first presented for examination after three weeks, of which no detailed notes are at hand. All were in young children.

These cases are submitted in the notion that we all tend to underestimate the tolerance of children to fractures. In adults there are not infrequent exceptions to the rule that fractures entail immediate and notable pain and disability; in children it would seem that the exceptions are so numerous as to require modification of the rule.

In small children, where there is a history of a fall or other trauma, and especially where the arm or shoulder girdle may be involved, the only safe way seems to be to assume a fracture as probable, till every inch of bone has been gone over carefully. Only in this way can we be safe from occasional oversights and from ignominious explanations later on.

## NOTES ON X-LIGHT.

BY WILLIAM ROLLINS, BOSTON.

### VACUUM TUBE BURNS.

The first report I saw of burning from a vacuum tube was by Hawkes, in *The Electrical Review* for Aug. 12, 1896. He stated that the burns were produced by x-rays. Tesla, in the same journal for Dec. 2, 1896, said they were not due to x-rays but to ozone, and possibly to nitrous acid. In the number for Jan. 5, 1898, I reported that these burns could be produced by electricity when no x-light was present. In the *Boston Medical and Surgical Journal* for Feb. 14, 1901, it was stated that when guinea pigs were protected from all electrical effects they could be killed by x-light without any "x-ray burns" appearing. In the issue for Feb. 28 it was reported that abortion had been produced by x-light. These results were not accepted. That a motion of the ether, of whose existence none of our senses made us conscious, could kill animals was too new and remarkable a fact to be believed. I was told by physicians that guinea pigs were delicate, therefore the experiments proved nothing; that the precautions taken to exclude the participation of electricity in the results were inadequate, that x-light could not kill a cryptogam, therefore it was not probable that it could affect one of the higher animals. Lastly, the pathologist to whom some of the material was given appears to have made no use of his opportunities.

Emerson once said that what was excellent was permanent. These were excellent experiments, therefore I report another of them:

Four strong guinea pigs were used. Two were exposed to x-light under the conditions mentioned in my notes of Feb. 14 and 28, and March 28, 1901, for protecting them from the effects of ultraviolet light, electric induction and convection. The others were subjected to the same treatment and handling, except that no x-light was allowed to shine upon them. By making the exposures shorter than those mentioned in my earlier notes, it was possible to burn the animals before they were killed.

I have, therefore, certainly proved that "x-ray burns" can be produced by x-light when no electricity is present, and by electricity when no x-light is present.

The generator used in the experiments was an influence machine with 16 glass plates, averaging 2 metres in diameter. The speed was 120 revolutions a minute. The tube had an oxygen vacuum. The diameter of the aluminum cathode was 51 mm. Its mass was 14 gms. Its radius of curvature was 35.5 mm. The target was of the rotary type. It was made of a disk of platinum-iridium 28 mm. in diameter and .28 mm. thick. Its distance from the cathode, unless otherwise stated, was 71 mm. The target was kept red hot with a white hot area where the cathode stream struck. The resistance of the tube with the target at 71 mm. was 14 mm. Fresh oxygen was introduced from a regulator, containing manganese dioxide, when the resistance of the tube rose above 14 mm.

The double Faraday chamber employed to contain the pigs was made of tinned iron, .40 of a mm. thick. The side of each chamber toward the vacuum tube was made of aluminum .26 mm. thick. Air was admitted through iron wire gauze with spaces .70 mm. square between the wires. The gauze was on the side away from the tube.

When a pig was being exposed his nearest side was 14 cm. from the radiant area of the target. It will be observed that before the x-light could shine on a pig it passed through two thicknesses of aluminum, the outer one connected with the earth by a metal wire. It should also be remembered that Tesla and others have stated that a single thickness of aluminum was a complete protection against "x-ray burns." These experiments showed that not only could burns be produced through such a screen, but that animals could be killed by the light after it had passed through two aluminum screens. What an aluminum screen is able to do is to protect from ultraviolet light, from the ether strain surrounding an excited tube, from electric convection, and from whatever rays it can absorb. The following table gives details of the experiment. The weights are gross. To find the net weights deduct the weight of the inner chamber, 357 gms. It will be observed that Pig 2 showed practically no external signs of burning though abortion and death resulted. This illustrates that animals vary in susceptibility to the external action of x-light and warns us to consider these differences when patients are treated by x-light. What may be a harmless exposure to one patient may cause a burn in another. Pigs 3 and 4 were placed in the same Faraday chamber as Pigs 1 and 2, remaining there for the same length of time. They were therefore exposed as long to ozone and nitrous fumes and handled as much, yet they remained in perfect health. All the pigs lived in the same pen, received the same care and food, the latter in unlimited amount. The whole series of experiments showed we had in x-light, after excluding the participation of all other agents in the results, a force of great power, whose action was not understood, whose effects on the tissues were unknown. I failed in my attempt to get a pathologist interested, and as my knowledge of the normal microscopical appearances of the tissues of guinea pigs is insufficient to make my observations worth publishing, I hope some clear-eyed observer will realize that here is a new field where some useful original work can be done.

TABLE SHOWING EFFECTS OF X-LIGHT ON GUINEA PIGS.

| No. 1. Male. Exposed to X-Light in Faraday Chamber. | | | | | No. 2. Female. Exposed to X-Light in Faraday Chamber. | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Day. | Weight in Grammes. | Length of Exposure. M. | Spark-Length of Tube. Mm. | | Day. | Weight in Grammes. | Length of Exposure. M. | Spark-Length of Tube. Mm. | |
| 1 | 1,078 | 15 | 14 | | 1 | 746 | 15 | 14 | |
| 2 | 1,033 | 15 | 14 | | 2 | 740 | 15 | 14 | |
| 3 | 1,045 | 15 | 14 | | 3 | 755 | 15 | 14 | |
| 4 | 1,047 | 15 | 14 | Hair losing gloss. | 4 | 755 | 15 | 14 | |
| 5 | 1,012 | 15 | 14 | | 5 | 751 | 15 | 14 | |
| 6 | ? | 0 | ... | | 6 | ? | 0 | .... | |
| 7 | ? | 0 | ... | | 7 | ? | 0 | .... | |
| 8 | 1,001 | 15 | 14 | Loss of hair on flank next the tube. Area 2 sq. cent. | 8 | 758 | 15 | 14 | Hair losing gloss. |
| | | | | | 9 | ? | 0 | .... | |
| | | | | | 10 | ? | 0 | .... | |
| | | | | | 11 | 747 | 15 | 14 | |
| 9 | ? | 0 | ... | | 12 | 772 | 15 | 14 | |
| 10 | ? | 0 | .... | | 13 | 750 | 15 | 14 | |
| 11 | 991 | 15 | 14 | Exudation on bare area. | 14 | 757 | 15 | 14 | |
| | | | | | 15 | 752 | 15 | 14 | |
| 12 | 990 | 15 | 14 | | 16 | 769 | 15 | 14 | |
| 13 | 971 | 15 | 14 | Area enlarging. | 17 | 762 | 20 | 14 | |
| 14 | 976 | 15 | 14 | | 18 | 762 | 20 | 14 | |
| 15 | 982 | 15 | 14 | | 19 | 763 | 20 | 14 | |
| 16 | 999 | 15 | 14 | Scabs forming. | 20 | ? | 0 | . | |
| 17 | 984 | 20 | 14 | Improving. | 21 | 781 | 30 | 14 | |
| 18 | 975 | 20 | 14 | | 22 | 765 | 30 | 14 | |
| 19 | 981 | 20 | 14 | | 23 | 779 | 30 | 14 | |
| 20 | ? | 0 | ... | | 24 | 778 | 30 | 14 | |
| 21 | 994 | 30 | 14 | | 25 | 781 | 60 | 14 | |
| 22 | 971 | 30 | 14 | | 26 | 771 | 60 | 14 | |
| 23 | 986 | 30 | 14 | | 27 | ? | 0 | .. | |
| 24 | 964 | 30 | 14 | | 28 | 777 | 60 | 14 | |
| 25 | 976 | 60 | 14 | | 29 | 746 | 60 | 14 | |
| 26 | 959 | 60 | 14 | Bare area suppurating. | 30 | 726 | 90 | 14 | Eye closing on side next tube. |
| 27 | ? | 0 | 1 | | 31 | 697 | 90 | 2 | Slight paralysis of hind leg next tube. |
| 28 | 980 | 60 | 14 | | | | | | |
| 29 | 954 | 60 | 14 | | | | | | |
| 30 | 945 | 90 | 14 | | 32 | 667 | 90 | 2 | Blood from vaginal opening. |
| 31 | 936 | 90 | 2 | Area 7.5 sq. cent. | | | | | |
| 32 | 908 | 90 | 2 | Partial paralysis of hind leg on burnt side. | 33 | 643 | 90 | 2 | Aborted. |
| | | | | | 34 | ? | 0 | ... | Died. No external or X-Ray burns. |
| 33 | 886 | 90 | 2 | | | | | | |
| 34 | ? | 0 | | Died. | | | | | |

| No. 3. Male. Not Exposed. Control. | | | | No. 4. Female. Not Exposed. Control. | | | |
|---|---|---|---|---|---|---|---|
| Day. | Weight in Grammes. | Length of Time in Faraday Chamber. Min. | | Day. | Weight in Grammes | Length of Time in Faraday Chamber. Min. | |
| 1 | 931 | 15 | | 1 | 756 | 15 | |
| 2 | 931 | 15 | | 2 | 756 | 15 | |
| 3 | 929 | 15 | | 3 | 772 | 15 | |
| 4 | 926 | 15 | | 4 | 771 | 15 | |
| 5 | 930 | 15 | | 5 | 781 | 15 | |
| 6 | ? | 0 | | 6 | ? | 0 | |
| 7 | ? | 0 | | 7 | ? | 0 | |
| 8 | 930 | 15 | | 8 | 792 | 15 | |
| 9 | ? | 0 | | 9 | ? | 0 | |
| 10 | ? | 0 | | 10 | ? | 0 | |
| 11 | 917 | 15 | | 11 | 804 | 15 | |
| 12 | 945 | 15 | | 12 | 830 | 15 | |
| 13 | 939 | 15 | | 13 | 823 | 15 | |
| 14 | 918 | 15 | | 14 | 827 | 15 | |
| 15 | 918 | 15 | | 15 | 827 | 15 | |
| 16 | 924 | 15 | | 16 | 852 | 15 | |
| 17 | 941 | 20 | | 17 | 841 | 20 | |
| 18 | 900 | 20 | | 18 | 850 | 20 | |
| 19 | 915 | 20 | | 19 | 860 | 20 | |
| 20 | ? | 0 | | 20 | ? | 0 | |
| 21 | 930 | 20 | | 21 | 893 | 20 | |
| 22 | 925 | 20 | | 22 | 886 | 20 | |
| 23 | 931 | 20 | | 23 | 906 | 20 | |
| 24 | 932 | 20 | | 24 | 908 | 20 | |
| 25 | 928 | 60 | | 25 | 923 | 60 | |
| 26 | 925 | 60 | | 26 | 917 | 60 | |
| 27 | ? | 0 | | 27 | ? | 0 | |
| 28 | 930 | 60 | | 28 | 941 | 60 | |
| 29 | 930 | 60 | | 29 | 925 | 60 | |
| 30 | 932 | 90 | | 30 | 941 | 90 | |
| 31 | 949 | 90 | | 31 | 956 | 90 | |
| 32 | 950 | 90 | | 32 | 943 | 90 | |
| 33 | 957 | 90 | Good health, fine coat, bright eyes. | 33 | 950 | 90 | Good health, etc. |

When the spark length was 2 mm. the target was 35 mm. from cathode. The exposures are given in minutes. Length of spark gap of tube in millimetres.

## CASE OF ATTEMPTED CRIMINAL ABORTION IN EXTRA-UTERINE FETATION.[1]

BY W. D. SWAN, M.D., CAMBRIDGE, MASS.

E. B. P., married woman, 25 years old. Had one child living. Was seized with violent pains in the abdomen on the morning of Feb. 9, 1898. She told her husband that on Feb. 7, two days previous, she had visited a certain female physician in Boston who had examined her and introduced instruments into the womb for the purpose of "bringing her round." Her last menstruation was on Dec. 20, or about 7 weeks previous.

She was attended in the afternoon of the ninth by two physicians, who examined and curetted the uterus. She died in the afternoon of the following day.

*Autopsy.*— Sixteen hours after death. Body of a well-formed and well-nourished young woman. Anterior surface and mucous membranes generally pale. Back livid purple, except where subjected to pressure. There was a small discharging sinus on each side of the neck, and enlarged lymphatic glands about them. There was a purple spot on the outside of the left thigh from hot applications. Breasts and nipples small; areolæ pale; abdomen distended; thin, reddish, odorless discharge from the vagina. Vaginal mucous membrane shows small excoriations about the cervix and os uteri; a small old recto-vaginal fistula. On opening the abdomen, the peritoneal cavity was found to contain three pints of dark fluid and clotted blood. Peritoneum everywhere smooth and glistening. The left lung contains a few hard cicatricial nodules in the apex. Other organs contain little blood, otherwise normal.

The uterus and its appendages removed for examination. Dr. W. F. Whitney reports on these as follows: "The specimen consists of the uterus and appendages. The uterus is slightly enlarged, the upper portion of its cavity for a distance of 1½ cm. being covered with a thin soft membrane. The tube on the right side, about 3 cm. from the uterus, has a ruptured swelling from which protrudes a mass of clotted blood and fine filaments. The tumor measures 3 cm. in diameter. The right ovary contains a corpus luteum. On the other side the tube is adherent to the ovary, and covered with a more or less dense membrane."

There was no appearance of sepsis.

The police stood ready, on the completion of my autopsy, to cause the arrest of the female physician mentioned above, if my report warranted it. The direct evidence of a criminal operation having been destroyed by the attending physicians who introduced instruments into the uterus, I reported that death was due to spontaneous rupture of a tubal pregnancy and the resulting hemorrhage, and that there was no evidence of a criminal operation, there being only the unsupported statement of the husband. That ended the case.

If there had been good evidence of a criminal operation the case would have been prosecuted

[1] Read before the Massachusetts Medico-Legal Society, Oct. 2, 1901.

as in a case of normal pregnancy, the crime consisting in the attempt to produce an abortion.

Did the attempt to produce an abortion in this case cause rupture of the existing tubal pregnancy? In view of the fact that the tumor almost invariably ruptures before the end of the twelfth week, from the tubal structures having reached their limit of distention, it would be always difficult to establish the connection from a medico-legal point of view. It seems to me that it is not well to institute proceedings against an abortionist without extremely good and direct evidence. Failure to convict does more harm than good.

## Clinical Department.

### REPORT OF CASES FROM THE SECOND SURGICAL SERVICE OF THE CHILDREN'S HOSPITAL, BOSTON.

BY H. L. BURRELL, M.D., R. W. LOVETT, M.D., and J. E. GOLDTHWAIT, M.D., BOSTON.

#### I. A CASE OF NOMA.

Agnes H., 3 years old, entered the Children's Hospital on July 20, 1901, with the following history: The family history is not important, although there has been a good deal of illness in the family and another child is now (July 20) ill with pneumonia. In April the child had pertussis, in May, measles, and in June, pneumonia. Since pneumonia, six weeks ago, the mother has noticed a chapping of the lips which disappeared at times. Two weeks ago she noticed a granulation on the gums over the front teeth. Ordinary measures did not relieve this, and the condition got worse with much swelling of the upper lip and left side of the face. The child came to the Out-Patient Medical Room and was sent into the hospital at once for operation. The physical examination showed a poorly developed and much emaciated child, with dull expression and feeble cry. The heart was negative. There were numerous moist râles over both chests. The physical examination was otherwise negative except for the cheek. The left cheek showed a reddened and slightly shiny indurated mass, not perfectly circumscribed, about two inches in diameter and extending nearly to the eye. The left eye was nearly closed. On the left side, in the interior of the cheek, there was a gangrenous patch extending on to the hard palate and perforating it just inside the teeth. This patch extended upward toward the malar bone and was in all about the area of a silver quarter. The odor was very foul and gangrenous. Examination of the throat provoked the characteristic whoop of pertussis which had hitherto been undiagnosed.

Operation was performed immediately. Three teeth on the upper jaw to the left were extracted, and the soft parts between the superior maxilla and the cheek were cauterized with the actual cautery. This was about noon. The child was chloroformed in the afternoon and a gauze wick soaked in brewers' yeast was packed into the cauterized cavity.

The next day the child seemed no worse, but the temperature began to rise. Took nourishment fairly well. Stimulated with brandy.

On the second day after the operation a dark green area to the left of the nose was noticed on the cheek. This was first seen at 4 A.M., but spread rapidly, and at 3 P.M., the time of the second operation, was the size of a quarter of a dollar. The second operation was performed under chloroform anesthesia. The dark green area was excised, allowing a considerable margin, and the wound was again cauterized. The child's condition on the table became so alarming that it was necessary to suspend all operative procedure at once and to resort to artificial respiration, which was kept up for some minutes. One pint of salt solution was given as an intravenous injection, as well as strychnine, and the pulse seemed to improve, but in about half an hour the child collapsed and died. An autopsy was unfortunately not permitted. Examination of the excised tissue showed the inflection to be multiple. The Klebs-Loeffler bacillus, was, however, isolated, as well as the pneumococcus.

Fortunately, cases of noma are rare. A remarkable outbreak of noma occurred at the Albany Orphan Asylum.[1] In this epidemic, where destruction was not too extensive, a Paquelin cautery under chloroform arrested the gangrene. The organism isolated was a leptothrix which averaged one-half mm. in breadth and varied from five to twenty mm. in length.

Formerly these outbreaks of noma were fairly common, two notable ones being that which occurred at the Hotel Dieu in 1699, the other that at the Charity Hospital in Lyons in 1796.

A. Z. C. Cressy[2] of Wallington, Surrey, England, reports a case of cancrum oris successfully treated by excision by cautery. In his case the sloughing mass was dissected out from the cheek and a Paquelin cautery was freely applied to the edges and they were brought together by sutures.

H. L. B.

#### II. ELONGATION OF THE TENDO ACHILLIS AFTER OPERATION.

M. B., nine years old, was admitted to the Children's Hospital Dec. 18, 1899, with the diagnosis of bow legs. She had walked at eight months and after that had had pneumonia. After recovery from pneumonia, she did not walk for two years, and at that time the bow legs were first noticed. There was a marked anterior and outward bowing of both tibiæ. On Dec. 9, 1899, an osteotomy was done on both sides, and to facilitate proper apposition of the bones, a subcutaneous tenotomy of the tendo achillis was done on each side. Plaster-of-Paris was put on. Dec. 18 she was discharged relieved to her parents.

[1] Journal of American Medical Sciences, November, 1901.
[2] Annals of Surgery, November, 1901.

In April, 1900, it was noticed that she walked on her heels when in a hurry, and was unable to raise herself on her toes. For this reason a diagnosis of nonunion of the tendo achillis was made and she was again referred to the hospital. She was entered July 25, 1901. Dorsal flexion of the foot was present to an abnormal degree, and the child was unable to plantar flex the feet beyond the right ankle with any degree of force. She could walk fairly well if she walked slowly, but if she hurried, the gait was clumsy and largely on the heels. An incision was made and the right tendo achillis was dissected out and found to be very lax. Just above the os calcis it was found to be made up of fibrous bands of varying size. About one-fourth inch of each tendon was excised and the divided ends brought together and sutured with medium catgut. A similar operation was done on the left foot. The wounds were closed with catgut and the feet put up in a position of plantar flexion, leaving the tendon relaxed. At the end of ten days, the plasters were removed and the wounds were found clean. They were reapplied and the child was discharged to the parents on Aug. 9. On Sept. 7 the plasters were removed, and on Sept. 14 she could plantar flex with considerable force. She was given crutches and allowed to walk. On Sept. 28 she could plantar flex her feet with considerable force, but could not yet raise herself on her toes. The same treatment was continued. On Oct. 19 she could raise herself on her toes without any assistance whatever. She was directed to continue the exercise of raising herself on her toes three times daily.

At her second entrance to the hospital, the muscles were examined as to the presence of paralysis by a neurologist and were reported to be normal. The appearance of the tendons suggested that some tearing had taken place at the time of the tenotomy and the appearance was that of a tendon frayed out rather than cleanly divided.

The case is of interest in showing that unpleasant results may follow even tenotomy of the tendo achillis performed under ordinary conditions with proper after-care. The case is also important as showing favorable progress after an operation for the repair of such a condition.

R. W. L.

III. A CASE OF PROBABLE DISLOCATION OF THE CERVICAL VERTEBRA WITH SPONTANEOUS REPLACEMENT AND RECOVERY.

F. P., seven years of age, was brought to the Children's Hospital Oct. 3, 1900, with the history that while turning somersaults something had suddenly happened, so that since that time the head had been held peculiarly. At that time the head was displaced slightly to one side, and very little motion was possible, either of passive manipulation or active exercise. The muscles were tense, but no one group was contracted more than the others, and the limitation of motion was apparently due to some obstruction other than muscular. There was no paralysis.

The diagnosis at that time was made of a partial dislocation of the cervical vertebra. The child was admitted to the hospital for the purpose of having a radiograph taken and for such manipulation afterwards as seemed indicated. The second day after admission, just previous to the time for taking the x-ray, in some movement of the head with a distinct slip, the normal condition was restored. After that the head could be moved almost normally in every direction with but little discomfort. Two days later the child was allowed up, and three days after that was discharged from the hospital with nothing to show for the condition which had been present at the time of his admission.

It seemed probable to all those who saw the child that there had been partial dislocation, and the result seemed to justify this supposition. Simple muscular strain or any other condition would hardly have been relieved with the suddenness that occurred in this case.

J. E. G.

## Medical Progress.

### REPORT ON PROGRESS IN GENITO-URINARY SURGERY.

BY F. S. WATSON, M.D., AND PAUL THORNDIKE, M.D., BOSTON.

ON THE FINAL RESULTS OF CASTRATION IN CASES OF TUBERCULOSIS OF THE TESTES.

HAAS,[1] Bruns Tubinger Clinic, holds that in many cases the disease is primary in the testis, existing independently of its existence elsewhere in the genito-urinary tract or other parts of the organism. This view he supports by interesting data.

The conclusions are derived from the examination or personal communication with 111 patients, on whom castration had been performed for tuberculosis of the testis or testes, and these observations as to the end results were made on individuals at times, subsequent to operation, extending from 3 to 30 years. Of these, 78 underwent single and 33 double castration. In all, the vas was divided high up, but neither the prostate nor the seminal vesicles were included in the operations. The epididymis was involved within 6 months after the first evidence of the disease was noted by the patient in 40% of the cases. The longer the time after the beginning of the trouble, the larger the number of cases in which the epididymis was involved and the more extensive was the involvement.

In only 26% of the cases submitted to castration of one side, did the disease subsequently appear in the other testicle.

In the cases involving one-sided castration, only 9.2% died subsequently from tuberculosis of other parts of the genito-urinary tract, and most of these showed already involvement of the urinary tract at the time of the operation.

Of the cases of single-sided castration 44.6% remained cured.

[1] Beitr. f. klin. Chir, 1901, vol. xxx, part ii, p. 345.

In cases of double-sided tuberculosis subjected to complete castration 56.7% remained cured. With few exceptions the single-sided castrations became neither sterile nor impotent. In none of the complete castrations did any nervous or mental disturbances follow.

In the cases in which single-sided castration was done,— one testicle only being affected,— 20.7% died within the first 3 years after operation, 9.2% of these being from genito-urinary tuberculosis. Of these 75.7% were well and free from any evidence of the disease, after 3 years following the operation.

Of the cases of double testicular tuberculosis 40.6% (15.6% of them from genito-urinary tuberculosis) died within the first 3 years following complete castration. But 88.2% of cases of double-sided tuberculosis, who survived *more* than 3 years after the operation, were well, and to be regarded as permanently cured.

The mortality following complete castration is seen to be within the first 3 years subsequent to operation nearly twice as great as that of one-sided castration, but the reverse is true of the patients surviving the 3 years' limit.

The conclusion reached by the author speaks strongly in favor of operative — and early operative — treatment of tuberculous disease of the testis, as compared with the expectant. The text of the article contains further testimony in support of this view.

PRACTICAL EXPERIENCE WITH REGARD TO THE DIAGNOSIS AND THERAPEUTICS OF KIDNEY DISEASES.

Kummell [2] refers to the formerly published experiences of the value of the determination of the freezing point of the blood and the urine of individuals for the purpose of deciding — before operations upon the kidneys — the functional capacity of each, in which cases it was found, for surgical purposes, to be useful. Since the publication of the writer's previous communication on the subject he has confirmed the results of the work therein set forth, by 100 additional observations made with respect to the freezing point of the blood and the urine in individuals in health and disease, the urine being drawn separately from each kidney by ureteral catheters. He now considers himself justified in asserting that this proceeding is of the greatest importance and value for the purpose above noted, and one to be relied upon prior to operation — when made in connection with the urea and phloridzin tests. This should not be understood as rendering unnecessary the careful determination of the character of the urinary secretion by the usual methods.

With regard to the freezing point of blood and urine, Kummel calls attention to the following factors: After referring to the phenomena of osmosis between the blood and the urine, he speaks of it in relation to the freezing point of both, saying that of 2 chemically similar fluids — such as these — that one which contains the larger molecular quantity in solution freezes at a lower temperature, as compared with distilled water, than the one having fewer molecules in solution. In health he states that the freezing point of blood is almost constant, being at, or very near to, .56° C. In cases of renal insufficiency it varies between .58° C. to .60° C. There are other conditions — such as abdominal tumors, noncompensated cardiac disease — which alter the relations and which must therefore be taken into account.

With regard to the freezing point of the urine, the physiological variations are much greater than in the case of the blood. Kummell, however, asserts that as a practical matter a freezing point of the urine of .9° C. or less, that is to say, nearly to that of distilled water, may be taken as suggestive of insufficient functional renal capacity as a rule. The greatest service rendered is when the functional capacity of each kidney can be determined separately by the application of the test to the urines drawn from each kidney, this being the essential point with reference to nephrectomy, of course.

With regard to the technique Kummell speaks as follows: It is carried out by means of Beckmann's apparatus, which consists of a glass vessel in which is put a mixture of ice and cooking salt capable of producing a temperature of cold of 4° C. The fluid to be examined is placed in a test tube, in which is immersed the quicksilver bulb of a delicate thermometer divided into hundredths. The glass cylinder is kept in continuous movement by means of a platinum ring on which it rests, and carefully cooled. The freezing point is reckoned at the moment of the beginning of the solidification of the fluid. In case of blood 20 G. is employed, being drawn from one of the veins of the forearm.

In 24 nephrectomies in which the freezing test of the blood and urine indicated that sufficient functional activity of the kidney was present at time of operation, the remaining kidney in all, maintained its full functional sufficiency. Two, in which the test was doubtful, died.

The value of the phloridzin sugar test in determining also the functional capacity of the kidneys — of each one separately if the urine be drawn by ureteral catheters — is further noted by Kummell in this article. Further data are furnished by Küster [3] and Casper [4] upon the freezing and phloridzin tests.

Syms, [5] in the course of an article on the subject of

THE TREATMENT OF PROSTATIC HYPERTROPHY,

when referring to the operation of prostatectomy, suggests a novel method of facilitating the removal of the obstructing gland, and at the same time avoiding doing a suprapubic cystotomy as one of the steps usually employed as an aid to the operation. His proposal is to pass through a perineal urethrotomy wound, into the bladder, a rubber balloon attached to a stem which protrudes

[2] Arch. f. klin. Chir., Berlin, 1901, vol. lxiv, part iii.

[3] Arch. f. klin. Chir., 1901, vol. lxiv, part iii, p. 559.

[4] Idem, part ii, p. 470.

[5] Journal Cutaneous and Genito-Urinary Diseases, 1901, p. 255.

externally, the balloon being then distended with water, is drawn downward and the prostate is thus forced toward the perineal surface and thus rendered accessible to approach from that point.

EXPERIMENTAL RESEARCH WITH REGARD TO INFECTION OF BLADDER FROM THE RECTUM.

Faltin,[6] in the course of the above communications, describes the manner in which he conducted numerous experiments upon rabbits with a view to testing the accuracy of the work of previous experimenters and of adding further knowledge to the subject of the invasion of the bladder by rectal bacteria — more especially the communis coli.

The main features of the experiments were the observation of the invasion of the bladder, by rectal bacteria, after wounds of varying severity inflicted upon the rectal mucous membrane, and the artificial infection of the same, under the following conditions: (1) A complete closure of the anus by ligature; (2) by complete closure of the urethra by ligature of the penis; (3) without either of the above.

The conclusions arrived at were as follows:

(1) Closure of the rectum by anal ligature, if not continued beyond 36 or 48 hours, is not, as a rule, capable of causing a general invasion of the organism by rectal bacteria.

(2) If the obstipation so caused be continued sufficiently long, however, the rectal bacteria do make their way into the general circulation, either directly or through the peritoneum. An excretion of the bacteria by the kidneys under these conditions is possible, but only occurs as a step preceding death in the cases ending fatally.

(3) After sufficient duration of the artificially produced obstipation direct passage of the rectal bacteria into the bladder from the rectum may occur. When this is the case, however, the whole organism is usually in such a condition that death ensues subsequent to the bladder invasion owing to the further propagation of the bacterial poison from the rectum or the already infected bladder.

(4) In a certain number of cases the bacteria may find an entrance through the urethra; in others, more directly through the lymph channels into the bladder.

(5) If urinary retention caused by ligature of the urethra is present at the time of infection, the rectal bacteria will more readily penetrate to the bladder, and will produce cystitis.

The conclusions stated at the end of the first article are these: After a rectal lesion at the level of the prostate, whether it be severe or moderate, neither a cystitis nor invasion of the bladder by rectal bacteria takes place, unless at the same time there occurs a fatal general infection, or peritonitis, as a result of the original infection from the rectal lesion. When this happens an excretion of rectal bacteria by the kidneys, and the setting up of a cystitis thereby, is also seen to take place. If the bladder has been previously injured it much more frequently happens that there is an invasion of it by the rectal bacteria and that cystitis results.

[6] Centrbl. f. die Krankh. der Harn u. Sexual Organe, 1901, Bd. xii, H. 8 and 9.

ANATOMY AND PHYSIOLOGY OF THE PROSTATE.

Walker,[7] in an elaborate and carefully prepared paper, based upon experimental studies of the prostate in man and in various animals, chiefly dogs, makes various anatomical and physiological conclusions which are here appended:

*Anatomy.*— (1) The prostatic muscle is derived from the longitudinal coat of the urethra and the circular layer of the bladder.

(2) Every lobule is surrounded by a circular and a longitudinal coat, so arranged as to expel quickly and forcibly the secretion.

(3) The prostatic muscle of the full-grown animal is independent of both urethra and bladder, and is only indirectly in connection with either.

(4) The muscle is not so disposed as to compress the urethra, or to act as a sphincter to the bladder.

(5) The connective tissue is found in nearly the same amount as in other secreting organs; and is amply sufficient to give all the needed support to the gland, independent of the muscular elements.

(6) A membrana propria is present in all cases, and consists of very fine connective-tissue fibres. There is a sheath of longitudinal elastic fibres around the prostatic urethra, from which the outer fibres diverge around the prostatic ducts in a figure-of-eight manner, and thence onward into the glandular substance.

(7) In the gland substance a rich elastic meshwork is seen lying under the cells, with a few extremely fine fibres in the membrana propria.

(8) The glandular substance forms about five-sixths of the organ.

(9) The cells are disposed in one layer; tall, columnar shaped; have a large amount of protoplasm, and a well-defined nucleus. In the same lobule areas are present where the cells are entirely inactive.

(10) Adenoid tissue is scattered at irregular intervals throughout the gland.

Regarding the so-called third lobe, the writer apparently agrees with previous observers in declaring that it is only occasionally present, and does not deserve the name of a third lobe.

*Anatomical deductions.*— (1) The verumontanum does not prevent the entrance of semen into the bladder.

(2) The semen is prevented from passing backward into the bladder by the contraction of the so-called sphincter of Heule.

(3) The prostatic ducts are so arranged that they eject their fluid directly into the outpouring testicular secretion, thus producing a homogeneous mixture.

(4) The longitudinal fibres of the sphincter membranaceæ urethræ dilate the outer half of the membranous and a portion of the bulbous, urethra,

[7] Johns Hopkins Hospital Bulletin, October, 1900.

and by this means draw the semen from the prostatic portion.

(5) During the last act of ejaculation the orifices of the prostatic and ejaculatory ducts are closed, and their respective fluids put on much tension, so that at the moment of relaxation, a sufficient quantity of semen is poured in for the next emission.

(6) The sphincter membranaceæ urethræ aids, nŏt only in carrying the semen along the urethra, but helps very materially in expelling it.

(1) *Physiology.*— The immediate production of the motility of the organisms (spermatozoa) is induced by a thinning of the testicular secretion with the prostatic juice.

(2) The continued movement is most probably kept up by substances in the prostatic fluid, that either act as stimulants or as food for the organisms.

(3) Unless a homogeneous mixture is made, thick portions remain, where there is no movement.

(4) It therefore follows that as the dog has no seminal vesicles, and the gland of Cowper is very insignificant, the function of furnishing a fluid, in which the spermatozoa can freely move, belongs entirely to the prostate gland. It then becomes apparent that the organ is almost as important as the organisms themselves.

### GONORRHEAL ULCERATIVE ENDOCARDITIS.

Lartigan,[8] the author, adds one more to the very small number of cases of this rare complication of gonorrhea. The case with autopsy is carefully reported, the bacterial findings being as follows: Gonococcus present in the heart's blood and valvular vegetations; colon bacillus in the liver and gall bladder and urinary bladder. Other organs were sterile.

The author concludes:

(1) Gonorrheal urethritis may be the starting point for a fatal septicemia induced by a pure infection with the gonococcus.

(2) Endocarditis and arthritis are occasionally complications of such an infectious disease.

(3) The endocardial processes may be incited by the gonococcus without the association of other organisms.

### RELATION OF THE PROSTATE GLAND TO THE IMPREGNATING POWER OF THE SPERMATIC FLUID.

George Walker[9] reports a series of experiments in which the prostate gland was removed from a number of white rats, and the effects of this procedure noted. His conclusions are as follows:

(1) That a removal of the anterior lobes of the prostate gland in rats has no effect on breeding; but in a certain number it diminishes the fecundating power; and in a small number it is destroyed entirely.

(2) Complete excision has a very marked effect on fecundity, reducing it to almost nil when the gland is entirely removed.

(3) Partial or complete removal of the prostate has no effect upon the sexual desire and capacity.

(4) Complete removal of the gland in the adult animal has no effect on the histological structure of the testicles. Complete removal of the prostate in the young animal has no effect on the histological structure of the testicles. Complete removal of the prostate in the young animal has no effect upon the subsequent development of the testes.

### CONDITION OF THE KIDNEYS IN PHTHISICAL PATIENTS.

D'Arrigo,[10] after collecting the kidneys of a large number of patients who had died of pulmonary tuberculosis, was able to make a careful study in 12 cases. He says that:

(1) In the kidneys of tuberculous persons, in the mild as well as severe forms, there are invariably present alterations in the vessels in the interstitial substance and in the renal epithelium.

(2) In the early stages of pulmonary tuberculosis the lesions in the kidney are not severe, and seem to be due to the passage of the toxin through them. This tuberculous toxin attacks the vessels first, then the interstitial connective tissue and the epithelium.

(3) If the tuberculous process in the lungs increases, in addition to the toxins, the tubercle bacilli are carried to the kidneys and there form colonies.

(4) The circulatory and functional disturbances of the kidney which are caused in the beginning by the toxin, facilitate the later colonization of the bacilli in the kidneys. In this manner the kidneys became a *locus minoris resistentiæ.*

(5) How the bacilli reach the kidney it is difficult to state, though it must be through the circulation. The bacilli were found in most cases in the glomeruli and in the interstitial connective tissue, but never in the blood vessels or in their walls. These cases must not be confounded with acute miliary tuberculosis.

### RELATION OF PROSTATE TO TESTES.

Walker[11] reports a series of experiments in which he removed the testicles from a number of dogs and then injected half of the number with a testicular fluid, the preparation of which he describes with careful detail, keeping the remaining animals as controls for the companion. At the end of about six months the animals were all killed and their prostates removed and studied with this result: The prostate gland in the injected animals presented both macroscopically and microscopically the same changes that had occurred in the uninjected ones. It may therefore be said that the injections of the testicular fluid had apparently no effect whatever, and one is probably justified in concluding that the atrophy of the gland is in no way connected with the absence of any substance in the testicular secretion.

[8] American Journal of the Medical Sciences, January, 1901, p. 52.
[9] Johns Hopkins Hospital Bulletin, March, 1901, p. 77.
[10] Centrbl. f. Bakteriologie u. Infekt. Krank. Sept. 4, 1901.
[11] Johns Hopkins Hospital Bulletin, December, 1900.

NEW OPERATION. A METHOD OF PERFORMING EXTERNAL URETHROTOMY WITHOUT A GUIDE.

P. R. Bolton's[12] description of his operation and his idea of its applicability follow:

The patient may be placed in the lithotomy or knee chest position.

A curvilinear transverse incision is made across the perineum, the convexity looking forward or backward and the tendinous centre of the perineum exposed. The attachment of the sphincter ani to this point is divided and reflected, and the triangular ligament thus exposed incised transversely. The anterior fibres of the levator ani passing beneath the prostate to the rectum now come into view. These, together with the rectum, are next pushed backward and the prostate exposed. The exposed surface of the prostate is now cleaned and its apex identified.

No harm can accrue from incision into the floor of the prostatic urethra anterior to the verumontanum, and incision made into this part of the prostate is sure to enter the urethra behind its point of stricture.

The anterior quarter inch of the apex of the prostate is accordingly incised longitudinally in the median line, the urethra opened and the incision then prolonged forward as far as desired, guided, if necessary, by a probe or director suitably bent and introduced into the urethra from behind forward.

This method, while a little more elaborate than the original Cock operation, appeals to me as rational and not necessarily difficult. It will be found most useful, I believe, in recent ruptures of the urethra and in strictures uncomplicated by extravasation of urine, or perineal abscesses. I should hesitate to make use of it in the presence of infectious inflammations or necrosis of the perineal tissues, because of the larger wound surface unavoidably exposed to infection and the risk of carrying infection to the cellular tissue between the rectum and bladder above the triangular ligaments.

RARE AND INTERESTING CASES.

(1) Two cases, in each of which an old extra-uterine pregnancy had ruptured into the bladder and gave rise to symptoms which led to a suprapubic cystotomy.[13]

(2) A rare case of cancer of the prostate when the autopsy revealed metastases in the joints, inguinal glands, abdomen, mediastinum and neck.[14]

(3) A case of colloid cancer in an exstrophied bladder.[15]

(4) Herczel[16] describes 2 cases of spontaneous discharge of vesical calculi. The first being that of a woman in whom a very large vesical calculus made its way into the vagina by ulceration, from which it was removed and the lesion was repaired by a plastic operation. The second case was that of a man from whose bladder a calculus 8 cm. long worked its way into the rectum by ulceration.

SUMMARIES OF CASES.

(1) *Renal tuberculosis.*— Simon[17] affirms that of 35 cases of renal tuberculosis operated in the Heidelberg clinic, 25 were women and 10 were men. Nearly all were between the ages of 20 and 40 years, there being only 3 patients under 20 years, and only 4 patients over 40 years of age. There were perinephritic involvements in 9 cases, ureteral involvements in 13 cases, and bladder involvements in 8 cases. In only 3 cases was the kidney on the opposite side diseased. The tubercle bacillus was found in 27% of the cases.

(2) *Two hundred and six operations for stone.*— Adams[18] says that most of the cases (over 75%) were operated upon by lithotrity. The author's summary is as follows:

Lithotomy was performed only when the crushing operation was considered impossible or inadvisable. The contra-indications to lithotrity in boys are:

(1) When there is marked cystitis, lithotomy drains the bladder and cures both diseases.

(2) When there is much difficulty in passing instruments.

(3) When the stone is too large or too hard for the necessarily small instrument.

(4) When there are indications of advanced kidney disease or great debility, the shock of the cutting operation seems less severe probably because it is shorter. In men the contra-indications are: (*a*) When the instruments cannot be passed. (*b*) When the stone is too large and cannot be grasped.

He has never found a stone too hard for the lithotrite. In tight strictures perineal section serves both for the stricture and the introduction of the crushing instrument.

[12] Journal Cutaneous and Genito-Urinary Diseases, June, 1901.
[13] S. Hue: Bull et Mem. de la Soc. de Chir. de Paris, T. xxv, p. 720.
[14] S. Atanasijevic and E. Mikel: Centrbl. f. die Krank. der Harn u. Sexual Organe, 1901, Bd. xii, H. 6, p. 335.
[15] E. Ehrich. Beitr. zur klin. Chir. 1901, Bd. xxx, p. 58.
[16] Centrbl. f. Krank. der Harn and Sexual Organe, June 15, 1901.
[17] Beitr. zur klin, Chir., 1901, Bd. xxx, S. 1.
[18] British Medical Journal, 1901, p. 1259.

## Recent Literature.

*The Mental State of Hystericals. A Study of Mental Stigmata and Mental Accidents.* By PIERRE JANET, Litt.D., M.D. Translated by CAROLINE ROLLIN CORSON. Pp. xviii–535, 8vo, with 12 illustrations. New York: G. P. Putnam's Sons. 1901.

In 1894 Janet published, in two charming little volumes, the work which has now appeared in an English translation. In this work the author elaborated and re-enforced the theories which he had advanced in his earlier work, "L'Automatisme Psychologique," in regard to the nature of the morbid phenomena of hysteria, that "hysteria is a form of mental disintegration characterized by a tendency toward the permanent and complete un-

doubling (*dédoublement*) of the personality." In these works Janet demonstrated more fully and completely than had before been done that the various hysterical symptoms were due to abnormalities of the mental state, — that sensations actually reached the brain, but that they were in part ignored by the patient, owing to a limitation of the field of consciousness. In this way he explained many anomalies and peculiarities of the hysterical phenomena which had previously seemed contradictory and had often caused the hysterical patient to be regarded as a bare-faced simulator. Since the publication of these works Janet's theories have been confirmed by the observations of many independent investigators both in Europe and America. The present translation, combining in one volume the two volumes of the original, renders the work accessible to all interested in psychology or neurology who are unable to read French. The work of translation has been satisfactorily done, and it has a pathetic interest from the fact that the translator died before the work could be put in type.

*A Treatise on Medical Jurisprudence.* Based on Lectures Delivered at University College, London. By George Vivian Poore, M.D. (Lond.), F.R.C.P., Professor of the Principles and Practice of Medicine, University College (Lond.). With illustrations. New York: Longmans, Green & Co. 1901.

This book has an undeniable charm which will make it very popular. Its exceedingly attractive style is explained by the fact that the author has assumed a quaint and unconventional mode of appealing to his readers as to a greatly enlarged, eagerly interested class of medical students listening to his lectures. Thus the colloquial manner has taken the place of the purely didactic and the result is altogether attractive. It is as if the author, speaking from a wide experience as a medical jurist, addressed his readers individually upon the most familiar terms. Legal medicine with such a teacher presents no excuse for suffering neglect. The driest technical details are not permitted to be dull, and the reader's attention is again and again caught and fixed by some homely phrase or quaint aphorism which rivets the desired lesson firmly in the memory. Apt illustrations and convincing cases are used with intelligence and effect, and the whole book is so full of an irresistible charm that the reader lays it down reluctantly.

Nevertheless, the discriminating student, freely admitting that he has before him a delightful volume on medical jurisprudence, asks if the author has done full justice to all his topics. There is in many of the chapters, especially in the latter half of the work, an impression of incompleteness, a suggestion of want of thoroughness, that is disappointing. The author touches many themes lightly without any sufficient elaboration of them. Whatever is done is admirably done, so far as it goes; but one misses essentials which would be expected in a work meriting the title "Treatise."

THE BOSTON

# Medical and Surgical Journal.

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## THE THIRTY-SECOND ANNUAL REPORT OF THE STATE BOARD OF HEALTH OF MASSACHUSETTS.

The Massachusetts Board of Health Report for the year 1900, with its 915 pages, is a model of conciseness, covering the great range of sanitary investigation and routine work which we have come to expect each year.

The larger death-rate for 1900, as compared with the previous 3 years, although much less than the average for 10 years, is due largely to a greater prevalence of infectious diseases. But the decrease in these diseases for a long period of years is satisfactory evidence of good work in the State, the death-rate from consumption alone being considerably less than half what it was 50 years ago, and from typhoid fever the improvement being especially notable. The 209 cases of smallpox in 1899 and 1900, with 17 deaths, furnish the usual proof of the value of vaccination, and gave occasion for two circulars of information on smallpox and vaccination from the board, which would have prevented the present prevalence of this disease if the board's advice had been followed.

The sanitary statutes reported as enacted are: Requiring the State Board to examine and report annually upon all main sewer outlets in the state, and upon their sewage disposal, with recommendations; that the business of killing and rendering animals should be licensed each year, with a nominal fee for the license; prohibiting the taking of oysters and other shellfish from contaminated waters; providing hospitals for smallpox and other dangerous diseases; prohibiting the sale and manufacture of fabrics and papers containing a certain percentage of arsenic; authorizing cities and towns to take waters for emergency use; prohibiting the sale of articles of food and drink which contain antiseptics; requiring labels on certain articles of food and drink.

Of the more than 600 pages devoted to a most thorough study of water and sewage, 100 are given to the action of the board in reply to requests for information and advice from cities and towns and boards and corporations. Then follow papers containing full analyses and elaborate tables on examination of water supplies; on examination of rivers; on water supply statistics; on filtration of sewage; on filtration of water; on the action of water upon metallic or metal-lined service pipes; on the retention of bacteria in ice when ice is formed under different conditions; on the efficiency of water filters; on the examination of spring waters; on the consumption of water in cities and towns in Massachusetts.

Under the laws providing for the inspection of food and drugs, 10,122 samples were examined during the year, including 6,232 of milk, with the result of 94 prosecutions and 89 convictions, involving fines of $1,890.70.

There were 53,389 packages of diphtheria antitoxin, of 1.500 units each, issued to cities and towns; and 5,173 cultures were made for diagnosis of diphtheria. The examinations for diagnosis of tuberculosis were 746; 76 specimens of blood were examined for malaria infection and 62 for typhoid fever.

There were 32,615 notices of cases of infectious diseases received and recorded during the year.

Of 157 samples of paper and woven fabrics examined for arsenic, 34 were found to contain it, but only 7 in quantities beyond the limit allowed by law; and of 186 samples of dress goods, 81 contained arsenic, of which 27 had amounts beyond the legal limit.

In an exhaustive study of cancer by Dr. W. F. Whitney the conclusion is reached that the great increase in cancer, as shown by the mortality returns, is apparent rather than real, due to better diagnosis and to registration less inaccurate.

The statistical summaries of disease and mortality are at present incomplete in many essential details, but they are of value and perhaps chiefly as the possible beginning of placing that important subject where it belongs, wholly in the hands of the State Board of Health. Under the board's skilful management the subject of vital statistics might be made a credit to the State, as it unfortunately is not now, and of very much greater practical use.

## OUT-PATIENT DEPARTMENTS.

An out-patient department has apparently come to be an essential part of a large municipal hospital. From the small dispensary of not many years ago, occupying, perhaps, one or two rooms, there has developed at many of our larger hospitals an elaborate system for the treatment of ambulatory patients, which bids fair to show even greater elaboration in the near future. This is as it should be. The positive value to the community of such out-patient departments can hardly be overestimated, and this is increasingly the case as time goes on. We are, as a profession, finally waking up to the fact that very much may be done for the relief and possible cure of chronic conditions which a decade or two ago were placed in the hopeless class as quite beyond the reach of medical aid. Examples of this are the growth of orthopedic surgery and the coincident gradual disappearance of the deformities of Pott's disease, or the systematic training of ataxics in co-ordinative movements. It would be easy to multiply instances from all fields of medicine, but our purpose merely is to indicate that with the growth of medical knowledge the out-patient department should be given a place of dignity which has never yet been granted it. We do not for a moment mean to imply that these departments in the past have won for themselves such a position; they have too often been regarded merely as stepping-stones to higher things for that, and the work in them, partly from necessity, and partly from indifference, has too often been devoid of the scientific spirit. Fortunately, the aspect of things is now beginning to show a change; there are indications that the out-patient departments are gradually coming to be considered as ends in themselves as well as means to a usually distant goal. This has been brought about, in great measure, by the increasing limitations placed upon so-called house-patients. For obvious reasons chronic diseases cannot be, and in many cases it is neither necessary nor desirable that they should be, treated in the wards of a general hospital; they must be treated somewhere, however, and well treated by the most approved modern medical and surgical methods. This is the opportunity of the out-patient department of the future — to develop well-equipped and well-managed departments for the best treatment of that growing class of patients who find no welcome in the hospital wards. The coughs and colds and trivial accidents of everyday life will, of course, still be treated, but the claim to distinction and wide recognition which the out-patient department should make in the future, is in the widening of its scope of work to include the ramifying branches of medicine, which are now constantly forcing themselves upon our attention. In such a well-organized department specialism should be seen at its best, and the contact between men working in special fields should be close and constant. All this, no doubt, the future has in store for us.

To be well conducted such an out-patient department must be adequately housed; patients and physicians alike must have sufficient space for carrying out detailed examinations. This pressing demand also seems likely of realization. In Boston, for example, both the City and Massachusetts General Hospitals are projecting new and spacious buildings for the work of the out-patient departments. This should mean not only improved facilities for work, but also a constant improvement in the character of the work done. The ultimate position of this important branch of a great hospital in the estimation of physicians at large must depend wholly upon this last factor.

## MEDICAL NOTES.

Spinal Cocainization.— Occasional deaths continue to be recorded from time to time as the result of anesthesia by means of intraspinal injections of cocaine. Dr. Legueu, of Paris, related 2 instructive cases before the French Society of Surgery a few days since. The first victim was an elderly man, who had ruptured the tendon of the triceps. Less than a third of a grain of cocaine was injected, but 10 minutes later he became agitated, and died in 2 or 3 minutes afterwards. A few weeks later a man 61 years of age, with strangulated hernia, was subjected to a similar injection, and even before anesthesia was complete, respiration became labored, the pupils dilated, and death ensued. The moral to be deduced from these cases is that when the condition of the patient contra-indicates the administration of chloroform, resort to spinal cocainization does not minimize the risks. It would seem, too, that in some of these cases local anethesia would have answered every purpose without placing the life of the patient in jeopardy.— *Medical Press.*

Appropriations for Medical Investigation in Germany.— The German Imperial Home Office is reported to have appropriated 12,000 marks for research on protozoa and 150,000 marks for investigations on tuberculosis.

A Congress on Pellagra.— A national Italian Congress on Pellagra is announced for May, 1902. Papers will be presented regarding etiology, treatment, and means of prevention.

### BOSTON AND NEW ENGLAND.

Acute Infectious Diseases in Boston.— For the week ending at noon, Jan. 8, 1902, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: Diphtheria 42, scarlatina 27, measles 128, typhoid fever 9, smallpox 35.

### NEW YORK.

State Hospital for Tuberculosis.— In regard to the State Tuberculosis Hospital the governor says: "The commission designated by the legislature has selected a site, and work upon this important undertaking will be begun in the spring. . . . Perhaps no work yet undertaken by the State presents so many serious aspects as does this. It has been estimated that there are 65,000 persons in the State of New York who are afflicted with tuberculosis. It is our duty, of course, to furnish every protection possible for the health and happiness of our citizens. This departure, however, may lead to the establishment of other institutions for which the State may be called upon to provide, and for which there may be the same claim advanced as by those who are stricken by this terrible scourge. A policy should therefore be defined. Hopeless cases should not be received, and every locality should be interested to the extent of preventing the admission of incurables to the hospital. This can only be done when each locality is interested through the expense which it may incur in the treatment of these cases. The policy of the State, therefore, should be to provide accommodations and to assess upon each county the actual cost for maintainipg each patient from such locality, and it should be so enunciated by the legislature. This would prevent the bringing into the hospital of incurables and the creation thereby of an excessive tax, which could not be justified. A proper physical certificate should be provided for and the power to designate competent physicians for this purpose in each county should be placed in the board of supervisors of counties or the common councils of cities. Recommendation is hereby made for such legislation."

Costly Care of Insane.— In his annual message, presented at the opening of the legislature's session at Albany, Governor Odell calls attention to the unnecessary expense incurred by the State in the care of the insane. For hospital construction and furnishing, the law now restricts the per capita cost to $550; but, while this is an improvement on earlier conditions, he maintains that it is still too great. Since his personal inspection of the State hospitals last summer, plans have been adopted for additions to the hospitals at Gowanda and Rochester on more conservative lines, as a reduction in the per capita cost of nearly $100, which, on the number of inmates to be taken care of in these buildings, will effect a saving of nearly $150,000. The impression one gains on visiting the institutions for the insane, he says, is the duplication of administrative and executive powers so repugnant to sound business judgment. After

going into some details he recommends that for the present boards of managers there be substituted a visiting board for each district, to be appointed annually by the governor, and to report to him; and that the powers now vested in the boards of managers be lodged in the State Commission in Lunacy, thus centralizing all authority in a commission which has been constitutionally created, which precedent has decreed must be nonpartisan, and which is remunerated for the services performed.

RECORDS OF BUREAU OF VITAL STATISTICS.— An effort is to be made by the new president of the Board of Health to secure the safety of the records of the Bureau of Vital Statistics, which are now kept in a room on the third floor of the building on Sixth Avenue which was leased for the department in 1899 for 10 years. For some time past most of them have been filed in metal boxes, but the protection against loss by fire is not regarded as at all adequate. Back to 1873 the marriages, births and deaths are indexed, and between 1873 and 1853 the statistics are complete, as filed by the month. With small intervals of blank pages, they go still further back, to 1847, when the records of marriages and births cease. The deaths, however, are recorded as far back as 1800, and on the death certificate of Alexander Hamilton, in 1804, the following remarks are set down: "Fell in a duel with Col. Aaron Burr near Wehawk, N. Jersey, on the morning of the Ninth of July; interred at the expense of the Corporation of the City of New York." As many as 250 transcripts, it is stated, are made from the records each week, principally for the use of lawyers, as the bureau has come to be a most important adjunct to the machinery of the courts.

BOARD OF HEALTH.— The first meeting of the new board of health in New York, consisting of Health Commissioner Lederle, president, Police Commissioner Partridge, and Health Officer Doty, was held Jan. 2. One hundred and fifty-seven persons were dropped from the pay-rolls. Dr. H. M. Biggs was appointed medical advisor to the board, and the Medical Advisory Board, consisting of twelve physicians, to serve without salary, was named. The new names on this board are: Drs. E. G. Janeway, J. D. Bryant, W. M. Polk, A. Jacobi, L. E. Holt, F. P. Kinnicutt, A. A. Smith and J. W. Brannan. Dr. Joseph H. Raymond was appointed sanitary superintendent in Brooklyn, in place of Dr. Robert Black, resigned, and Dr. Edward F. Hurd sanitary superintendent in the borough of the Bronx, in place of Dr. Eugene Monaghan, resigned. Joseph A. Deghues Ph.D., heretofore chemist's assistant, was appointed chemist to the board.

IMPROVED AMBULANCE SERVICE.— The hospital work in the borough of the Bronx has been improved by the establishment of an efficient ambulance service at Lebanon Hospital, which is situated midway between the Harlem and Fordham hospitals, which have hitherto had the entire Bronx, a very large district, to care for. Lebanon Hospital is a semipublic institution, partly supported by city funds.

CENTENARIAN.— Almon Streeter of Rensselaer Falls, N. Y., the oldest inhabitant of St. Lawrence County, died Dec. 31 at the reputed age of 107 years.

## Miscellany.

### SMALLPOX AND LIGHT.

JOHN OF GADDESDEN'S method of treating the smallpox in the King of England's son is well known. But what is less generally known is the fact that the treatment of the disease by wrapping up the patient in red clothing and surrounding his bed with red hangings still survives in various parts of the world — in Roumania, Japan and Tonquin. In 1832 Picton obtained good results, in so far as subsequent scarring was concerned, by keeping patients in obscurity. In this country, Black, Waters and Barlow recorded similar results. Finsen came to the conclusion this was really due to cutting off the chemical rays. He therefore advocated the use of deep red glass, which does not allow the passage of actinic rays; artificial lights used in the rooms or wards were also to be protected by deep red globes. The various rules laid down by Finsen were practised by Lindholm and Swendsen of Bergen, who published their results, which were very favorable, in 1893. They were confirmed by Feilberg, Strandgaard, and by Œttinger in France, but Juhel-Renoy found that the method only succeeded in very discrete forms of the malady, which got well of themselves. This unfavorable opinion was combated by Péronnet, who criticised Juhel-Renoy's treatment as incomplete, and not in accord with Finsen's rules. Courmont, of Lyons, has since tried the red light treatment with negative results. This is confirmed by an eye-witness, Bayle. One lesson learned at Lyons was that the red light was very trying both to the patients and the attendants. The former, four women, became much excited and repeatedly asked to be placed in the ordinary light of day; and the latter were unable to go on with their duties without blue spectacles. This peculiar influence on the mind of those working in red light has been observed among the employees of the firm of Lumière of Lyons. The rooms where photographic plates and papers were handled were illuminated by red light, and it was not unusual to find some of the workmen laboring under great mental excitement. But since

green light, which also stops the actinic rays, has been substituted for red, such cases no longer occur. This peculiar disturbing effect of red light has been confirmed in the case of variola patients by Oleinikoff. Several said they preferred the scarring to being confined in the red light; some also became delirious and had terrifying hallucinations. In confluent smallpox, however, delirium is not uncommon. Perhaps the substitution of green light for red would answer, but this is a matter for experiment. The reader interested in the subject will find further details in Dr. Finsen's paper in the *British Medical Journal* of Dec. 7, 1895, p. 1412, and references to the more recent literature of the subject in Dr. Bayle's Lyons thesis entitled "Contribution à l'Etude de la Photothérapie (1901)."—*British Medical Journal.*

## SANITARY ASPECTS OF THE PANAMA AND NICARAGUA CANALS.

In an article on this subject[1] Mr. George A. Soper, of New York, reaches the following summary of conclusions:

(1) Both the Panama and Nicaragua routes pass through a country which is extremely unfavorable to health.

(2) The climate of Nicaragua and Panama differ chiefly with respect to rainfall, the precipitation on the Panama route being distinctly the less unfavorable to health.

(3) Considerations of soil, topography and the nature of the engineering work to be done are in favor of Panama. Fewer men would be required; they would be concentrated and, hence, their health could be more easily protected.

(4) There is practically no difference in the nature of the diseases to be anticipated, nor in the precautions to be taken to protect health in either case.

(5) After construction, the difficulty of controlling health conditions along the line would be greater on the Nicaragua route.

(6) The shorter Panama route would cause passing vessels to be exposed to the possibilities of infection for a much briefer interval. The danger of communicating diseases to and from the Isthmus is fairly represented by the difference in time which it would take ships to pass from ocean to ocean by the two routes.

(7) The likelihood of the canal becoming a disease focus, thus interfering with commerce, by requiring all healthy ports to quarantine against ships passing the Isthmus, is much greater in the case of Nicaragua than Panama.

(8) Although the Panama health records are much darkened by heavy losses of life by disease, this is not to be construed as evidence of the existence of conditions favoring a greater immunity from sickness along the Nicaragua line. More lives have been lost at Panama because more lives have been unnecessarily exposed. The experience of Panama is to be taken as a warning of conditions which are liable to be repeated on either route.

(9) Whichever canal is selected, extraordinary care will be required to maintain satisfactory health conditions during construction and after completion of the work.

(10) Plans and preparations in detail for the organization of the efficient sanitary and medical department should be made as early as possible so that the measures necessary for the prevention of disease may be carried on in harmony with the engineering projects.

[1] The Medical News, Jan. 4, 1902.

## METEOROLOGICAL RECORD

For the week ending Dec. 28, in Boston, according to observations furnished by Sergeant J. W. Smith of the United States Signal Corps:

| Date | Barometer. Daily mean. | Thermometer. Daily mean. | Thermometer. Maximum. | Thermometer. Minimum. | Relative humidity. 8.00 A.M. | Relative humidity. 8.00 P.M. | Relative humidity. Daily mean. | Direction of wind. 8.00 A.M. | Direction of wind. 8.00 P.M. | Velocity of wind. 8.00 A.M. | Velocity of wind. 8.00 P.M. | We'th'r * 8.00 A.M. | We'th'r * 8.00 P.M. | Rainfall in inches. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S...22 | 30.20 | 20 | 29 | 10 | 71 | 66 | 68 | W | S | 3 | 10 | C. | O. | |
| M..23 | 29.89 | 34 | 40 | 29 | 70 | 74 | 72 | S W | S E | 12 | 4 | O. | O. | T. |
| T..24 | 29.65 | 38 | 41 | 35 | 100 | 66 | 83 | W | W | 12 | 20 | R. | C. | .68 |
| W..25 | 29.90 | 36 | 38 | 34 | 74 | 81 | 78 | S W | W | 8 | 8 | O. | C. | .01 |
| T..26 | 30.20 | 36 | 42 | 30 | 70 | 64 | 67 | W | S E | 11 | 9 | C. | O. | |
| F..27 | 29.94 | 36 | 40 | 32 | 100 | 69 | 84 | N | N W | 11 | 14 | R. | C. | .81 |
| S...28 | 30.32 | 36 | 41 | 31 | 78 | 74 | 76 | N | S E | 3 | 12 | F. | O. | |
| ☞ | 30.01 | | 39 | 29 | | | 75 | | | | | | | 1.50 |

*O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow. † Indicates trace of rainfall.
☞ Mean for week.

## RECORD OF MORTALITY

For the Week ending Saturday, Dec. 28, 1901.

| Cities. | Estimated population. | Reported deaths in each. | Deaths under five years. | Percentage of deaths from: Infectious diseases. | Acute lung diseases. | Typhoid fever. | Diarrheal diseases. | Diphtheria and croup. |
|---|---|---|---|---|---|---|---|---|
| New York | 3,437,202 | 1,366 | 722 | 24.15 | 17.64 | 1.02 | 4.46 | .14 |
| Chicago | 1,698,575 | — | — | — | — | — | — | — |
| Philadelphia | 1,293,697 | 476 | 127 | 24.84 | 14.10 | .63 | 5.26 | .21 |
| St. Louis | 575,238 | — | — | — | — | — | — | — |
| Baltimore | 508,967 | 187 | 54 | 19.57 | 16.85 | .54 | 1.63 | — |
| Cleveland | 381,768 | — | — | — | — | — | — | — |
| Buffalo | 352,387 | — | — | — | — | — | — | — |
| Cincinnati | 325,902 | — | — | — | — | — | — | — |
| Pittsburg | 321,616 | 141 | 39 | 17.02 | 17.72 | 7.09 | .70 | — |
| Washington | 278,718 | — | — | — | — | — | — | — |
| Milwaukee | 285,315 | — | — | — | — | — | — | — |
| Providence | 175,597 | 58 | 15 | 22.41 | 8.62 | 5.17 | 1.72 | 1.72 |
| Boston | 560,892 | 176 | 42 | 23.85 | 16.47 | 3.41 | 1.70 | .57 |
| Worcester | 118,421 | 34 | 16 | 17.64 | 14.70 | — | — | 5.88 |
| Fall River | 104,863 | 26 | 8 | 11.55 | 15.40 | — | — | — |
| Lowell | 94,969 | 32 | 15 | 21.87 | 25.00 | — | 9.37 | 3.12 |
| Cambridge | 91,886 | 25 | 7 | 16.00 | 4.00 | — | 4.00 | — |
| Lynn | 68,513 | 20 | 7 | 20.00 | 10.00 | — | 10.00 | 5.00 |
| Lawrence | 62,559 | 22 | 11 | 27.27 | — | 9.09 | — | — |
| New Bedford | 62,442 | 15 | 6 | 20.00 | 6.67 | 6.67 | — | — |
| Springfield | 62,059 | 23 | 7 | 8.70 | 8.70 | — | — | — |
| Somerville | 61,643 | 15 | 2 | 33.35 | 6.67 | — | — | — |
| Holyoke | 45,712 | 10 | 3 | 10.00 | — | 10.00 | — | — |
| Brockton | 40,063 | 13 | 5 | 38.50 | — | 7.70 | — | 15.40 |
| Haverhill | 37,175 | 7 | 2 | 14.30 | 14.30 | — | — | — |
| Salem | 35,956 | 10 | 4 | 10.00 | — | 10.00 | — | — |
| Chelsea | 34,072 | 15 | 4 | 20.00 | — | — | 6.67 | 13.33 |
| Malden | 33,664 | 16 | 7 | 18.75 | 12.50 | 6.25 | — | — |
| Newton | 33,587 | 6 | 2 | 16.67 | 16.67 | 16.67 | — | — |
| Fitchburg | 31,531 | 11 | 2 | — | 27.27 | — | — | — |
| Taunton | 31,036 | 12 | — | 25.00 | — | — | — | — |
| Gloucester | 26,121 | 8 | 1 | — | — | — | — | — |
| Everett | 24,336 | 5 | 1 | 20.00 | — | — | — | — |
| North Adams | 24,200 | 7 | 2 | — | 28.60 | — | — | — |
| Quincy | 23,899 | 9 | 3 | — | 11.11 | — | — | — |
| Waltham | 23,481 | 4 | 1 | 25.00 | — | — | — | — |
| Pittsfield | 21,766 | 2 | — | — | 50.00 | — | — | — |
| Brookline | 19,935 | 1 | — | — | — | — | — | — |
| Chicopee | 19,167 | 8 | 3 | 12.50 | 12.50 | — | 12.50 | — |
| Medford | 18,244 | 9 | 1 | 11.11 | 33.33 | — | — | — |
| Newburyport | 14,487 | 8 | 1 | — | 12.50 | — | — | — |
| Melrose | 12,962 | 5 | 1 | 20.00 | — | — | — | — |

Deaths reported 2,810; under five years of age, 1,127; principal infectious diseases (smallpox, measles, scarlet fever, cerebrospinal meningitis, diphtheria and croup, diarrheal diseases, whooping cough, erysipelas, fevers and consumption) 635, acute lung diseases 440, consumption 293, scarlet fever 30, erysipelas 4, typhoid fever 45, whooping cough 13, cerebrospinal meningitis 14, smallpox 32, measles 41, diarrheal diseases 56.

From whooping cough, New York 10, Philadelphia 1, Baltimore 1, Lowell 1. From cerebrospinal meningitis, New York 2, Philadelphia 1, Providence 1, Boston 1, Worcester 2, Lowell 1, Lynn 1, Brockton 2, Chelsea 2, Marlborough 1. From scarlet fever, New York 16, Philadelphia 9, Pittsburg 1, Boston 3, Taunton 1. From erysipelas, New York 2, Philadelphia 1, Baltimore 1. From measles, New York 34, Pittsburg 4, Boston, Lowell and Brockton 1 each. From smallpox, New York 4, Philadelphia 19, Boston 8, Hyde Park 1.

In the thirty-three greater towns of England and Wales, with an estimated population of 11,463,026, for the week ending Dec. 14, the death-rate was 18.5. Deaths reported 4,076; acute diseases of the respiratory organs (London) 427, whooping cough 55, diphtheria 73, measles 145, smallpox 27, scarlet fever 38.

The death-rate ranged from 11.0 in Blackburn to 24.7 in Oldham; Birkenhead 17.3, Birmingham 22.6, Bolton 17.0, Bradford 14.3, Brighton 17.7, Bristol 17.5, Burnley 19.3, Cardiff 16.4, Croydon 12.8, Derby 13.3, Halifax 15.9, Hull 14.5, Leeds 18.2, Leicester 17.7, Liverpool 20.9, London 18.5, Manchester 19.6, Newcastle-on-Tyne 20.3, Norwich 20.5, Plymouth 22.7, Portsmouth 18.1, Preston 22.1, Salford 21.2, Swansea 16.5, West Ham 15.9, Wolverhampton 16.0.

## CHANGES IN THE MEDICAL CORPS OF THE NAVY FOR THE WEEK ENDING JAN. 4, 1902.

R. C. HOLCOMB, assistant surgeon. Detached from duty with the Marine Battalion, Cavite, and from the "Helena," and ordered home to wait orders.

R. M. YOUNG, assistant surgeon. Detached from the "Constellation," and ordered to the Asiatic Station via the "Rainbow," as the relief of Assistant Surgeon R. C. Holcomb.

J. B. BUCHANAN, assistant surgeon. Detached from the "Columbia" and ordered to the "Constellation."

E. M. BLACKWELL, assistant surgeon. Ordered to the "Columbia."

A. M. FAUNTLEROY, assistant surgeon. Detached from the Naval Academy and ordered to the Naval Hospital, Norfolk, Va.

P. E. MCDONNOLD, assistant surgeon. Ordered to the Naval Academy.

## SOCIETY NOTICE.

SUFFOLK DISTRICT MEDICAL SOCIETY.—There will be a meeting of the Section for Clinical Medicine, Pathology and Hygiene, in Sprague Hall, Boston Medical Library Building, 8 The Fenway, Wednesday, Jan. 15, at 8 P.M. Dr. Henry Jackson will present a paper entitled, "Some Points in the Diagnosis of Acute Abdominal Disease." Drs. J. M. Jackson and C. A. Porter will report "Three Cases of Thrombosis of the Mesenteric Vessels." Discussion by Drs. Elliot, Monroe and Bottomley.

H. F. HEWES, M.D., Secretary.

## RECENT DEATHS.

OSCAR DUNREATH ABBOT, M.D., M.M.S.S., died in Manchester, N. H., Jan. 1, 1902.

ROYAL BLOOD PRESCOTT, M.D., M.M.S.S., died in Nashua, N. H., Jan. 2, 1902, aged 63 years.

## BOOKS AND PAMPHLETS RECEIVED.

Zur Waldeyer-Feier. By Carl Beck, M.D. Reprint. 1901.

On a Case of Sarcoma Treated by the Röntgen Rays. By Carl Beck, M.D., New York. Illustrated. Reprint. 1901.

Some New Points in Regard to Raynaud's Disease. By Carl Beck, M.D., of New York. Illustrated. Extract. 1901.

Die Operation der Hypospadie. von Prof. Dr. Carl Beck, New York. Illustrated. Leipzig: Verlag von Georg Thieme. 1901.

Modern Aspects of Congenital Osseous Malformations. By Carl Beck, M.D., New York City. Illustrated. Reprint. 1901.

Transactions of the Louisiana State Medical Society at its Twenty-second Annual Session, held at New Orleans, La., April 18, 19, 20, 1901.

Separat-Abdruck aus der Deutschen Aerzte-Zeitung. Herausgeber: Hofrat Dr. E. Stadelmann. 1901: Verleger: Louis Marcus, Verlagsbuchhandlung. 1901.

A Case of Double Penis, Combined with Exstrophy of the Bladder and Showing Four Ureteral Orifices. By Carl Beck, M.D., of New York. Illustrated. Reprint. 1901.

Clinical Hermatology, a Practical Guide to the Examination of the Blood with Reference to Diagnosis. By John C. DaCosta, Jr., M.D. Illustrated. Philadelphia: P. Blakiston's Son & Co. 1901.

Transactions of the Association of American Physicians. Sixteenth Session held at Washington, D. C., April 30 and May 1 and 2, 1901. Vol. XVI. Printed by the Association, Philadelphia, 1901.

Proceedings of the Philadelphia County Medical Society [During November]. Illustrated. Published by the Society, Monthly, from October to June inclusive, at 110 S. Eighteenth Street, Philadelphia, Pa. 1901.

XIVe Congrès Séance d'ouverture, 21 Octobre, 1901. Discours de M. Lucas-Championnière, Chirurgien de l'hôtel-dieu, membre de l'académie de médecine, Président du xive Congrès. Coulommiers: Imprimerie Paul Brodard. 1901.

The Twentieth Century City. A Record of Work Accomplished for Civic Betterment. Proceedings of the Annual Convention, 1901, of the American League for Civic Improvement. Illustrated. Springfield, O.: The Home Florist. 1901.

Faux Adénoidisme par Insuffisance respiratoire chez des névropathes. Troubles de la voix Parlée et chantée. By Marcel Natier et Abbé Rousselot. Illustrated. Paris: Pulications de La Parole, Institut de Laryngologie et Orthophonie. 1901.

A Case of Peripheral Pseudo-Tabes with Exaggerated Reflexes. Autopsy and Microscopical Examination Showing Degeneration of the Peripheral Nerves and no Lesions of the Spinal Cord. By Charles K. Mills, M.D. Illustrated. Reprint. 1901.

De la valeur comparative des procédés médicaux ou Chirurgicaux et des exercices orthophoniques dans le traitement de certains vices de prononciation. Paris: Publications de La Parole Institut de Laryngologie et Orthophonie. Illustrated. 1901.

Treatment of Lateral Curvature of the Spine. By De Forest Willard, M.D., Clinical Professor Orthopedic Surgery, University of Pennsylvania; Surgeon to the Presbyterian Hospital, Philadelphia. Illustrated. Detroit: William M. Warren. 1901.

Saunders' Question-Compends. Number I. Essentials of Physiology, prepared especially for Students of Medicine. By Sidney P. Budgett, M.D. Arranged with Questions following each chapter. Illustrated. Philadelphia and London: W. B. Saunders & Co. 1901.

Verhandlungen des Dritten Nordischen Kongresses für innere medicin. Zu Kopenhagen D. 26-28 Juli, 1900. Herausgegeben vom Oberarzt, Dir Dr. H. Köster, Generalsekretär, Gothenburg. Stockholm: Kungl. Boktryckeriet. P. A. Norstedt & Soner. Illustrated. 1901.

Political Assassinations in Some of Their Relations to Psychiatry and Legal Medicine. By Charles K. Mills, M.D., of Philadelphia, Professor of Mental Diseases and of Medical Jurisprudence in the University of Pennsylvania. Reprint. 1901.

An Experimental and Clinical Research into Certain Problems Relating to Surgical Operations, an Essay Awarded the Alvarenga Prize for 1901 by the College of Physicians of Philadelphia. By George W. Crile, A.M., M.D., Ph.D. Illustrated. Philadelphia: J. B. Lippincott Co. 1901.

The Separate Localization in the Cortex and Subcortex of the Cerebrum of the Representation of Movements and of Muscular and Cutaneous Sensibility. By Charles K. Mills, M.D., Clinical Professor of Nervous Diseases in the University of Pennsylvania; Neurologist to the Philadelphia Hospital. Reprint. 1901.

Progressive Medicine. A Quarterly Digest of Advances, Discoveries and Improvements in the Medical and Surgical Sciences. Edited by Hobart Amory Hare, M.D., assisted by H. R. M. Landis, M.D. Vol. IV. December, 1901. Illustrated. Philadelphia and New York: Lea Brothers & Co. 1901.

Forty-sixth Annual Report of the Executive Committee of the Hartford Hospital, including the Seventeenth Annual Report of the Old People's Home and the Twenty-fourth Annual Report of the Hartford Hospital Training School for Nurses. Illustrated. Hartford Press: The Case, Lockwood & Brainard Company. 1901.

Mitteilungen über die Luft in Versammlungssälen-Schulen und in Räumen für öffentliche Erholung und Belehrung sowie einiges über Förderung der Ventilations, frage in technischer Beziehung und durch gesetzgeberische Mafsnahmen. von Th. Oehmcke, Regierungs-und Baurat a. D. München: Druck von R. Oldenbourg. 1901.

# Original Articles.

## DIFFICULTIES IN THE DIAGNOSIS OF SYPHILIS.[1]

BY JAMES C. WHITE, M.D., BOSTON.

At your kind request, Mr. President, it is my purpose to say something about the difficulties in the diagnosis of syphilis, and of the errors which, therefore, so frequently arise.

There are three great and terrible diseases which carry off a large proportion of mankind in all parts of the world — leprosy, tuberculosis and syphilis. Of two of them we know the cause to be a bacillus. In the other one, syphilis, we have not yet recognized the bacillus. There can be not the slightest question, however, of its existence. We simply have failed thus far to know what reagents will show us its presence. That same remark might have been made not many years ago both with regard to tuberculosis and leprosy. Of the two in which we know the bacilli we find great difficulty in recognizing any physical differences in their appearance and behavior under reagents, and yet we know that so alike as they are, they are capable of producing very great differences of tissue change in the affections of which they are pathognomonic. So in syphilis we have a disease which presents appearances — tissue changes — very different from those of tuberculosis and of leprosy.

Now, it is hard to see why these minute bodies, so alike, should yet be able to produce in human cutaneous tissues so great differences of action. Of course, all these tissue changes are not due to the presence in the tissues of the bacilli as such, but we must recognize a power in these minute bodies of giving off emanations, which may be absorbed and carried to all parts of the human tissues, the skin as well, there to exert influences which are quite unlike in their results to those produced by the presence of the bacilli themselves, that is, the lesions in which we find the bacilli may differ very greatly from those in which we do not find them in the same patient, so that we are forced to adopt the doctrine of toxins, or emanations, which are capable of producing great varieties of tissue change, which the bacilli themselves are not capable of doing directly. Leprosy has two chief types of manifestations which generally run into each other, if the patient lasts long enough — the tubercular form and the anesthetic form, according as the bacillus invades first the cutaneous tissues or the nerve tissues. Tuberculosis of the cutaneous tissues presents three or four distinct clinical forms. Syphilis, on the other hand, is capable of producing a great number of what we recognize as types of tissue change, marked by characteristic cutaneous lesions. The number of cutaneous lesions, as we all know, which characterize the affections of the skin are very few,— 10 or 15 in all,— primary and secondary, so called. There are, however, some 120 individual affections of the skin, and with those 10 or 15 lesions we are capable of making pictures by combinations, as we spell an infinite number of words with double that number of letters. So with half that number of lesions we know we are capable of producing a great variety of tissue changes and very distinct cutaneous affections. It is, indeed, on account of the limited number of these lesions that the great difficulty arises in their interpretation. We have to judge by their chronology, by their grouping, by their color, and by many other characteristics before we can draw any inferences whatever as to what those particular combinations mean. Now, it necessitates a very intimate knowledge of all cutaneous changes in all other affections of the skin, before we can make a diagnosis of the syphilodermata, for syphilis is only one of the affections in that group of 115 or 120 dermatoses which I spoke of, and it is in many cases largely by exclusion of the more common affections of the skin that we are familiar with, that we are able to arrive at a diagnosis. Formerly, as the older members here know, it was not infrequent, whenever a very rare affection of the skin presented itself, if it were not recognized by the physician, to say that it must be syphilis because he did not know what else it might be.

When I was a house pupil in the Massachusetts General Hospital there were two cases under observation which impressed themselves on me to a very marked degree, both uncommon diseases, both marked by very unusual and striking phenomena. One of them was a gentleman who occupied for a long time one of the principal rooms there, and who was shown as a wonderful case. He presented numerous forms of lesions, the most striking which ever occur upon the skin, and, inasmuch as none of the staff at the hospital had ever seen such a case, they concluded that it must be a rare form of syphilis. Now we know that such cases are called *granuloma fungoides*. Another case was a man who lay in the ward for months, and presented peculiar cutaneous phenomena. The staff came to the opinion that it must be a case of syphilis because it could not be anything else. That was a case of leprosy, and, as none of the attending physicians were familiar with leprosy, it was to them a case of syphilis. Thus, all unknown and striking forms of skin disease were liable to be classed under its name. Of course, now that our knowledge of cutaneous affections is much more extended, although every few years new dermatoses are being added to our list, and affections are being isolated which have been previously confounded with others, we are able to restrict syphilis to its own legitimate phenomena.

Now, in addition to these inherent difficulties in connection with the diagnosis of syphilis, that is, its great variability in methods of expression, we have those fallacies with regard to certain points connected with it which may be called almost classic, and which, I am sorry to say, exist today to a considerable extent among the profession. One is, in the first place, the significance

[1] Remarks made at the meeting of the Boston Society for Medical Improvement, Nov. 4, 1901.

of failure to get the history or sign of the initial lesion. Physicians often say, who come to me with regard to the case which they may bring to me in consultation: "I don't see how I can make this out to be a case of syphilis, because I do not get any history of an initial lesion, I do not get any evidence of a primary lesion." I tell them they may generally ignore the matter of the primary lesion, and that, as a rule, it is of little consequence in determining the history or existence of syphilis. It is of so little consequence, in fact, whether there has ever been any history of initial lesion, that I rarely take the trouble to ask any questions about it in cases where a patient presents upon the skin syphilodermata in any form. Patients will often conceal all they can with regard to its previous existence, although they know the importance of your having all the information possible on which to base a proper diagnosis. They seem to be much more ashamed of the existence of the initial lesion than of the lesions which follow in its train. In the next place, it is often so trivial in character that it passes entirely unnoticed by them, and they are not aware, it may be, of its existence, or it has had an extragenital site, the nature of which they have not recognized at all; so that it is, as I hold, of little importance — the failure to get a history of an initial lesion. In women that lesion is more often masked than not.

Next, with regard to the so-called "copper-color" of the efflorescence, a great deal of stress is laid upon that, and a great many mistakes are made in saying: "This cannot be syphilis, because I do not find any 'copper-color' about the eruption." It is a great pity that any such term was ever invented. In leprosy, tuberculosis and all chronic tissue changes in the skin, if the lesions exist a long time, and especially on certain sites of the body, they may have a dull reddish, copperish hue. So in syphilis also; but the copper hue in the eruptions is exceptional, not the rule, as cases occur, because we see more of the earlier manifestations of syphilis than we do of the later ones, therefore, it is fair to say that such tints of the syphilodermata are exceptional. They do exist, but so they do in other affections of the skin, and very little weight should be laid upon that. Another matter: "No scabs in the hair." Now, certain forms of syphilis affect the scalp; many others do not. I should say in the great majority of syphilodermata, as we see them, the scalp is not affected at all. There are so many other affections in which the scalp is affected, moreover, that it is well not to lay too much stress upon a negative answer in that regard. It is of very little consequence in the diagnosis of syphilis whether there are any lesions on the scalp or not, as a rule.

Another fallacy exists concerning loss of hair. Patients say: "My hair has not come out any and therefore it is not syphilis." Or, on the other hand, patients with syphilis often have the greatest fear of loss of hair, and you can generally safely assure them that, as a rule, they have nothing to fear as to loss of hair, and that loss of hair in syphilis is the exception and not the rule. When the hair is lost it is in very characteristic ways, so that one rarely fails to interpret aright this peculiar form of alopecia, but it is an exceptional and not a constant symptom.

Another point in infantile syphilis is the lack of emaciation, or marasmus. We are told that syphilitic children are emaciated, having a resemblance to monkeys, and that they are not nourished well at all, the skin is wrinkled, they look like little old people, etc. This is true in exceptional cases, but it would not do to lay any weight whatever on that in forming an opinion as to whether a suspected case in an infant were that affection or not. A large proportion of children with syphilis may be plump and healthy when they are born, or, I had better say, syphilis very often occurs in perfectly plump, healthy looking infants, and, moreover, the disease will begin and run a considerable time without telling at all upon the general appearance of the patient, so that you are astonished at the healthy aspect and the apparently healthy condition of infants at times with syphilis, and one is apt to be very much deceived in consequence. These are what I should call the traditional fallacies with regard to the diagnosis of syphilis.

Then comes the great difficulty arising from the power of simulation, or resemblance to many well-known common affections, which the syphilodermata present. That is undoubtedly owing to the limitations of the skin in its power of producing tissue changes under a great variety of exciting circumstances. The lesions which are earliest and most common in syphilis are, first, hyperemic macules, generally of brief duration and often overlooked; papules and tubercles of varying size, becoming moist in certain localities; slightly elevated patches or areas flat and more or less scaling, or similar changes of annular form; papulo-vesicles; papulo-pustules; small follicular papules of conspicuously grouped arrangements; large and discrete follicular papules; vesicles; pustules; bullæ; and then among later forms of tissue change we have ecthymatous lesions, rupia-like crusts, scales, purpuric extravasations, pigmentary changes, nodules or gummata, deep destructive processes, and, finally, cicatrices. Now, with this great multitude of individual lesions it is evident that syphilis is capable of producing an almost endless variety of appearances in its cutaneous phenomena, so that it well deserves that title of the Protean malady. It is on this account also that confusion arises in diagnosis. Take the initial lesion of syphilis. We know what that is by inoculation experiments — a papule which lasts ordinarily a certain time in the macular stage, becoming papular. The infiltration extends peripherally and deeper, and subsequently undergoes secondary changes at times, and varies greatly in its appearances according to its site. Now, we have other lesions on the penis which are liable to be confounded with this. The soft ulcer (*ulcus molle*), and the herpetic forms of eruption, and very often mistakes occur in interpreting these

appearances. I always advise the students, in speaking to them of herpes progenitalis, to use very simple methods, never to treat a case by internal remedies, as long as there is doubt about the nature of the process. If it be herpes the vesicles will be multiple; but they may become excoriated and form a shallow ulcer. If it be herpes it is self-limited; if let alone, it cannot last beyond a certain time, and it never does harm to leave it alone — protect it and let it be. The diagnosis solves itself. If it be a soft ulcer, if it do not spread and is simply kept clean, it gets well under simple local treatment; it does not undergo marked infiltration, and never calls for constitutional treatment. If it spread rapidly, we know it is not herpes; we know it is not an initial lesion of syphilis. If it do spread rapidly, it is easily destroyed. Never cauterize it until you are thus sure of your diagnosis, and never give internal treatment for it. One sees, later in life, so many cases of mistakes of most serious character made in consequence of neglecting these simple rules. One is constantly appealed to by persons to know whether they have syphilis, in connection with life insurance, and especially with regard to marriage. You inquire why they ask. They say that two or three years ago they were told they had syphilis. You go back and try to make an analysis of the facts as they occurred. "You had a sore, you say, on the penis?" "Yes." "How long did it last?" "Well, the doctor cauterized it after it had been going two or three days, and it lasted a longer or shorter time;" therefore all means are lost of judging the nature of that process by the appearances at that era. "Did he do anything else?" "Gave me medicine at the same time." "What did he give you?" "Some 'potash' or mixed treatment." There he made the most serious mistake possible, because one cannot take iodide of potash alone or mixed with mercury without, in a great number of cases, producing an eruption. Unless a person is much better versed in the knowledge of the appearances iodides are capable of producing on the skin than most dermatologists are, it is utterly impossible to distinguish between possible syphilitic manifestations and an iodide eruption, and the physician later appealed to has lost every possible means of deciding whether that person had syphilis or not. It should be almost a criminal offence for a physician to give iodide of potash under such circumstances, or ever to give iodide of potash in the early stages of syphilis, except in rare malignant and destructive forms. It is wholly unnecessary, and leads to serious errors with regard to the disease afterwards.

The penis is a very frequent seat of the itch insect, and there he produces some of his best performances in the way of all sorts of cutaneous changes, and they are so exaggerated that at times they are mistaken for syphilis. I have seen many cases of scabies treated as syphilis, and this diagnosis was simply because on the penis were discrete lesions. Now it happens that those discrete lesions in scabies on the penis may be by far the most important diagnostic appearance of that disease.

Moreover, the affections which syphilis simulates are many. I will briefly mention those which are most apt to be confounded with syphilis: In the first place, measles. That seems strange, but to a dermatologist who does not see much of the exanthematous rashes it is sometimes a pretty difficult matter to determine at sight a case of measles, and I am always ready to excuse a physician when he mistakes a case of measles for syphilis, or *vice versa*. I have treated physicians themselves who had syphilis and had been treated for measles by brother physicians, because syphilis, when it develops in a very rapid way over the whole surface of the body, as it does like a rash accompanied by marked febrile symptoms, the early syphilitic fever, closely simulates, at times, the appearances of measles, and one can readily understand how such a mistake may be made.

Varicella may be mistaken for syphilis, and so may variola. I have had a few patients come to my room at the hospital, presenting a universal acute pustular syphilis covering their faces, and I have been tempted to say to the class: "If you are afraid of smallpox you had better leave before I take the opportunity of close examination of the case." I am not one of those who believe themselves capable of diagnosticating smallpox easily. I see very little of it, naturally; I do, unfortunately, see an occasional case which comes into the clinic, and I am happy to ask one of my colleagues there, who fortunately has had considerable experience in the treatment of smallpox, to make the diagnosis. I find very great difficulty in recognizing the differences between varicella and variola, and I hope all of you are possessed of more acute powers of discrimination than I am in that respect, but I have seen some very serious errors made, and I have seen why both varicella and variola may be mistaken for syphilis and for each other. Of course, that is diagnosis at sight I am speaking of, and one has to make up one's mind pretty quickly in cases of suspected variola.

There is an affection called pityriasis rosea described years ago by Gibert. It is characterized by the appearance over small or large portions of the general surface, especially the trunk, of circumscribed, slightly scaling patches, itching more or less, sometimes covering the whole body thickly. Physicians as a rule do not recognize it. There is no reason they should, because they were not taught about it when students, and unless they have seen a case or two, they would hardly recognize it. In a series of cases of the disease a very close resemblance to scaling syphilodermata of mild grade will be observed. I have seen a few cases in which I had to confess my complete ignorance at sight, whether the patient had pityriasis rosea or syphilis. Of course, there are other associated manifestations which ought to enable one to make the diagnosis, but sometimes they are masked, and sometimes it is a very difficult matter to distinguish.

Eczema in adults would not be easily mistaken for syphilis, but infantile eczema may very well be. By no means infrequently is a child affected apparently with erythematous eczema and presenting no physical appearances whatever which enable one to distinguish it from cutaneous syphilitic changes of the same type, so that it is by no means infrequent for infants to come to the hospital and to have written on their case paper "No treatment at present." Later they develop those associated conditions which make the diagnosis of syphilis certain.

Psoriasis rarely occurs on the palms, but there the lesions simulate closely the appearances of syphilis of these parts, and it is perhaps impossible to judge by them alone, without a history and without observation of other portions of the body, whether you are dealing with syphilis or psoriasis.

Lichen scrofulosorum, so called, is an affection described by Hebra, characterized by the appearance of small papules in clusters, sometimes in ring form, on the trunk in debilitated persons. Now it is looked upon as produced by the toxins of the tubercle bacillus; but it closely resembles some cases of small clustered syphilodermata, and, without other means of diagnosis, judging by the cutaneous appearances alone, it might be difficult at times to distinguish them.

We have cases of universal acne, and I do not know anything more puzzling at times than to distinguish the two affections, a tubercular and pustular syphiloderm from a generalized acne. In the cutaneous manifestations alone, the resemblance is very strong.

Ecthyma is a name we apply to certain lesions, mostly below the knee,— the large chronic crusted sores of deep penetration which you see so often in poor, miserable subjects. Those lesions, too, closely resemble the simple rupia-crust-like manifestations of syphilis of those parts.

Pemphigus in new-born children is sometimes syphilitic and sometimes it is not, and that is about all you can say. It is almost impossible to make your diagnosis in the beginning as to whether blebs in infants are due to syphilis, or are an innocent type which is sometimes epidemic and occurs in hospitals without any relation whatever to syphilis. It is a very difficult problem at times to answer the question as to what a case is going to be.

There is an affection called erythema induratum, described years ago by Bazin, although forgotten by the profession. It is only within a few years that it has come to be recognized again. It is characterized by nodules something like those of erythema nodosum, on the lower legs as a rule, extremely chronic in their course, which develop to the size of a bullet or nutmeg, and penetrate deeply into and below the skin; instead of occurring on the front of the leg, as the nodules of erythema nodosum do, they are situated chiefly on the lateral and posterior surfaces of the lower legs, and often ulcerate and form deep-seated lesions which last a long, long time. Lately, endeavor has been made to show that they are really evidences of tuberculosis in the skin, but formerly, they were undoubtedly, in the great majority of cases, considered syphilis. I remember two cases in the wards of the Massachusetts General Hospital which were so regarded.

Seborrhea on the scalp is sometimes closely simulated by syphilis. In other words, syphilis may show itself on the scalp in the form of seborrheal scales, or seborrhea accompanies syphilis at times. The most characteristic form of alopecia in syphilis is loss of hair in ragged, angular patches, many and not large, and that is the type that may often be recognized below the line of a man's hat a long way off. That is the most characteristic form of alopecia due to syphilis. The other form is that which is associated with seborrhea in which the hair is lost generally, thinning out from debility and disordered condition of the sebaceous glands. Alopecia areata, in which the hair is lost in areas, is entirely unlike the ragged alopecia of syphilis, and yet they are sometimes confounded.

Then we have certain changes in the pigmentary layer of the skin, certain forms of leucoderma and melanoderma associated together and rather characteristic of syphilis. I am not speaking of the pigmentary changes which follow upon the site of a previous syphilitic eruption, but simply pigment changes alone, where you have, on the sides of the neck especially, dark areas in which white areas occur. That is a very characteristic manifestation of syphilis. It is apt to be confounded with vitiligo, in which you have a similar increase and loss of pigment on the skin over great areas; but the seat on the neck of such changes, both of atrophy and hypertrophy of pigment, are very characteristic.

The tâches bleues (those blue spots), maculæ cerulæ, which occur upon the skin as the result of pubic lice, which one discovers not infrequently in hospitals on inspecting the surface of the patient, present appearances which somewhat resemble a macular syphiloderm, and might lead one to raise the question whether you are dealing with a late stage of macular syphilis in the skin.

Leprosy may be mistaken for syphilis. The example I first spoke of, at the time I was a student in the hospital, is an illustration, but at the present day such mistakes occur, too. The appearances do resemble each other at times, but I think one ought to be able to make the diagnosis in the great majority of cases; certainly those who are familiar with leprosy would not make that error. It would be too long a subject to go into the distinctions, however, between those affections. Tuberculosis, also, in some of its cutaneous phases, resembles syphilis. Lupus is not infrequently mistaken for syphilis, and some of the other forms of cutaneous tuberculosis as well; but the one phase I want particularly to call attention to is dactylitis, the enlarged turkey-leg finger, in which the nearest phalanx to the hand is bottle-shaped, dwindling down to the apex. Those cases were formerly all called syphilitic

dactylitis, but probably tuberculosis produces a far greater share of these conditions than syphilis does. I rarely see a case of syphilitic dactylitis; I see every year one or two cases of tuberculous dactylitis, so that dactylitis is by no means necessarily evidence of syphilis.

I might say something about drug eruptions which simulate syphilis. We used to know a few of them because they were produced by drugs commonly given, but now that new drugs are continually being invented, it is as much a part of our province to study the phenomena of their action on the skin, as it is of their action on any other parts of the system, because so many of them do affect the skin, and we are obliged to increase our knowledge in this regard to a considerable extent every year. These new drugs are given for certain affections, and sometimes the appearances produced by them on the skin are mistaken for these diseases themselves. I have already said as much as I care to with regard to iodism and the part it plays in confounding the diagnosis of syphilis. The bromide eruptions are much larger, more exaggerated in their types than those of iodine, as a rule, and are capable of producing on the skin, as you know, a great variety of extraordinary lesions; and such appearances in infants might be very deceptive, as to whether you are dealing with an uncommon type of infantile syphilis or not. I once saw a child who was sent into the hospital as having syphilis. There was some reason to question the appearances, and on pushing inquiries I found that the mother had been given by her physician iodide of potassium for syphilis. It was doubtful if she had syphilis. The child received the iodide through the mother's milk, which produced a mild type of iodic eruption on the skin, and that had been mistaken for syphilis and served to corroborate the diagnosis of syphilis in the mother.

Then we have difficulties due to the simultaneous occurrence of other affections with syphilis. We are having rather a spread of scabies, for instance, at present, and there have been lately in our skin room a number of cases where syphilis and scabies have been associated, and although it was easy to make the diagnosis, because we are familiar with the appearances of scabies, one can readily see why one disease might have escaped diagnosis by persons not thoroughly familiar with both these diseases. It complicates the appearances a good deal, these associated diseases, and sometimes renders the complete diagnosis a matter of impossibility. It is so when you have psoriasis and syphilis occurring in the same person. We had three such cases last year; and if we had not formed our diagnosis of psoriasis in the patient before the syphilitic manifestations showed themselves, it might have been difficult to know whether we were dealing with the one or the other, or with more than one affection. Sometimes affections are so associated with syphilis that one wonders what the connection between them may be; for instance, I have seen three cases where, under the inunction cure of syphilis, lichen planus showed itself. In some cases zoster appears during the inunction cure, just as when one is using arsenic zoster appears, so that some diseases by preference seem to occur in association with syphilis.

Then other difficulties arise from the failure to recognize initial lesions of extragenital site. Dr. Post gave such an admirable paper upon that subject within a year that I need not do more than to allude to it, except to say again how very important it is to be able to recognize syphilis in its earliest stages on other parts of the body than the genitals, and of how frequent occurrence that is, and how calamitous are the results this failure to recognize leads to. I think I stated in my remarks in connection with Dr. Post's paper, that I had treated a number of physicians who got their syphilis by treating cases of syphilis in their colleagues who did not know that the sore on their finger was syphilitic in character, and that the physicians who treated such sore contracted it also through their fingers and gave it to other members of their family in turn, which led to calamitous results, and all through their failure to recognize the nature of the lesions on the hand. First and last, such mistakes as that are of very common occurrence, not only in the professional forms of this disease, but in everyday life. I have seen two amputations done by surgeons for a syphilitic sore upon the finger. Moreover, one is constantly seeing similar mistakes made in connection with chronic syphilitic lesions of initial character on the lips.

Now, one word in conclusion: One must have courage to make a diagnosis of syphilis often, but one must never be deterred by the high social position of a patient or the family in which suspected cases occur, or the moral character of the suspected parties, because one meets syphilis in all professions, in every class of society; and, as I said, sometimes failure to make a diagnosis is made because the family physician does not dare to make that diagnosis, and that is something which he should always be prepared to do, on the merits of the case, irrespective of the social surroundings of the patient. And another word with regard to a common fault of the profession: insufficient treatment and the lack of care in seeing that their patients are instructed upon the necessity of a sufficiently long duration of treatment. I have adopted the rule of telling every patient whom I see for the first time with syphilis that it is a matter of three years' care at the shortest in every case; that the first year is a year of perpetual, continuous, uninterrupted treatment; that the second year may be the same or an interrupted course, according as the first year goes on under observation, and that the third year is a year of observation, without treatment, perhaps; but without that third year of observation and entire freedom during it from every manifestation of the disease, one cannot assure the patient that he is well or likely to remain well, and that the question of marriage, which so often comes up in connection with this disease, can never be properly

determined until after that third year has passed. I fear that we fail to impress upon patients the necessity of such long duration of treatment and observation in every case of syphilis as much as we should.

## NEEDLESS LAPAROTOMIES, WITH A REPORT OF EIGHT CASES.[1]

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THE cases of needless laparotomy reported here do not include those in which an exploration pure and simple was made, nor those in which through an error in diagnosis one surgical condition was found instead of the expected one. They are rather those in which no surgical lesion could be discovered at operation in spite of the fact that the symptoms, so far as they could be analyzed, led definitely to a diagnosis of some grave surgical trouble within the abdomen. They might be defined more accurately as operations for medical lesions, or operations in which no adequate cause for the symptoms could be found.

I have not included that curious type of pneumonia in which the abdominal signs are most prominent; fortunately, so far, I have escaped opening the abdomen under these circumstances, although the temptation has been strong in more than one instance: nor have I included cases of typhoid simulating appendicitis, as both of these classes deserve separate consideration by themselves.

The diagnosis in most of the cases is open to criticism and suggestion; it has been speculative by necessity, especially where the patients were unable to give any intelligent history or description of their symptoms. In some of them, operation, to be of benefit, on the basis of a correct diagnosis, was demanded at once, before the meagre history and the unsatisfactory examination could be deliberately analyzed.

In brief, the cases, with perhaps the exception of the last one reported, represent all of those in which I have regretted that I was led to operate; but as I mentally review them, I am afraid that, for the most part, I should repeat the procedure under similar circumstances.

To make my confession a complete one I should, perchance, include cases like the following: Chronic appendicitis and hysteria; exploration for supposed typhoid perforation due to a double pyelonephritis; enlarged spleen from unknown cause; supposed cholecystitis in a patient with gumma of the liver; supposed intra-abdominal hemorrhage from contusion, and passive congestion of the left hepatic lobe from tricuspid lesion. In these cases there was either some lesion, indeterminable beforehand, or else the condition of the patient demanded exploration as the more conservative measure. Operations similar to these must fall to the lot of everyone; the plea that the operation does no harm is not a good basis to work upon, and yet in a small proportion of cases this plea must be legitimate. There are abdominal diseases in which the true nature of the lesion is beyond the perception of the most skilled, and in some instances, grave and serious doubts must be cleared up by operation, and mainly on the basis that if the laparotomy does no good it can do no harm.

CASE I. *Acute phosphorous poisoning.*— A young woman was brought to the hospital in a delirious condition, by the ambulance. An indefinite history — most of which was gleaned from the husband after operation — of the use of some oil to produce abortion was obtained. The bowels had not moved for ten days, and for several days there had been persistent vomiting. The tongue was dry and dirty, and the distended abdomen was very sensitive to examination. A diagnosis of septic peritonitis was made. Under ether several quarts of high-colored urine, showing a thick ring of albumin, were drawn. A median incision showed some old adhesions about the pelvis but nothing abnormal elsewhere. The abdomen was filled with salt solution and closed, the patient living only a few hours.

Autopsy showed acute fatty degeneration of the liver, kidneys and myocardium, acute gastritis and cystitis, evidently caused by some irritant poison like phosphorus.

The distended bladder was recognized before section, but in the general picture made by the facies, the abdominal tenderness, the obstipation and vomiting, it played an unimportant rôle.

CASE II. *Hypertrophic cirrhosis.*— A young married woman, 32 years of age, had had attacks of weakness coming every 3 or 4 months for 2 years, and lasting about 2 weeks. For 6 weeks before entrance to the hospital there had been 7 or 8 loose stools daily, occasionally with blood and some vomiting. There was much general abdominal pain when the bowels moved, and occasional epigastric cramps independent of the other pain. There was much loss of weight, and for 4 weeks a marked jaundice. The color of the stools varied between dark and light, but at no time were characteristic. Examination showed intense jaundice, and the smooth edge of the liver could be felt at the level of the umbilicus. The pain persisted and the patient grew delirious. The diarrhea meanwhile continuing with almost constant tenesmus, and the temperature indicating a septic condition, the abdomen was opened. The liver was found to be smooth, symmetrically enlarged and of a mottled yellow color without evidence of local induration. Close to the celiac axis a hard nodule of the size of the thumb could be felt, but its nature could not be determined. As nothing abnormal was found elsewhere the abdomen was closed. On the following day the jaundice was less marked, vomiting ceased, and the patient felt better. The jaundice rapidly faded, the diarrhea lessened, and by the end of three weeks she was in an excellent condition, practically without jaundice or symptoms. Later I learned indirectly that she was treated in the

[1] Read before the Boston Obstetrical Society Oct. 15, and the Harvard Medical Society of New York Nov. 23, 1901.

Medical Out-Patient Department for cirrhosis, but whether that was the true and only cause of the acute symptoms that induced operation, I cannot say.

Case III. *Acute nephritis.*— This patient, a widow 53 years old, was brought to the hospital in a very bad condition, by the ambulance. There was a history of severe pain starting two days previously in the left abdomen and back, shifting to the right hypochondrium, where it persisted. Although there was persistent bilious vomiting, the bowels had moved freely the day before entrance. Her color was bad and her pulse irregular and intermittent. A mass, apparently the right hepatic lobe, could be felt as low down as the umbilicus, but behind this, in the region of the kidney, was an area of marked tenderness. By catheter a few drops of bloody urine were drawn. No edema of the face was found. The general condition was bad, but after consultation with Dr. Bullard operation was advised on the chance that there might be some acute inflammatory process going on within the abdomen. A small incision showed the tumor to be the swollen right hepatic lobe. The gall bladder was moderately swollen and tense, but without signs of peritonitis or stones. Elsewhere, nothing could be felt or seen to warrant interference, and the abdomen was closed.

She lived for 18 days, vomiting considerably, with a temperature practically normal, but with persistent loss of flesh and strength. No autopsy was obtained. The urine examined the day after operation showed a specific gravity of 1,034, $\frac{1}{4}\%$ albumin, pus and renal cells, brown granular casts and some blood. A few days before death there was $\frac{1}{8}\%$ of albumin, a few leucocytes, many hyaline casts, some with round cells adherent.

Case IV. *Nephritis.*— A trained nurse, 30 years of age, came under Dr. Henry Jackson's care, with the following history: Gastritis 3 years ago, with some digestive disturbance at various times since. Nine days before entrance to the hospital there was gastric pain and distress, without vomiting. The pain soon became severe and colicky, requiring morphia. Two days later there was again severe abdominal pain. Five days after admission she was well enough to sit up, but in the evening there was a return of the pain, fever and general abdominal tenderness, most marked in the appendix region, which quieted down under poultices. On the eleventh day slight edema of the lids, with mild fever, was noticed. Then for a few days there was alternating comfort and vomiting, with abdominal pain. On the sixteenth day the patient had chills, vomiting, pain in the right iliac region, general abdominal tenderness, and a temperature of 104°, with a rapid, intermittent pulse. Blood count showed a leucocytosis of 18,800. Palpation showed slight tenderness of the abdomen generally, with marked tenderness in the right hypochondrium, and fulness, with an apparent tumor, in the region of the right kidney; the tenderness over the appendix was less marked. The patient, meanwhile, in the last few days, had lost ground. Under ether the spasm of the right rectus persisted in the hypochondriac region, but nothing abnormal could be felt over the appendix. A short opening was made, and nothing abnormal could be found in the liver, ducts, pancreas, stomach, intestines or appendix. About the falciform ligament there were a few adhesions, and one edge of the omentum felt thickened with a few recent adhesions. The upper border of the right kidney seemed obscure and fuller than normal, but not indurated. There was no excess of peritoneal fluid. As no further interference appeared to be called for, the abdomen was closed. Convalescence was steady and satisfactory, the urine increasing to normal about 3 weeks after operation, and the patient being discharged well and strong at the end of 6 weeks.

The urine on the day after operation showed a trace of albumin, a specific gravity of 1,018, much pus, many hyaline and granular casts, with occasional renal cells. Two weeks later it was the same. The quantity voided at first was only 11 oz., ranging from 17 to 30 oz. for 3 weeks, when it gradually increased to 60 oz.

Case V. *Alcoholism.*— An Irishwoman, 50 years old, was transferred from the medical ward with a history of delirium tremens in times past and a recent period of excessive drinking. She was unconscious, with bed sores and a distended abdomen, which within 24 hours exhibited spasm and a slight fulness in the upper quadrant and left loin. The urine indicated only a chronic renal trouble. Cerebral, spinal and thoracic troubles could be ruled out clinically. The abdominal veins were prominent. Under the belief that there was a possible pancreatic or other acute intra-abdominal inflammation, an exploratory incision was made. The head of the pancreas felt swollen and indurated, and a portion was removed for examination. Nothing else was found abnormal. The patient lived only a few minutes, and no autopsy was allowed. Examination of the specimen from the pancreas showed nothing pathological. The patient's symptoms, in default of more accurate data from an autopsy, were probably due to alcoholism.

Case VI. *Alcoholism and Morphinism.*—This case was somewhat similar to the last, with morphia as an additional factor. A dissolute woman of 35 fell down a vessel's hold for a distance of 20 feet, while intoxicated. At entrance to the hospital there was considerable shock, with contusions about the lower spine, severe backache and abdominal pain. When seen 8 hours after injury and about 4 hours after admission, there was increasing vomiting, tenderness over the abdomen generally, with marked spasm on pressure, and pain. The urine, drawn by catheter, contained some blood. Dulness in the right hypochondrium was noted, and apparently some fulness in the left hypochondrium. A diagnosis of rupture of the kidney or an intra-abdominal hemorrhage from some other cause was made, and the abdomen was opened. Nothing was found to

account for the symptoms and the wound was closed. Later, it was discovered that the patient was a morphin habitué and that any combination of symptoms possible could be evoked by reducing the customary dose of the drug. Convalescence from the operation was satisfactory, but it was difficult to cure her of her habit.

CASE VII. *Obesity.*— A man, 46 years old, was brought to my office by Dr. J. W. Johnson. A month before I saw him he had lost about 30 pounds, his weight falling to 145 pounds, and being seen at this time, when examination was easy and satisfactory, by a very keen diagnostician, a tumor of the kidney, supposed to be sarcoma, was found. Since then he had rapidly gained weight to 186 pounds, and apparently an ascites was well under way, as the circumference of the abdomen was increasing at the rate of one inch a day. Examination at this time was unsatisfactory, the abdomen being tense and fluctuating. An indefinite tumor could be felt in the region of the left kidney and in the right lower quadrant. For a year he had had dull pain in the left loin, which at times was sharp and aggravated by motion or jarring, and frequently interfered with sleep. After consultation at my office he sought the advice of one of our most prominent surgeons, who was unable to make a definite diagnosis but advised exploration. A month later he entered the hospital for operation, the abdomen having meanwhile steadily increased in size all out of proportion to the increase of his body elsewhere. I started to aspirate, but could not convince myself that there was ascites, so I opened the abdomen under ether. There was no excess of fluid; the kidneys, after most careful palpation, showed nothing abnormal. Nothing was found elsewhere except an excessive quantity of fat in the omentum (which was undoubtedly the tumors felt from the outside) and in the mesentery.

That there may have been a small renal calculus, with temporary blocking of the ureter, is quite possible, especially as the patient had had a marked oxaluria, for which he had been successfully treated by Dr. Johnson. His family history should have given me a clue to the diagnosis, as his father and sister were abnormally fat. Whether the obesity accounted for all of his symptoms, it is impossible to say with the data at command; it certainly explained the rapid increase in his abdominal circumference.

The symptoms were relieved for a while by operation, but later I learned that they had recurred more or less and were probably due to his oxaluria.

CASE VIII. *Supposed pancreatic cyst.*— In June, 1899, a married woman of 48 was dragged over the dashboard of a wagon and kicked by a stumbling horse. Unconscious for a while she vomited several times, the vomitus showing streaks of blood. Twenty months later she was referred to me by Dr. Benner of South Framingham, with the story of daily vomiting since the injury, the vomitus always being a yellowish, bitter fluid, never containing food and coming at any time of day, but perhaps more frequently in the afternoon. She never vomited during the night. She complained of no pain, but a feeling of fulness and a swelling in the epigastrium which were relieved by the vomiting. At no time had there been jaundice and she had lost about 30 lbs., although her appetite and digestion were good. The epigastrium was tender with spasm. An indistinct feeling of deep fulness merging off to the left could be felt on palpation. The aortic impulse felt superficial; the stomach was not dilated. Elsewhere the abdomen was negative. She had already sued the town where she was injured and had recovered damages. A diagnosis of pancreatic cyst, or partial obstruction of the duct, or a retroperitoneal growth, was made. As she was steadily growing worse an exploration was advised. A fortnight later, at the Framingham Hospital, the abdomen was opened. Under ether the epigastric spasm was slight only. The supposed tumor proved to be the pancreas spread out over a rheumatoid spine projecting forwards. Careful examination of all the adjacent organs showed them to be normal. The retroperitoneal space was opened and nothing found to explain her condition. The abdomen was closed, she recovered quickly from operation, and the fulness and vomiting disappeared never to return.

To discuss the possible diagnoses in each individual case would lengthen the paper indefinitely. In some, painstaking examinations were made, while in others only a routine examination could be carried out under the existing circumstances; but, for the most part, in each individual many possible conditions were debated and ruled out, although it has not seemed worth while in this report to elaborately discuss the various considerations.

## THE VAGUS REFLEX.

BY THOMAS J. MAYS, A.M., M.D., PHILADELPHIA, PA.

IN a footnote appended to my first paper[1] on the vagus treatment of phthisis, the statement is made that on investigation it will be found that pressure over the course of one vagus in the region of the neck produces more pain on one than on the opposite side in most phthisical persons, and that this supersensitiveness usually corresponds with the side of the chest having the affected lung. During the two years that have elapsed since this was written I have investigated this subject further and believe that it is not only an almost constant concomitant of phthisis, but that it is a frequent premonitory symptom of this disease, and is often associated with other pulmonary and nervous disorders either as a forerunner or as an accompanying sign.

Nor did I know when the above was penned that the physiological and the clinical aspect of vagus compression had been described very ably

[1] The hypodermic injection of silver nitrate over the course of the vagi in the treatment of pulmonary consumption, Philadelphia Medical Journal, Feb. 11, 1899.

by Dr. Augustus Waller, as early as 1870.[2] This learned authority says, in the paper referred to, "that pressure on the vagus occasions a deep-seated sensation of a peculiar benumbing character in the head, which scarcely amounts to pain. The sense of languor and of fainting, as if 'going off,' is so manifest, that if the head and body be not supported, and if pressure on the nerve is continued, complete syncope ensues." He also gives the history of some cases of vomiting, of pain in the head and neck, of hysteria, and of hemicrania, which were materially benefited by means of vagus compression.

My own study of this phenomenon, which I venture to name *the vagus reflex*, dates back some years, and to me at least it has opened an interesting field of research, which is comparatively new, and which I believe is of considerable importance, both clinically and therapeutically. So far as my notes show, the following case was the first one that drew my attention prominently to this subject:

Case I. In 1891, Mrs. S. was suffering from pulmonary phthisis in the third stage, and from which she died in the course of the same year. During one of my visits she complained of marked soreness along the course of the right vagus in the neck. Pressure in the same region caused her to gag and vomit, which was not the case if a similar degree of pressure was applied on the left side. These pressure phenomena I could reproduce at my own pleasure. A narrow and short strip of fly plaster over the painful nerve relieved the cough to a marked degree, and abated the nausea and vomiting which had previously been called forth when pressure was applied over the affected nerve.

Case II. The following case, which is the very converse in many respects of the one just related, came under my observation more recently: C., aged 54, a sufferer from asthma for some years, was treated with the silver nitrate injections for this disease for a year and a half, and always with relief to the dyspnea, cough and general distress. In January, 1901, he returned with a fresh attack of asthma, which he attributed to influenza. At this time he received 10 minims of a 2 1-2% solution of silver and cocain nitrate each, in the right side of his neck. In the course of 48 hours there was considerable swelling at the seat of injection, and he found that buttoning the neckband of his shirt produced distress in the epigastrium, nausea and cough, and that pressure applied with the fingers on the tumefaction called forth retching, vomiting and cough. These effects could be repeated at the pleasure of anyone, for a period of about a week or 10 days, the time during which the lump lasted, but could only be produced when pressure was made directly over the latter. Pressure over the region of the vagus, either above or below the swelling, or over that of its mate on the opposite side, caused no disturbance whatever. There has been no recurrence of the asthma since that injection was given.

I had no experience of this kind before nor since, and it must be acknowledged that it is difficult to account for the peculiar effects of the injection in this case. Why should the cough, expectoration and physical signs belonging to asthma disappear after the injection, and why should the stomach, which performed its function normally before, become irritable on pressing the swelling? Is it possible that the degree of stimulation which elevated the tone of the depressed pulmonary fibres of the vagus could become a source of irritation to the more normal and more impressible fibres of the gastric branches of the pneumogastric?

The following is a typical example of a group of cases which are frequently met by the practitioner, and in which the morbid manifestations of the vagi are more apparent in the laryngeal than in any of the other branches.

Case III. W., female, aged 36, was first seen June 10, 1900, when she gave this history: Father died of phthisis, aged 40; mother well, and aged 60. Patient is third oldest of a family of seven. Two sisters, aged 18 and 22 respectively, and one brother, aged 23, died of phthisis; one maternal aunt, aged 60, died of apoplexy, which was immediately preceded by acute pneumonia, and one maternal uncle died of grip-pneumonia. Patient resembles her mother.

*Present symptoms.*— She complained of being chilly for the last 3 weeks, with pain in the middle of the chest. Has been having rheumatic pain in her joints, but is free from this affection at present. Has constant distress and fulness in the occipital region. Is nervous and constantly tired and awakes unrefreshed in the morning. Her appetite is good, bowels and menses regular; has lost some in flesh; no night sweats, and had malaria. Coughs a great deal, which is followed by vomiting, but expectorates little. Her cough is paroxysmal, appears usually in the morning, and seems to be accompanied by spasm of the laryngeal muscles, for occasionally she loses breath and falls down unconsciously. These attacks are very exhaustive, and afflicted her for 3 years. Noon respiration 28, pulse 76, temperature 98 2-5°, weight 104 3-4 lbs.

*Physical signs.*— No dulness, but a roughened respiratory murmur over the whole area of the left lung, and an occasional dry râle in the mammary region of same lung. Both vagi are sensitive to pressure, which is very acute in the nerve on the left side of the neck.

*Treatment.*— Injected 5 minims of a 2 1-2% solution of silver nitrate, preceded by the same dose of a 2 1-2% solution of cocain hydrochlorate over the left vagus in the region of the neck, and gave internally the following:

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| | | |
|---|---|---|
| Strych. Sulph. . . . . | | gr. i |
| Quin. sulph., sod. salicyl., and lith. cit | each | dr. iss |

Make xxxii capsules.
Sig.— One capsule four times a day.

June 16. No spasm of the throat since last visit. No cough at night, but some during the day. Fulness and pain in occiput and vomiting very much improved, sleeps better, and the soreness in the middle of her chest has disappeared. States that her whole condition began to improve immediately after the injection was given. Injected same dose on right side of neck; other treatment same.

July 1. No spasm since she came under treatment. Cough very much better, no more vomiting; soreness gone out of chest, and occipital fulness has disappeared entirely. Injected the same dose on the left side of the neck.

It is a year now since she came under treatment, and altogether received three injections. Her cough has practically left, she has had no spasm of the glottis, no vomiting, no occipital distress, and no pain or soreness in the chest. Her temperature remains normal, her pulse 72, her respiration 20, and she weighs 107 lbs.

Case IV. This is a case in which the morbid symptoms of vagus disorder manifested themselves chiefly in constant cough, copious yellow expectoration, general loss of strength, and a painfully tired feeling in the lower legs.

H., male, aged 28, married, whose father and mother are well, and who is the third oldest of a family of five, one of which died in early infancy, and the rest are well. No lung disease or asthma in the family. He was seen for the first time May 12, 1901, when he gave

[2] On the effects of compression of the vagus nerve in the cure or relief of various nervous affections, The Practitioner, April, 1870, p. 193.

the following account of his affection: With the exception of typhoid fever, which he had in 1889, he was practically well all his life until February, 1901, when he began to have a cold feeling along his spine, and in the following month he had what was supposed to be a catarrhal affection of the right lung. From this time on he had a spasmodic cough, and expectorated copiously, and these symptoms have increased up to the present time. Appetite medium, tongue coated, vomiting in the morning, bowels inclined to be costive, and lost from 6 to 8 pounds in flesh since he is sick. He feels tired — the legs from the knees down painfully so. He never had malaria or rheumatism, but is suffering from profuse night sweats; and his right arm feels lame and heavy. At 11 A.M. temperature was 98 2-5° F., pulse 78, respiration 18; weight 130 3-4 lbs., stature 5 ft., 7 1-4 inches.

*Physical signs.*— Slight impaired percussion resonance in right suprascapular region, a few crepitant râles over anterior base of same lung, and a few sibilant and mucous râles in lower half of left lung, anteriorly and posteriorly. Vagus reflex most evident on left side of neck. Pressure on left vagus produces pain and discomfort in the left side of the chest and tingling, sweating and coldness in whole of left arm down to tips of the fingers.

*Treatment.*— Injection of 5 minims of the silver, preceded by the cocain solution in each side of the neck, and internally the following:

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|---|---|
| Strych. sulph. | gr. i |
| Quin. sulph. | dr. iss |
| Sod. salicyl. | dr. i |
| Pil Hydrarg. | gr. iv |

Make xxxii capsules.
SIG.— One capsule four times a day.

May 21. Feels better, cough no longer spasmodic and very much less, expectoration less copious, no more vomiting, appetite very good, tongue cleaner, tiredness much improved, and no longer a painful feeling in the legs below the knees, and night sweats are much improved. Temperature (6. P.M.) 98 2-5°, pulse 72, respiration 18, weight 138 1-2 lbs.

June 9. Feels well, coughs only slightly in the morning, his appetite is good, and he has neither tired feeling nor night sweats, although he has been working for a week. His temperature (6 P.M.) is 98 2-5°, pulse 72, and respiration 16, and he weighs 140 lbs. Numbness and tingling in right arm on making pressure over the right vagus is very much less than it was at first visit. Same treatment internally and an injection of 8 minims of silver and cocain solution on right side of neck.

June 22. Coughs and expectorates very little. Feels strong. Is working right along; no tiredness; a lameness in right arm when pressure is made over right vagus. Night sweats have disappeared and his appetite is splendid. Temperature normal and he weighs 141 lbs.

Feels well at present and is working steadily.

CASE V. J. H. was seen for the first time on June 4, 1901, when he gave the following history: He is married, and 43 years old. His father died aged 67, of heart disease, and his mother, who is rheumatic, is alive at the age of about 70. Patient is the sixth oldest of a family of nine. One brother had inflammatory rheumatism when young, then a chronic cough, and finally contracted whooping cough, from which he died at the age of 32. One brother died in infancy. A sister has a chronic cough, but does not suffer from headache. Patient resembles his father. Had typhoid fever in 1876, and has been suffering from severe headache for many years. The latter is of a paroxysmal character, occurs every week and becomes so violent that he is compelled to go to bed. The pain is not unilateral, but as a rule begins in the temples, moves to the occiput, and then down the spine. In former years the paroxysms were accompanied by vomiting. Has some pain in right shoulder and arm, in fact, the whole right side of his body is more tender to pressure than the left. Is very tired in the lower legs, a feeling which he had since boyhood. Sleeps poorly, and has a ringing noise in his head. He coughs some, and expectorates blood-streaked sputum occasionally. His appetite is good, bowels costive, and has no night sweats. Eyeglasses gave no relief to his headache.

*Physical signs.*— Heart and lungs normal. Pressure over both vagi produces a fulness in the head with a tendency to unconsciousness, and he would have fallen into a swoon if pressure had been persisted in at this examination. After several trials it was found that these phenomena were more readily induced by pressing on the left than on the right vagus.

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|---|---|
| Strych. sulph. | gr. i |
| Quin. sulph. | dr. iss |
| Pil. Hydrarg. | gr. vi |
| Pulv. capsici and extr. Colocynth. each | gr. iv |
| Pulv. aloes | gr. ii |

Make xxxii capsules.
SIG.— One capsule four times a day.

June 11. Not well. Headache very severe since last visit, and continues up to the present time. The other symptoms were pratically the same. Pressure over the vagi produced the same reflex disturbances in the head. Continued the same capsules and gave him an injection of 5 minims of silver nitrate solution over the left vagus in the neck.

June 14. Better. Free from pain in occiput and had no headache, sleeps poorly, and the ringing in the ears continues. Injected 5 mimins of same solution over right vagus.

June 26. Had an attack of headache on the 16th, but altogether feels much better. Pressure over vagi produces neither fulness in the head nor dizziness, as before, but pressure over left vagus provokes a short cough which is not the case when pressure is made on the right vagus. Same internal treatment.

July 4. Says there is a marked improvement in the headache, and feels generally better.

July 18. Felt well until the 14th and 15th, when he had severe headache not so much in occiput as in left temple, which was accompanied by difficulty of breathing when headache was most severe, a symptom which he had experienced before. Dizziness is produced by pressure on right but not on left vagus.

Aug. 5. Headache less intense than before. Bowels are regular and stools are more satisfactory than they were. Appetite good, sleeps well, cough and expectoration gone. No dizziness nor pain on pressing both vagi. Injection 2 minims right side of neck.

Oct. 1. Had two attacks of headache, which were of shorter duration, since last visit. Cough, expectoration and blood-spitting have entirely disappeared. Bowels regular and appetite is very good. The legs feel strong and have lost their tired feeling. The occipital fulness has gone. Pressure on either vagus produces neither cough nor dizziness.

CASE VI. N., male, aged 31, came under my care in September, 1892, with chronic consolidation of the left apex, with the family history and all the symptoms of pulmonary consumption. In the course of a year and a half the symptoms and physical signs subsided, and, barring an attack of appendicitis for which he was operated on three years ago, he has since been practically well and able to pursue his occupation actively. On Feb. 28 last, he came to me with the history of a cold accompanied by severe paroxysmal coughing and vomiting. There was no loss of flesh or any relighting of the old phthisical condition. I prescribed morphin, cocain, codein, benzoin, nux vomica, quinin, strychnin, muriate of ammonia, etc., without any perceptible influence on the cough or vomiting. On April 4, injected 8 minims of a 2 1-2% solution of silver nitrate over the left vagus, which I found more sensitive than the right. His cough became easier at once and the vomiting ceased, and in 10 days he was entirely free from both symptoms.

CASE VII. W., female, aged 42, exhausted from nursing her husband through a protracted illness, suffered from general tiredness and a constant pain and fulness in the occiput for three months before she came under my observation on Oct. 4, 1901. Her heart and lungs

were normal, and there is an absence of lung disease in the family history. Pressure over the right vagus is very painful, aggravates the occipital fulness, induces a feeling of faintness and a weakness in the lower limbs. Injected 5 minims of the silver nitrate solution in the right side of the neck over the vagus, and gave her internally:

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| | |
|---|---|
| Strych. sulph. | gr. i |
| Quin. sulph. | dr. iss |
| Cinch. salicyl. | dr. ss |
| Pil. hydrarg. | gr. iv |

Make xxxii capsules.
Sig.— One capsule every four hours.

In five days she wrote me from her home, which was about 50 miles distant, that she feels much better and stronger, and that the occipital pain and fulness had entirely disappeared 24 hours after the injection was given, and there is no return of same up to present date.

The following case, VIII, is of more physiologic than therapeutic interest, inasmuch as it has been seen very recently for the first time and has not yet undergone any treatment.

M., aged 50, with some cough, expectoration and loss of flesh, feels weak and is very easily exhausted. For 2 months before I saw him he complained of fulness and throbbing in the base of the brain on the left side. There are no abnormal physical signs in the chest except an occasional short sibilant râle in the right lung. Very slight pressure with my thumb on his left vagus produced marked faintness, dyspnea, and a feeling of helplessness of the whole body. These effects were so pronounced that he would have fallen on the floor if I had not caught him and placed him in a chair.

In briefly reviewing the histories of these interesting cases it will be seen that the vagus reflex seems to figure as a central, or at least as one of the most obvious lesions which lie at the bottom of their varied manifestations. How to account for all the symptoms which followed vagus compressions on the score of the latter operation is not an easy matter in some of these instances. It is obvious, perhaps, why vagus pressure should produce fulness and pain in the occiput, or a feeling of loss of consciousness, because the vagus is in direct physiological union with the lower and higher nerve centres. But how to connect the cold sweating and tingling in the arms on the same side as that on which the pressure was made, or the sudden helplessness which comes over the lower extremities, as was experienced in three of the above related cases, with vagus compression, is a subject for further study and elucidation. That the vagus lesion is the leading factor in the pathology of the cases is confirmed or at least indicated by the counterirritant influence of the silver injections, which relieved and abated the whole abnormal condition. It is true that most of the patients also received other treatment, but it is hardly probable that this had any marked control on the disease. This is well demonstrated in the history of Case VI, which had received morphin, codein, cocain, strychnin, quinin, etc., for some days without the slightest relief to the paroxysmal cough, but as soon as the silver was administered subcutaneously over the vagus which was most sensitive, the abatement was quick and permanent.

Another feature worthy of consideration in these vagus-reflex cases is, that in not one of them, except in the first and second, was there any marked lesions of the pulmonary organs, although to anyone who has paid attention to the relations which exist between vagus pain and pulmonary disease, it is quite clear that the former is very frequently a premonitory symptom of the latter, and may therefore be regarded as an important diagnostic sign and a therapeutic indication in disease of the respiratory organs.

## AUSCULTATION OF THE KNEE JOINT.[1]

BY WILLIAM ERNEST BLODGETT, M.D., NEWTON, MASS.

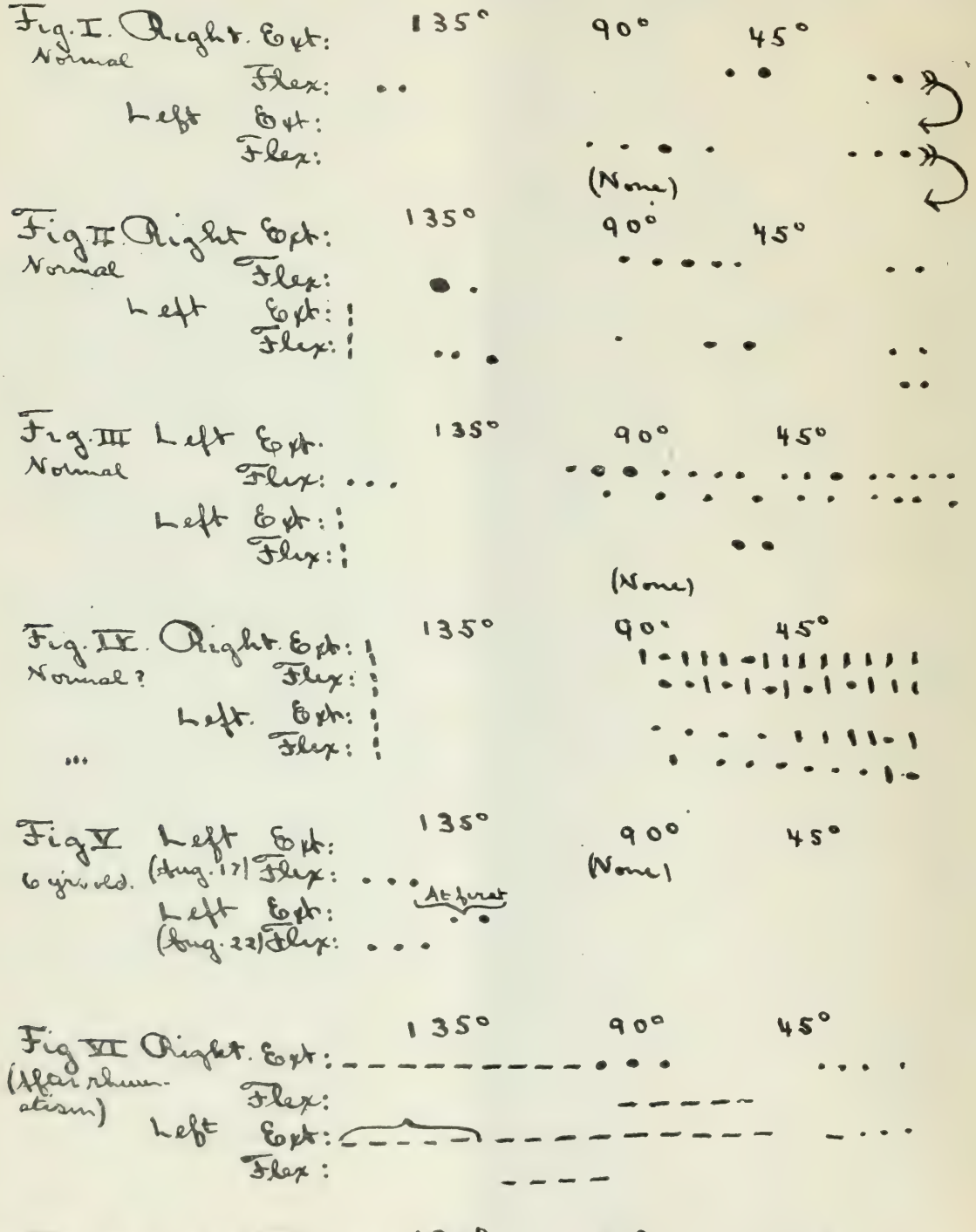
The following observations are recognized to be insufficient. They are therefore hesitatingly offered. It is hoped, however, that this preliminary report may stimulate independent investigation which shall supplement the continued work of the present observers, and thus combine to produce a result more extensive and more reliable than any possible by even the elaborate work of an isolated group of investigators. The idea of joint auscultation was suggested to me by Dr. Bradford, and it was by his encouragement that I started last midsummer to assist, as well as I could, in a subject on which Dr. Bradford was then already at work.

Auscultation can be applied to any of the large joints, but thus far I have listened almost only to the knee, as it is most accessible and most liable to disease and difficulty of diagnosis. As an instance of auscultation of joints other than the knee is cited a case of supposed complete ankylosis of the hip, in which detection of the joint sounds, transmitted by the trochanter, ruled out firm bony union and suggested extra-articular causes for the ankylosis.

The instrument used is the full-sized Bowles stethoscope, with a soft rubber cap sprung over the diaphragm. This cap tends to prevent slipping and skin friction sounds. With the patient lying, or sitting on the edge of a chair, the examiner stands or kneels on the side to be examined, grasps the lower leg with the hand that is nearer the foot, and with the other hand grasps the thigh just above the knee, while the index finger holds the receiver of the stethoscope resting on the bare skin over the patella. In children, the limb is small and light enough readily to be controlled in this way; but with adults, I have it convenient to have the patient clasp his hands under the thigh and assist in raising it as the knee is flexed, so that the heel clears the bed or chair. As the knee is extended, the thigh is allowed to sink again. All active motion of the limb I try to exclude, as muscular contraction produces a distant humming sound, which can be reproduced by gently placing the thumb in the ear, and then clinching the fingers into the palm; the joint sounds themselves, moreover, are liable to be altered — increased and multiplied — by muscular contraction, perhaps due to increased intra-

[1] Read before the Boston Society for Medical Improvement Nov. 18, 1901.

articular pressure. If there is much hair over the patella, vaseline prevents the fine, high-pitched, crackling sounds from the hair. The bell of the stethoscope, with a little practice, can be balanced on the patella, especially with children, leaving both hands free. Usually a little practice is necessary to teach the patient to relax the limb and assist rightly with his arms. In examining a knee carefully, I begin with the knee in extreme flexion, and, with a smooth movement, fully extend and flex the joint several times. The first movement up and down gives the most sounds,



and I have repeatedly noticed that the more I examined, the less there was to hear.

In this way I have examined about 100 cases, 61 of which I have recorded by the method illustrated in Fig. I.

This is the record of E. R., common laborer, 42 years old, and will serve as a typical record of normal adult knees. The dots and dashes of the upper line in the record of each knee represent the sounds elicited by passive movement of the joint, as described, from extreme flexion, through 135°, 90°, and 45° of flexion, to extreme extension. The lower line represents the reverse movement, and reads from right to left. Record marks in short perpendicular lines at the beginning of extension and the close of flexion, that is, the left end of both upper and lower lines, represent sounds made by lateral movement of the knee. In this way, I have sought to record the joint sounds in the part of the movement in which they were heard.

Of joint sounds proper, excluding, therefore, skin and muscle sounds referred to above, I discriminate three kinds: The first and commonest, heard to greater or less extent in nearly all cases, is a snapping, creaking sound, which can be approximated by listening through the stethoscope with the bell held between the dorsum of the right index finger and the palmer surface of the middle finger and gently rubbing the lower part of the nail of the right index finger on the thumb-nail of the left hand. The second is a grating sound, coarser, rougher, and usually less discrete than the first. The third is a squeak. The first and second sounds are similar; the third is unmistakably different. The first sound I represent by round dots; the second, being a rougher sound, I represent by short, vertical parallel-marks; the third, being a more continuous note, by short dashes. Combinations or intermediate sounds are represented by alternation of the corresponding marks. The intensity of the joint sounds is recorded by the size of the marks, and the frequency is roughly indicated by the number of the marks.

This method of recording knee sounds, therefore, gives the location in movement, the kind, and, roughly, the intensity and the frequency of the sound.

To draw any conclusions from auscultation of a joint, it is, of course, necessary first to know the normal type and the range of normal variation; most of my study, therefore, I have devoted to normal joints. One record of a normal adult case has already been given. Another is added (Fig. II).

This is the record of a man 32 years old. It shows the common joint sound scattered through the movements of both knees, chiefly between 90° and straight, a loud snap in the latter part of flexion of the right knee, and a squeak from side play of the left joint in extreme flexion.

The range of normal variation seems to be wide. Compare, for example, the two following records (Fig. III).

The first is from the record of a woman 37 years old, with normal knees. The second is from a boy, 16 years old, also with normal knees. These differ only in frequency of the common snapping sound. The following, however, from a laboring man of about 55, who had had no symptoms from his knees (see Fig. IV), shows a marked tendency to the coarse, grating sound. It can be speculated that this man's cartilages and synovial membranes, like the condition of his arteries, though making no symptoms as yet, were not normal. But whether the grating sound is always pathological, especially in old people, must be decided later. In knees otherwise normal, I have heard it several times. As in old people joint sounds are increased, so in children joint sounds are decreased — fewer and finer. For example, two records from a girl 6 years old (Fig. V).

Besides illustrating the infantile type of joint sounds, these 2 records, taken 5 days apart, show the tendency of the same knee to give the same sounds at different times. Several cases, auscultated 2 to 4 times in a period covering 2 weeks, and recorded without reference to the previous records, support belief in this tendency; but several cases show the similarity to be in the total amount and the quality of sounds, rather than in the localization. The infantile type, above illustrated, was preserved in the knee of a woman about 30 years old, the development of whose leg had been much retarded by infantile paralysis.

The squeak sound from lateral movement of the knee in extreme flexion, already alluded to, can be obtained from half or more of the cases in which it is sought; it seems to have no special meaning. The squeak in extension and flexion I have heard oftenest in the normal knees of children. It was most marked in the case of a girl, 7 years of age, who, I later learned, had had inflammatory rheumatism 4 weeks before (Fig. VI).

Paralysis and general anesthesia apparently do not alter the joint sounds. Three knees with effusion gave no sound at all or sounds faint and distant. Compare with this the diminution of respiratory sounds in pleuritic effusion. It may be noted also that, in the method of imitating the snapping sound, described above, moistening the nails destroys the sound.

Following is an example of rheumatoid arthritis, that is, the form with atrophy of cartilage (Fig. VII).

The sound in these cases is the coarsest and roughest of any I have heard. Immediately after genuclasis, the sounds are still louder and harsher. In course of improvement, the sounds become finer.

In my cases of osteo-arthritis, that is, the form with hypertrophy of cartilage and outgrowth of bone, the sounds are not so harsh, and, in the one forcibly straightened case, I have observed, genuclasis did not much increase the sounds.

In a hysterical knee, in which long-standing permanent flexion had just been corrected by sug-

gestion and forcible manipulation, the sounds, as far as heard in the limited range of motion, were normal, with the loud humming of strong muscular contraction.

Conclusions are, of course, not yet justified, especially as the nature of joint auscultation prevents the exact findings and records at once obtained in x-ray work, for instance, and allows the imagination of the observer more than the usual chance to color the observation. To arrive at any trustworthy conclusions, the ear must be trained, and cases carefully examined, recorded, and compared with reference to the structural state of the knee, as shown by the history, the symptoms, and the other signs, but best of all, by operation and inspection; for, if, besides the fascination of novelty, auscultation of joints is to have any practical value, the value will depend on the ability to infer the condition of cartilage and synovial membrane, and rightly to interpret this condition.

If a single conclusion is warranted by the observations of the writer, it is that joint auscultation deserves further investigation.

## Medical Progress.

### REPORT OF PROGRESS IN ORTHOPEDIC SURGERY.

BY E. H. BRADFORD, M.D., AND E. G. BRACKETT, M.D., BOSTON.

#### THE STRUCTURE OF THE HEAD OF THE FEMUR IN ARTHRITIS DEFORMANS.

P. BADE [1] has examined a number of specimens of arthritis deformans with the Röntgen rays, and found that there was a concentric atrophy in which the normal large trabeculæ found in the neck and head are pressed nearer together. There is also a concentric hypertrophy in which also the normal structure is preserved, but the trabeculæ seem to be pressed apart. There is irregular atrophy and hyphertrophy in which there is unequal diminution and increase of the bone. The diminution of the bone is found more in the periphery of the head in the hollow of the neck between the trochanter and neck. The increase of the bone is found on the shaft between the trochanter, major and minor, as a projection in the neck in the upper half of the trochanter minor and in an angle between the neck and shaft. The bowing on the side of the trochanter remains changed less than on the side of the adductors. The concavity of the former increases where the neck has almost entirely been absorbed, the trochanter taking the place of the neck. Under these circumstances a new system of radiated supports are formed, resembling the diagram of a mechanical crane.

#### ARTHRITIS DEFORMANS.

Kelley [2] considers that the affection to which he applies the term "arthritis deformans" is not as well understood as is desirable, and that the nature of the disease is not recognized partly on account of the various names which have been applied — rheumatoid arthritis, osteo-arthritis, deforming arthritis, etc. He prefers the term "arthritis deformans," which is generally employed in this country and Germany as sufficiently indicative of the distinguishing features of the disorder, and suggesting no relationship to any other disease, such as rheumatism.

He considers the disease as a distinct one, and in no way to be confounded with rheumatism or gout. There are at present two theories which are used to explain the condition, one the neural, or nervous theory, first brought forward by J. K. Mitchell, and the other, bacterial theory. While not accepting either theory he presents arguments in favor of supporting both.

Certain disturbances of metabolism have been found in a diminution of lime salts and earthy phosphates in the urine, diminution in the excretion of uric acid and urates and hydrid without disturbance of the normal relationship between the uric acid and the alloxur bases.

Irwin [3] reports a case in which the affections of the joints were worse a few hours after menstruation. All pains and swelling in and about the joints disappeared except Haygarth's nodosites and Heberden's nodes. The joints became supple and the movements were not nearly as painful. The relief to the joints lasted for from two to four days, then the swelling and pain recurred.

The writer concludes that the evidence tends to show that arthritis deformans is primarily of a nervous origin, but as changes of metabolism occur they are preceded by the derangement in the function of the nervous system.

Murdock [4] reports a careful examination of the contents of the stomach in several cases, and concludes that diet should be prescribed, not with a view of suiting the condition of the joints, but such as may best suit the existing condition of the gastric secretions.

Bain [5] has made some careful investigations on the subjects and reports a diminution in the uric acid secreted. The phosphates were found to be markedly diminished and the variation in their excretion closely following that of the uric acid.

Parker [6] is of the opinion that under the heads rheumatoid arthritis, osteo-arthritis and arthritis deformans, are grouped many diseases with but little clinical and almost no pathological resemblance. He agrees with Charcot that the early changes in acute rheumatism are precisely the same as those in rheumatoid arthritis. These views are supported by Lebert and Ranvier as well as Gurlt and Kusmaul.

Painter [7] urges a clinical distinction between osteo-arthritis and rheumatoid arthritis, based on the difference in the clinical symptoms. He con-

[1] Zeitschr. f. Orthop. Chir., Bd. ix, H. 2, p. 207.
[2] Journal of American Medical Association, Dec. 7, 1901, p. 1648.
[3] American Practitioner and News, vol. xxxi, No. 9, p. 25.
[4] Medical News, vol. lxxix, No. 5, p. 166.
[5] Transactions of the Pathological Society of London, xxi, 124.
[6] St. Bartholomew's Hospital Reports, 1900, xxxvi, 177.
[7] Boston Medical and Surgical Journal, Nov. 28, 1901, p. 593.

siders that there is no evidence of any bacterial origin of the affection; that the chronic stage is not the result of a previous acute stage.

Garrod [8] considers that these conditions may be grouped under two heads, in which he makes a broad clinical grouping, with the same treatment. He inclines toward infective origin of rheumatoid arthritis, while the second form is probably a dystrophy. In the discussion of the paper the general opinion tended to the similar grouping and with the belief of the infective origin.

### CHRONIC ANKYLOSING INFLAMMATION OF THE SPINAL COLUMN.

Bender [9] reports this case, which occurred in a feeble woman, 24 years of age, with a complete ankylosis of the spinal column, with a slight kyphosis in the neck without scoliosis. Pain on pressure shifted into the first dorsal and first lumbar vertebræ. The affection began in the lumbar region and gradually extended in four years, but was limited to the spinal column, all other joints being free, the stiffness being dependent, according to the writer, upon ossification of the ligaments of the vertebræ, as has been described by Müller and Milinu. The writer thinks that the affection should be differentiated from the ankylosis, which is accompanied by stiffening of other joints.

Thabaut describes a case of the latter class in which internal treatment was found of no value; namely, arsenic, cholchicum and salicylates. But orthopedic measures, forced fixation, daily suspension and mechanotherapeutic measures are recommended. Kurcic describes a similar case where the onset was accompanied by a feverish attack which resembled malaria. Hydrotherapeutic measures and electricity were found to give relief.

### RADIOGRAPHIC STUDY ON DYSCHONDROPLASIA.

Molin [10] has described 3 cases of this affection to which Ollier has given the name "dyschondroplasia." The affection attacks the long bones, the metacarpal and phalangeal skeleton of the hand, and it is characterized by the fact that the cartilaginous tissue is irregularly developed in bones and ossifies very slowly. The affected long extremities show curves similar to that seen in rickets, the deformities resembling rachitic deformities. The etiology is entirely unknown.

### THE PATHOLOGY OF THE GROWTH OF BONE.

Stoelzer and Salge described the results of examinations in Huebner's clinic in the last 6 years of the cases of rickets, and the results of experiments on young guinea pigs subjected to an acid food, and also the relation of the alkaline condition of the blood in rachitic children, and the result of the treatment by phosphorus on the growth of the bone. From all these examinations authors have come to the conclusion that the injury to the growth of bone in rachitic children is due to a specific condition disseminated throughout the whole body, there being an analogy between rickets and myxedema. This condition, the writers think, can be benefited through the administration of the extract from the suprarenal capsule.

### INVESTIGATIONS AS TO THE ORIGIN OF RICKETS.

Spillman [11] concludes that after a number of experiments on young animals, infantile rickets and rickets in animals are caused by digestive disorders. The affection is found especially in animals placed in moist and dark stables and subjected to an insufficient or improper diet. The investigator was able to find no results from the deprivation of animals of lime salts or the administration of lactic acid or phosphate of potash. He was able to produce in 1 case out of a series of 20 animals the lesions of rickets from a subcutaneous injection of extract of diarrhea discharges from a young child with rickets. The lesions found were a thickening of the cartilage invaded by vascular branches and without the columns of ossification. Spillman is unable to deny that there may be a specific microbe of rickets which has not been isolated, but is inclined to believe that the disease is the result of a specific intoxication which comes from the digestive organs.

### LATE RICKETS.

Delcourt [12] reaches the following conclusions: Rickets can be seen in adolescence as well as in infants. The clinical manifestations of late rickets are the same as in infancy, although they are less intense and usually less generalized. The rachitic nature of genu valgum and flat-foot is demonstrated by anatomical evidence, and it is probable by scoliosis and coxavara.

### THE SPONTANEOUS HEALING OF GENU VALGUM.[13]

The writer reports 12 cases untreated, where there was an arrest of the deformity but not a complete recovery. In these, marked improvement in the deformity was observed. The writer is of the opinion that in many cases operation must be avoided and the improvement left to the efforts of nature.

### PROGRESSIVE MYOSITIS OSSIFICANS.

Rager [14] presents an exhaustive literature on this unusual affection, with a careful description of cases as well as several skiagraphic pictures. The writer has collected 54 cases; the affection is three times as common among boys as among girls. It is found more commonly in childhood, before the conclusion of growth. The muscles which are more frequently affected are the neck, back, shoulders and arms. A scoliotic curve of the spine is frequent. A congenital deformity of the fingers and toes, which is classed as mikrodaktylie, has been observed very frequently among these cases.

[8] British Medical Journal, Oct. 12, 1901.
[9] Münch. med. Woch., Jahrg., 48, Nr. 2.
[10] Zeitschr. f. Orthop. Chir., Paris, 1901, Bd. ix, H. 2, p. 210.
[11] Arch. de med. des Infants, Mai, 1901, p. 257.
[12] Jour. méd. Bruxelles, 1899, p. 42.
[13] Beitr. z. klin. Chir., Bd. xxix, H. 2.
[14] Zeitschr. f. Orthop. Chir., Bd. ix., H. 3, p. 380.

The prognosis of the affection is always bad and treatment of no value. Ankylosis of various joints occurs, although the course is slow. Nothing is known as to the etiology and nothing accurate is known in regard to a faulty metabolism. The examination of the spinal cord has given no evidence of change.

Graham reports a case in a girl of 6 years of age. The first appearance in the child somewhat resembled advanced Pott's disease, but the prominence of the tubercles in different parts of the back made the diagnosis evident without any examination. The whole back was as solid as a plate or armor. Various muscles were affected.

Wilkinson[15] records a case in a boy of 13. There was a congenital deformity of the great toes. The writer calls attention to the fact that the name "myositis" is misleading, as the deposit commences in the fibrous tissues. The deposit at first consists of round cells and fibrous tissues. Sometimes cartilage is found which becomes ossified, but usually without bone cartilage.

Rolleston,[16] in reporting a case of a boy of 8, considers that much depends upon a congenital weakness, but that of resistance and a tendency to adherent growth on the part of the mesoblast as the result of diminished resistance, the muscles are more susceptible to inflammation, while the changes to adherent growth show themselves in the calcification and ossification of the inflammatory products.

A case is published by Burton-Fanning[17] differing from those usually reported, in that there was distinct evidence in the case mentioned of the occurrence of the disease in the patient's father.

ALBUMOSURIA IN OSTEOMALACIA.

Jochmann and Schumm[18] found the Bence-Jones bodies, which have always been considered as pathognomonic of bone myelomata, in a case of typical osteomalacia. The examination of these bodies showed that they belonged to a class of the albumoses.

CONGENITAL CARTILAGINOUS FORMATION IN THE STERNO-CLEIDO-MASTOID MUSCLE.

Lengemann[19] says this deformity is comparatively rare, only 16 cases having been collected hitherto. The sterno-cleido muscle was feebly developed, and several portions of cartilage were found imbedded in the muscle.

CONGENITAL DEFECTS OF THE MUSCLE OF THE NECK.

Kredel[20] has observed a single case of a child 10 years of age, with scoliosis and a complete absence of both sternal mastoid muscles of the trapezius and of the levators of the angle of the scapula. The patient also suffered from cleft palate. The attitude of the patient was very peculiar. The two shoulders were raised, the clavicles bent strongly upwards were almost vertical. In spite of the defect, the movements of the head were free, due, probably, to the hypertrophy of the muscles which persisted.

TREATMENT IN HIP DISEASE.[21]

Indicative of the trend of many observers in orthopedic surgery, of combining more thorough fixation with traction, each of these authors advocates that greater attention be paid to this, and emphasizes the failure of the ordinary splints to accomplish this end. Each has also presented a splint which emphasizes the fixation element by the more accurate application of counter traction and firmer grip by the splint in the pelvis and parts above. Cases are quoted to illustrate the practical use of the splints.

CONGENITAL ANTERIOR DISLOCATION OF TIBIA.

Roberts[22] describes case of congenital anterior dislocation of tibia: Allowing anterior motion of the leg in thigh 50° or 60°, a small patella could be felt above the head of the tibia; the condyles of the femur could be distinguished behind, with the popliteal artery between them. The erect posture was possible by assuming marked lordosis. The deformity was demonstrated by the x-ray. The reduction of the deformity, through a large horseshoe incision with division of the ligamentum patellæ and lateral ligaments, was found to be easily accomplished. It was, however, interesting to find that a lengthening of the patella tendon by an oblique division was not sufficient to approximate ends when leg was in fully extended position. A straight limb resulted, with some motion, but the ultimate result was unfortunately not known, but was probably impaired by a suppurative process.

CONGENITAL ELEVATION OF THE SCAPULÆ.

Rager[23] observed and collected these cases, and divided them into four groups: First, where there is a chance in the axis of the whole shoulder blade so that it stood in an obliquity of 45°, with the lower angle near the spine of the upper angle, in the superior clavicular fossa.

In the second group there is no change of axis, but a prominence like an exostosis, in the upper angle of the shoulder blade. In all cases there was a scoliosis, with the convexity toward the affected side.

In the third group an actual exostosis from the atlas of the upper quarter of the scapula, and lower being entirely changed in shape. The right shoulder blade is 6 cm. higher than the left. Torticollis is present and a marked cervical dorsal scoliosis.

The fourth group consists of an elevation of the shoulder blade upwards without any other alteration. These different groups show very little difference in the function of the organ. In some

[15] Quarterly Medical Journal, part i, p. 25.
[16] The Clinical Journal, vol. xvii, No. 14, p. 209.
[17] Hospital Medicine and Surgery, p. 849.
[18] Munch. med. Woch., Aug. 20, 1901.
[19] Beitr. z. klin. Chir., xxx, 1.
[20] Deutsch. Zeitschr. f. Chir., lxi, 398.
[21] New York Medical Journal, Aug. 24, 1901; Dane, p. 341; Lovett, p. 344.
[22] Annals of Surgery, August, 1901, p. 286.
[23] Zeitschr. f. Orthop. Chir., vol. ix, part i, p. 30.

the arm is useful, in almost half abduction is limited, while the other movements are good. Treatment is of little benefit as far as improving the function of the arm is concerned. Gymnastic orthopedic treatment is often of value where an exostosis exists which can be removed, but the complete re-establishment of the equality of the level of the shoulders cannot be gained, even by operation. If the deformity is untreated it is not likely to increase. The diagnosis is easily made, as the affection is not likely to be confounded with any other deformity. The affection being a congenital one, the cause is not well known.

CALCAREOUS PROLIFERATING TENONTITIS AND TENONTOTHECITIS.

Beck [24] claims that this rare affection is accurately described by photographs and skiagraphs. The writer concludes his article with the statement that the tendons in their sheaths have seemed to be but seldom the seat of calcareous deposits, but that more knowledge may be gained by the use of the Röntgen rays, and for this affection the writer has coined the name tenontitis and tenontothecitis prolifera calcarea.

CHANGES IN SURGICAL TECHNIQUE OF JOINT OPERATIONS.

Koenig [25] states that owing to the necessity of attempting to maintain the function of a joint, a rigid asepsis should be guaranteed. The operation should be conducted instrumentally, to the entire exclusion of any contact of the fingers with the wound. An Esmarch tourniquet is not to be used to avoid the sponging of the parts of the joint necessary in the after-bleeding following elastic compression. Irrigation with carbolic or sublimate solutions can be dispensed with. Skiagraphic examinations were found of little value in the diagnosis of foreign bodies, floating cartilage or neoplasm of the soft parts of joints.

In septic joints free excisions are recommended, and if a fever persist, a transverse excision above the patella dividing the tendon is justified. Phlegmonous gonorrheal arthritis, with scant effusion into the joint and large infiltration of the periarticular tissues, is benefited by extensive incisions. In coxitis deformans attended with marked deformity and outgrowth of osteophytes, resection of the head is recommended.

Schede claims that if a capsule and periarticular tissues are not injured a cure can be effected in most cases by washing out the joints.

INTERMITTENT HYDARTHROSIS.

Benda [26] made 54 observations of this unusual affection, and in addition 2 personal observations. The etiology is variedly mentioned; osteomyelitis, specific disease and mental affections. The onset of the disease is sudden. Effusion can take place in any joint, but by preference at the knee. The interval between the two attacks varies from several days to several weeks. Swelling disappears in general at the end of 3 or 4 days. The affection is not dangerous, but is extremely annoying on account of its repetition. All sorts of treatments, including operation, have been tried. Sometimes an entirely psychical treatment is necessary.

*(To be continued.)*

[24] New York Medical Journal, April 27, 1901, p. 705.
[25] Verhandl. d. deutsch. Gesellschr. f. Chir., xxix, Congress.
[26] Monograph., Berlin, 1900.

## Recent Literature.

*The Diagnostics of Internal Medicine.* A Clinical Treatise upon the Recognized Principles of Medical Diagnosis. Prepared for the Use of Students and Practitioners of Medicine. By Glentworth Reeve Butler, A.M., M.D., Chief of the Second Medical Division, Methodist Episcopal Hospital; Physician to the Brooklyn Hospital, etc., etc. With 5 colored plates and 246 illustrations and charts in the text. New York: D. Appleton & Co. 1901.

The author has written his book from the point of view of practical clinical work, and it is divided into two distinct but complementary parts: first, a study of symptoms and their indications; second, a study of diseases and their characteristics. Part I presents the Evidences of Disease; Part II presents Diagnosis, direct and differential. The book belongs in the class with Hare's "Practical Diagnosis," and has a somewhat similar arrangement. There is a utility for books of this class, and the text of this particular one is good, but they should not be expected to usurp the place of the standard books on medical diagnosis. Some of the subsections are the work of collaborators. One of the most important, on the diseases of the nervous system, is prepared by Drs. Jelliffe and Bonar.

The volume is an octavo of 1060 pages; the paper and type are especially good; the illustrations are profuse and show that the art of photography may be made an alluring as well as useful handmaiden to what purports to be, and is, serious scientific study.

*The Estivo-Autumnal (Remittent) Malarial Fevers.* By Charles F. Craig, M.D., Act. Asst. Surgeon U. S. Army, etc., etc. Illustrated by 2 colored plates and 21 clinical charts. New York: William Wood & Co. 1901.

This monograph is in octavo form and comprises 221 pages. The author has had plentiful material and large opportunities for his observations and conclusions, and seems to have made good use of these and of the labors of his predecessors. He has been connected with the Army General Hospital at San Francisco as pathologist and bacteriologist, with the Army Hospital at Chickamauga Park, with a similar Hospital at Fortress Monroe and at Havana.

The medical history of the troops at Chickamauga Park has been written. The fact that many cases of typhoid fever were there diagnosticated as remittent malarial fever is known, and the consequences have been wrought out. It is recog-

nized that some cases of remittent simulate typhoid fever very closely, but with the Widal test for typhoid fever and the knowledge of the estivo-autumnal parasite of remittent fever there is no excuse today for such costly blunders. With these precise tests, and our knowledge of the relation of the mosquito to malarial fevers, our position in regard to these affections is a very different one from what it was not many years ago — fortunately for us in view of our newly acquired tropical and subtropical responsibilities.

The author speaks of his subject as one "much neglected in the textbooks of medicine." This is rather an emphatic statement. In some of the best textbooks the treatment of it, though necessarily brief, is to the point. The subject, however, under existing conditions is of sufficient importance to merit a fuller exposition, such as the author has given it. This form of malaria is the most serious and persistent; it is endemic in Cuba, Porto Rico and the Philippines. All who are brought into relations with these countries and their inhabitants in a medical capacity should endeavor to make themselves thoroughly familiar with estivo-autumnal malaria in all its manifestations, and they will find this book a useful one to consult for that purpose.

*Pathological Technique.* A Practical Manual for Workers in Pathological Histology and Bacteriology, including Directions for the performance of Autopsies and for Clinical Diagnosis by Laboratory Methods. By FRANK B. MALLORY, A.M., M.D., and JAMES H. WRIGHT, A.M., M.D. Second edition. Philadelphia and London: W. B. Saunders & Co. 1901.

This manual, since its first appearance, has been recognized as the standard guide in pathological technique, and has become well-nigh indispensable to the laboratory worker. The volume has been enlarged from 397 to 432 pages. The actual addition of new material is greater than this would indicate, since the section on examination of urine has been practically omitted, and wisely so, as the subject is too large to be handled in a general manual of laboratory methods.

Part I remains unchanged. It contains the clearest directions and the most satisfactory methods for the performance of post-mortem examinations.

In Part II, devoted to bacteriological methods, many of the illustrations of the first edition have been replaced by photomicrographs of bacteria, the work of Dr. Wright and Mr. L. S. Brown. These original photographs are admirable. They are fully equal to the well-known photomicrographs in "Fraenkel and Pfeiffer's Atlas." Especially striking are the photographs of flagella, of bacteria included within leucocytes, and of the parasite of mycetoma. Noteworthy accessions to this section are Wright's methods for the cultivation of anaerobic bacteria, Messer's method of staining bacillus diphtheriæ, and Williams' modification of van Ermengem's stain for flagella, based on the use of Ortol photographic developer.

In describing the Widal reaction, no higher dilution of blood serum than 1.10 is recommended, although it has been repeatedly shown that a reaction in this dilution can occur in conditions other than typhoid fever. In fact, unless there is also clumping of the bacilli with a dilution of 1.30 or 1.50, the test should be regarded as negative.

Among the additions to histological technique in Part III are Mallory's chloride of iron hematoxylin method and Mallory's connective tissue stain, both of which have wide fields of usefulness. A rapid and satisfactory mode of making the permanent mounts of frozen sections is described.

Romanowsky's method of staining malarial parasites is given, but no reference is made to Nocht's modification. This is to be regretted, as Nocht's stain is invariably successful, while the original method is uncertain and good results are rare.

*Venereal Diseases.* A manual for students and practitioners. By JAMES R. HAYDEN, M.D., chief of Clinic and Instructor in Genito-Urinary Diseases at the College of Physicians and Surgeons (Columbia University), New York; Assistant Visiting Genito-Urinary Surgeon to Bellevue Hospital. Third and revised edition. Philadelphia and New York: Lea Bros. and Co. 1901.

The author in publishing this volume offers to students and the profession a somewhat enlarged and improved text of his preceding editions. Those which went before were useful works of their kind, and the present one has the same character, giving in small compass much practical knowledge, which is not confused by theoretical discussion.

The book is of more value to the student than to the practitioner, although both will find it useful. The volume is well illustrated and published in attractive and convenient form.

*Modern Obstetrics.* By W. A. NEWMAN DORLAND, A.M., M.D., Assistant Demonstrator of Obstetrics, University of Pennsylvania, Associate in Gynecology, Philadelphia Polyclinic. Second edition, rewritten and enlarged. Octavo, 797 pages, with 201 illustrations. Philadelphia and London: W. B. Saunders & Co. 1901.

The first edition of Dorland's work on obstetrics was published in 1896, and in the present addition, the second, much of the text has been rewritten and the book considerably enlarged. New sections have been added on several topics, among which are the surgical treatment of puerperal sepsis, serumtherapy in the treatment of puerperal sepsis, placental transmission of disease, infant mortality and the rôle of the liver in the causation of puerperal eclampsia.

As prophylaxis against sepsis the limitation of vaginal examination and abolishment of the antepartum douche are advised by the author while the post-partum douche is recommended. With

regard to the placental transmission of disease the author says that it would seem that under the influence of infection the epithelial coat of the chorion loses its impermeability, so that bacteria may pass directly through it, such a result leading to the suggestion that it is through bacterial action that the placenta surrenders its protection function and permits the osmosis of deleterious substances. In the treatment of placenta previa, version by Braxton Hicks' method and incomplete delivery is generally recommended as the safest procedure, and not the performance of Cæsarean section, which is being quite extensively advocated at the present time by some writers.

The recent theories with regard to the part taken by the liver in the production of puerperal eclampsia are given at some length. The author says that the theory of the hepatic origin of puerperal eclampsia will afford ample explanation for those fulgurant cases not accompanied by albuminuria, and will also open up a new field in the study of the grave affection of pregnancy hitherto but little understood.

The lines of treatment recommended are conservative and generally in accordance with modern teaching. References are freely presented throughout the book to writings which are often of great advantage and help in the study of a special branch of the subject. The volume is well published, and will readily find a place among the best of the modern books on obstetrics.

*The American Illustrated Medical Dictionary.* For Practitioners and Students. A Complete Dictionary of the terms used in Medicine, Surgery, Dentistry, Pharmacy, Chemistry, and the kindred branches. By W. A. Newman Dorland, A.M., M.D., editor of the "American Pocket Medical Dictionary." Second edition, revised. Philadelphia and London: W. B. Saunders & Co. 1901.

A first edition of this work was issued in October, 1900. The avowed object of the author has been to furnish in a volume of convenient size an up-to-date dictionary, sufficiently full for the requirements of all classes of medical men, or, in other words, to give a maximum of matter in a minimum of space. This object has been secured by the use of a large page, thin paper, and a flexible leather binding.

In this edition the book has been carefully revised. The author has also added upward of 100 important new terms that have appeared in medical literature during the past few months. Among them appear "Anopheles," "Cryoscopy," "Johimbin," "Hemolysin," "Hedonal," "Sacrectomy."

We have already commented favorably on the first edition of this work, which represents a high degree of excellence in the art of book making. The full-page plates, of which there are many, are particularly commendable. This edition must be regarded as an improvement on the first. We note a tendency to adopt the reformed spelling: "Physiologic," rather than "physiological"; "hemorrhage," rather than "hæmorrhage," etc. We confess to a certain hesitation in accepting all the consequences to which such a tendency logically leads.

*A Laboratory Handbook of Physiologic Chemistry and Urine Examination.* By Charles G. L. Wolf, M.D., Instructor in Physiologic Chemistry, Cornell University Medical College, New York. 12mo volume of 190 pages, fully illustrated. Philadelphia and London: W. B. Saunders & Co. 1901.

This volume cannot be considered as a textbook or laboratory handbook of physiological chemistry, because it does not deal with this subject in a scientific manner.

The author begins with a rather unsatisfactory treatise on proteids, carbohydrates and fats. Out of the entire field of physiological chemistry only a few secretions and fluids of the body are considered, and a disproportionately large portion of the book is devoted to urine. This subject occupies 120 of the 190 pages of the book. These pages are taken up mainly by technical processes, such as the making of a decinormal solution, which belong more properly to textbooks on quantitative analysis. The apparent purpose of this work is as a guide to clinical diagnoses. Its existence is, however, unnecessary, as it falls so far below the standard of other books written exactly for this purpose, such as von Jaksch's "Klinische Diagnose," Kruger's "Medicinische Chemie," Charles Simon's "Clinical Diagnosis."

*A Textbook of Pharmacology.* Including Therapeutics, Materia Medica, Pharmacy, Prescription Writing, Toxicology, etc. By Torald Sollman, M.D., Assistant Professor of Pharmacology and Materia Medica, Western Reserve University, Cleveland, Ohio. Royal octavo volume of 880 pages, fully illustrated. Philadelphia and London: W. B. Saunders & Co. 1901.

This work aims to furnish, in a manner suited for reference and study, a scientific discussion and definite conception of the action of drugs, as well as their derivation, composition, strength and dose.

Though entitled a textbook of pharmacology, the book is too profusely padded with other subjects to be of use as a student's textbook. The author does not content himself with the description of the action of drugs, but fills his book with even such details of chemical manipulation as the folding of a filter paper and with physical definitions such as that of specific gravity. As a reference book it is not complete enough on any one of the subjects treated.

When the author transforms this book, which he intends as a textbook of pharmacology, into a sort of encyclopedia of allied subjects, he departs from the plan so aptly and admirably carried out by the master of our science, Schmiedeberg, in his as yet unequaled textbook of pharmacology.

THE BOSTON

# Medical and Surgical Journal.

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## ABSTRACTS AND SUMMARIES.

IN an editorial comment on the scope of *American Medicine* for the coming year, the following statement appears:

One of the principal changes will consist in a better method of presenting the reports or abstracts of original articles published in other journals. The present plan, devised four years ago and so extensively imitated by other journals since, has the objection that the reader must look over a great number of heterogeneous abstracts in order to find precisely what interests him. Always, or sometimes, we are all specialists, and we do not wish to be compelled to glean a large number of pages in order to find the special thing in which we have present concern. This suggests a topical arrangement, whereby the various abstracts shall be critically summarized in departments. Each week we shall present a review of the principal American weekly medical journals just as at present, but as regards the great mass of the rest of the world's professional literature we shall epitomize it critically under classified headings.

One week later the *Philadelphia Medical Journal* announces a similar plan. The editor says in part:

The object of this department is to place before the medical profession, as soon as possible, all that is new in medical literature and medical work, and, as far as possible, to indicate by critical comment the proper value of this work. Each summary will be written by a man whose tastes or opportunities have made him thoroughly familiar with the particular subject which he treats, so that his critical comments may be regarded as authoritative.

It is generally known that the introduction of the abstract department into weekly American medical journalism was due to the energy and influence of the editor of the *Philadelphia Medical Journal*, now the editor of *American Medicine*. This easy road to medical literature was apparently received with enthusiasm by readers, and, with slight modifications, the weekly journals, almost in a body, came into line, and presented to their subscribers more or less incomplete abstracts of what they called current literature. We have no hesitation in saying that to carry out such a scheme satisfactorily is an impossibility. In the first place, the field cannot be covered with anything approaching thoroughness. The reader, therefore, does not get what he sometimes imagines he gets — a survey of medical literature. On the contrary, he sees a few abstracts taken from a few journals, which do not begin to cover the ground of contemporary medicine. It is an impossible task for the editor to do more than this, a fact which should be understood before we take too seriously the protestations of some of our contemporaries.

A second and very grave fault of the abstract system, as now generally used by these journals, is the generally unscholarly and uncritical manner in which the abstracts are made. At least one flagrant case has recently come to our notice in which an author's meaning was wholly misinterpreted, and he was made to maintain in the abstract of his paper the very point he was trying to oppose. This sort of thing is inevitable under such a wholesale plan as our American journals, following an energetic leader, have almost universally adopted. An abstract, to be of value, must, of all things, be well done, by a man who knows enough of the subject to single out the essential points of an author's meaning. In special lines this is altogether possible, and has been carried to perfection in Germany; but it is a little hard to conceive, for example, the great German or English weeklies indulging in abstracts of "general current medical literature."

Apparently, the inaugurator of the plan has also seen the shortcomings of the abstract system; at least he sees fit to supplement it by a critical summary of the separate branches of medicine, as may be seen from the quotation given above. The *Philadelphia Medical Journal* has had a similar inspiration. With this plan we are in entire accord; it has been long in use and has demonstrated its worth. It lacks wholly the element of originality, and we must mildly protest against the implied claim of our contemporaries that it has again introduced a "novelty" in medical journalism. The abstract idea was new in weekly journals, has been generally adopted, and, we venture to prophesy, is doomed to ultimate failure as a means of keeping the "busy practitioner abreast of the times." It is, therefore, with a modest satisfaction that we see our influential contemporaries coming back to a reasonable view of the legitimate possibilities of the weekly journal, and adopting a plan which this JOURNAL has for many years put in practice. A

critical summary of medical progress made by a man who is working with intelligence, because he understands and is interested in the subject, should fulfill in a wholly sufficient way the demands of our eager readers for knowledge. We should be on our guard against overburdening their minds with an excess of knowledge, particularly if that knowledge be of the imperfect and widely diversified sort, which the abstract system entails. Quality and not quantity must be the watchword of a dignified medical journalism, as of a dignified lay journalism.

## REDUCED INFANT MORTALITY.

Hospitals for the care of young infants evidently have a distinct place to fill among our charitable institutions. However discouraging medical treatment may, in general, appear to us, it is evident that infant mortality may be remarkably diminished by ordinary precautions, in institutions where such precautions may be systematically carried out. The establishment and sufficient endowment of infant hospitals or of wards devoted to the care of infants is therefore to be welcomed. A case in point is the new building of the New York Infant Asylum, which was formally opened on Jan. 11. It adjoins the old building at the corner of Amsterdam Avenue and 61st Street extending fifty feet on one street and one hundred feet on the other, and is fitted up with all the requirements of a modern lying-in hospital. It is built of brick, with white marble facings, and cost $150,000. At present it is four stories in height, but when an additional $100,000 has been secured for the purpose, it is planned to make it eight stories. One of the speakers on the occasion was Dr. Stephen Smith, who was one of the original incorporators of the institution. He said that when it was organized in 1865 the rate of infant mortality in the institutions on Ward's and Blackwell's islands was 96%. In the Infant Asylum the rate had been reduced to 9%, and its influence had resulted in a great improvement in the management of the public institutions. In Boston, on a much smaller scale, the introduction of systematic and carefully regulated feeding of infants at the Almshouse Hospital on Long Island has reduced the mortality approximately 50%. This has no doubt been the experience of many institutions where young children are cared for. Such figures point their own moral. It is further of interest to note that these really remarkable achievements have been attained through perfectly rational methods of treatment, based on simple, but too often neglected, physiological principles, namely, proper food and good air. The demonstration has been conclusive that neglect is almost wholly responsible for infant mortality.

## MEDICAL NOTES.

Award of the Gross Prize of $1,000.— The Philadelphia Academy of Surgery, as Trustees of the Samuel D. Gross Prize of $1,000 for original research in surgery, have awarded this prize, after 6 years' interval, to Dr. Robert H. M. Dawbarn of New York City. The treatise which won the competition was entitled "The Treatment of Certain Malignant Growths by Excision of both External Carotids." Upon this topic Dr. Dawbarn has worked, as opportunity served, for seven years past. The essay, when published, will contain the histories, with pathologist's report in each instance confirming diagnosis of malignancy and specifying its variety, of forty carotid extirpations by the author himself, and as many additional by about a dozen other surgeons. At least two of these are members of the Philadelphia Academy of Surgery. By the terms of Dr. Gross' bequest, the prize essay must be published in book form, and a copy thereof be deposited in the Samuel D. Gross Library of the Philadelphia Academy of Surgery.

The New Sydenham Society.— Jonathan Hutchinson, F.R.S., general secretary of the new Sydenham Society, has requested the American agents of the society to announce the publication of "An Atlas of Clinical Medicine, Surgery and Pathology," selected and arranged with the design to afford, in as complete a manner as possible, aids to diagnosis in all departments of practice. It is proposed to complete the work in 5 years, in fasciculi form, 8 to 10 plates issued every 3 months in connection with the regular publications of the society. The New Sydenham Society was established in 1858, with the object of publishing essays, monographs and translations of works which could not be otherwise issued. The list of publications numbers upwards of 170 volumes. An effort is now being made to increase the membership, in order to extend its work.

Sir Ernest Cassel's Gift for a Tuberculosis Hospital.— Sir Ernest Cassel's name has leaked out as the donor of the £200,000 for a new sanatorium for the tuberculous in England under the patronage of King Edward VII. Sir Ernest is said to be "slated" for one of the coronation peerages. He is about fifty years of age, and owes a fortune, large even for these days, entirely to his own energy and intelligence. While his generosity is being commented on in England he has quietly departed for India.

The United States Health Service.—A bill changing the name of the Marine-Hospital Service to the United States Health Service has been introduced in Congress. The bill states that it shall not be construed as discharging any officers

now in the service. The jurisdiction of the service is increased to some extent, and its officers are to be under orders in time of war.—*N. Y. Medical Journal.*

BOSTON AND NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON.— For the week ending at noon, Jan. 15, 1902, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: Diphtheria 61, scarlatina 28, measles 72, typhoid fever 6, smallpox 34.

BOSTON HEALTH STATISTICS. — In the city's mortality report for the week ending Jan. 11 it is stated that 6 deaths from smallpox occurred, and 40 cases were discovered, exclusive of the 4 which were registered on the morning of Jan. 11. In Boston as elsewhere, measles has been prevalent and 2 have died from that disease, and the death-rate for the city is below the average. The total number of deaths reported to the Board of Health for the week was 203, as against 233 the corresponding week last year, showing a decrease of 30 deaths, and making the death-rate for the week 18.46. The number of cases and deaths from infectious diseases is as follows: Diphtheria, 44 cases, 7 deaths; scarlatina, 28 cases, 1 death; typhoid fever, 9 cases, 2 deaths; measles, 117 cases, 2 deaths; tuberculosis, 15 cases, 31 deaths; smallpox, 40 cases, 6 deaths. The deaths from pneumonia were 23; whooping cough, 1; heart disease, 13; bronchitis, 11; marasmus, 4. There were 11 deaths from violent causes. The number of children who died under 1 year was 35; under 5 years, 55; persons more than 60 years, 48; deaths in public institutions, 62.

MEETING OF BOSTON PHYSICAL EDUCATION SOCIETY.— A meeting of this society of more than usual interest was held Jan. 9. Dr. D. F. Lincoln read a paper on "Defective Children." Dr. Walter E. Fernald, superintendent of the Massachusetts School for Feeble-Minded, discussed the paper. Superintendent of Schools Seaver spoke of the mentally defective children in the schools, and of the need of classification. Dr. Walter E. Channing urged the necessity of expert examination of school children with "special reference" to their mental capacity.

NEW YORK.

MORTALITY STATISTICS.— The time in the year has now arrived when the deaths from pneumonia exceed in number those from tuberculosis. The Health Department reports show that the mortality in the city in the month of December represented an annual death-rate of 18.96, against 17.52 in the month of November, and 17.55 in December, 1900. Among the diseases in which there was an increase in mortality were the following: The weekly average of deaths from pneumonia increased from 121 in November to 161.5; of deaths from bronchitis, 38.5 to 46; from influenza, 3.25 to 6; from whooping cough, 6 to 7; from diphtheria and croup, 43.25 to 48; from measles, 6.5 to 23; and from smallpox, 1.75 to 2.25. Among the diseases in which there was a decline in mortality were the following: The weekly average of deaths from phthisis decreased from 148.5 to 140.5; from typhoid fever, 18 to 17; from diarrheal diseases 45.75 to 35.75; and from diarrheal diseases in children under five years, 38.5 to 27.25. During the month there were reported 3 deaths from exophthalmic goitre, and 1 death each from osteomyelitis, malignant pustule, hydrophobia, Addison's disease, frost-bite and freezing.

SULLIVAN COUNTY EXCLUDES THE TUBERCULOUS.— Sullivan County, N. Y., which has of late been much resorted to by tuberculous patients, is making a vigorous effort to exclude such invalids from its borders. Twenty consumptives, stopping at Liberty, have, it is said, been arrested and fined $5 each for expectorating on the streets, and in the town of Rockland an ordinance, similar to that lately adopted in Liberty, has been enacted, which imposes a penalty of $50 on anyone who conducts a boarding-house, hotel, sanitarium, or other place in which consumptives are received. The same penalty is imposed on anyone who receives into his house or harbors any consumptive not an immediate relative of the family and dependent upon him for support, while a guest suffering from tuberculosis is not permitted to visit relatives or friends in the town even for a week.

THE DEBT OF THE POST-GRADUATE MEDICAL SCHOOL.— At a public reception given in the babies' wards of the New York Post-Graduate Medical School and Hospital on Jan. 7, Dr. D. B. St. John Roosa, president of the corporation and of the faculty, announced that a gift of $100,000 had been anonymously offered towards the payment of the indebtedness of the institution, provided the $200,000 additional required for the purpose, could be raised. He furthermore stated that within the three days previous $35,000 of this amount had been pledged.

STATISTICS ON TUBERCULOSIS.— The New York State Department of Health, with a view to learning with as much accuracy as possible the number of consumptives in the State, and also something of the conditions surrounding such subjects, has sent out blanks to all the physicians of the State with the request that they be filled out and returned to the department. Among the points on which information is desired are the following: Age, sex, place of residence, occupa-

tion, nationality, duration of the disease, source of infection, if known, family history of tuberculosis, sanitary surroundings and precautions adopted to prevent spread.

SMALLPOX AT HACKETTSTOWN.— A somewhat serious outbreak of smallpox has occurred at Hackettstown, N. J., and for lack of hospital facilities the town hall has been converted into a hospital. It is said to have originated from a case in which the disease was mistaken for chicken-pox.

## CHICAGO'S ATTITUDE TOWARD SMALLPOX.

THE following statement entitled "A Vaccination Creed" has been published by the Chicago Commissioner of Health, and posted at police stations, cheap hotels, waiting rooms, factories, and in places frequented by numbers of people, especially of the tramp or migrant class:

(1) That true vaccination — repeated until it no longer "takes"— always prevents smallpox. Nothing else does.

(2) That true vaccination — that is, vaccination properly done on a clean arm, with pure lymph and kept perfectly clean and unbroken afterwards — never did and never will make a serious sore.

(3) That such a vaccination leaves a characteristic scar, unlike that from any other cause, which is recognizable during life and is the only conclusive evidence of a successful vaccination.

(4) That no untoward results ever follow such vaccination; on the other hand, thousands of lives are annually sacrificed through its neglect — a neglect begotten of want of knowledge.

The following is a part of the supplement appended to this "creed."

Not one of the 346 cases of smallpox discovered in Chicago within the last 3 years was found vaccinated as defined in the "vaccination creed."

Of the total number, 306 never had been vaccinated at all, though most of them claimed that they had. Examination of the arms proved that these attempts at vaccination were failures; there was no scar and the patients finally admitted that the vaccinations when performed did not "take." A "failure" is not a vaccination; therefore, these 306 cases had never been vaccinated.

Of the remaining 40 cases, 26 had old, irregular and doubtful scars said to be the result of vaccination, but these were not characteristic; they were more like the scars from infected sores or wounds than those from vaccine. Nine had fair old scars of vaccinations made from 30 to 40 years previously. Only 5 had typical (characteristic) scars; but these also were the results of vaccination made many years before and never repeated.

In no single case of the 346 had the terms of the first article of the "vaccination creed" been complied with — vaccination had not been repeated until it would no longer "take." If it had been they could not have contracted smallpox.

## METEOROLOGICAL RECORD

For the week ending Jan. 4, in Boston, according to observations furnished by Sergeant J. W. Smith of the United States Signal Corps:

| Date | Barometer. | Thermometer. | | | Relative humidity. | | | Direction of wind. | | Velocity of wind. | | We'th'r * | | Rainfall in inches. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Daily mean. | Daily mean. | Maximum. | Minimum. | 8.00 A.M. | 8.00 P.M. | Daily mean. | 8.00 A.M. | 8.00 P.M. | 8.00 A.M. | 8.00 P.M. | 8.00 A.M. | 8.00 P.M. | |
| S...29 | 29.64 | 49 | 60 | 38 | 98 | 94 | 96 | S E | S W | 21 | 12 | R. | R. | .91 |
| M..30 | 29.59 | 42 | 50 | 34 | 98 | 92 | 95 | N | W | 8 | 9 | R. | O. | 2.08 |
| T..31 | 29.69 | 30 | 41 | 20 | 74 | 53 | 64 | S W | W | 14 | 32 | C. | C. | |
| W..1 | 30.38 | 11 | 16 | 6 | 51 | 48 | 50 | N W | N W | 22 | 18 | C. | C. | |
| T...2 | 30.25 | 28 | 41 | 16 | 63 | 74 | 68 | W | S W | 8 | 18 | C. | C. | |
| F...3 | 29.90 | 26 | 41 | 11 | 84 | 70 | 77 | W | W | 18 | 15 | O. | C. | .03 |
| S....4 | 30.32 | 10 | 16 | 4 | 86 | 58 | 72 | N W | N W | 20 | 16 | C. | C. | |
| ☞ | 29.97 | | 38 | 18 | | | 75 | | | | | | | 3.02 |

*O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow. † Indicates trace of rainfall. ☞ Mean for week.

## RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, JAN. 4, 1902.

| CITIES. | Estimated population. | Reported deaths in each. | Deaths under five years. | Percentage of deaths from | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | Infectious diseases. | Acute lung diseases. | Typhoid fever. | Diarrheal diseases. | Diphtheria and croup |
| New York . . | 3,665,352 | 1,292 | 393 | 21.63 | 19.97 | 3.17 | .77 | 2.48 |
| Chicago . . | 1,852,828 | — | — | — | — | — | — | — |
| Philadelphia. | 1,349,624 | 488 | 119 | 22.50 | 14.76 | 3.07 | 1.23 | — |
| St. Louis . . | 603,717 | — | — | — | — | — | — | — |
| Baltimore . . | 525,330 | 183 | 41 | 18.02 | 15.28 | .54 | 2.18 | 2.18 |
| Cleveland . . | 411,826 | — | — | — | — | — | — | — |
| Buffalo . . . | 375,742 | — | — | — | — | — | — | — |
| Pittsburg . . | 341,401 | 128 | 43 | 31.20 | 19.50 | 3.12 | 7.80 | 4.68 |
| Cincinnati . | 332,032 | — | — | — | — | — | — | — |
| Milwaukee . | 304.975 | — | — | — | — | — | — | — |
| Washington . | 289,537 | — | — | — | — | — | — | — |
| Providence . | 185,870 | 57 | 24 | 31.57 | 12.28 | 7.00 | — | 7.60 |
| Boston . . . | 588,736 | 193 | 53 | 20.20 | 15.02 | 2.07 | — | 1.03 |
| Worcester. . | 127.337 | 18 | — | — | 22.22 | — | — | — |
| Fall River. . | 111.872 | 21 | 4 | 42.85 | 4.28 | — | — | 19.04 |
| Lowell . . . | 99,574 | 54 | 21 | 22.20 | 22.20 | 1.85 | — | 1.85 |
| Cambridge . | 96,334 | 16 | 4 | 25.00 | 12.50 | — | — | — |
| Lynn. . . . | 71,144 | 17 | — | 17.64 | — | — | — | — |
| Lawrence . . | 67,275 | 26 | 11 | 11.55 | 23.10 | — | — | — |
| Springfield . | 66,854 | 25 | 6 | 40.00 | 4.00 | 4.00 | 12.00 | 4.00 |
| Somerville . | 65,882 | 19 | 3 | 31.56 | 26.30 | 5.26 | — | 5.26 |
| New Bedford. | 65,574 | 19 | 4 | 21.04 | 10.52 | — | — | — |
| Holyoke . . | 48,065 | 19 | 5 | 10.52 | — | — | — | — |
| Brockton . . | 43,208 | 10 | 1 | 20.00 | — | 10.00 | — | — |
| Haverhill . . | 40,392 | 11 | 4 | — | — | — | — | — |
| Salem . . . | 36,567 | 7 | 4 | 14.30 | 14.30 | — | — | 14.30 |
| Newton. . . | 36,336 | 10 | — | 10.00 | 20.00 | 10.00 | — | — |
| Malden . . . | 35,390 | 7 | 1 | 28.60 | 14.30 | — | 14.30 | — |
| Chelsea. . . | 35,264 | 11 | 3 | 27.27 | — | 18.18 | 9.09 | — |
| Fitchburg. . | 33,848 | 7 | 1 | 14.30 | 28.60 | 14.30 | — | — |
| Taunton . . | 32,759 | 6 | 1 | 16.67 | — | — | — | — |
| Everett. . . | 27,114 | 9 | 2 | 11.11 | — | — | — | — |
| North Adams | 26,583 | 6 | — | 33.33 | 16.67 | — | — | — |
| Gloucester . | 26,121 | 6 | 1 | 16.67 | — | — | — | — |
| Quincy . . . | 25,307 | 7 | 2 | 28.60 | — | 14.30 | — | — |
| Waltham . . | 24,612 | 7 | 1 | 14.30 | 14.30 | — | — | — |
| Pittsfield . . | 22,311 | 4 | — | — | 25.00 | — | — | — |
| Brookline. . | 21,679 | 8 | 1 | 12.50 | 25.00 | — | — | — |
| Chicopee . . | 20,390 | 2 | — | 50.00 | — | — | — | — |
| Medford . . | 20,014 | 4 | 1 | 25.00 | 25.00 | — | — | — |
| Newburyport | 14,478 | 5 | 1 | — | 20.00 | — | — | — |
| Melrose . . | 13,384 | 4 | — | — | — | — | — | — |

Deaths reported 2,728; under five years of age, 763; principal infectious diseases (smallpox, measles, scarlet fever, cerebrospinal meningitis, diphtheria and croup, diarrheal diseases, whooping cough, erysipelas, fevers and consumption) 602, acute lung diseases 465, consumption 297, scarlet fever 31, erysipelas 7, typhoid fever 34, whooping cough 7, cerebrospinal meningitis 8, smallpox 24, measles 39, diarrheal diseases 56.

From whooping cough, New York 2, Philadelphia 2, Baltimore 1, Lowell 1, Northampton 1. From cerebrospinal meningitis, New York 5, Lowell, Somerville and Gloucester 1 each. From scarlet fever, New York 17, Philadelphia 6, Pittsburg 1, Boston 5, Fall River and Cambridge 1 each. From erysipelas, New York 5, Baltimore 1, Boston 1. From measles, New York 25, Philadelphia 2, Pittsburg 4, Providence 1, Boston 3, Lowell 3, Weymouth 1. From smallpox, New York 2, Philadelphia 16, Boston 6.

In the thirty-three greater towns of England and Wales, with an estimated population of 11,463,026, for the week ending Dec. 21, the death-rate was 19.3. Deaths reported 4,233; acute diseases of the respiratory organs (London) 393, whooping cough 78, diphtheria 76, measles 138, smallpox 24, scarlet fever 39.

The death-rate ranged from 14.3 in Portsmouth to 32.6 in Oldham; Birkenhead 18.8, Birmingham 21.8, Blackburn 20.0, Bolton 20.1, Brighton 19.0, Bristol 19.0, Burnley 19.3, Cardiff 19.6, Croydon 15.1, Derby 20.6, Halifax 15.9, Hull 16.4, Leeds 17.3, Leicester 17.4, Liverpool 22.1, London 18.7, Manchester 22.1, Newcastle-on-Tyne 18.1, Norwich 16.3, Nottingham 18.0, Plymouth 18.4, Preston 18.4, Salford 22.1, Swansea 21.5, West Ham 17.6, Wolverhampton 18.2.

## CHANGES IN THE MEDICAL CORPS OF THE NAVY FOR THE WEEK ENDING JAN. 11, 1902.

W. B. GROVE, passed assistant surgeon. Ordered to the "San Francisco."

W. C. BRAISTED, passed assistant surgeon. Detached from the "Topeka," and ordered to the Naval Hospital, New York.

F. M. FURLONG, assistant surgeon. Ordered to Vicksburg, Miss., for duty at the naval rendezvous; and to the "Topeka" upon completion of recruiting duty.

E. O. HUNTINGTON, assistant surgeon. Detached from the "Columbia," and ordered to the Naval Hospital, New York.

F. L. BENTON, assistant surgeon. Detached from the Naval Hospital, New York, and ordered to the "Columbia."

C. F. STOKES, surgeon. Detached from the "Solace" and ordered to duty at Guam, L. I.

F. A. HESLER, surgeon. Ordered to remain on duty on the Asiatic Station.

J. R. Waggener, medical inspector. Ordered to the U. S. Steamer "Constellation."

W. A. MCCLURG, medical inspector. Detached from the "Constellation" and ordered home to hold himself in readiness for sea duty.

## SOCIETY NOTICES.

BOSTON SOCIETY FOR MEDICAL IMPROVEMENT.— The regular meeting of the Society will be held at the Harvard Medical School, Boylston Street, on Monday, Jan. 20, at 8 P.M. Paper: Dr. Joseph H. Pratt, "Anatomical Classification of Thyroid Tumors." This will be illustrated by lantern slides. Dr. M. H. Richardson and Samuel J. Mixter will read of the "Clinical Aspects of Thyroid Tumors": Dr. J. C. Warren on "Thyroid Tumors."

ARTHUR K. STONE, M.D., Secretary,
543 Boylston Street.

SUFFOLK DISTRICT MEDICAL SOCIETY.— There will be a meeting of the Section for Obstetrics and Diseases of Women in Sprague Hall, Boston Medical Library Building, 8 The Fenway, Wednesday, Jan. 22, 1902, at 8 P.M.

Papers: Dr. T. Leary, "Pathology and Pathological Diagnosis of Carcinoma of the Uterus"; Dr. William R. Pryor, "Vaginal Hysterectomy for Carcinoma of the Uterus"; Dr. J. C. Irish, "Abdominal Hysterectomy for Carcinoma of the Uterus"; Dr. Albert H. Tuttle, "The Treatment of Cases of Carcinoma of the Uterus not Justifiably Treated by Radical Operation": Dr. C. G. Cumston, "The Surgical Aspects of Carcinoma Uteri, Complicating Labor and the Puerperium."

The discussion will be opened by Dr. W. H. Baker of Boston, Dr. Homer Gage of Worcester, Dr. Luce of Portsmouth, N. H., Dr. Wood of Waltham and Dr. Garceau of Boston.

W. H. GRANT, M.D., Secretary.

## APPOINTMENTS.

The following appointments have been made at the Boston City Hospital: Visiting Physician, Dr. Henry Jackson. Physician to Out Patients, Dr. Franklin W. White; to act as additional third assistant visiting surgeons: Dr. F. J. Cotton, Dr. W. E. Faulkner, Dr. J. C. Hubbard; Medical Registrar, Dr. J. W. Bartol; Ophthalmic Surgeons, Dr. Allen Greenwood, Dr. E. R. Williams.

## RESIGNATION.

DR. V. Y. BOWDITCH has resigned the position of Visiting Physician on the Staff of the Boston City Hospital.

## RECENT DEATHS.

DANIEL WALDO STEARNS, M.D., M.M.S.S., died in Newton Jan. 9, 1902, aged 38 years.

DR. WILLIAM AUGUSTUS PIERREPONT of Brooklyn, N. Y., a great-grandson of John Jay, first Chief Justice of the United States, died on Jan. 6 from cardiac disease, at the age of 46. He was born in Brooklyn and was graduated from Columbia College and from the Columbia Law School in 1876. He then studied medicine, and was graduated from the College of Physicians and Surgeons in 1882.

DR. JOSEPH S. CARREAU of New York, whose clientele was principally composed of French-Canadian residents of the city, died on Jan. 7 from cardiac disease. He was a native of Canada, 53 years of age, and was graduated from the medical department of the University of the City of New York in 1874.

## BOOKS AND PAMPHLETS RECEIVED.

Physician's Pocket Account Book. By J. J. Taylor, M.D. Philadelphia: The Medical Council. 1901.

Transactions of the American Gynecological Society. Vol. XXVI. For the year 1901. Philadelphia: Wm. J. Dornan. 1901.

The Medical Record Visiting List or Physicians' Diary for 1902. New revised edition. New York: William Wood & Co. 1901.

Transactions of the New Hampshire Medical Society at the One Hundred and Tenth Anniversary, held at Concord May 16 and 17, 1901.

A Manual of Clinical Laboratory Methods. By John Benjamin Nichols, M.D. Illustrated. New York: William Wood & Co. 1901.

Transactions of the American Surgical Association. Vol. XIX. Edited by Richard H. Harte, M.D. Philadelphia: William J. Dornan. 1901.

Memoirs and Letters of Sir James Paget. Edited by Stephen Paget, one of his sons. Illustrated. New York, London and Bombay: Longmans, Green & Co. 1901.

On the Differentiation between Inflammatory Processes and Neoplasms of the Bones by the Rontgen Rays. By Carl Beck, M.D., of New York. Illustrated. Reprint. 1901.

The Czolgosz Trial: A Unique Event. By Charles K. Mills, M.D., of Philadelphia, Professor of Medical Jurisprudence in the University of Pennsylvania. Reprint. 1901.

Outlines of Gynecological Pathology and Morbid Anatomy. By C. Hubert Roberts, M.D. (Lond.), F.R.C.S. (Eng.), M.R.C.P. Illustrated. Philadelphia: P. Blakiston's Son & Co. 1901.

The Four Epochs of Woman's Life. A Study in Hygiene. By Anna M. Galbraith, M.D., with an introductory note by John H. Musser, M.D. Philadelphia and London: W. B. Saunders & Co. 1901.

Water and Water Supplies. By John C. Thresh, D.Sc. (Lond.), M.D. (Victoria); D.P.H. (Cambridge). Third edition, revised and enlarged. Illustrated. Philadelphia: P. Blakiston's Son & Co. 1901.

A Manual of Minor Surgery and Bandaging. For the use of House-Surgeons, Dressers and Junior Practitioners. By Christopher Heath, F.R.C.S., LL.D. Twelfth edition, revised by Bilton Pollard, F.R.C.S. Illustrated. Philadelphia: P. Blakiston's Son & Co. 1901.

The Roentgen Rays in Medicine and Surgery as an aid in Diagnosis and as a Therapeutic Agent. Designed for the use of Practitioners and Students. By Francis H. Williams, M.D. (Harv.). Illustrated. New York: The Macmillan Co. London: Macmillan & Co. (Ltd.). 1901.

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# Original Articles.

## NOTES ON THE LIFE AND WRITINGS OF GERONIMO CARDANO.

BY CHARLES GREENE CUMSTON, M.D., BOSTON.

The lives of the great physicians of antiquity and the Middle Ages cannot, I think, be devoid of interest to the present generation of the profession, and this may be particularly true of those men who are not generally known in medical science, and it is for this reason that I have selected the following biography.

Geronimo Cardano was certainly a curious personage even in his day, and his reputation is especially due to his profound knowledge of mathematical sciences and philosophy. His system of philosophy has been the cause of much eulogy in recent times, and, lastly, in his relation to us as physicians we must remember that at least one-third of his "Opera omnia" is devoted to medical subjects. His life, character and work offer to the highest point the most peculiar features. His career was an uninterrupted chain of misery, suffering and strife. He was born at Pavia on Sept. 24, 1501, although Haeser gives his birth as occurring in 1505, while Duruy places it in 1500. I believe, however, that the first date given is correct. As his mother was not married, she tried every method to procure an abortion, but without effect. It is said that she was 3 days in labor, and that finally the sectio cesarea was resorted to.

When Cardano was 4 years old he was taken to Milan, in which city his father practised in high repute, both as a physician and an advocate. In 1524 he went to Padua, and in the same year was admitted to the degree of M.A., while toward the end of the following year he received the degree of doctor of medicine.

Somewhere about the end of 1531 he married a poor woman, he himself being in the most complete misery. During the previous 10 years his impotency hindered him from having knowledge of a woman, which was a great mortification, and he attributed it to the evil influences of the planet under which he was born. When he enumerates, as he does in more places than one, the greatest misfortunes of his life, this ten years' impotency is always foremost among them.

At the age of 33 he became professor of mathematics at Milan, and 2 years later he was offered the professorship of medicine at Pavia, which he refused, as there was little likelihood of receiving a regularly paid salary. In 1539 he was admitted a member of the College of Physicians at Milan, and in 1543 he read public lectures in medicine in that city and at Pavia the year following, but discontinued them because he could not obtain payment of his salary, and he returned to Milan. In 1547 his friend Vesalius procured for him, from the King of Denmark, an offer of a pension of 800 crowns and his table, which he tells us he refused on account of the severe cold of the climate, and also because to be well received in that kingdom he would be obliged to renounce the Catholic religion, in which he had been bred. In 1552 he went to Scotland, having been sent for by the Archbishop of St. Andrews, who had applied in vain to the physicians of the King of France, and afterwards to those of the emperor. This prelate, then about 40 years of age, had been afflicted with a shortness of breath for about 10 years, and which had returned every week for the past 2 years. He began to recover from the moment that Cardano prescribed for him. The latter took his leave of the archbishop in about 6 weeks' time, leaving him his prescriptions, which in 2 years wrought a complete cure.

Cardano's journey to Scotland gave him an opportunity of visiting several other countries. In journeying there he crossed France, and returned through the Low Countries and Germany, along the banks of the Rhine. It was on this occasion that he went to London and calculated King Edward's nativity. This tour consumed about 10 months, after which, returning to Milan, he continued there until October, 1552, and then went to Pavia, whence he was invited to Bologna in 1562. He taught in this latter city until 1570, at which time he was thrown into prison for debt, but some months after was sent to his own house but was not restored to his liberty until some little time afterwards.

In 1571 Cardano went to Rome, where he lived without any public employment. He was, however, admitted a member of the College of Physicians in that city and received a pension from the pope. According to Thuanus, he died at Rome Sept. 21, 1575, while other historians place his death in 1576. Before his death he had the misfortune to witness the execution of his son charged with poisoning his wife.

From what precedes it would appear that Cardano was of a very fickle temperament, but one will have a much better idea of his singular and odd turn of mind by examining what he himself tells us, concerning his good and bad qualities, in his "De vita propria": "Nature has given me talent for manual work, a philosophical mind adapted to the study of sciences, full of taste, a good character, voluptuous, gay, pious, inconstant, friend of wisdom, inclined to meditation, inventive, full of courage, prompt, defender of good things, inventor of new things, an enemy of the *vox magistri*, of moderate habits, interested in everything related to medicine, zealous for miraculous things, architect, mocker, sober, industrious, laborious, diligent, only living from day to day, frivolous, never forgetting an injury, contemptuous of religion, envious, sad, traitor, setting snares, magician, enchanter, miserable, hateful, lubric, solitary, slightly sympathetic, severe, divine, jealous, lascive, obscene, obsequious, fond of conversation with elderly people, etc."

Besides this enumeration, he boasts in other parts of his writings of possessing qualities, perhaps it were better to say properties, of a hyperphysical nature, and he enters most voluntarily

into ecstacy. He makes objective the products of his imagination with such force that he says that he could see them, not with the eyes of the soul, but with those of the body. He was forewarned by dreams of everything that was to happen to him, and the future was indicated by certain marks which appeared upon his finger nails, as it occurred to him especially more forcibly at the time his son was imprisoned for his crime. Like Socrates, Cardano possessed an easy genius that he has defined in the dialogue entitled "Tetim"—"a venereal genius mixed with Saturn and Mercury."

Leibnitz, who was well versed in the merits and talents of Cardano, has said that he was a very great man with all his defects, and without them would have been incomparable. Cardano certainly occupies a more distinguished place in the history of the progress of philosophy and mathematics than in that of medicine, but he has composed a large number of works relating to the healing art, some of which are still possessed of much interest, and they certainly greatly contributed to break the chains of ancient Arabic Galenism. Cardano had as motto, "*Tempus mea possessio, tempus ager meus.*" He has justified the choice which he made in this selection, as is proven by the 222 treatises contained in the 10 volumes which compose his entire works, which are not even complete, and I will only mention here those treatises which directly apply to medical science.

"De libris propriis." Nuremberg, 1544.

"De libris propriis eorumque ordine et usu ac de mirabilibus operidus in arte medica factis." Lyons, 1557.

"De libris propriis eorumque usu liber recognitus." Bale, 1562.

"Contradicentium medicorum libri X." Paris, 1546; Lyons, 1548; Antwerp, 1564; Marburg, 1607. The first two editions are incomplete.

"De Sarza-Parilla," published with his "Contradicentia medica." Lyons, 1548.

"De subtilitate libri XXI." Nuremberg, 1550, and Paris, 1551. A fourth edition published at Bale in 1560 contains additions and a refutation of Scaliger's criticisms. Other editions have appeared. This is certainly Cardano's masterpiece, and it contains striking proofs of his great knowledge and superior intelligence, and also in many instances his puerility and want of system.

"De rerum varietate libri XVI." Bale, 1557.

"In Thessalicum medicum actio secunda." Bale, 1562.

"In septem particulas aphorismorum Hippocratis commentaria." Bale, 1564.

"De venenis libri tres." Bale, 1564.

"De methodo medendi sectiones tres." Paris, 1565; Marburg, 1607. The first two sections of this work were published for the first time at Venice in 1545 under the following title: "De malo recentiorum medicorum medendi usu libellus centum errores illorum continens. Item alius de simplicium medicinarum noxa."

"Podagræ encomium," in his "Opuscula medica et philosophica." Bale, 1566.

"De aqua" in the second volume of his "Opuscula medica et philosophia." Bale, 1566. In this same work will be found "Liber de vitali aqua, seu de æthere."

"Medicinæ encomium," in his "Opuscula medica." Bale, 1566. In the first volume of this work will be found "Ars curandi parca," and in the second volume will be found "De radice cina responsum petitioni M. Antonii Majoragii."

As to Cardano's works, their analysis is surrounded by the greatest difficulty, because on every page there is a want of order; there are contradictions, hesitations, repetition, in fact, their study is rendered very difficult. His medical works comprise more than four volumes of his "Opera omnia," and are composed of a multitude of opuscules and short treatises which succeed each other without any order and are in no way related to one another. Upon reading them one is constantly reminded of the author's preoccupation to write in order to make the greatest number of pages, and he admits himself that he was paid by the page, and so made money by his prodigious knowledge. In spite of all these defects one cannot but see that he had a logical and lucid mind, that he was an observer.

He considers nature as the ensemble of things and beings, and the ternary division of the universe he admits, but he has reduced it to an entirely mathematical abstraction. He distinguished three principles in nature, namely, matter, which is the soul of the world, and whose principal function is movement and intelligence. Under its multitude of varieties matter is unique and eternal, two modalities of force constantly acting on it in order to describe the cycle of the four elements. The four elements are heat, which is the symbol of life, the humid, which represents inertia and inorganization.

All bodies are susceptible to movement and all have a vegetative soul. Intellect is one; it envelops all beings. "There is *sub luna* only one intellect, and this intellect is only human as far as human matter can admit it; it penetrates man and by so doing produces in him acts of intelligence. This same intellect surrounds the lower animals, but on account of the disproportion of matter, its entrance within them is prevented. Thus it illuminates the interior of man, and only sheds rays around the lower animals. There is no other difference in this intellect of men and that of beasts, and from this it arises that what is perfect in the human being is confused in animals." Cardano also admits the existence of an intermediary agent between the two worlds or the two extreme principles, namely, God and Matter. In order to designate it, he employs the same term of *spiritus*, which is already met with in Bacon, Arnauld de Villeneuve, and Cornelius Agrippa. In his "De usu ciborum" an entire chapter is given up to the study of this element, which serves as the link between the human body and the divine principle.

He also deducts important consequences in the medical point of view for the treatment of diseases which are inflicted by the *spiritus*.

As a disciple of the doctrine of concordances he admits that the poisonous action of things should be attributed to occult sympathies or antipathies, which unite the planets, living beings and men; and very logically he advises, besides a physical treatment, a kind of psychical cure. In another part he groups all the poisons — the word poison being taken in its most general meaning — as some arising in the human body and others coming from air and water of bad quality. A third group contains poisons properly speaking, while the fourth includes the venoms, some being entirely deprived of a material substratum; these

are the incantations, magic works (?) and philters. Others have a certain material substratum, as fascination, whose effect is produced by a visual emission. He is imbued with the idea that lower beings are in concordance with the superior, and believes in astrological medicine, and an entire passage in his book "Contraicentrum medicorum" treats of unfortunate days in the point of view of astrological medicine. And again, in this same book, he mentions epidemics that he attributes to the influence of the constellations.

In his pathology a very important place is reserved to those diseases produced by evils, and he describes the symptoms which are variable according to whether they relate to a fascination or a sortilege. He describes a person who is fascinated as having a whitish color of the skin, with a sadness in the eyes, crying often, suffering and sad. A person who has become ensorcelated is always exalted. He speaks much. The eyes are brilliant. The thoughts follow in rapidity. Sleep is absent and the subject emaciates in a few days.

Such are the theories which govern the medical science of Cardano, and consequently it is easy to foresee how very strange and marvelous would be his therapeutics. For the application of ordinary remedies, or physical means, one principle seems to dominate, namely, "*Similia similibus curantur.*" In his "De rerum varietate" he says that nature is powerfully aided by similar things, and as an illustration he says that the milk of the ass, the uterus of the hare, or the testicles of the buck will greatly aid in the production of pregnancy. Further on he says that the contraries repel each other, as, for example, when blood has been separated from its serum and dried in the sun it will act as an hemastatic.

Being at the same time scientific and, perhaps, somewhat credulous, he mentions a number of marvelous cures, which he gives as authentic, and only uses his strongly critical mind for the discussion of explanatory hypotheses.

Among other passages there is one which is interesting because it shows us that from an experiment he undertook upon himself he endeavored to eliminate all causes of error. Laurentius Gauscus Cherascius, who was an empirical physician of Tours, had a most remarkable magnet which if a stylet was rubbed on it the instrument could afterwards be made to penetrate a limb without giving rise to any pain to the patient. Cardano heard of this and undertook the experiment on himself. It was successful, because he hardly felt the slightest pricking sensation, and but a drop of blood was seen in the wound. In telling of this experiment he examines all the hypotheses which could possibly come to his mind, in order to explain this prodigy by a deceit, and he only arrives at the conclusion that this magnet had a real efficaciousness.

Nevertheless, neither his logical mind nor his excellent critical judgment can prevent him from relating facts such as these: A man bitten by a mad dog ate a crust of bread, after having had the finger pierced three times, reciting each time the five dominical orations for the five wounds of Christ. He was cured. Here is another: Charles Zenus, the Venetian, received a very severe wound of the knee which no remedy could cure. A physician applied a remedy on the other knee and the wound closed.

Here is a sample of Cardano's personal treatments: In order to cure a toothache, a porous body, such as certain barks or roots, should be placed between the thumb and index finger.

He also speaks of odontalgia, and it is interesting to note that he discovered by chance on himself a kind of magnetic process by which this kind of pain could be calmed, and I here give Durey's literal translation of this passage: "I had a violent toothache occurring in the last two teeth of the left upper jaw; the pain extended to the other teeth, the nose, the eyes, the ear; no remedy acted on it. I endeavored to separate the teeth with the right hand, without any other result than to increase the pain; finally, by touching lightly, with the left thumb, the external aspect of the most painful tooth, and with the index the internal part, the pain lessened, decreasing all the more the lesser I touched the parts. I have repeated this experiment more than twenty times with success, until all the pain had disappeared."

There is no doubt whatever but that the medical writings of Cardano were the means of throwing off the yoke of Galen's old system, as modified by the Arabians, or at least they contributed largely to this end. For example, his judgment is certainly excellent when he advises the examination of the urine, from which diagnostic signs could certainly be derived, and believing them to be very certain, he departed from the teachings of Galen and Avicenna. He very well appreciated the signs that could be drawn from black urine, and at the same time reproached Galen for his want of observation, and he pretends, contrary to Galen, that sediment in the urine is not, properly speaking, the immediate product of coction, and contradicts the ancient theory by saying that coction may occur at the beginning of even an acute disease.

It is to be regretted that Cardano took so little time in the study of anatomy, although in many parts of his works he strongly recommends its study. If he had had more extensive knowledge of the human body he would have been able to have pronounced himself in a more decisive manner upon certain objects of theory, and would not have rendered himself culpable of several very great errors. Among others, he upheld that the heart did not have a single nerve. He pretends that Averrhoës only placed the origin of the nerves in this organ simply because he was led into error by white patches which were occasionally present upon its surface, and by its substance, which is very similar to that of nerves.

In other parts of his writings he believes that the heart has a sensibility, and admits three different sensitive faculties. The first is complete, and is the result of influence of the nerves, consequently only slightly marked in the superficial

part of the heart and entirely wanting in its interior. The second is incomplete, and only occurs in a pathologic condition or in the tendons and ligaments which during health are deprived of all sensibility. The third is seated in the soul itself, in which the heart, which is the source of life, also takes an active part.

He very ably and precisely demonstrated that the various functions of the soul were localized in various parts of the brain, and he says that this opinion in no way influences the method of treatment.

The muscular fibres and the vessels are not attracted to each other, but are formed by attraction.

I would here remark that Cardano was fully aware of the discovery of Fallopius, but he did not fully seize its import.

He does not believe that putrefaction of the atmosphere is an etiological factor in contagious diseases, excepting when the atmospheric vapors become altered. Cardano upheld that mucous secretions coming from the nose and throat were not always derived directly from the head, and that very often they were produced by the organs of secretion located in the mouth and nose, so that in reality he preconceived the great truth which later was so convincingly demonstrated by Conrad Victor Schneider. He taught that the mucous secretions developed outside of the vessels, which then absorbed them and carried them throughout the economy in the circulation to different organs, and disproved the theory that the various humors developed directly in the organs themselves and are then exhaled by them into the cellular tissue. Cardano also says that it not infrequently happens that unsalted mucus turns into bile and that salted mucus may transform into atrabile.

Besides the various kinds of bile described by Galen, Cardano adds a number of others. He states that putrid fever is directly due to an overheating of the blood and to changes taking place in the humors which become separated from this fluid, because the blood itself can never undergo putrefaction. He upholds that the blood is imperfectly prepared in the liver but is perfectly so in the heart.

He mentions the fact that frequently after having observed all the symptoms and signs of phthisis during life, at autopsy the lungs will be found perfectly normal, or only presenting a few small tubercles.

His manner of relating the histories of some of his cases readily demonstrates that he has done so with no other end than to satisfy his vanity. As an example of this, he says that out of twelve physicians he was the only one who was able to discover a disease with which a certain countess was afflicted, the other physicians believing that she was pregnant, while Cardano demonstrated beyond a doubt that the patient was afflicted with a hydropsy of the uterus. In another instance Cardano was called in consultation with other practitioners, and he declared that the disease was opisthotonos, and all his colleagues ridiculed him upon the dissonance of such a barbarous word, but he cured the patient completely by frictions with oil of chamomile, and mithridates. He also states that he has cured several cases of leprosy and phthisis, and in this latter affection he employed a dilute solution of sulphuric acid, powdered orris root, syrup of rose, and one or two other preparations.

Sprengel asserts that Cardano was afflicted with diabetes, and that for a time he daily voided 100 oz. of urine; and Cardano himself relates the case of another person afflicted with this disease who voided 36 lbs. of urine daily, although only 7 pounds in weight of food and drink were ingested.

Cardano's theories relative to the general effects produced by baths are most interesting, and he ardently combats the ancient Galenic indication of "*contrarie contrariis opponenda.*" He points out that this law is not susceptible of having a general application because, for example, a diarrhea may be cured by purgatives. He also raises his voice against the ancient prejudice of giving wine to patients afflicted with fever, and he condemns the use of distilled waters which have neither taste nor smell, because they are not only useless, as they possess no predominant property, but they may even be deleterious on account of the metallic particles with which they are impregnated, and which are derived from the walls of the receptacles in which they are distilled. Cardano believes that it is unwise to administer light laxative medicines in the beginning of all acute diseases, and also that it is better not to defer blood-letting in these affections for too long a time, because this operation is one of the most important means by which we may moderate a too considerable afflux of the humors. He also believes that purgatives should be administered after the maximum of the disease has been reached, and that blood-letting is a most dangerous practice during menstruation, towards the decline of most all types of fever, and believes that this practice is, generally speaking, a salutary one.

He points out that blood-letting and blisters are not indicated in every case of apoplexy, and that paracentesis should not be performed in those cases where the fluid collection is due to a disease of the liver, when resource has not been had to other means and when congestion of the organ has slowly taken place.

Cardano knew without any doubt the curative virtues of metals, because he says that a thin plate of gold will prevent headaches if it be placed on the coronary suture. If placed upon the cardiac region it will calm palpitations, and will soothe the pains of nephrolithiasis when put in contact with the lumbar region. We have here an entire system of therapeutics, because it is to the power possessed by metals that he attributes the curative virtues of the seals and bracelets of the royalty. He believes that not only metals enjoy such properties, but that precious stones are also of value. Thus he states that jaspar will control hemorrhage,

that coral is excellent for a weak heart, and that the sapphire will cure the plague.

The therapeutic virtues of gems and metals are only a particular branch of the doctrine of universal concordance. Gold has not in itself a value, but it is directed by the sun which infuses a part of its virtues into the metal. It is the same with silver, which is acted on by the moon; lead, which is influenced by Saturn, and copper by Mercury, etc. If this idea be analyzed it is easy to see that if the time is chosen at which the sun has its maximum of influence, the therapeutic strength of gold will be increased if applied at this time, and if it is placed on a part of the body which is submitted to the direct influence of the sun, and, still more so, if the subject has been born tributary to the sun, the action will be all the greater. From this example we see how all the occult theories on astrology and metallotherapy are intermingled. For example, seals do not act on account of the figures engraved upon them; their action is dependent on the accord established by the thaumaturge between nature, the composition of the seal, the course of the stars and the nature of the being to whom they are destined.

Cardano also was conversant with the procedures of cures produced by sympathy, as can be demonstrated by the following example, which he relates in his "De rerum varietate": In order to cure a quartian fever, all the urine voided by the patient during the attack should be mixed with flour and then scattered along the road with the hope that a hungry dog may devour it, and if this should come to pass the animal will contract the fever and the patient will be cured. Cardano also relates the following case: A patriarch, by name Castelnuovo, suffered with toothache for three days, and this is the way he was cured by a sorcerer. The latter took a nail and with it wrote a few enigmatic lines upon a tablet, touched the diseased tooth three times with the nail, and then drove the latter into the tablet upon which he had written. The pain ceased immediately, and the sorcerer promised that it would never return if the nail remained stuck in the tablet, and in point of fact, for the 16 years that the patient lived afterwards, he never had a return of his toothache.

In his "Contradicentrum medicorum" Cardano says that for a long time it has been questioned whether enchantments could serve as therapeutical means, and he concludes that in certain cases they may be useful. Facts corroborating this had been recorded by Dioscorides, Aristotle, Avicenna, Avenzoar and others, and Cardano himself relates several, as, for example, where a man was in a most desperate condition on account of having been struck by lightning, and who was cured by inunctions made with oil and wool.

Cardano endeavors to scientificially explain these cures, and says that one should admit that there is in nature many things which remain enigmas, and it is only from time to time that an explanation may be given to them. On the other hand, in cases of cure such as these, one should attribute a certain rôle to the influence of the imagination, which so frequently transforms the thoughts and sensations of man, and whose action is in many instances so rapid. And although this action may have been most insignificant it should, nevertheless, be still taken into account, because physicians know better than anybody else that very trifling causes will oftentimes produce very great and marked effects upon the human organism. He also believes that one should admit that the mind of one man may act on that of another by its proper force, by modifying the *spiritus* of the one upon whom he wishes to bring under his influence, and, thanks to this mysterious action, the individual undergoing the incantation becomes to a certain point the tool of the enchanter. Cardano also points out that similar facts may occasionally result from the action of the will of the individual upon himself. Certain people are especially endowed with a gift to influence others, because mental power varies in degree from one subject to another, and, in short, one should admit that magic operations are occasionally useful in medicine, and for this reason their employment should be allowed when the end to be obtained is to effect a cure. If they do not always succeed, that is no reason why the physician who employs them should be termed an impostor, because, like all forces, the one necessitated by the incantation may present oscillations, or even a complete cessation in an individual who oftentimes is in possession of this gift.

To quote further from the works of this brilliant mind would be interesting, and would carry us far beyond the intended limits of this short biographical sketch, but I have endeavored to show, in what has already been extracted from his writings, that Cardano was a great physician and observer of mankind. From the various works on medical history and from the original works of Cardano himself that I have been able in the past to consult, I cannot but think that he did not believe sincerely in the occultism and the mysterious magic in which his works abound, and that all that pertains to them was only written in order to increase the number of pages for which he was paid.

## LYMPHATIC AND PORTAL INFECTIONS FOLLOWING APPENDICITIS.[1]

BY JOHN C. MUNRO, M.D., BOSTON,

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Portal or lymphatic infections, singly or combined, following appendicitis, are not so rare as many would have us believe. The obscurity of the symptoms, often insidious, at times fulminating, the difficulty in determining a lesion of the appendix, even when suspected, tend to confuse a group of symptoms already variable. In a paper published in the "Proceedings of the Philadelphia County Medical Society for December, 1900,"

[1] Four of these cases were contributed to the last series of the Boston City Hospital Medical and Surgical Reports.

and in the *Therapeutic Gazette* for January, 1901, I reported 14 cases of these infections, 11 being confirmed at operation or autopsy. To emphasize the clinical picture, I wish to add 6 more personal cases; it may help to establish more fully the conclusions that I ventured to make.

These conclusions, in brief, were that the degree of lymphatic infection is not dependent on the extent of the appendiceal inflammation, a mild chronic appendicitis at times giving rise to a severe lymphangitis; that the lymphatic disturbance may date its origin from an appendicitis occurring many months beforehand; that persistent fever without other evident cause should suggest one or both of these infections; that spasm, tenderness and fulness (spasm of the quadratus lumborum) indicate a retroperitoneal infection possibly due to appendicitis; that chills and hepatic tenderness, associated at times with jaundice, may be of appendiceal origin, and that this origin, especially in obscure cases, should be sought for most carefully in physical examination, in the personal history, and, if necessary, in abdominal exploration; that prompt and thorough drainage of the liver, together with the removal of the inflamed appendix, offer the best means for recovery; that abdominal section, with definite free exploration of all abscesses within reach, is far more satisfactory, not more difficult, and less dangerous than aspiration.

In reviewing the hepatic cases, one is impressed with their gravity, both from the difficulty of opening all or most of the abscesses, and from the hopeless struggle against the general emaciation and sepsis if the case is allowed to go on to extremes. That all abscesses of the liver are not scattered is shown by the result of 20 autopsies reported in the "Presbyterian Hospital Reports" for 1900, page 157, where single abscesses were found in 13 cases, in addition to 3 cases of recovery after operation, where there were presumably single abscesses; that is, well over half did not have multiple abscesses; probably a better showing than if all the cases had been primarily infected from appendicitis.

Moreover, cases are known to recover by bursting outwards spontaneously into the lung or elsewhere, and even if there may be more or less scattered foci, it is not improbable that many of them will be taken care of by nature, provided the large abscesses are drained.

The superficial abscesses are easily recognized as small or large yellow swellings; when deeper they give the feeling of gummata, but when too small or too deep to be detected in this way the surrounding liver area is boggy and somewhat indurated, but this type is difficult or impossible to drain. For exploration I much prefer a grooved director; it causes less bleeding, the opening can be easily dilated to admit the finger, which will break down the walls of contiguous cavities. Gauze packing usually controls all dangerous bleeding.

It is true that other and commoner lesions may be mistaken for these infections. Cholecystitis, cirrhosis and pyelitis have been explored, not so much from positive belief that the lesion was lymphatic or portal, but because if there was a reasonable possibility that such might be the case, it was better surgery to explore too early rather than too late.

Practically all lymphatic infections are curable by operation. Only a rare case of hepatic infection will be cured, but if the cases are allowed to go on until they become septic skeletons before operation, the chances are almost hopeless.

In brief, a persistent temperature, during or following appendicitis, inconsistent with other lesions, and associated with lumbar spasm, should suggest a lymphangitis. More or less, perhaps fleeting, jaundice, irregular chills, hepatic tenderness and progressive emaciation should suggest a portal pyophlebitis following appendicitis, present or remote.

In illustration I will very briefly report 6 cases:

CASE I. E. C., male, age 11. Previous attacks probably appendiceal. In third day of present attack, appendix with gangrenous mucous tube and portion of mesentery removed; drainage. Two days later, the local condition being satisfactory, chill followed in 6 days by marked hepatic tenderness and jaundice. The chills and jaundice continued more or less irregularly, while the general condition steadily and rapidly grew worse. Thus losing ground until he resembled a victim of the India famine, operation was allowed 3½ weeks after the appendectomy. Incision through the right rectus exposed a swollen left lobe in which several abscesses lying about half an inch from the under surface were opened, broken down freely and drained. A second incision from the tip of the last rib exposed the misplaced right lobe in which a large cavity about 2 inches in diameter was opened and drained, the neighboring tissues being broken up quite freely. The operation was well borne. Afterwards the condition improved somewhat, the temperature falling to normal and the pulse to 100 to 110. For a fortnight it seemed as though he would recover, when he suddenly collapsed and died. Unfortunately, no autopsy was allowed.

CASE II. H. C. B., male, age 35, entered the medical side, with acute appendicitis and jaundice. Three previous attacks probably appendiceal. An up-and-down, irregular temperature for a month, with occasional chills, varying jaundice and increasing leucocytosis and a steady, progressive emaciation. When transferred for operation there was emaciation, sepsis, cyanosis, slight jaundice, doubtful appendiceal tenderness, enlarged left lobe and spleen.

*Operation.*— Median incision. Uniformly swollen left lobe with deep abscess easily felt, which was opened and drained. Right lobe explored but no abscess found. A subacutely inflamed appendix was removed quickly through a second small incision. In poor condition at beginning and close of operation. Slight improvement followed for a few days; death 8 days after operation.

Autopsy showed a left subphrenic abscess; enlargement of all mesenteric glands; mesenteric and portal pyophlebitis; portal veins through left lobe dilated and containing pus; in right lobe, particularly towards right superior surface, numerous small abscesses arranged in clusters, 3 to 5 cm. in diameter. Smears from portal vein and subphrenic abscess showed streptococci.

The subphrenic abscess was overlooked at operation, the low level of the spleen and left lobe being apparently due to general enlargement. Could the patient have stood anything but a hasty operation, it would probably have been detected.

CASE III. T. A. T., male, age 17. Operation by Dr. Nichols in second attack of appendicitis, on the

fourth day; suspicious jaundice of sclera at this time. The wound behaved well, but varying jaundice persisted, with chills, delirium, increased liver area and tenderness, and marked emaciation. At close of 2 weeks the liver was explored. Right lobe swollen and edematous but no pus found on exploration. A large softened retroperitoneal gland opened and drained of foul pus; several smaller but not softened glands felt. Eight days later again explored, and a necrosis of the ascending colon found, together with a small broken-down gland in the iliac fossa, at some distance from the group found at the preceding operation, this group having practically disappeared. Death 2 days later.

Autopsy showed thrombosis of the superior mesenteric veins and branches; suppurating pyophlebitis with multiple abscesses of the liver 1 to 2 and 3 cm. in diameter; 2 ulcers of the cecum (1 perforated at operation), chronic tuberculosis of the retrocecal lymph glands.

One cannot exclude the rôle that the 2 cecal ulcers may have played in the formation of the liver abscesses, but in all probability the appendix furnished the infectious material. The abscesses were too small and scattered to be drained, and the hopelessness of the case was much increased by the necrosis of the gut and the lymphatic infections. All this might have been avoided by an appendectomy following the first attack.

Finally, to show that a fatal lymphatic infection may follow an interval operation, the following case is reported:

Case IV. Mrs. E. A., age 33. Severe attack of acute appendicitis 2 months before operation; in bed 4 weeks and then an invalid for 4 weeks when a twisted, adherent appendix was removed, the base being ligated with catgut and the stump covered with a peritoneal cuff sutured with fine silk. Progress good for about a week. On the twelfth day, under chloroform, incision to outer side of the aseptic wound, opening from behind the peritoneum a small limited abscess in the region of the stump. The discharge persisted from the last wound without improvement in the general condition, and 4 weeks later Dr. H. W. Cushing opened a foul subphrenic abscess. In spite of this the patient steadily lost ground and died 7 weeks after the first operation.

Autopsy showed no adhesions to the first scar; second incision entering cavity at region of appendix whose origin was healed. Pelvis walled off by firm adhesions and filled with dirty pus. No direct connection with the appendix was noted but may have been present. Pelvic organs normal; under surface of right lobe of liver and especially of gall bladder firmly adherent to duodenum. Abscess in right pleura; incision into this cavity, passing through diaphragm to region of under surface of liver where there was a small amount of dirty pus. Mesenteric glands prominent and reddish.

It is unfortunate that the stump was treated by the cuff method, rather than by the safer inversion method. It is barely possible, though it does not relieve the responsibility, that the lymphatics infected at the original attack of appendicitis needed only the operation-infection to start the final explosion. The pelvic accumulation was, of course, due to one or the other of the operations, but was never detected as serious enough to warrant interference.

### REPORT OF ADDITIONAL CASES.

Case V. Edna B., age 11, entered my service at the City Hospital on Oct. 4. Her first attack of appendicitis took place 8 months before, with chills, fever and vomiting. Since then there had been 3 attacks, the last one beginning 5 days ago, with sudden sharp pain, vomiting and chills. On the day after entrance, my colleague, Dr. Lund, removed a gangrenous appendix, inverting the base into the cecum and draining the area.

Two days after operation, following a good dejection, the temperature fell to normal and the pulse to 120, but the following day the temperature rose to 102°. She looked badly and began to exhibit tenderness along the right loin and right costal margin, followed on the sixth day after operation by jaundice, epigastric tenderness, but without chills. Under chloroform an incision was made through the right rectus, allowing free escape of a large amount of dark serum from the general cavity. The left lobe especially of the liver was found greatly enlarged, so that the large fissure was pushed well over into the right hypochondrium. Exploration of the liver failed to discover pus. Examination of the appendix region proved negative; hepatic wound drained. Following this, emaciation increased and the pulse and temperature remained high.

Seventeen days after the last operation the liver was again explored under chloroform, and a cavity holding a few drachms of pus was found in the front of the left lobe. After this the emaciation steadily progressed until the patient looked like a skeleton, and on Nov. 9, 7 weeks after the original operation, she died.

Autopsy showed the portal vein occluded by a soft purulent adherent thrombus, extending to the right and left branches in the liver. Smaller branches filled with bile-stained purulent material. Same process found throughout the upper portion of the superior mesenteric vein and through its iliocecal branch to the appendix. Its other branches were normal, as were also the splenic, gastric, pancreatic and inferior mesenteric. Section of the liver showed both right and left lobes honeycombed with abscess cavities from .5 to 2.5 cm. in diameter, containing thick yellow pus. The greater confluence of these cavities was in an area a little to the left of the centre of the right lobe, involving the substance throughout a space as large as the hand, which appeared almost as one large abscess. Similar smaller areas were found in the lower posterior portion of the left lobe.

Case VI. David S., age 16, fisherman, entered Dr. Monks' service at the City Hospital, and through his courtesy I have been allowed to examine and report the case. Two years before his present illness, he was ill for 3 months with right iliac pain, vomiting, jaundice and chills. Ten months ago he had a similar attack lasting 3 weeks. Twenty-four hours before entrance he had a sudden attack of appendicitis. Dr. J. B. Blake operated as soon as he was brought to the hospital, and removed a perforated gangrenous appendix, draining the wound. Five days later, although the local condition about the wound was satisfactory, he complained of tenderness over the liver and the sclera became yellow. Ten days after entrance, the jaundice was very marked, the temperature, outside of occasional chills, still remained high as at entrance, varying from 100° to 104°, the pulse varying from 110 to 140. The region of the liver was very tender on palpation. After this he rapidly emaciated and grew weaker until death 14 days after entrance.

*Autopsy.*— Between the liver and diaphragm were numerous firm fibrous adhesions. Adhesions also marked between gall bladder and colon, between colon, gall bladder and duodenum, and between liver and right kidney. The veins of the ileocecal valve to the middle portion of the small intestine, to the spleen and to the stomach, contained thick, dark, grayish-red fluid. Towards the liver the fluid became lighter in color and more distinctly purulent. The veins of both lobes were full of blood-stained pus. Hepatic vein and inferior cava normal.

The right lobe was honeycombed with abscesses of varying size, the largest being 3 cm. in diameter. They were most numerous in the central and anterior portions and were almost coalesced to form a large

cavity. In the left lobe the process was confined to the veins which were filled with yellow purulent material.

The father of the patient stated that in each of the preceding attacks the illness had been more severe, and yet recovery had followed without interference. Partly on that account it was deemed best not to explore the liver by operation.

## NOTES ON THE MANAGEMENT OF THE ANESTHETIC IN OPERATIONS ON THE RESPIRATORY TRACT.

BY HARRIS PEYTON MOSHER, M.D., BOSTON.

IN operations about the nose and mouth the management of the anesthetic has always been unsatisfactory, the reason of course being that in using a cone or an inhaler, the etherizing and the operation can not be carried on together. In order to remedy this, various forms of apparatus have been devised for forcing ether through a tube placed either in the mouth or in the nose. Neither of these is an available method if, as in the ordinary operation for the removal of tonsils and adenoids, work has to be done at the same sitting on both the fauces and the pharynx. With these cases the usual procedure is to put the patient under ether with a cone and then to operate more or less on the fly as the patient is coming out. The result is often rather stormy. Most of the time is taken up etherizing; little time is given for operating; no time for quiet operating.

There is a form of apparatus, however, which obviates this. The principle of it, namely, forcing ether vapor through a tube by means of a bellows, is not new. Neither is the apparatus in its present form new in the sense of being untried, because it has been used in cleft palate operations for the last three or four years. It would be difficult to give it a much harder test. A cleft palate operation etherized after the usual method is very tiresome for all concerned.

I saw this apparatus for the first time just as I was coming from etherizing a case of tonsils and adenoids. I had used a cone and had had the customary half-satisfactory result. I stepped in to see a case of cleft palate operated. The operator was working as quietly and continuously as if he had been working on the foot. The etherizing was accomplished by playing a stream of ether vapor over the patient's mouth. A water bath kept the ether from freezing in the bottle in which it was vaporized, and the ether was forced through the tube and into the patient's mouth by a bellows. A valve in the stopper of the ether bottle gave the etherizer a simple method of administering any strength of ether and air desired. A shielded alcohol lamp kept the bath warm. There was no undue amount of ether in the room; there was no tube in the mouth to bother the operator, no catheter in the nose and pharynx to gag the patient. I asked the privilege of trying this apparatus in nose and throat work, obtained it easily, and found the apparatus to fill the want I had felt in managing these cases.

The apparatus was brought to its present form by Dr. Thomas Fillebrown and his assistant, Dr. M. F. Rogers. Through their kindness I have had it placed at my disposal.

What I have said explains the great advantage of this apparatus in general work about the mouth and throat. There are, however, a few other points connected with the management of the anesthetic in such cases, especially cases of tonsils and adenoids, which I wish to speak of.

It has been abundantly proved that chloroform is dangerous in adenoid cases or in cases where much mucus is developed. The reason is not wholly clear. One explanation which has been given is that the mucus tends to imprison the chloroform vapor, and so lead to an overdose. Nitrous oxide gas alone, as it is used in England, does not give a long enough working period for the nice cleaning of the mouths of the Eustachian tubes. It is possible to give gas for an extended period, but the resulting blueness is very disquieting in an operation where there is always danger of getting blood in the trachea, and where one of the signs of this dangerous complication is marked and persistent blueness. On the other hand, gas can be used with advantage in starting the anesthetizing with older children and with adults. With infants the battle of etherization is so soon over that the use of gas is hardly worth while. Less vomiting follows if gas is used to start with, and the patient does not seem to get so saturated with ether afterwards, and comes out sooner. These are two distinct advantages.

Next to the quietness of the etherization, the position of the patient and the proper holding contribute most to the comfort of the operator and to the speed of the operation. In the matter of position, the point to be aimed at is to get the light on to the part which is being worked upon. The upright position accomplishes this best. There is less bleeding if the upright position is used and it stops sooner. In this position the head can be bent back and turned to the side so as to show either tonsil, as required. Further, if the head is regularly tipped forward the blood will run out the nose and mouth instead of down the throat. Simple as this little maneuvre seems, it is of the greatest importance. In the days when this procedure was not followed, the head was held bent back and constant swabbing was necessary in order to keep the blood from running down into the pharynx in such quantities as to endanger the trachea. Then, even more than now, a possible tracheotomy was the bugbear of every throat operation.

The manner of holding the patient deserves a word. Most nurses, unless they have been told to do otherwise, hold the patient's body close to theirs. This does not allow room to throw the patient's head far enough back to get the proper light. The arm of the nurse should lie in the bend of the child's hips. If the patient is anything more than a baby a nurse can be dispensed

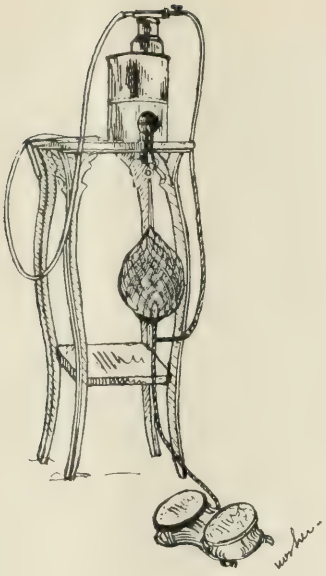


FIG. II. Ether apparatus.

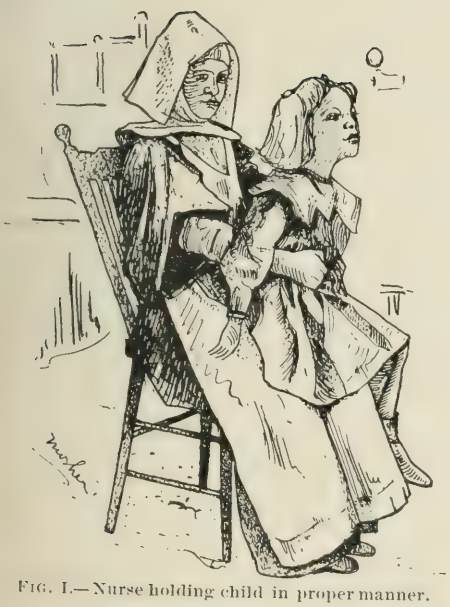


FIG. I.—Nurse holding child in proper manner.



FIG. III.—Supporting the child against the leg and knee.



FIG. IV.—Apparatus in use.

with for holding. In order to do this, the assistant puts his left leg in the chair back of the patient, grasps the patient's hair and holds the head against his knee.

If the operator uses a self-retaining gag the assistant has one hand free for the ether. Many men, however, prefer to have the gag so held that it can be let up from time to time in order to allow the throat to be cleared by swallowing. In septum operations, if a gag is kept in the mouth, the patient breathes through the mouth instead of the nose, and the possibility of a sudden inspiration through the nose, shooting clots back into the trachea, is guarded against.

If the ether apparatus is run by a hand bellows, an extra assistant is needed, but with a foot bellows this is not necessary. In all of the more extensive operations it is well to have the etherizer free to confine himself to the ether alone. The bellows can be replaced in hospitals by the compressed air tank. With ordinary care there is no danger from fire.

By using a double boiler the use of the alcohol lamp can be dispensed with. Boiling water is put in the outer compartment and will keep the water about the ether bottle in the inner compartment sufficiently warm for nearly an hour.

Abroad, and in many places outside of Boston, there is a great prejudice against the upright position. The reason given is that there is danger of collapse. All that I can say is, that I have not found anything to justify this opinion. I have knowledge of but one case which could be classed under this head. That the position had little, if anything, to do with it was shown by the condition repeating itself some days after the operation and while the patient was still in bed.

Within a year or two an account of some experiments on animals which have a bearing on this point appeared. Unfortunately I have not been able to re-examine this reference, but the point of the work was this: Rough manipulation in the pharynx or upper larynx was frequently followed by death. Further experiments went to show that the previous giving of atropine prevented this. The explanation of these results was that the stimulation of the pharyngeal plexus stopped the heart by its inhibitory action. Atropine seemed to prevent this. The freedom from any accident in Boston makes me feel that, though possible, and though probably explainable on this theory should it happen, this accident for all practical purposes can be disregarded. Those who give atropine as a routine measure before operating in order to prevent the formation of mucus, would seem, from what has just been said, to derive an additional advantage from its use.

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Infant Mortality in Russia.—The St. Petersburg correspondent of *The* (London) *Times* says alarming figures in regard to infant mortality are made public by the medical reports to local authorities. It appears that in many governments 40 and even 50% or more of the children die in their first year.—*Medical News.*

## NOTES ON X-LIGHT: RADIO-ACTIVE SUBSTANCES IN THERAPEUTICS.

BY WILLIAM ROLLINS, BOSTON.

During the year 1900 I made experiments with radio-active substances hoping to find a substitute for x-light. I found that some of the radiations retained their activity after passing through animal tissues as thick as the body of a guinea pig. I was so convinced of the value of radium that I placed about 500 mgm. in a sealed capsule to protect it from moisture, giving it to a physician with the request that it should be tried on lupus, a disease which at that time was interesting him. The capsule was disk shaped, with a front of aluminum, a back of comparatively nonradiable metal. I believe it to be important to test these substances in the treatment of lupus, superficial cancer and diseases of the skin in which x-light has been found useful; therefore, I mention that I have another capsule which I shall be glad to send to any Boston physician who will give the matter a fair trial. Radio-active substances can be used in sealed capsules held against the body by adhesive plaster, or they can be made to cover larger areas by mixing them with rubber or celluloid to form moisture-proof plasters. These plasters may be still further protected by being coated on the sides nearest the body by aluminum foil and on the opposite sides by lead foil. They could be kept in stock by the yard by druggists and given to patients by prescription, with proper directions as to the length of application. They could be worn at night. Their use would prevent the poor from making such frequent visits to a physician as are now required when x-light obtained from a vacuum tube is used. This is a matter of some importance, as the present treatment takes many sittings which require time and cost money.

# Medical Progress.

## REPORT OF PROGRESS IN ORTHOPEDIC SURGERY.

BY E. H. BRADFORD, M.D., AND E. G. BRACKETT, M.D., BOSTON.

(Concluded from No. 3, p. 69.)

### PNEUMOCOCCUS ARTHRITIS PRIMARY IN THE KNEE JOINT.

Dudley Allen[27] reports 2 cases, 1 in a female 40 years of age, of fatal result in spite of drainage and incision. There were no pneumococci in other organs. The writer is unable to say how the affection could have gained access to the joint.

Cave[28] also reports a case and has collected 30 others in literature. The symptoms vary, according to the writer. There is pain and slight swelling, limited to a single joint, to intense inflammatory edema of the whole neighborhood of

[27] Annals of Surgery, p. 527.
[28] The Lancet, Jan. 12, 1901, p. 82.

the joint, with severe pain and redness, and an abnormal mobility from destruction of the ligaments, and grating of the bare surfaces of the bones. The fever is generally high, the prognosis is grave, both as to the danger to life and the restoration of the joint. Recovery is slow and the function of the joint, as a rule, is permanently impaired. A diagnosis can only be made on pathological examination of the fluid.

In most of the cases suppuration takes place and aseptic incision is necessary. In almost all cases pneumonia is present.

EXTRA SYNOVIAL PLASTIC OPERATIONS OF THE CAPSULE AND OTHER PLASTIC OPERATIONS OF THE KNEE.

Auler[29] has collected a number of cases of operation of the chronic luxation of the patella operated upon either by taking a fold in the capsule without opening the joint, or in addition the reimplanting of the ligamentum patellæ to the inner side of its normal position, stitching it to the periosteum. In a genu valgum the ligament and the entire side of the capsule is often weakened, and can be shortened on the inner side at the level of the insertion of the inner border of the quadriceps tendon. This operation is sometimes found of advantage in the correction of knock-knee by osteotomy.

Narrowing of the capsule is of advantage after chronic hydrops of the joint, in order to increase the compressing force of the quadriceps. Bardenheur has performed this operation in 4 cases of chronic rheumatism and arthritis deformans.

SCOLIOTIC VERTEBRÆ IN A YOUNG PIG.

Schulthess[30] describes this specimen which was furnished from the spine of an 8-months-old pig; the deformity was accidentally discovered at the slaughter-house, the spinal column showing a well-marked deviation in the thoracic region towards the right. The specimen which was prepared demonstrated a scoliosis closely resembling that found in man. The scoliosis was a right convex dorsal scoliosis, with a slight torsion in the upper and lower portions of the dorsal vertebræ. The scoliosis was associated with torsion and side deviation of the individual vertebræ. The bodies of the vertebræ were, as a rule, broadened on the concave side and made thin on the convex side. The ribs on the convex side were sharply bent at the tuberculum. A careful description of the bone and deformity, with illustrations, is given.

TREATMENT OF SCOLIOSIS.

Schulthess[31] desires to emphasize the need of careful measurements and records in the treatment of this affection in order to enable the observer to determine the improvement or the reverse. He has been disappointed in the use of the skiagraph for this purpose. The treatment which he recommends consists in the use of carefully applied and devised correcting movement apparatus, with gymnastics, and the use of corrective corsets in certain cases. Careful tables of cases treated in the last 5 years, with accurate measurements, prove the success of the method of treatment employed.

Deutchlander[32] is in favor of the application of plaster corsets in the correction of severe scoliosis, the plaster being applied over the shoulders and around the neck, while the patient is seated and subjected to strong traction. He concludes that the treatment is by no means unsatisfactory, although the method is tedious. The corset should be applied after an interval of several weeks. The method is supplemented by gymnastic treatment.

A critical examination of the static theory of the origin of scoliosis leads Zuppinger[33] to the conclusion that vertical pressure increases existing curves; that the loading of one side can cause a side curve, but it is uncertain that side or central loading of the trunk will cause torsion. It is improbable that the torsion is the primary, and the deformity of the thorax the secondary, result.

Hussey,[34] after a careful study of 134 cases treated by corsets at the clinic of Luning and Schulthess, concludes that this method is useless, for the reason that atrophy of the muscles of the back is caused, the digestive functions are interfered with, and, in his opinion, the treatment by corsets has an unfavorable influence upon torsion and increased deviation. It is unable to check the progress of scoliosis. He advises the use of a corset only in painful scoliosis and in well-marked cases accompanied by respiratory troubles. The corset used in the cases observed appears not to extend above the axillæ.

CARIES OF SPINE: AN ANALYSIS OF A THOUSAND CASES.

Waterman and Jaeger[35] studied 1,000 cases by a statistical method, for the purpose of comparison with data of other observers, and the results form a valuable contribution to this literature. The cases are divided into groups according to age, and these are then examined with reference to sex, locality, symptoms and complications, as well as the relation which this condition bears to the thoracic tuberculosis. The value of the article is augmented by comparison with the tables of Vulpius.

TRAUMATIC AFFECTIONS OF THE SPINE.

Aberst[36] claims that vertebral affections of a traumatic origin arise from a fracture by compression, which has caused secondary and rarefying ostitis. He has seen 20 cases of this sort, especially among young children, without having found a single or primitive traumatic spondylitis. As an early diagnosis of the lesion is very difficult, the patients are frequently allowed to be up

[29] Deutsch. Zeitschr. f. Chir., p. 540.
[30] Zeitschr. f. Orthop. Chir., 1901, ix, 1.
[31] Loc. cit., Bd. ix, H. 3, p. 289.
[32] Zeitschr. f. Orthop. Chir., 1901, ix, 1.
[33] Beitr. zur. klin. Chir., Bd. xxix, H. 3.
[34] Zeitschr. f. Orthop. Chir., 1900, viii, 202.
[35] N. Y. Medical Journal, Nov. 9, 1901.
[36] Munch. med. Woch., 1900, p. 39.

too soon, in the course of 2 or 3 weeks, before the fracture has entirely consolidated, and this gives rise to a gibbosity. The term "traumatic spondylitis" is inexact. It would be better to use the term "traumatic kyphosis."

CONGENITAL DISLOCATION OF THE PATELLA.[37]

The writer describes 3 cases of congenital dislocation of both patellæ in father, son and daughter. In all 3 cases the dislocation was turned toward the outer side. In the father and 4-year-old daughter there was no loss of function, but in the 7-year-old son the disability suggested operation.

The operation consisted in separating the tuberosity of the tibia and fastening it farther to the inner side of the tibia near the internal condyle. The result was satisfactory. Bergman published a case of congenital dislocation of the patella to the outer side. The patella was particularly small.

HABITUAL DISLOCATION OF THE PATELLA.

Schanz[38] performed an operation in a case of habitual dislocation of the patella by suturing the patella at 6 points to the aponeurosis of the internal condyle. The sutures were removed at the end of 10 days and the patient was allowed to walk at the end of 6 weeks. The result was satisfactory. The operation recommended differs from that of previous surgeons in removing the suture and in simplifying methods of its insertion; also in the attention given to passive motion in the post-operative treatment.

Friedlander[39] reports 2 cases. He regards the cause of this an alteration in the shape of the ends of the bone and laxity of the capsule. The prognosis is unfavorable if the affection is not treated. Gymnastics, massage and mechanical appliances or operation are advised.

THE CONDITION OF THE KNEE JOINT IN LITTLE'S DISEASE.

Joachinsthal[40] calls attention to an anomaly in the position of the patella. It is found to stand higher than normal, through the lengthening of the ligamentum patellæ. The apex of the angle formed by the bent knee is not, as is normal, to be found at the internal condyle and upper portion of the patella, but on a point near the middle, giving the joint a sharp, pointed appearance.

RESULTS OF TENDON GRAFTING IN INFANTILE AND SPASTIC PARALYSIS.

Tubby[41] reports excellent results in a number of cases which have been treated by him. The cases are of calcaneo valgus, calcaneus and equino valgus.

In calcaneus he advises not to be content with inserting a tendon from the external or internal aspect alone, but to reinforce the tendo-achilles by tendons taken from either side. He recommends tendon grafting in cases of spastic paralysis.

After the operation great persistence is needed in massage and passive movements. Out of 11 cases of tendon grafting for paralytic talipes, 6 have shown good results and 5 fair results. In no case was there failure. In the results of 4 operations on the forearm, that is, transplantation of the pronator radii teres, 3 were good and 1 was partial. Sinclair White also reports good results.

CONTRACTION IN THE KNEE JOINT.

Heusner[42] reports a number of cases of obstinate contraction in the knee joint which he has cured by transplanting the tendons of the hamstrings to the tendons of the quadriceps. The tendon and semitendinosis of the biceps are to be utilized. If one alone is used, there is a danger of slight varus or valgus position of the knee.

Bruns[43] also recommends 2 incisions at the side of each tendon, with transplantation of the hamstrings and immobilization for 3 weeks, after which the patient can walk. He reports 2 successful cases.

THE TREATMENT BY LUXATION OF THE TENDON OF THE PERONEUS.

Reering,[44] after observing a case which was developed from the mounting of a horse, considers the mechanism of this dislocation similar to what was described by Kraske and Schneider after experiments on cadavera, and concludes that the luxation follows the sudden change of the position of the supinated plantarflexed and adducted foot into an extended abducted position through the whole of the peroneus muscle. The tendon is to be returned and kept in place by adhesive plaster. A few days later a plaster bandage should be applied. This should be followed by massage.

PLASTIC INCISION OF THE TENDO-ACHILLES.

Bayer[45] has recommended the z-shaped division of the tendon in place of spontaneous tenotomy in paralytic spastic equinus, but he has given up the method on account of the scar which has been left. In its place he advises tenotomy of the tendo-achilles from the middle line, cutting one-half to one side and the other half to the other side, the different halves being cut at a different level and the middle line being incised, connecting the two side cuts.

GAIT IN HIP DISEASE.

Romniceana et Bolintineana[46] state that from a cinematograph certain facts have been demonstrated. The invalid drags the foot on the affected side and rarely lifts it from the ground, except at the moment when it passes the vertical line. The period of oscillation of the affected limb is much longer than on the well side, because the patient

[37] Zeitschr. f. Orthop. Chir., Bd. ix, H. 2., p. 218.
[38] Loc. cit., 1900, Bd. vii, H. 4, p. 231.
[39] Arch. f. klin. Chir., Bd. lxiii, H. 2.
[40] Berl. klin. Woch., 1901, p. 8.
[41] British Medical Journal, p. 585.
[42] Deutsch. med. Woch., 1901, p. 22.
[43] Centrbl. f. Chir., 1901, p. 159.
[44] Loc. cit., 1901, H. 2.
[45] Loc. cit.
[46] Bukarest, 1900.

attempts to diminish the amount of time during which weight is turned upon the painful limb. As a result the duration of the whole step is less long than in a normal step. The patient, instead of attempting to maintain equilibrium, leans forward to the well side in order to diminish the influence of the weight of the body upon the affected limb, and for the same purpose he exercises balancing movements of the upper extremity which are thoroughly characteristic.

ABSENCE OF THE TIBIA IN A CHILD OF FIVE YEARS.

Grosse,[47] in a case of this sort, performed an operation by inserting the upper portion of the fibula in the intercondyloid fossa, after having shaped the head of the fibula so that it would be fitted to the new socket, but preserving the epiphysis with care. Consolidation took place in 6 weeks, and at the end of 2½ years a shortening which had been 6 cm. was not greater than 4 cm. and the fibula was evidently much thicker. The patient was able to walk without crutches, wearing an orthopedic shoe.

CONGENITAL DEFECTS OF THE FEMUR.

Reiner,[48] after an exhaustive article on the subject, describing the varieties of congenital deformity of the femur, with thorough literature on the subject, concludes in advocating, instead of operating upon the distorted femora, the use of some prothetic apparatus which would develop the limb. Amputation is not considered advisable in childhood.

ETIOLOGY OF CONGENITAL DISLOCATION OF THE HIP.

Friedlander,[49] after a thorough investigation of this subject, has come to the conclusion that the deformity is uterine. There are various anomalies in the position of the embryo due to abnormalities of the skull, spina bifida, and especially an unusual position of the liver; these cause an exaggerated lordosis of the spine. In with these may be found an excessive or rudimentary curve of the femoral neck. The reason why the deformity is more common in girls than boys is that the sexual difference in the fetus is marked as early as the fourth or fifth month, and the difference in the shape of the pelvis makes a change in the pressure of the embryos of the different sexes.

CONGENITAL DISLOCATION OF THE HIP.

Codivilla[50] concludes from 76 cases, operated upon by him, that in cases from 3 to 12 years of age, reposition without incision is possible. In 50% of the cases this reposition remained with a good result. In other cases a reluxation takes place, though in some of the cases there is an improvement, even under these circumstances. In these cases an operation by incision is of advantage and helps the retention. To prevent ankylosis, he recommends the folding of an upper fold of the capsule before the head of the femur as it enters the acetabulum. He advises against draining the wound, and closes it immediately after operation.

Konte[51] reports 50 cases not yet published, from the clinic of Josserand, where the bloodless method was used. Of these 16 were complete repositions, 12 single and 14 double. Twenty-four were transpositions; 13 single and 11 double. Four gave relapses; 2 are unknown.

Ghillini[52] thinks that if the head of the femur in congenital dislocations is pushed towards the thigh, it should, when replaced, be kept in a position of exaggerated abduction. If the head is below the femur it should be placed in adduction. If the head is pushed forward the thigh should be inverted, and if backwards the thigh should be rolled outwards. In 100 cases the writer has found good results with the adoption of these views.

AUTOPSY OF A CASE OF CONGENITAL DISLOCATION CORRECTED BY THE METHOD OF LORENZ.

Nove Josserand[53] made an autopsy 14 months after the correction, death being due to diphtheria. The child was 3½ years of age, and presented all symptoms of congenital dislocation. The diagnosis of the deformity was confirmed before operation by an x-ray photograph. Reposition took place without difficulty, retentor apparatus was worn for a year, followed by a corset with pressure upon the trochanter. The result was excellent, both clinically and anatomically, as shown by an x-ray photograph. On post-mortem examination it was found that the muscles on the affected side showed slight atrophy, especially the adductors and pelvic trochanteric muscle. Evidence of the operation was found in scar tissue in the adductors. The bones were found normal and the pelvis symmetrical, but slight depression was found on the ileum representing the position of the head before the operation. Motion was normal. The head was slightly larger and there was an absence of the ligamentum teres. The acetabulum was slightly elliptical, and the cartilaginous layer was less developed and wanting on the backward side.

THE TREATMENT OF CONGENITAL DISLOCATION OF THE HIP IN AN ADULT OR AN ADOLESCENT.

Jaboulay[54] advises, after a certain age, against any attempt at reduction, but has operated upon a case 23 years of age by resecting the pubic bones through the whole thickness and through a length of 4 cm. The sacro-iliac articulations are then divided and the iliac bones are bent toward the symphysis pubis. Union by first intention followed in the three wounds, and the patient was allowed to get up on the thirteenth day. The gait improved from day to day and the femoral became vertical. The hips are less prominent

[47] Arch. f. klin. Chir., Bd. lxii.
[48] Zeitschr. f. Orthop. Chir., Bd. ix, H. 4, p. 549.
[49] Loc. cit., Bd. ix, H. 4, p. 535.
[50] Loc. cit., Bd. ix, H. 2, p. 123.
[51] Thesis of Lyons, 1901.
[52] Munich Medical Weekly, 1901, p. 11.
[53] Rev. Mens. des Mal. de l'Enfance, November, 1900.
[54] Bull. Soc. Chir., Lyons, 1900, Bd. iii, H. 2, p. 57.

and the hollow back less. The procedure is reported by the author to be without danger and of great benefit to the patient.

RESTORATION OF THE FUNCTION OF ANKYLOSED JOINTS.

Chlumsey[55] gives the result of experiments with reference to determining procedures in ankylosed joints which fail to yield to the simple methods. The obstacle to the restoration of the function in these joints is due either to an atrophy of the soft parts, to a union fibrous or bony between the joint surfaces, or to a combination of the two. The path to the successful treatment is shown by the method of pseudarthrosis, namely, the interposition of the soft part between the bony surfaces. The application of this has been tried with smaller joints with success, but is not applicable to the larger joints, as, for instance, the knee.

In the experiments, small plates of celluloid, silver and other metal were inserted between the bony surfaces in the knee joints of animals. In these the ligaments were all divided, and the bones more or less resected. The fresh surface of the tibia was then completely curetted, and the plates inserted and held in place by silk sutures. The formation of cartilage and the rounding of the end of the bones were found to occur, and resemble the results obtained in former experiments. The author is of the impression that there is a greater diminution of the joint cavity than in previous experiments, but is not yet prepared to announce final results.

THE MECHANICS OF LATERAL CURVATURE APPLIED TO SEVERE CASES.

Lovett[56] considers this subject from experiments upon both the cadaver and living model, and has applied the results found to the methods of treatment. He considers, at first, that the conditions in flexible and fixed cases are not the same and require different treatment. Torsion and side bending of the spine always accompany each other. In the fixed cases, rotary or lateral pressure does not affect the correction in the curve itself, but tends to rotate this portion of the spine on the more flexible portions above or below.

Rotation without counter pressure in front tends to increase the lateral deviation, and lateral pressure alone may cause an increase of rotation. The corrective force applied to the curve is apt to displace the thorax in relation to the rest of the column rather than to change the curve itself.

He concludes that it is easier to twist the whole thorax than to change the curve itself, and this force must, therefore, be met by counter-pressure on the thorax in front, otherwise it will be dissipated through the spine, while a forcible reduction by side pressure alone may increase the rotation. Suspension has but little effect in the fixed cases upon the curve itself. It is more likely to affect the compensatory curves.

The application of jackets in a prone position on the hammock with the legs hanging is recommended as a desirable position, on account of the extension of the lumbar spine.

In applying these principles to the treatment of fixed cases, two things may be attempted: To apply a rotation force antagonized by pressure in front, to affect the curve itself; or the curve may be twisted as a whole, or displaced sideways, improving the general outline of the trunk.

TREATMENT OF MUSCULAR AND JOINT SPRAINS.

Sneve[57] reports results of his experience with this class of accident among the railway employees, and is of value in showing what can be done with this class of injuries among the strong and healthy, and with whom time is of great importance.

The treatment is directed toward the protection of an injured joint surface, and a rapid stimulation and nutrition of the soft structures. The muscular structures should be allowed free activity on account of the action on the lymph vessels. The amount of discoloration is not an index of the amount of injury. Contused joint surfaces should be immobilized and motion administered at the same time to the muscles passively, and this treatment should begin as soon as possible after injury. Protection to the part may be afforded by firm bandage or the strapping, and later treatment of hot applications for the dilatation of the superficial vessels may likewise be resorted to.

CERVICAL RIBS.

Kammerer[58] reviews the rather extended literature of this subject. Supernumerary ribs are not always cervical; in fact, the lumbar are more numerous, but never give rise to symptoms. The cervical variety is important only as it occasions symptoms. The ribs usually articulate with the vertebra. The symptoms, being circulatory, in some instances result in complete loss of pulse and sometimes in aneurism of the subclavian, and in other cases the symptoms are sensory.

The reason of sudden development of symptoms from a condition dating since birth can frequently not be explained. Sometimes it follows trauma, or, after emaciation, it may be due to absorption of fat in this region, by which the vessels lose their support from a loss of fatty tissue. The vessels in these cases are always found passing over this supernumerary structure.

The operation consists either in the removal of the whole rib or of a portion sufficient to remove the pressure caused by the displacement of the vessels, and is either very easy or quite difficult. The parts are reached through an incision along the anterior edge of the trapezius, and when the deeper parts are exposed the plexus and vessels are easily isolated.

[55] Centrbl. f. Chir., 1900, xxxvii, 921.
[56] Boston Medical and Surgical Journal, Oct. 31, 1901.
[57] New York Medical Journal, June 1, 1901.
[58] Annals of Surgery, November, 1891, p. 637.

# Reports of Societies.

## NEW YORK NEUROLOGICAL SOCIETY.

STATED meeting Dec. 3, 1901, JOSEPH COLLINS, M.D., president.

DR. M. ALLEN STARR presented a woman who had been brought to him by her family physician, Dr. Bush, on Nov. 1, 1900. She had been perfectly healthy before this illness, and there was absolutely no history of specific disease. On July 1, 1900, she had been exposed to a very intense heat, and suddenly after this she had had a general convulsion. She had been ill after this for 2 or 3 days, and had then recovered, but the convulsion had been repeated 2 weeks later, and she had had them at intervals of 2 weeks to a month up to the time of coming to him. During this period she had lost flesh and strength, and had suffered from dizziness and impairment of vision. In October, 1900, the left side of the body had become distinctly weaker. Her husband was quite positive that the convulsions were usually limited to, or were much greater on, the left side of the body. The attack began with numbness in the finger and thumb of the left hand; then a closure of the hand occurred, after which the numbness extended up the forearm and arm, and the forearm became flexed and the arm abducted. Lastly, there was a shaking. The numbness would extend up to the shoulder, and then she would lose consciousness. After that, the leg would become convulsed, and the left side of the face would twitch. On examination, he had found no strabismus or apparent paralysis of the face or tongue. The left hand was weaker than the right, as shown by the dynamometer. The left knee jerk was increased, and there was some numbness in the hand as compared with the other side. She had suffered a good deal from headache. When seen a month later, the attacks were more frequent, so that she was having as many as eight in a day, and the headaches were more severe. When seen again in January, the attacks still continued, but were not quite so severe, and she did not lose consciousness. She was losing about half a pound of flesh a week. The difference in the two hands by the dynamometer was represented by 40 and 60, as they had been at first. Operation had been repeatedly urged by him, but consent had not been obtained until March 19, 1901, when her condition had been much poorer, and there was a beginning of optic neuritis.

She had been sent to Dr. A. J. McCosh, at the Presbyterian Hospital. It was thought that the lesion was located in the middle third of the motor zone, in the posterior central convolution, and an incision was made in accordance with this view. The operation was done under chloroform, a horseshoe incision being used. The skull was sawn through and the brain exposed. On lifting up the flap of bone, it was evident that there was some thickening of the dura. The dura was reflected, but was nowhere found to be adherent. Posterior to the fissure of Rolando and occupying the middle third of the posterior central convolution, the brain surface was yellow, and was markedly destitute of blood vessels. It was evident that this discolored mass was a tumor lying upon the brain. It had a thin capsule, but was carefully separated from the brain tissue. In the interior, however, it was not limited by a capsule. On removal, the mass measured 1 inch anteroposteriorly and $1\frac{1}{4}$ inches vertically, and was 1 inch thick at its thickest point. There was a smooth external surface, but it was nodular internally. On section it was hard and not at all vascular. The cavity in which the tumor had lain was lined by compressed convolutions, but at the bottom the tumor invaded the white matter. There was no hemorrhage from the pia, and the pulsation of the brain quickly returned. She made a rapid and uninterrupted recovery from the operation.

Immediately after the operation there had developed a hemiplegia of the left face, arm and leg. This had gradually passed off, and there was now nothing left of it except a slight weakness of the hand. She had been entirely free from the attacks since the operation, had been free from headache, and had gained about 20 pounds in weight. At the present time, there was an intention tremor and an athetoid movement in the left hand. On the left side tactile sensation, and temperature, pain and muscular sense were all impaired to about the same extent. She was not able to determine by the feeling the nature of many objects when grasped by the left hand — a condition that had not existed before the operation. The knee jerk had increased upon the left side. The optic neuritis had entirely disappeared. The hemiplegia he would ascribe to the tearing of the brain during the operation. The tumor proved to be a sarcoma.

### INTENSE FLUSHING OF THE FACE.

DR. EDWARD D. FISHER presented a man of 22 who, from the age of 16, had had periodic attacks of intense flushing of the face, sometimes in the form of a distinct red band. It never extends farther down than the chest. He is dull and stupid at these times, although he has never lost consciousness or had a distinct epileptic attack. It was not connected with nervousness or emotions, and resembled erythromelalgia. Iodide and bromide of potassium were the remedies that had given the greatest relief. The man's habits were excellent, and he is largely in the open air, being a carpenter.

DR. W. M. LESZYNSKY said that he had seen 2 patients with a similar disturbance of the cervical sympathetic as a result of excessive coffee drinking.

DR. JOSEPH COLLINS suggested that the man be given half a dr. of fluid extract of cascara sagrada every night for 2 weeks, with no other treatment whatever. The affection was evidently a localized vasomotor paresis confined to the cephalic area which had been proven to be in

connection with disturbance of the lower intestine. He was not inclined to look upon this as a serious disorder, but rather as originally a toxemia, and secondarily a bad habit.

Dr. Fisher said that he had had the patient under his observation for two years, and this explanation did not seem to him to meet the case.

Dr. Joseph Frænkel said that he had had a patient under observation for several weeks at one time, and Dr. C. L. Dana, who had also seen the patient, had been of the opinion that it was a vasomotor paresis arising from intestinal toxemia. There were also some neurasthenic symptoms directed to the sexual sphere.

Dr. Fisher said that he had treated the boy at first on the basis suggested by the last speaker, but further observation had led him to think this was a mistake.

### TUMOR OF CEREBELLUM INVOLVING THE ABDUCENS NUCLEUS.

Dr. M. G. Schlapp presented a man 21 years of age, who had come to him about 6 weeks ago. There was no tuberculosis in the family, and he had had no syphilis. About 2 years ago he had first noticed that at times he would become dizzy, and that this would be followed by headache and vomiting. Shortly after this he had fallen out of a wagon, and since then the left side had grown weaker. Examination of the eye showed choked disc, weakness of the left leg and an ataxic gait. The ataxia was most marked in the left leg; the knee jerks were absent; the plantar and abdominal reflexes were present; the pupils were equal and reacted to light; there were no sensory disturbances. A week ago he had developed a disturbance of the conjugate movement of the eyes, which had disappeared in 2 days. The convergent reaction was, however, all right. He had made a diagnosis of a tumor involving the anterior part of the left side of the cerebellum, and in some way affecting the abducens nucleus.

### TUMOR OF POSTERIOR CENTRAL CONVOLUTION.

Dr. Schlapp also presented a woman 41 years of age, a Bohemian cigarmaker. She had enjoyed good health up to 5 years ago. At that time she had fallen down stairs and had sustained some contusions, including one on the left side of the head. Subsequently the right arm and shoulder had become the seat of twitchings, and there were attacks of loss of speech. After 3 years they had extended over the shoulder, neck, to the face and tongue. At first these attacks had occurred once in 2 weeks, but recently there had been many in a day. Latterly she had also suffered from intense shooting pain in this limb. He had made a diagnosis of a tumor in the posterior central convolution extending back into the parietal lobe. There was astereognosis and impaired tactile and muscular sensibility on the affected side. Pain and temperature sense were not specially disturbed. Dr. Woolsey had operated upon this patient, and had found a yellowish and somewhat indurated area, about the size of a dollar, in the posterior central convolution. A section of this tissue was exhibited under the microscope, and it showed that the mass removed was not a tumor. Since the operation the strength in the affected hand had improved. She had had four convulsions. The case was presented as having a possible bearing on the question of astereognosis. Apparently the anterior central convolution had not been involved in the growth. It was probable that this convolution was the one having to do with motion, whereas the posterior central convolution had to do chiefly with sensation. In astereognosis the pain and temperature sense are not usually involved, whereas tactile and deep muscular sense are involved. It was known that the two latter do not decussate in the spinal cord, but end in the columns of Goll and Burdach.

Dr. Leszynsky remarked that if the conjugate deviation were permanent, it would serve to substantiate Dr. Schlapp's contention.

Dr. B. Onuf said that he had seen a recent case exhibiting marked conjugate deviation together with a very decided ptosis on the left side, and on the right side a paresis of the abducens nerve. This deviation had come on after an apoplectic attack of hemiplegia. He did not think such a case could be explained by the involvement of the abducens nucleus; the lesion was evidently in the region of the third nucleus. It was possible that involvement of the posterior longitudinal fasciculus might explain the deviation. In his case the deviation was permanent. The affection of the right auditory nerve would confirm the theory that the abducens was affected.

### MULTIPLE ENDOTHELIOMA OF THE DURA.

Dr. Hunt showed this specimen derived from a woman 45 years of age, in the Montefiore Hospital. When 15 years old she had become suddenly deaf. Two years before admission she had begun to suffer from headaches, and these had persisted. There had been no vertigo. At times her legs would suddenly give way and she would fall. On admission, examination showed that there was a tendency to fall to the right; the right pupil was larger than the left; facial innervation on the right side was deficient; the tongue deviated to the left; the optic nerve showed choked disc, and weakness of the right upper and left lower extremity was very marked. The tendon reflexes were all exaggerated, but this was especially noticeable in the right arm and left leg. The right patellar reflex only was present. At the autopsy over 100 tumors were found on the dura, aggregated chiefly about the falx, but extending over the convexity on either side. Four of the tumors were larger than the others. At the base of the brain the dura mater was free, but there were two tumors, the size of a pigeon's egg, occupying the interval between the pons and the medulla, and causing a pressure atrophy of the middle peduncles on each side. These tumors were found to be endotheliomata, and the vessels showed considerable calcareous deposit. There was no evidence of malignancy.

GLIOSARCOMA OF THE RIGHT FRONTAL LOBE.

DR. HUNT also showed this specimen, taken from a man 40 years of age, who had been brought to Bellevue Hospital because he had fallen in the street. According to friends, he had been acting very peculiarly for the past 4 months. He was moderately emaciated and the face was flushed. There was an incomplete left-sided hemiplegia with loss of skin and tendon reflexes on the affected side. He was stupid, but could be easily aroused to answer questions. He showed a strong disposition to turn everything into ridicule. There was no conjugate deviation of the eyes, and no aphasia. The pulse was not slow. At the autopsy the meninges were found to be normal, but the convolutions over the right frontal lobe were flattened and very edematous. On making a section into this lobe, a large tumor had been found growing in the white substance. It had grown outward and downward into the frontal cortex. The tumor proved to be a gliosarcoma.

BRAIN TUMORS.

DR. M. ALLEN STARR opened the discussion on this subject, reporting the following case: The patient was a boy of 11 years, who had come to him, after treatment for malaria by other physicians, because of the persistence of morning headaches. These headaches had begun in June, and had gradually increased in severity up to Oct. 8, when Dr. Starr had first seen him. The boy was then dull, spoke very slowly, and would drop asleep if left alone for a very few minutes. The left external rectus was a little weak; there was nystagmus and double optic neuritis. He had suffered from vertigo, and had vomited twice unexpectedly. His gait was quite ataxic, and the left limbs assumed involuntarily abnormal positions. There was no inability to smile, either voluntarily or reflexly. The ataxia of the right leg was very marked, and was associated with a peculiar involuntary position of the hand and arm. There was apparently no anesthesia on the left side, and no hemianopsia. A diagnosis of tumor of the optic thalamus had been made at once, because of these forced positions. Dr. Starr said that he had seen such a case in Meynert's clinic in Vienna. Meynert considered these automatic movements and forced positions as a voluntary correction of a delusional state. The question of operation was not entertained. As the boy's father had died of general paresis the boy was put on mixed treatment, and this had been pushed vigorously for a number of weeks. During this time the boy had grown steadily worse, and had had several collapses accompanied by a pulse of 40 and rapid breathing. He had been last seen on Oct. 26, and had been able then to understand what was said, but could not talk at all. He was totally paralyzed on the right side, and was able to turn the head only to the middle line. There was apparently no disturbance of sensation on the paralyzed side. The limbs were no longer held in stiff positions, but were relaxed, and the tendon reflexes were abolished. There was no complaint of headache. The pulse was 80, the respirations regular, and there was no fever. He died quietly on the following day.

The autopsy revealed the presence of a tumor occupying the optic thalamus on the left side, which was enormously enlarged. It was completely infiltrated by a sarcoma. The tumor had apparently compressed the internal capsule, and had infiltrated all of the tissue of the tegmentum about the corpora quadragemina. The ventricles were enormously distended with fluid.

Dr. Starr said that this case had led him to look over his private records of brain tumors for the past 6 years. He had seen in this time 25 cases of brain tumor. Fifteen of the patients were males, and 10 females. All ages appeared to be about equally liable. The average duration of the disease had been 11 months, which was much shorter than generally stated. The tumors had been distinctly located in 15 cases, and it had been possible to operate in 4 cases. No diagnosis of tumor whatever had been possible in 2 cases. One of these was a patient whom he had been asked to see because it was purposed to commit him to an asylum. There was a history of chronic alcoholism, some headache and morning vomiting; great mental irritability and imperfect memory. At times he was very violent with his family, though perfectly quiet in the presence of others. In the previous month, on two occasions, he had had sudden attacks of coma lasting about half an hour. Two days after this examination the patient had suddenly died, and the autopsy had revealed a large tumor occupying the left superior parietal convolution. The other case had been seen in consultation with Dr. Biggs. Several physicians had agreed upon the diagnosis of bulbar paralysis. There was no optic neuritis and no headaches. At the autopsy a small tumor had been found occupying the entire medullar oblongata. No localization had been possible in 8 out of his 25 cases. In 19 an operation had been absolutely impossible, either because of the absence of a diagnosis or because the tumor was inaccessible. The operation had been done in 6 cases, and in two the operation had been successful in that the tumor had been found, but 1 of these patients had died. Therefore, there had only been one patient out of 25 who had recovered. In 1 case, astereognosis had been considered the most important symptom of localization, and consequently the parietal region had been freely exposed, but no tumor had been found. In 1 case in which the tumor had been in the cerebellum, Dr. McCosh had operated. To relieve the distention of the ventricles they were tapped and drained. Sixty ounces of fluid a day had been obtained from the lateral ventricles. The patient had finally died, and an infiltrating tumor of the cerebellum had been found. In another case of cerebellar tumor, the occipital bone had appeared at the operation worm eaten, and had been the seat of such a profuse hemorrhage that further exploration had been considered inadvisable. In a

summary of the cases of brain tumor made by him in 1896 it had been shown that about 7 % of brain tumors are operable, and that of the cases operated upon about one-third recover from the operation. Those earlier statistics had been made up from a large number of cases by different operators, and had not been from his own records alone.

Dr. A. J. McCosh said that the case shown by Dr. Starr was an unusually favorable one for operation because of the accuracy of the diagnosis, the accessibility of the growth and its freedom from vascularity. Most of the brain tumors that he had seen had usually caused considerable hemorrhage and severe shock. The statistics of these 25 cases seemed to him to come more nearly to the truth than the older ones giving a more favorable percentage.

Dr. Leszynsky said he wished to report the further progress of the case reported by him to the American Neurological Association. The patient had been suffering from symptoms pointing to a lesion in the motor area for nearly 2 years before coming under observation. The tumor had been found at operation to be an endothelioma of the motor cortex. The operation had been done 2½ years ago, and although the patient had relapsed more or less into a hemiplegic state, he had practically recovered. The localization in this case had been exceedingly accurate. No untoward result had followed the operation, and no additional damage had been done to the brain by the operation. The patient was still engaged as an accountant.

Dr. Onuf reported a case in which the localization had been extremely satisfactory. The history had begun in July, 1901, with slight jerkings of the shoulder and hip, followed by weakness of the left leg and arm. About 2 months after the onset of the symptoms, the speaker had seen him, and although suspecting brain tumor, he had placed the man on vigorous antisyphilitic treatment for 2 weeks. A peculiar feature had been that there was chiefly an affection of the abductors, flexors and extensors of the hip, while the extensors of the knee had been less affected, and the muscles of the feet hardly at all. The jerkings had been purely of the Jacksonian type. The case was remarkable because of the absence of headache and local tenderness. The diagnosis had been made, chiefly on the predominence of the affection of the central part of the extremities, of a tumor situated between the shoulder and hip centres, probably quite near the cortex. Immediate operation had been urged, but it had not been done for 3 weeks. The tumor had been found directly beneath the trephine opening. There was much softening, so that a sound could be introduced for 2 inches without encountering resistance. The microscope showed the tumor to be a gliosarcoma. It had been impossible to remove all of the tumor.

Dr. Schlapp said that in his specimen there was an arteriosclerosis with an increase of gliar cells and the deposition of calcareous material. He had not made the diagnosis of tumor involving the abducens nucleus entirely on the conjugate deviation, but the fact that the left side of the face had been weaker than the right had seemed to confirm that view.

Dr. Joseph Frænkel said that he had seen a few days ago a boy of about 18, who claimed to have been well until struck in the back of the head by a swinging door. After this he had developed paralysis of the right third nerve, followed soon afterward by hemiplegia. He had been operated upon, and the base of the brain searched for a basal cyst, but none found. He had then been admitted to the Montefiore Hospital. There was paralysis of the left upper extremity and an enormous contracture, with less marked paralysis of the left lower extremity and some slight optic atrophy. Subsequently inquiry had elicited the fact that his companions had noticed long before the accident that the boy showed a peculiar tendency to laughter. Dr. Frænkel recalled a case which had exhibited similar automatic movements to those reported in Dr. Starr's case. He had come to the conclusion that the tonus of the muscles was the most important factor in connection with the production of reflexes. He would like to know how absence of the reflexes could be explained in Dr. Starr's case.

Dr. Joseph Collins exhibited a photograph of an enormous tumor of the frontal convolution, which had been diagnosticated by an eminent neurologist and by himself as a tumor of the pons. His experience had gone to show that brain tumors are far more inoperable than was generally believed. Statistics had seemed to show that about 7 to 10% were operable, but when one came to sift these it was found that about 3 or 4% were operable. In his own experience but one case had been successfully operated upon, although the operation had been many times essayed. Dr. Bramwell of Edinburgh had contended that his own very large experience had utterly failed to confirm the statistics given by others regarding the operability of brain tumors.

Dr. Starr closed the discussion. He did not feel like subscribing to the statement of the previous speaker concerning the almost universal inoperability of brain tumors, for 2 of his own series of 25 had been distinctly localizable and operable. Accidental hemorrhage had caused death in 1 of these cases, and the other ought to live the usual length of life with only slight disability. It was true a great many cases of brain tumor successfully operated upon were reported while many unsuccessful ones were not. Dr. Bramwell's statements were not borne out by his experience, for Dr. Bramwell had published 61 cases of brain tumor that had occurred in his own practice, and of this number there had been at least 7 that could have been successfully operated upon. Discouraging as the statistics were, it was right to operate upon every case of brain tumor having a distinctly localized and accessible tumor. He believed if in the case presented by him at this meeting the operation had been consented to

when first advised, the patient would have recovered without any disability. The conjugate deviation referred to by Dr. Schlapp might occur not only from a lesion of the sixth nerve nucleus, but from anything which interferes with the posterior longitudinal fasciculus between the sixth and third nerve nucleus.

## Recent Literature.

*Diseases of the Heart.* By EDWARD HENRY COLBECK, M.D., F.R.C.P., D.P.H., Physician to Out-Patients at the City of London Hospital for Diseases of the Chest. London: Methuen & Co. 1901.

Written by an admiring pupil of Sir William Broadbent, this treatise reflects the value of his teaching and bears a graceful dedication to him. It was the author's aim "to keep the book within reasonable limits," and to this end "controversial matter has to a large extent been avoided," thus permitting "much greater precision in the exposition of the subject," at the cost of excluding "much new and interesting work." This aim he has carried out successfully, and the result is a well-printed book of only 336 pages, covering the ground, for the most part, in an adequate and satisfying manner.

Anatomical details are sufficiently well done, diagrammatic representation put in where needed, and the sphygmogram and cardiogram not given undue importance.

The chapter on congenital affections is brief, but quite explicit, losing something in value from the lack of clearness with which the development of the heart and great vessels is given. The prognostic outlook in the various forms is expressly stated; the most common cause of death in those cases reaching middle life is said to be pulmonary tuberculosis.

A praiseworthy attempt is made to put all of the so-called hemic murmurs on an organic basis, and, while it is unfortunate that in this and later discussions the antiquated term "fluid vein" should be perpetuated, the reasoning is clear and the various theories that have been advanced in explanation of functional murmurs are given fair hearing. No mention, however, is made of the effect of change of position on the intensity of such murmurs, and it is positively stated that they are always systolic in time.

Attention is called to the frequency with which murmurs arise at the mitral orifice as a result of muscular incompetence. In the brief description of cardiopulmonary murmurs no warning is given of the comparative frequency with which they occur in healthy individuals. According to the author, in the diagnosis of acute endocarditis the first modification to be looked for is the prolongation of the first sound, ascribed to a swollen condition of the mitral segments, while the murmur so often developing as a sequence may be due either to extending inflammation of the valve or to failing muscle.

Attention is called to the great frequency of pericarditis as a complication (occurring in one-third of the cases) and the importance as well as difficulty of establishing a diagnosis is emphasized. It is stated on the authority of Sir Samuel Wilks that severe cardiac symptoms in young people, without evidence of valvular disease, suggest the presence of pericardial adhesions.

The influence of chorea in the production of endocarditis is attributed to its rheumatic ancestry.

The chapters on chronic endocarditis are excellent, treating carefully in details the different forms of valvular defect, and giving full description of the immediate and remote effects in such a way as to be perfectly intelligible to the student.

Exception may be fairly taken to describing hypertrophy and dilatation as diseases of the myocardium, and the description itself of these compensatory changes is rather prolix.

The short chapter on angina pectoris is one of the best in the book, and the theories of etiology, with the weight of evidence, are well stated for both types, the true and the false.

*Water and Water Supplies.* By JOHN C. THRESH, D.Sc. (Lond.), M.D. (Victoria), D.P.H. (Cambridge), Honorary Diplomate in Public Health, Royal College of Physicians and Surgeons, Ireland; Medical Officer of Health to the Essex County Council; Lecturer on Public Health, London Hospital Medical College, etc. Third edition, revised and enlarged. Pp. 527. Philadelphia: P. Blakiston's Son & Co. 1901.

This valuable handbook, now in its third edition, has been enlarged by the addition of chapters relating to the protection of underground and of surface waters. The first seven chapters relate to the characteristics and composition of the different classes of water used as public supplies. Other chapters follow upon the effect of impure water upon health, the interpretation of water analysis, the self-purification of rivers, the softening of hard water, etc.

The author quotes freely from the accumulated experience of the Massachusetts Board of Health, as published in its series of annual reports.

He advocates the following distinct lines of defense for the protection of public supplies: (1) The utmost possible control of the watershed or collecting area; (2) very ample storage; (3) sand filtration.

He also outlines a course which has already been adopted in Massachusetts with good effect, in the statute giving power to the State Board of Health to make rules and regulations for the protection of water supplies.

This volume will be found very valuable as a work of reference for sanitary engineers, physicians, chemists, health officers, and all others who may be interested in the subject of water supplies. The subject is one of great practical importance, and should receive the attention of others than specialists.

THE BOSTON

# Medical and Surgical Journal.

THURSDAY, JANUARY 23, 1902

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## THE BRITISH REPORT UPON THE USE OF FOOD PRESERVATIVES AND COLORING MATTERS.[1]

The increasing length of time and distance necessitated in the transportation of perishable articles of food, when compared with earlier periods of time, has created a demand for special means of preservation in addition to the more crude and common methods, such as the use of sugar, salt, saltpetre, vinegar, alcohol and certain processes of smoking.

Within the past few years new forms of preservatives have come into quite general use for this purpose. These are mostly chemical substances having greater or less antiseptic power, and capable either of preventing or of delaying the process of fermentation. These articles are chiefly boric or boracic acid, and the borates, salicylic acid, sulphites, formaldehyde, benzoic acid and certain fluorides. The last two are not so generally used as those first named.

There is evidence that these articles are used quite freely in the preservation of many kinds of meat, fish and other food products, and, in some instances, by irresponsible parties who are entirely ignorant as to the proper limits of quantity to be used, and their possible injurious action. Several samples of a cheap and fraudulent preparation of preserved fruit were recently purchased in Boston, bearing a label which stated that "this package (containing less than one-half pound) contains one-fourth ounce of salicylic acid." This amount is fully forty times as great as is necessary to preserve the quantity in question. These samples were worthless imitations of the article which they represented, and were highly colored with an aniline dye.

[1] Report of the Departmental Committee appointed to inquire into the use of preservatives and coloring matters. Presented to both Houses of Parliament by command of His Majesty, London, 1901.

The use of artificial coloring matters has also increased very decidedly in the preparation of articles of food, and in the majority of instances the evident intent of such use is to conceal fraud, and give to a cheap and comparatively worthless article the appearance of a genuine product. If the use of coloring matters as an artificial addition to food were to be prohibited altogether it is quite probable that at least one-half of all adulterations would disappear.

Tropical wars, and wars carried on in countries distant from the base of supply, like the Spanish, and Philippine and South African wars, have brought this question still more prominently to the front; and while the "embalmed beef" controversy may become a matter of history, both politically and otherwise, the fact of the liberal use of preservatives remains, and the importance either of prohibition or of establishing a legal limit in the use of preservatives, is constantly becoming more evident.

Great Britain has become so largely dependent upon other countries for the food supply of her increasing millions, as to bring into special prominence the use of preservatives in such articles as are imported from other countries as well as those which are produced in her own territory, and consequently a committee was appointed by the Local Government Board, consisting of Sir Herbert E. Maxwell, Professor T. E. Thorpe, and Drs. Bulstrode and Tunnicliffe. This committee was directed to "inquire into the use of preservatives and coloring matters in the preservation and coloring of food," and to report:

(1) Whether the use of such materials or any of them, for the preservation and coloring of food, in certain quantities, is injurious to health, and, if so, in what proportions does their use become injurious.

(2) To what extent, and in what amounts, are they so used at the present time.

This committee has since reported in a document of nearly 500 pages, more than one-half of which consists of the minutes of evidence of 78 witnesses who have been examined during the two years since the committee was appointed. The report also contains 36 appendices containing valuable information upon the subject of preservatives and coloring matters, together with the results of several experiments which had been made by Dr. Tunnicliffe and others.

In the course of the investigation, 4,251 samples of food were examined, of which 1,659, or 39%, were found to be treated with preservatives. Of this number 1,247 contained boron preservatives, 320 had salicylic acid, 20 formalin and 143 sulphites. The highest percentages, so far as the number containing preservatives is con-

cerned, were found in cream, butter, margarine, bacon, ham, sausages, potted meats, pork pies, lime juice, cordials and fruit syrups. One witness stated that 50% of the dairymen in London use preservatives, the amount of borax being from 1 part in 10,000 to 1 part in 1,000, and that salicylic acid was used in jam in the proportion of one-half ounce of the acid to 1 cwt. of the jam.

The committee calls attention to the objection to the use of preservatives in milk, that they may possibly be relied on to protect those engaged in such traffic against the immediate results of neglect of scrupulous cleanliness. "Under the influence of such preservatives milk may be exposed without sensible injury to conditions which otherwise would render it unsalable. It may remain sweet to the taste and smell, and yet have incorporated disease-germs of various kinds, whereof the activity may be suspended for a time by the action of the preservative, but may be resumed before the milk is digested."

With reference to wine the committee says: "We are of opinion that wine which cannot be made or kept without the use of preservatives had better not be offered for sale."

The evidence in regard to coloring matters in food showed that such use is extensive and widespread. In recent years the coal-tar dyes appear to have supplanted many of the colors formerly in use. Among the other colors in common use were annatto, turmeric and copper. Three ounces of sulphuric acid were added to a barrel of pickled cabbage to intensify its red color.

With reference to the use of sulphate of copper as an addition to canned peas and other vegetables the committee says:

> It is highly undesirable that what is admittedly a poisonous substance should be used, even to the smallest extent, in connection with such food as may be consumed in considerable quantity. The public have got into their heads that vegetables ought to be green, and green they insist upon having them. Direct proof that vegetables containing copper are injurious to the consumer is, from the very nature of the case, difficult to obtain, and we must admit that we have not succeeded in obtaining it. There is evidence pointing to the conclusion that copper, when added to the vegetables, forms a compound which is not easily soluble in the human economy. There is, however, evidence of a contrary character, and it is not clear to us that the whole of the copper added becomes, or remains, insoluble under all conditions. Be this as it may, recent events have so incontestably demonstrated the serious and widespread mischief which may result from the consumption of food and drink, other than sweetmeats, containing even minimum quantities of poisonous metallic substances, that we are strongly of opinion that such poisonous substances should be vigorously excluded.

The final recommendations of the committee are as follows, Dr. Tunnicliffe objecting to Recommendation 6, but advising restrictions as to the quantity of copper to be allowed:

> (1) That the use of formaldehyde or formalin, or preparations thereof, in food or drinks be absolutely prohibited, and that salicylic acid be not used in a greater proportion than one grain per pint in liquid food, and one grain per pound in solid food. Its presence in all cases to be declared.
>
> (2) That the use of any preservative or coloring matter whatever in milk offered for sale in the United Kingdom be constituted an offence under the Sale of Food and Drug Acts.
>
> (3) That the only preservative which it shall be lawful to use in cream be boric acid or mixtures of boric acid and borax, and in amount not exceeding .25%, expressed as boric acid, the amount of such preservative to be notified upon the vessel by a label.
>
> (4) That the only preservative to be used in butter and margarine be boric acid or mixtures of boric acid and borax, to be used in proportions not exceeding .5%, expressed as boric acid.
>
> (5) That in the case of all dietetic preparations intended for the use of invalids or infants chemical preservatives of all kinds be prohibited.
>
> (6) That the use of copper salts in the so-called greening of preserved foods be prohibited.
>
> (7) That means be provided, either by the establishment of a separate court of reference, or by the imposition of more direct obligation on the Local Government Board, to exercise supervision over the use of preservatives and coloring matters in foods, and to prepare schedules of such as may be considered inimical to the public health.

## REPORT ON THE NEW YORK MILK SUPPLY.

THE Rockefeller Institute for Medical Research, which came into existence last spring through a gift of $200,000 from John D. Rockefeller, and now has nineteen men of scientific attainments in New York, Boston, Philadelphia, and in Europe, engaged in various investigations, has just issued, as the first result of its labors, a report on the milk supply of New York. In formulating the general plan for this investigation, and in supervising the general lines which were carried out, the institute secured the co-operation of Dr. Wm. H. Park, and the bacteriological part of the work was done at the laboratory of the Health Department. It need only be said that the results obtained confirmed in every particular those previously reached by the Milk Commission of the Medical Society of the County of New York. In regard to the relation of milk to the summer mortality of infants, however, the report is of special interest. During the latter part of June three groups of infants living in different sections of the city, and fed entirely upon cow's milk, were selected for observation. In each section a portion of the infants were left upon the grocery milk which they were already using, while for the remainder special milk was furnished. More than two-thirds of the children

were closely followed during the months of July and August. A certain amount of illness, chiefly of a diarrheal character, was observed in nearly all the infants during the hot weather. There were only two deaths, however, one from pneumonia and one from diarrhea, among the children who were getting either the highest grade of bottled milk, or what might be termed good, wholesome milk, and comparatively little serious illness occurred among them, while most of them gained regularly in weight. The children who received the grocery milk did much worse in similar surroundings. Samples taken from most of the shops contained before heating from 4,000,000 to 800,000,000 bacteria to each teaspoonful. The bad effects of this milk were shown not only by a much larger amount of serious illness and many deaths, but also by the general aspect of all the children observed. In the general solution of the milk problem in large cities some help may come through legislation. The greatest improvements, however, are not to be brought about by compulsion of the dealers, but by educating them to the point of voluntarily doing better work. Great improvements in transportation are also possible, and here the railroads should be made to feel their responsibility to the public. Milk certification, as instituted and practised by the County Society's Commission, seems to be a solution of some of the difficulties met with in connection with the problem.

## MEDICAL NOTES.

Journal of Obstetrics and Gynecology of the British Empire.— This is the title of a new journal, the publication of which has been begun under excellent editorial management in London. It is proposed to make the *Journal* an impartial and complete record of British obstetrical and gynecological practice, and an exponent of contemporary thought and achievement in these branches of medicine and surgery throughout the world.

Sanitarium for Tuberculosis in Colorado Springs.— It is stated that William J. Palmer has announced his intention of giving 100 acres of land and $50,000 to establish a semiphilanthropic sanitarium in Colorado Springs for consumptives. The institution is ultimately to cost $250,000, the remainder of the money to be raised by subscription.

Jewish Home for Tuberculosis.— It is reported that Baroness Edmond de Rothschild of Paris has given $250,000 for the establishment of a home for diseases of the lungs in the Taunus Mountains in Germany as a memorial to her father.

Treatment of Diphtheria.— A learned medical contemporary, in its last issue, devotes a note to "The Treatment of Diphtheria, with Clinical Reports."

### BOSTON AND NEW ENGLAND.

Acute Infectious Diseases in Boston.— For the week ending at noon, Jan. 22, 1902, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: Diphtheria 55, scarlatina 33, measles 120, typhoid fever 16, smallpox 43.

Boston Mortality Statistics.— The number of deaths reported to the Board of Health for the week ending Jan. 18 was 225, as against 229 the corresponding week last year, showing a decrease of 4 deaths, and making the death-rate for the week 20.4. The number of cases and deaths from infectious diseases was as follows: Diphtheria, 55 cases, 5 deaths; scarlatina, 33 cases, 1 death; typhoid fever, 7 cases, 2 deaths; measles, 72 cases, 2 deaths; tuberculosis, 27 cases, 16 deaths; smallpox, 36 cases, 3 deaths. The deaths from pneumonia were 29; whooping cough, 2; heart disease, 25; bronchitis, 10; marasmus, 2. There were 11 deaths from violent causes. The number of children who died under 1 year was 40, under 5 years, 60; persons more than 60 years, 60; deaths in public institutions, 62.

Reappointment of Dr. S. H. Durgin.— It is 30 years since Dr. Samuel H. Durgin was originally appointed on Boston's Board of Health, and meanwhile he has remained at its head and has put our health department at the head of the municipal health organizations of the country. There have been few city officials to whom Boston owes a greater debt of gratitude for intelligent and efficient service than it owes to Dr. Durgin, and his reappointment by Mayor Collins is a deserved recognition of this fact.— *Boston Herald.*

Lead Poisoning in Milton, Mass.— In connection with the recent cases of lead poisoning in Milton, the Board of Health has issued a statement to the effect that a careful examination of all suspected water is being made. It is furthermore stated that nearly all the cases of poisoning resulted from the use of water which ran through new lead pipes. No new cases have been reported for five weeks.

### NEW YORK.

Interdicted Transfer of the Dangerously Ill.— Commissioner Folks of the Charities Department has issued an order to the effect that no patient in any hospital in the department, whose condition is such as to lead to the belief that a fatal result must be expected within three days, shall be discharged or transferred to any other hospital, unless such patient is violent and there

are no facilities for restraint there. In case a patient, received by any hospital in the department by transfer from some other hospital or institution within or without the department, shall die within three days after admission, a statement of the case shall be reported immediately by the head of the institution to the commissioner. This order is designed to put an end to the custom, so long in practice among the great hospitals of the city, of transferring dying patients to Bellevue Hospital in order to keep their death-rates as low as possible. Just as it was being given out, an ambulance from one of these institutions brought to Bellevue a patient suffering from Bright's disease, who died on the stretcher while being carried into the reception ward.

THE NORWEGIAN DEACONESSES' HOME.— The Norwegian Lutheran Deaconesses' Home and Hospital of Brooklyn has just received, through Mr. F. G. Bourne, a gift of $64,000. In 1887 the late Alfred Corning Clark, who died in 1896, placed this amount in Mr. Bourne's hands, with the request that the sum of $3,840 (or 6% of the principal) be annually donated to the institution. It was expressly stipulated, however, that the donor's name should be withheld until such time as he (Mr. Bourne) should decide to hand over the principal to the trustees of the hospital as a permanent trust fund, to be known as the Skougaard-Severini Memorial. The fund is named in honor of Skougaard-Severini, who died in 1885, who had been much interested in the Norwegian Hospital and given largely to its support.

VERDICT SUSTAINS AN EXPERT'S CHARGES.— In the New York Supreme Court, Prof. Rudolph Witthaus, the chemical and toxicological expert in the Molineux trial, has just been awarded a verdict of $6,639.65 in a suit brought by him against the city to recover that amount for his services in making an analysis of the stomach of Henry Barnett, whose death was made a prominent feature of the people's evidence at the trial. He contended that he undertook the work at the request of the district attorney and that it occupied 366 hours. His charge was $15 an hour, with $250 for consultations and $500 for incidentals. The jury's verdict also included $450 for interest on the amount sued for.

MEDICAL ASSOCIATION OF GREATER CITY OF NEW YORK. — At the annual meeting of the Medical Association of the Greater City of New York, held Jan. 13, Dr. Andrew H. Smith was elected president. The report of the statistical secretary showed that during the year 136 members had been elected, and that the total membership is now 522. A special committee was appointed to co-operate with the Committee on Legislation of the Medical Society of the State of New York in opposing the bill which has been introduced in the Legislature, the object of which is to give legal standing to osteopaths.

SCARLET FEVER.— Four children suffering from scarlet fever have been transferred from the large Hebrew Orphan Asylum at 138th Street and Amsterdam Avenue to the Willard Parker Hospital, and the 700 inmates of the institution have been quarantined. More than 200 of the children attended a public school in the vicinity, but as yet no cases have been reported among the other pupils of the school.

MEASLES.— Within a week 400 cases of measles have been reported to the Board of Health from what was formerly the village of Flushing, Long Island, but is now a part of the Borough of Queens. While the disease is so widely prevalent, however, it is said to be for the most part of a mild type.

## Miscellany.

### PRIVILEGED MEDICAL COMMUNICATIONS.

DRS. G. G. WHITE and W. A. MILLER of Elkader, Ia., contribute[1] to the list of cases illustrating the grotesque working of the statute recently enacted in that State in imitation of the New York law, which it was supposed might indirectly furnish certain protection to medical men.

It appears that a suit was entered to recover a bill for medical services rendered to a defendant who refused payment on the ground that the bill was ambiguous and the charge excessive. At the trial the defendant established as his defense that the services were of a confidential character, and that in accordance with the statute (Section 4,608, Code of Iowa) plaintiff had no right to testify as to the nature of the malady unless the defendant waived the right, which he declined to do.

The physicians being thus estopped from proving their bill by showing the nature and value of their services, were advised by their counsel to withdraw the suit, and the bill was subsequently settled by compromise.

### OPERATION FOR PERFORATION IN TYPHOID FEVER WITH RECOVERY.

THE following successful operation for typhoid perforation has recently been done by Dr. R. T. Davis of Benry, West Virginia, reported in *American Medicine*, Jan. 18, 1902. The patient, a coal miner's wife, 17 years old, suffered a perforation in the fourth week of her illness. The operation was done six hours later, upon the kitchen table, and recovery was practically un-

[1] Philadelphia Medical Journal, Dec. 14, 1901.

complicated. It is of interest that this operation was performed by a general practitioner, under most unfavorable conditions.

## Correspondence.

### BOARDS OF HEALTH AND THE MANUFACTURE OF VACCINE VIRUS AND ANTITOXINS.

New York, Jan. 8, 1902.

Mr. Editor: The editorial on "The Production of Vaccine Lymph" in the issue of the *Journal* of Jan. 2, was an instructive and useful article. But one contention therein I fail to understand, and to it I feel bound to take exception, and that is the plea for the making of their own preparations by boards of health.

The deaths that recently occurred at St. Louis from the use of impure antitoxin have naturally invoked a storm of indignation regarding the grossly reckless methods which have been shown to prevail in the manufacture of prophylactic agents by political bureaus, and I am not a little surprised to find that your *Journal* should have the peculiar distinction of being the only reputable medical organ, so far as I can discover, that prefers trusting the preparation of such articles to these bodies rather than to reliable pharmaceutical houses.

Is there, I would like to ask, a board of health anywhere that has the same facilities for making vaccine virus and antitoxin as are possessed by our large manufacturing houses? In St. Louis the antitoxin horses were kept at the poorhouse farm, and any old hack seemed to be considered good enough for the purpose. The task of filling the vials was left to "a very careful colored janitor." The bottles were not labeled so as to be distinguished from one another according to dates. No tests were made for the want of a guinea pig. In New York City, I am informed, the horses from which the Health Department derives its antitoxin are boarded out in a veterinary hospital, where they are kept in a cellar with surroundings and companions that many authorities have pronounced decidedly unsatisfactory. In Washington, a piteous wail has gone up from Dr. Salmon because of the frightfully overcrowded state of the stockyard where the different animals of the Agricultural Department are kept. Reading it one is forced to the conclusion that it must be a perfect Noah's ark or Andersonville prison.

No firm of private manufacturers could afford to have said about their stables, or their process of manufacture, one tithe of what has been said over and over again, sometimes by officials of the departments themselves, about those of boards of health and the Department of Agriculture. Why, it has even been admitted that the New York Board of Health sells inferior antitoxin to other cities at reduced rates.

It has always seemed to me that the proper function of boards of health was to test and watch the circumstances attending the use of vaccine virus, antitoxins and drugs. This they cannot do effectively so long as they go into competition with the regular drug trade. I have the highest appreciation of the experimental work done by my friend, Dr. Walter Wyman, at the laboratories of the Marine Hospital Service. I have likewise reason to believe that good research work is being done by some of the officials of the Board of Health here. What I would like to know is why they should be taken away from this useful and presumably congenial work, in order to enter on an unfair competition with the regular manufacturers of prophylactic agents and drugs, handicapped by the want of proper appliances, the want of proper accommodation for their horses, calves, etc., and the want, above everything, of skilled helpers. I am not sure that all boards could even rely upon the assistance of "a very careful janitor."

When we trust large pharmaceutical houses to prepare for us aconite, digitalis, strophanthus, ergot and every other imaginable kind of valuable but dangerous medicine, there is surely no reason why we should go to amateurs under the control of political machines when we want such preparations as vaccine virus and antitoxin.

Very truly yours,

A. M. Phelps, M.D.

[State or municipal control of vaccine production must necessarily depend for its efficiency upon the character of the persons charged with the duty of carrying on the work, and upon the sufficiency of the public funds appropriated for the purpose. The failure of two or three corrupt city governments in this direction should not prevent an honest effort on the part of any state or city to carry on a work of this character.

As an example of successful work, the production of antitoxin by the State Board of Health of Massachusetts may be cited. For nearly seven years this board has furnished nearly all the diphtheria antitoxin which has been used in the State, and so far as we can learn, this practice has been entirely satisfactory. More lives have undoubtedly been saved than there would have been if the families using this product had been obliged to purchase it in open market. There is no reason why the same rule should not apply to the production of vaccine lymph for use in the State.

On the other hand, the State Board of Health, several years ago, made an examination of all the brands of antitoxin offered for sale in the State, by private manufacturers, with the result of finding a wide divergence in quality, several of them being decidedly inferior and in one instance practically worthless.

The reference to the Agricultural Department at Washington has no bearing upon the matter in hand, since that department is not in any way a producer of vaccine lymph for general use.— Ed.]

## RECORD OF MORTALITY

For the Week ending Saturday, Jan. 11, 1902.

| Cities. | Estimated population. | Reported deaths in each. | Deaths under five years. | Percentage of deaths from | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | Infectious diseases. | Acute lung diseases. | Diphtheria and croup | Typhoid fever. | Diarrheal diseases. |
| New York . . | 3,665,352 | 1,476 | 496 | 21.88 | 19.31 | 3.31 | 1.08 | 2.91 |
| Chicago . . | 1,852,828 | — | — | — | — | — | — | — |
| Philadelphia. | 1,349,624 | 481 | 118 | 21.13 | 16.64 | 4.16 | 1.66 | 6.24 |
| St. Louis . . | 603,717 | — | — | — | — | — | — | — |
| Baltimore . . | 525,330 | 205 | 51 | 14.10 | 16.59 | .97 | .49 | .97 |
| Cleveland . . | 411,826 | — | — | — | — | — | — | — |
| Buffalo . . . | 375,742 | — | — | — | — | — | — | — |
| Pittsburg . . | 341,401 | 150 | 43 | 26.00 | 17.33 | 4.00 | 6.00 | 2.00 |
| Cincinnati . | 332,032 | — | — | — | — | — | — | — |
| Milwaukee . | 304,975 | — | — | — | — | — | — | — |
| Washington . | 289,537 | — | — | — | — | — | — | — |
| Providence . | 185,870 | 57 | 18 | 15.79 | 14.03 | 1.75 | — | 1.75 |
| Boston . . . | 588,736 | 203 | 55 | 26.60 | 16.75 | 3.45 | .98 | 1.48 |
| Worcester. . | 127,337 | 27 | 8 | — | 22.22 | — | — | — |
| Fall River. . | 111,872 | 16 | 4 | 31.25 | — | 12.50 | — | 6.25 |
| Lowell . . . | 99,574 | 40 | 20 | 20.00 | 36.00 | 4.00 | — | — |
| Cambridge . | 96,334 | 19 | 7 | 26.30 | 5.25 | 5.25 | — | — |
| Lynn. . . . | 71,144 | — | — | — | — | — | — | — |
| Lawrence . . | 67,275 | 16 | 8 | 25.00 | 18.75 | — | — | 6.25 |
| Springfield . | 66,854 | 18 | 5 | 27.77 | 11.11 | 5.55 | — | — |
| Somerville . | 65,882 | 17 | 8 | 35.28 | 17.65 | — | — | — |
| New Bedford. | 65,574 | 17 | 6 | 11.76 | 29.40 | — | 5.88 | — |
| Holyoke . . | 48,065 | 15 | 5 | 33.33 | 13.33 | 20.00 | — | — |
| Brockton . . | 43,208 | 4 | — | 25.00 | — | 25.00 | — | — |
| Haverhill . . | 40,392 | 8 | 2 | — | 12.50 | — | — | — |
| Salem . . . | 36,567 | 6 | — | — | — | — | — | — |
| Newton. . . | 36,336 | 8 | 1 | 25.00 | — | 12.50 | — | — |
| Malden . . . | 35,390 | 13 | 3 | 30.80 | 7.70 | — | 7.70 | — |
| Chelsea . . . | 35,264 | 13 | 3 | 30.80 | — | 7.70 | 7.70 | — |
| Fitchburg . . | 33,848 | 5 | 2 | 40.00 | 20.00 | 20.00 | — | — |
| Taunton . . . | 32,759 | 9 | 1 | 44.44 | 22.22 | 11.11 | — | — |
| Everett . . . | 27,114 | 10 | 5 | — | 30.00 | — | — | — |
| North Adams . | 26,583 | 6 | — | 16.67 | 33.33 | — | — | — |
| Gloucester . | 26,121 | 4 | 1 | — | — | — | — | — |
| Quincy . . . | 25,307 | 7 | 2 | 22.22 | 33.33 | — | 11.11 | 11.11 |
| Waltham . . | 24,612 | 6 | — | 16.67 | 16.67 | — | — | — |
| Pittsfield . . | 22,311 | 7 | — | — | — | — | — | — |
| Brookline . . | 21,679 | 4 | 1 | — | 25.00 | — | — | — |
| Chicopee . . | 20,390 | 4 | — | 25.00 | — | — | — | — |
| Medford . . | 20,014 | 5 | 1 | — | 40.00 | — | — | — |
| Newburyport | 14,478 | — | — | — | — | — | — | — |
| Melrose . . | 13,384 | 3 | — | 33.33 | — | — | — | — |

Deaths reported 2,906; under five years of age, 879; principal infectious diseases (smallpox, measles, scarlet fever,

cerebrospinal meningitis, diphtheria and croup, diarrheal diseases, whooping cough, erysipelas, fevers and consumption) 624, acute lung diseases 517, consumption 285, scarlet fever 34, erysipelas 10, typhoid fever 41, whooping cough 13, cerebrospinal meningitis 8, smallpox 26, measles 37, diarrheal diseases 58.

From whooping cough, New York 7, Philadelphia 3, Baltimore 1, Boston 1, Lowell 1. From cerebrospinal meningitis, New York 3, Baltimore 1, Pittsburg 1, Boston, Somerville and Taunton 1 each. From scarlet fever, New York 26, Philadelphia 3, Baltimore 1, Pittsburg 2, Boston 1, Lawrence 1. From measles, New York 28, Pittsburg 6, Boston 2, Malden 1. From erysipelas, New York 2, Philadelphia 2, Baltimore 1, Providence 1, Boston 2, Lowell 1, Springfield 1. From smallpox, New York 3, Philadelphia 15, Boston 6, Cambridge 1, Somerville 1.

In the thirty-three greater towns of England and Wales, with an estimated population of 11,463,026, for the week ending Dec. 28, the death-rate was 21.1. Deaths reported 4,628; acute diseases of the respiratory organs (London) 425, whooping cough 84, diphtheria 71, measles 198, smallpox 27, scarlet fever 45.

The death-rate ranged from 14.3 in Derby to 29.3 in Manchester; Birkenhead 18.3, Birmingham 23.5, Blackburn 21.6, Bolton 19.2, Bradford 18.1, Brighton 18.6, Bristol 19.3, Burnley 26.3, Cardiff 20.2, Croydon 21.7, Halifax 17.4, Hull 18.8, Leeds 21.8, Leicester 21.8, Liverpool 22.9, London 20.6, Newcastle-on-Tyne 19.6, Norwich 17.2, Plymouth 18.4, Portsmouth 18.7, Preston 22.6, Salford 24.2, Sheffield 20.2, Swansea 19.3, West Ham 19.6, Wolverhampton 18.8.

## METEOROLOGICAL RECORD

For the week ending Jan. 11, in Boston, according to observations furnished by Sergeant J. W. Smith of the United States Signal Corps:

| Date | Barometer. | Thermometer. | | | Relative humidity. | | | Direction of wind. | | Velocity of wind. | | We'th'r * | | Rainfall in inches. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Daily mean. | Daily mean. | Maximum. | Minimum. | 8.00 A.M. | 8.00 P.M. | Daily mean. | 8.00 A.M. | 8.00 P.M. | 8.00 A.M. | 8.00 P.M. | 8.00 A.M. | 8.00 P.M. | |
| S...5 | 30.34 | 20 | 28 | 11 | 42 | 76 | 59 | W | W | 14 | 10 | C. | C. | |
| M...6 | 30.28 | 28 | 32 | 24 | 75 | 84 | 80 | W | S E | 6 | 5 | F. | C. | |
| T...7 | 30.15 | 26 | 29 | 22 | 88 | 94 | 91 | N | N | 9 | 15 | O. | N. | .33 |
| W..8 | 30.10 | 24 | 29 | 19 | 92 | 88 | 90 | N | N | 10 | 16 | O. | O. | .05 |
| T...9 | 30.06 | 29 | 35 | 23 | 87 | 78 | 82 | N W | N W | 8 | 4 | C. | C. | |
| F..10 | 29.81 | 29 | 32 | 26 | 88 | 84 | 86 | S | W | 2 | 10 | O. | C. | .02 |
| S...11 | 29.52 | 35 | 39 | 31 | 86 | 95 | 90 | S W | S E | 4 | 6 | O. | N. | T. |
| ☞ | 30.04 | | 32 | 22 | | | 83 | | | | | | | .40 |

* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow. † Indicates trace of rainfall.
☞ Mean for week.

## CHANGES IN THE MEDICAL CORPS OF THE NAVY FOR THE WEEK ENDING JAN. 18, 1902.

J. H. PAYNE, assistant surgeon. Detached from the "Isla de Cuba," and ordered home.

I. W. KITE, surgeon. Ordered to the Norfolk Navy Yard.

H. T. PERCY, surgeon. Detached from the Norfolk Navy Yard and ordered to the Navy Yard, League Island, for duty with the Naval Recruiting Rendezvous, Philadelphia.

W. F. ARNOLD, surgeon. Detached from the "New Orleans" and ordered to Guam.

J. T. KENNEDY, assistant surgeon. Detached from the "Brooklyn" and ordered to the "Helena."

J. W. BACKUS, assistant surgeon. Detached from the "Brooklyn" and ordered to the "Princeton."

R. C. HOLCOMB, assistant surgeon. Detached from the "Helena" and ordered to the "Manila."

R. W. PLUMMER, assistant surgeon. Detached from the "Princeton" and ordered to the "New Orleans."

B. R. WARD, passed assistant surgeon. Detached from the Boston Yard and ordered to the "Constellation."

W. C. BRAISTED, passed assistant surgeon. Detached from recruiting duty and ordered to the Naval Hospital, New York.

J. C. PRYOR, passed assistant surgeon. Detached from the Naval Hospital, New York, and ordered to the Naval Hospital, Newport, R. I.

## OFFICIAL LIST OF THE CHANGES OF STATION AND DUTIES OF COMMISSIONED AND NON-COMMISSIONED OFFICERS OF THE U. S. MARINE HOSPITAL SERVICE FOR THE SEVEN DAYS ENDING JAN. 9, 1902.

IRWIN, FAIRFAX, surgeon. Bureau telegram of Dec. 27, 1901, granting Surgeon Irwin leave of absence for 7 days, amended so that said leave shall be for 5 days. Jan. 7, 1902.

CARTER, H. R., surgeon. Leave of absence for 10 days granted Surgeon Carter by Bureau letter of Dec. 26, 1901, revoked. Jan. 7, 1902.

KALLOCH, P. C., surgeon. To proceed to Portland, Me., and assume charge of the quarantine service at that port. Jan. 7, 1902.

KINYOUN, J. J., surgeon. Six days' leave of absence from Jan. 6, 1902, under paragraph 179 of the regulations.

MCCONNELL, E. F., acting assistant surgeon. Granted leave of absence for 30 days from Dec. 24. Jan. 8, 1902.

MACEO, J. N., acting assistant surgeon. Granted leave of absence for 30 days from Dec. 17. Jan. 8, 1902.

RIDEOUT, C. F., acting assistant surgeon. Granted leave of absence for 10 days from Jan. 2. Jan. 7, 1902.

## APPOINTMENT.

DR. H. D. ARNOLD has been appointed Assistant Visiting Physician at the Boston City Hospital.

## BOOKS AND PAMPHLETS RECEIVED.

The Present Status of the Carcinoma Question. By N. Senn, M.D., C.M., Ph.D., LL.D., Chicago. Reprint. 1901.

Outlines of Physiology. By Edward Groves Jones, M.D. Illustrated. Philadelphia: P. Blakiston's Son & Co. 1901.

Alcoholism, a Study in Heredity. By G. Archdall Reid, M.B., C.M., F.R.S.E. New York: William Wood & Co. 1902.

Rough Notes on Remedies. By William Murray, M.D., F.R.C.P. (Lond.). Fourth edition. Philadelphia: P. Blakiston's Son & Co. 1901.

Mosquito Brigades and how to Organize Them. By Ronald Ross, F.R.C.S., D.P.H., F.R.S. New York: Longmans, Green & Co. 1902.

A Retrospect of Surgery During the Past Century, being the Hunterian Oration of the Hunterian Society, 1901. By John Poland, F.R.C.S. London: Smith, Elder & Co. 1901.

The Pocket Gray or Anatomist's Vade-Mecum. By the late Edward Cotterell, F.R.C.S. Fifth edition, revised and edited by C. H. Fagge, M.B., M.S. (Lond.), F.R.C.S. New York: William Wood & Co. 1901.

Report of the Trustees of the Rhode Island Hospital. Presented to the corporation at its thirty-eighth annual meeting, Nov. 13, 1901. Providence: E. L. Freeman & Sons, Printers to the State. 1901.

Die neue Heilanstalt für Lungenkranke zu Schömberg, O.-A. Neuenbürg nach der vollendeten Vergrösserung. von Dr. med. G. Schroeder, dirig. Arzt. Illustrated. Leipzig: Johann Ambrosius Barth. 1901.

Directions for Class Work in Practical Physiology. Elementary Physiology of Muscle and Nerve and of the Vascular and Nervous Systems. By E. A. Schäfer, LL.D., F.R.S. Illustrated. New York, London and Bombay: Longmans, Green & Co. 1901.

On the Cure of the Morphia Habit without Suffering (Physiological Demorphinization) with a Note on the Physiological Method of Relieving the Craving for Drink. By Oscar Jennings, M.D. (Paris), M.R.C.S. (Eng.). Second edition, revised and enlarged. Illustrated. New York: William Wood & Co. 1901.

The Practical Medicine Series of Year Books, comprising ten volumes on the year's progress in Medicine and Surgery. Issued monthly, under the general editorial charge of Gustavus P. Head, M.D. Vol. I. General Medicine, edited by Frank Billings, M.S., M.D., with the collaboration of S. C. Stanton, M.D. October, 1901. Illustrated. Chicago: The Year Book Publishers.

The Practical Medicine Series of Year Books, comprising ten volumes on the year's progress in Medicine and Surgery. Issued monthly, under the general editorial charge of Gustavus P. Head, M.D. Vol. II. General Surgery. Edited by John B. Murphy, M.D. November, 1901. Chicago: The Year Book Publishers.

## Address.

### ON THE VALUE TO THE PHYSICIAN OF MODERN METHODS OF DIAGNOSIS.[1]

BY HENRY L. ELSNER, M.D., SYRACUSE, N. Y.,
*President of the Medical Society of the State of New York.*

On this occasion I wish once more to express to you my thorough appreciation of the great honor which my election to the presidency of the Medical Society of the State of New York implied, and to thank you heartily for this proud distinction.

The development of medical science has been so rapid that to those who have been in practice 20 or even 15 years, who have not kept pace with the advances and the scientific movement, the language of the medicine of today is almost unintelligible. Indeed, medicine has been metamorphosed from an art into a science, to the everlasting credit of an unselfish profession and to the benefit of mankind.

Rational medicine requires for its successful practice a scientific fundament. It is not long since our methods of investigation were crude and faulty; instruments of precision were wanting, and the many refinements of diagnosis which we now possess were either undiscovered or the few in use were to be found only in the larger universities.

It gradually became evident, however, that to complete the education of the physician it was necessary to establish the laboratory (that true workshop of the physician), where he might study the conditions which exist in health, learn to appreciate the changes wrought by disease, gather lessons from the thorough study of physiological chemistry, and record many facts concerning the modification of perverted functions by the application of remedies. Without these object lessons many of the astounding advances of modern medicine could not have been made. By the aid of these, medicine has made greater progress during the past three decades than had previously been made in as many centuries.

The scientist must of necessity be a revolutionist. All things he must prove for himself. Richet has truly said: "By experiment and by science, medicine is compelled to march forward!" This is as true today as it was in the time of Harvey, and should prompt us to encourage in all fields of medicine, wherever permissible, original painstaking experiment and the conscientious application of positive conclusions to the recognition and treatment of disease.

Unalterable and earnest in the belief that modern methods of diagnosis have proven themselves of the greatest advantage to the physician in the study of disease, and with a conviction deeply grounded, much against my will, that only a minority of the medical profession has adopted these refinements, by the use of which medicine in its science becomes more and more exact, I have concluded on this occasion to address you "On the Value to the Physician of Modern Methods of Diagnosis."

The profession, as organized in our society, has always represented a progressive element in medicine; has demonstrated its willingness to enlarge and enrich its field of usefulness and influence; has striven to disseminate knowledge far beyond the limits of our own State; and it is because of this encouraging past, and the promising present which cements the past and the future, that I bring this subject to your notice, that our influence may be exerted in behalf of methods in diagnosis which rest on a scientific foundation, and which prove, when impartially reviewed, to be of inestimable value to the suffering.

We are not to rest content with the uncertain methods of our forefathers, which seemed to them, as they seem to many today, to unearth the entire truth, but with Lessing we must proclaim: "Not the bare truth which everybody possesses, or thinks he possesses, but the earnest endeavor which he has made to understand the whole truth—to get at the foundation of it—makes the worth of a man. For it is not through its possession, but rather through the search for the truth, that his powers are enlarged, which alone make for his growth toward perfection. Possession makes him quiet, indolent, proud." Ours is a profession which can ill afford to be satisfied with possession which makes it innocuous and proud. Ours is the task of blasting in the quarries of the unknown, where are hidden innumerable precious truths awaiting development. Thus may our art "gain the reach and certitude of sway over disease which we all yearn for it to possess."

Sir Michael Foster has recently said: "The phenomena of disease, being phenomena of living beings, present themselves in most, if not in all cases, as problems,—as mixed problems of physics, chemistry and biology,—to be grappled with by the doctor as they are grappled with by the physicist, the chemist and the biologist." To this quotation I add the words of our own philosopher and pathologist, Welsh, recently given to the profession at the Virchow dinner: "General pathology must call to its service not only morbid anatomy, but also experiment and clinical medicine; nor is practical medicine to be founded upon pathological anatomy and general pathology alone, important as they are to the physician in many ways. Clinical medicine, as well as every other department of medicine, must be investigated by itself, deriving, as should every science, all the aid it can from allied sciences."

Our appreciation of clinical diagnosis by means of microscopic and chemical methods is well demonstrated by the hearty welcome with which the original work of von Jaksch and later the volume of Simon's, both on clinical diagnosis based on newer methods, were received by the progressive internists. We were eager for more exact knowledge—for science to aid us in our art. The

[1] President's address delivered at the ninety-sixth annual meeting of the Medical Society of the State of New York, held in Albany Jan. 28, 29 and 30, 1902.

statement by Simon, that "Diagnosis is now the password in medical science," needs to be realized by many who continue satisfied with the uncertain methods of the past. The value of the application of the knowledge of physiological chemistry to the recognition of disease is splendidly illustrated by the certainty with which many diseases of the stomach and intestines are thereby recognized. Here I may be permitted to quote from a former address:

"With the discovery of free hydrochloric acid in the gastric mucus, by Prout in 1824, and the demonstration of pepsin by Schwann in 1836, the first data for an ultimate and more thorough understanding of the physiological and chemical functions of the stomach were given. These discoveries, with those of Reaumur and Spallanzani, formed the foundation upon which ultimate gastric pathology was to rest, and upon which a structure has been erected to which modern medicine points with just pride."

"The way to pathology is through physiology," says Ewald; "and the more we deal with this subject, the firmer is the truth of that statement impressed upon our minds. It is not the study of the peptonizing function alone which claims our attention, but it is the proper understanding of the entire work which is performed in this human laboratory, including a large part of the alimentary canal, and a thorough appreciation of the relation which each function bears to the others, that makes a rational anatomical diagnosis and indications for treatment possible and in many cases positive."

When Kussmaul, in 1869, first used the stomach pump and tube in the treatment of disease, Liebermeister correctly prophesied that this maneuvre would probably mark an epoch in gastric pathology and therapy. When Leube, in 1871, first recommended the stomach tube for purposes of diagnosis, he cleared the way for the ready diagnosis of stomach disease. Without the method evolved from Leube's original innovation, gastric diagnosis would soon fall and the treatment of stomach disease would once more become as unscientific as of yore.

The diagnostic value of the absence or diminution of free HCl in the stomach secretion, associated more particularly with pyloric cancer and ultimate dilatation, was first systematically investigated by R. von den Velden at Kussmaul's clinic in Strassburg. Golding Bird called attention to this fact in 1842, and it seems strange that this information was ignored by the profession for diagnostic purposes during so many years.

I found in my investigations of gastric cancer, reported in 1893, in 120 tests, free HCl absent in 92.7% and present (as a rule feebly) in 7.3%; and from a larger number of cases since studied, material change in these figures is not justified.

The diagnosis of cancer of the stomach from the absence or presence of free HCl *alone* ought never to be made, but associated with other symptoms leaning toward malignancy, we may assume with considerable certainty that the demonstration of the presence of HCl argues against the existence of cancer. The cases, according to Ewald, "In which there is a positive reaction to the carefully applied tests are so rare, that they have very little bearing on the question." Since the introduction of these chemical tests for the recognition of diseases of the stomach, we have learned much which is of value relative to blood changes in these and other diseases. Thus, in some cases of latent or progressive cancer of the stomach, atrophy of the gastric follicles and pernicious anemia or other diseases associated with cachexia, stomach symptoms, and blood changes, the combined results of gastric tests with the blood examinations, *repeatedly made*, give facts which we must possess to clear the horizon and justify positive diagnosis.

Henry's observation showing that the reduction of red blood corpuscles in cancer of the stomach does not keep pace with the cachexia, while in pernicious anemia the cachexia does not keep pace with the reduction of red blood corpuscles, has been corroborated many times and is of great diagnostic value.

For the surgeon the knowledge gained by our new methods in stomach disease is strongly confirmatory. With a growing experience we are justified in entertaining for the future a well-founded hope of recognizing malignant disease of the stomach early, when as the surgeon's helpmates we shall save or prolong many lives in comparative comfort.

By these methods of diagnosis the dietetics and therapeutics of gastro-intestinal diseases have been placed upon a more solid and scientific basis.

The satisfaction experienced by the physician in outlining a diet which he knows will positively find a suitable reception and ultimate assimilation, must be sufficient recompense for the time occupied in studying the individual case.

Time will not permit the rehearsal of profitable experiences in this field. The recognition by our positive methods of qualitative and quantitative changes in the secretory function of the stomach has ended the suffering of many chronic invalids. The recognition of hyperacidity and hypersecretion has relieved many unfortunate sufferers from uncontrollable pain, waning strength and wasting muscle, with rebellious stomach symptoms. Scientific diagnosis in these cases, followed by rational treatment, yields brilliant results. No physician can do justice to himself or to his charge, who is unable, when the case demands it, to apply the simple methods which without great labor or loss of time make clear to him the working ability of the stomach in its secretory, motor and absorptive parts.

No one who has worked in the broad field of medicine, unless finally biased by narrow and special practice, contends that in all diseases of the stomach we need the test meal and the knowledge gained by its chemical examination, for the recognition of disease. We shall always meet a large number of cases, however, with uncertain symptoms, with strong suspicions of disturbed gas-

tric function; cases with features of malignancy, though without positive physical signs; cases in which the question of the benign or the malignant nature of the underlying process needs prompt recognition, in which we shall be able to add a strong link by the correct interpretation of data gained by the methods founded upon our knowledge of physiological chemistry.

In this connection, I must call your attention to the great value of inflation of the stomach with air or carbonic acid gas. In office practice we often gain knowledge of the relative size and position of the stomach, its relation to the neighboring organs, of its walls, as well as the resistance of these, by the administration of a Seidlitz powder, each part separately, to allow the escape of gas in the stomach to distend it. More satisfactory, in cases where this maneuvre fails, is the inflation with air through the stomach tube. The failure to inflate the stomach by these means, with associated symptoms of malignancy, the absence of tumor and free HCl, would lead to a suspicion of infiltrating disease of the stomach wall. In some cases adhesion of the surrounding organs has thus been recognized, while in a case of ulcerating cancer it was found that the adherent transverse colon was readily distended with the tube in the stomach, because of communication which existed between these visceræ as the result of ulcerative changes.

The distention of the large intestine with air is frequently of great value in the localization of abdominal diseases; particularly useful in the recognition of renal growths in which the distended gut is found anterior to the growth. These methods are too rarely used and will not be discarded when fairly tested.

The precipitation by centrifugal force of cellular elements from the stomach contents with microscopic and bacteriologic examinations will often prove of great therapeutic and diagnostic value.

In connection with the diagnosis of syphilitic diseases, a fact which has been too often overlooked and which is rarely mentioned, is the tolerance of the iodides in specific cases of ulcer and gastritis and the ready relief experienced. Under ordinary circumstances the symptoms of these patients are almost immediately aggravated.

The application of centrifugal force to clinical medicine is of recent date. Steinbeck of Stockholm, a medical student, first described the use of the centrifuge for the precipitation of sediments from urine, sputum and other pathological fluids. Litten, at the Congress of Internal Medicine in 1891, made a strong argument in favor of its use; von Jaksch described the positive advantage of the combination of the centrifuge and Biedert's method in cases where he was unable to find bacilli after patient search. Freeborn of New York, in 1891, demonstrated a home-made machine capable of 950 revolutions per minute. Gerster and Sondern followed with contributions on this subject, and in 1894 Elsner and Hawley, after a considerable experience with the instrument, dilated on the "Clinical Value of the Centrifuge."

Experience with the centrifuge has proven it to be of inestimable value. It is one of the few aids to diagnosis which has been generally adopted, and today there is practically no laboratory or hospital in which it is not found.

The time gained by centrifugalizing urine is of great advantage where an unaltered urine is desired (fermentation not having taken place); the early precipitate shows epithelial casts and other structures before changes in shape, size and contour occur, and these without bacterial contamination. By the use of the centrifuge insoluble and suspended elements are precipitated.

Blood may be precipitated when present in such small proportion that no other method would show it. It is invaluable to the insurance examiner in aiding to discover the underlying condition in cases of so-called transitory, cyclic or puzzling permanent albuminuria. It is our most reliable aid in detecting early primary genito-urinary tuberculosis. It precipitates small quantities of albumin with picric acid and makes possible the immediate application of Esbach's test, thus saving 24 hours.

The bacteriological examination of serous exudates and other pathological fluids is expedited by its use, as is also the examination of sputum for tubercle bacilli where they are present in small numbers.

The writer found that in 21% of urine analyses the centrifuge yielded results which led to greater accuracy in diagnosis than could have been otherwise obtained.

In doubtful cases of renal calculosis the methods of Kelly, including the distention of the kidney and its pelvis with water, after his improved maneuvre, give information which cannot be obtained without exploratory operation. The added evidence furnished by the x-ray examination and the skiagram will often furnish proof which justifies accurate and scientific diagnoses, though the clinical history may be meagre and unsatisfactory. These and similar methods, with painstaking bedside study, may arouse suspicions which must finally lead to positive conclusions.

The birth of a new science, hematology, founded upon accurately interpreted data, has added great pleasure and material profit to the study of many conditions formerly puzzling in their differentiation and unsatisfactory in their treatment. No diagnostic methods in medicine give more conclusive evidence or offer more uncontrovertible pictures than are revealed by those which we today include in our examinations of the blood. When I hold that these methods have not only been profitable, but have given the diagnostician genuine pleasure, I speak without exaggeration.

It is not the object of the evenly balanced physician to replace the knowledge gained at the bedside by laboratory findings, or to limit diagnosis by considering only facts made positive by microscopic examination and staining of the blood, but to *add* the exact knowledge which was un-

attainable before the advent of hematology. Let him who has never relied upon blood examination for assistance in diagnosis, work but a short time in this field and he will unfold a chapter to which he will revert for information, upon which he will learn to place great reliance as he becomes more and more conversant and expert in technique.

Blood examination means much more than would appear on the surface to those who are unacquainted with hematological methods. From a narrow conception of the true significance of the anemias, we have broadened the field until we hold, without fear of successful contradiction, that the positive diagnosis of the simplest form cannot be made without the aid of data obtainable by blood examination.

Clinically the picture of a grave anemia, nonmalignant, is often identical with that of pernicious anemia. Pernicious anemia may, in some of its stages, simulate exactly in subjective symptoms, and in many of its objective features, a true leukemia, while Hodgkin's disease may present symptoms not unlike malignant disease, lymphatic or mixed leukemia. The missing link in the differential diagnosis can only be furnished by laboratory examination of the blood.

Without the quantitative test for hemaglobin we would often fail in our differentiation of the anemias, while our treatment would continue to be irrational.

Differential blood counts and staining methods give data which justify the positive differentiation of the various forms of anemia known as leukemia. Thus we have learned to recognize the pathognomonic lymphocyte of lymphatic leukemia, and the myelocyte of the myelogenous or splenomyelogenous variety of the disease.

Who shall be able to compute for the profession the gain which has accrued from our ability to diagnose malaria from the presence in the blood of its protozoon? Our ready method of demonstrating the organism of malaria has made positive the nature of many most difficult and troublesome conditions. Add to this the readiness with which, after the method of Sittman, we recognize bacterial contamination of the blood, and you have included methods by which medicine has become more exact and satisfactory. In many epidemics we meet continued fevers without characteristic symptoms of typhoid, which can only be diagnosticated by the systematic use of the Widal agglutination test. The percentage of failures is relatively small, while the positive information, so much needed in doubtful cases, is often, though not always, obtained. Absence of leucocytosis, or a diminution below the normal of leucocytes with fever, with the absence of other objective features, has often justified the diagnosis of typhoid before a positive Widal test was obtainable. The presence of the leucocytosis with chills and fever, or with continued fever with or without local symptoms, has often led to conclusions which have been life-saving in their effect. Sudden and persistent leucocytosis in typhoid fever, and in other conditions not usually associated with polymorphonuclear leucocytic increase, points to complications, the nature of which may be surmised with great certainty when the result of the blood examination is considered with the associated subjective and objective symptoms.

The revelations of a leucocyte count in a case recently seen, where irregular fever and chills followed dysentery, without more than a slight tenderness in the right hypochondrium, with slightly enlarged liver, furnished the information which made pus accumulation probable and justified exploration. An abscess of the liver was found.

Puzzling cases in which tuberculous diseases require differentiation are often cleared by a count of leucocytes. This method of differentiation is one which we will often use, and unless we have mixed infection with tuberculosis, the absence of leucocytosis may be considered an important factor in diagnosis.

Thus in tubercular peritonitis the leucocyte count is not materially increased. Leucocytosis with brain symptoms argues in favor of meningitis, nontubercular.

Much has been written recently on the condition of the blood in surgical disease, particularly in appendicitis. In connection with this disease we must not fail to give an existing leucocytosis the prominence which it deserves. To depend upon the results of the blood examination, without giving to other symptoms in a suspected case of appendicitis their proper import, would lead to unpardonable error.

The diagnosis of trichina spiralis may, and has been, corroborated in doubtful cases by the presence of eosinophilia. Eosinophilic increase may become an aid in the recognition of scarlet fever where other data are wanting or meagre.

The detection of indican with or without leucocytoses gives information of value in occasional doubtful intestinal and abdominal diseases.

It has been said that the time occupied in making blood examinations is out of all proportion to the knowledge acquired,—an unjust and untrue charge. To gain exact information is our aim at any expense of time, but fortunately a thorough blood examination can be completed in less than 1½ hours, while in the majority of cases, with our newer methods and better technique, one-half that time will suffice to give the information needed. The successful and busy physician ought to be willing to relegate this work to those less occupied; he will always be able to find trained assistants to complete this work for him. The simple and rapid methods of staining malarial and other blood films without fixation, after the method of Romanowsky, and with the Jenner panoptic stain, reduce materially the time necessary for gaining satisfactory results.

The bacteriological diagnosis of certain diseases has become a matter of routine with the scientific worker. To the bacteriologist we look for the solution of many important problems in the prevention and recognition of disease. The number of lives annually saved by the application of bac-

teriologic methods to the diagnosis of disease cannot be estimated.

When we consider the advantage of bacteriological examination of the blood, including culture experiments, we are led into a broad field, in which the practising physician cannot do more than accept the knowledge gained from the well-equipped laboratory over which special workers must always preside.

We have not received the encouragement which we deserve from the State in our efforts to prevent and diagnose disease. The policy of the State in this direction has been niggardly and shortsighted. Every section of the State should have a well-equipped laboratory where thorough bacteriological work is done, to give the aid to the profession which for public safety is often promptly needed, and where many difficult questions can be definitely settled. Thus I have found, during the past year, counties in which there were no facilities for making cultures in cases of diphtheria, or for the application of bacteriological methods to the recognition or treatment of disease. Such faulty policy can only end in disaster and useless sacrifice of precious lives. I fear that many in our profession, as well as our legislators, have failed to appreciate what a leading part the microscope and bacteriology play, for an improved diagnosis is but a small portion of the gain to be derived from a scientific study of the causes of disease. "A new direction has been given to treatment."

The enormous advantages of serum diagnosis were well illustrated during the Spanish War, when the fevers prevalent among the American soldiers in Cuba and Porto Rico were claiming so many victims and the differential diagnosis of typhoid malaria and the dysenteries was of such transcendent importance. The blood of 95% of the typhoids showed a positive serum reaction; the malarias were easily recognized by the characteristic protozoa, while the dysenteries gave no positive blood picture.

Cases of typhoid associated with jaundice are mentioned by Cabot in which the diagnosis of yellow fever was eliminated by the immediate typhoid serum reaction. Cabot says, and it is true of serum diagnosis, "The whole process can easily and safely be carried out by the physician in his office, without any laboratory facilities and without half the skill or labor necessary to examine the urinary sediments."

Much has been written during the past few years on the advantage of lumbar puncture in doubtful cases of brain disease, particularly in tuberculous meningitis. Microscopic examination of the fluid has often been negative. Langer sought to aid diagnosis by incubating the fluid withdrawn, but the patients died, as a rule, before conclusions were reached.

For animal experimentation large quantities of fluid are required, even for intraperitoneal injection, and positive results are too long postponed.

It is doubtful whether in case of failure to demonstrate microscopically the presence of tubercle bacilli in the fluid withdrawn, we shall succeed by experiment of any kind in establishing a diagnosis with sufficient rapidity to be of any value to the physician.

It has been found that sugar is usually present in the meningeal fluid in cases of brain tumor, while in tubercular meningitis it is absent, as a rule. It will be preferable to depend on the ophthalmoscope in these cases without the puncture. Lumbar puncture in the hands of the inexperienced or uncleanly is not without its dangers. It is not at all likely that it will ever be adopted by the general profession for diagnostic purposes; indeed, in the majority of cases we are not dependent upon the information which it has been supposed by some to convey.

In occasional cases the diagnosis of malignant disease may be strengthened by the examination of serous effusions and tissue removed after some one of the improved methods.

Cancer cells are no longer considered characteristic. Dock has shown that similar cells are found in cancerous, tuberculous and other effusions. The presence of many cells in serous effusions showing mitosis, either typical or atypical in type, is strongly suggestive of malignant growth.

Centrifugalized specimens may, however, be examined for evidences of mitosis with negative result. The specific gravity of cancerous effusion is low, tuberculous higher, varying between 1,020 and 1,028. The presence of a large amount of blood has in several cases of cancerous effusions raised the specific gravity to 1,020 or even 1,022.

Simon says: "Clinically it is frequently difficult to distinguish between transudates and exudates; and large ovarian, pancreatic, and hydatid cysts, as well as cystic kidneys, may at times be mistaken for ascites. In such cases a careful chemical and microscopical examination of the fluid in question may be of decided value. Very frequently, moreover, it is possible only in this manner to determine the true nature of the disease, and the importance of freely using the trocar and the aspirating needle in diagnosis cannot be too strongly advocated."

The use of the Röntgen rays in medicine seems almost uncanny. It is doubtful whether, with our present technique, we gain many pictures which justify positive conclusions in the study of internal diseases. The greater reliance must still be placed on associated physical signs and subjective symptoms. Certain it is that a correct interpretation of the skiagram requires great experience, and the production of the shadow must always be relegated to those whose practices are limited and who have infinite time and patience to give to this work. I know of no field in which greater perseverance and attention to detail are needed.

We have received valuable aid from the x-ray examinations in diseases of the lungs and heart, especially where an accurate knowledge as to size and movement are needed. The diagnosis of intrathoracic growths and aneurisms has been strengthened by the fluoroscope and skiagram, without ignoring associated clinical manifesta-

tions. This method of inspection has been of greater advantage to the surgeon than to the physician, but to deny its value in medicine would be absurd and unjust.

Changes in the bone, about the joints, and gouty deposits have been satisfactorily demonstrated. Dense foreign bodies in internal organs, such as calculi, are very often demonstrated by the Röntgen rays. Porous calculi have escaped detection in several cases examined by this method. If the negative picture had been depended upon, one case recently seen, in which there were over 500 calculi in the gall bladder, would have remained unoperated.

Skiagraphy may be said to be in its infancy, but we are encouraged by the labors of Williams, Leonard, Stubbert and others, to hope for great assistance in the future from the use of the Röntgen rays in medicine.

The recent introduction of an apparatus for giving stereoscopic vision by the x-ray is believed by some to add materially to the practical value in medicine and surgery of this method of examination. The usual silhouette effect is replaced by a picture which stands out distinctly, showing the space relations of the object viewed.

We are not to be discouraged by the fact that radiographs which seem unsatisfactory to the majority of ordinary observers, are readily interpreted by the expert, for in cases where we must place considerable dependence upon these pictures as giving evidence of pathologic change, we shall give the opinion of the x-ray expert the importance which it deserves, remembering always that we have received but a link, and to strengthen the chain requires the thorough application of other confirmatory methods.

The scientific diagnosis of many diseases of the nervous system has been materially aided by our knowledge of the electrical reactions of the different tissues in health and disease. To those only who have a thorough conception of the newer anatomy and pathology of the nervous system, will electricity give any assistance in diagnosis. Here, as in the localization of central and peripheral nervous lesions, physiological knowledge remains the groundwork upon which diagnosis must be builded.

Bennett has, after patient clinical observation in this field of diagnosis, demonstrated the truth of the statement that "Like all of our methods of physical diagnosis, electricity must not be depended upon alone as the sole means by which we are to arrive at a just conclusion in investigating the nature of disease. It is only one of the aids we employ, but which, in conjunction with other facts and observations, is a most powerful auxiliary." There are a sufficient number of instances in which electricity offers data for diagnosis which cannot be obtained from any other source, and for this reason, the general practitioner, as well as the specialist, must acquaint himself with the method of its application, and must possess the underlying knowledge which makes rational conclusion possible. Though electricity may not be absolutely necessary for the diagnosis of the various paralyses, it remains the means of giving it "a facility and precision which has become indispensable to the neurologist."

Electric reactions, associated with a thorough study of the deep and superficial reflexes, lead to the interpretation of phenomena upon which depend localization and diagnosis in many puzzling conditions.

An instrument of precision too little employed by the general practitioners is the ophthalmoscope, for the introduction of which the memory of von Helmholz will always be revered. If the information obtained from its use were limited to the eye, we would not consider its value on this occasion; it gives information regarding the existence and nature of pathologic condition elsewhere than in the eye, which is often obtainable in no other way.

Gowers, in his classic work on "Medical Ophthalmoscopy," says: "This information depends upon the circumstances that we have under observation: (1) The termination of an artery and the commencement of a vein, with blood circulating in each; (2) the termination of a nerve which, from its close proximity to the brain and from other circumstances, undergoes significant changes in various diseases of the brain, and in affections of other parts of the nervous system; (3) a nervous structure, the retina, and a vascular structure, the choroid, which also suffer in a peculiar way in many general diseases."

We do not contend that the general practitioner must of necessity become an expert in the use of the ophthalmoscope, but we believe that he must depend upon its revelations if he would early recognize certain diseases of the brain, arterial degeneration, and renal complications. Time does not allow on this occasion of an extensive argument in favor of the more frequent use of the ophthalmoscope by the physician. Many cases might be taken from the records of those who have learned to use this instrument in general medical practice, which justify the great satisfaction with which its use is continued. We have only to refer to the significance of optic neuritis with brain symptoms, however vague, the presence of choroidal tuberculosis in advance of other positive symptoms, the presence of albuminuric retinitis in cases of nonalbuminuric nephritis, and the presence of retinitis and changed vessels in comparatively young subjects with transitory albuminuria and tube casts, to show the value of the ophthalmoscope to the everyday doctor.

Those who for any reason are unable to refer these cases to special workers in this field should educate themselves by post-graduate study in the use of the ophthalmoscope for the recognition of the grosser pathologic changes in the eye.

In the preparation of this address, the fact is appreciated that reference has been made only to a few of the newer methods upon which the profession is today leaning as aids in diagnosis. Limited time does not permit the consideration of many of the methods which are of undoubted

value as adjuvants in the recognition of disease. What I wish to impress is the importance of working systematically and scientifically, however busy we may be in our practices.

"Qui bene diagnoscit, bene medebitur."

It is no secret that the charge has been made that too many patients in this country are often ignorantly and incompetently treated, and our medical schools and system of medical education are held responsible for this state of affairs. We must admit that we too often fail to stimulate the "scientific sense"; men are not educated to work systematically. Raise as high as you can the requirements for admission into the profession; gain the best timber possible, which will always include a majority, receptive and earnest, and these serious charges will be less frequently made. We shall never be able to impress all with the enormous responsibility under which many almost stagger in medicine.

Many agencies have influenced American medicine. Whether these originated from communion with Louis, Lænnec, Trousseau or Charcot in France; whether they were lead by the Berlin School, the immortal Schœnlein, Traube or Virchow, and their followers; were founded upon the methods of the Vienna School, from which radiated the benign influence of Bamberger, Duschek, Skoda and a score of others, or were the products of our own enlightened masters of medicine,— and we have had many,— each had a scientific fundament, and each vied with the other in unearthing new truths to be applied to the recognition of disease and its treatment.

The clinical medicine of the past may, with reason, be compared with a rude and hardy plant, now grown, in spite of neglect, to a colossal tree with innumerable branches, richly laden with fruit, its roots reaching far into the fertile soil for nutriment. This soil must be nurtured and sustained — else the tree will fade and die. The new must become an integral part of our being; the new of today is often enriched by the new of yesterday. True it is that "stagnation is something more than death." The physician of today has countless advantages over his forebears; his training makes him more enlightened; he has been forced to equip himself for his life's work. The advantages offered for the thorough and scientific study of disease were never before equaled in this or any other country.

A generous public, by the free giving of material aid, encourages the solution of scientific problems related to disease and its prevention by scientific methods. In return, it has a right to demand the product of our best, our most conscientious efforts. Are we not also prompted by selfish motives to work scientifically? Our only safeguard against quackery is "continued recurrence to the scientific basis on which the practice of medicine rests."

We must gain exact knowledge in order to derive satisfaction from our practice. Even with increasing knowledge the layman's demands may, in many cases, be far beyond our ability to supply.

We can ill afford to encourage iconoclasts in medicine. Fortunate for us that we have no Paracelus — a badly balanced genius — a dangerous revolutionist at work to reject all that has been taught because of a pronounced taste for a single science. There will always be extremists against whom the evenly balanced must array themselves. The application of modern methods in the diagnosis of disease must always remain supplementary to bedside study,— but no one who has taken advantage of laboratory methods will deny that much may be learned, by laboratory study, of the greatest scientific and practical importance, without which we would be poor indeed. The practical diagnostician will not be narrowed by the association of laboratory methods with clinical data; he will not become theoretical, but more practical; he will become a more acute and cautious observer because of this training; he will "acquire knowledge at first hand" and make fewer hurried diagnoses; he will be prompted to do more original work.

There are those who, in spite of the fact that we are encouraged in all educational matters to develop the observant sense, continue to decry all laboratory and scientific methods. The scientist is charged with being a dreamer and impractical. "There are some, indeed, who would tell you that the scientific man is ill fated for anything but science; that he cannot be punctual, businesslike, a plain speaker, pious, or I know not what else."

"It would be difficult to find greater nonsense in any of the books or journals on a modern bookstall." "There is nothing that a man may not be at the same time that he is scientific" (Paget).

Failures in practice are by no means limited to the scientific. This fact requires no extended argument. Did Schœnlein's practical work in Berlin suffer because of his scientific attainments or because he became the pioneer in Germany in the introduction of physiological methods, the microscope, and chemical analysis, in the study of his clinical material?

Haller had made the attempt one hundred years before, but the scientific fundament supplied by pathological anatomy was wanting. Hippocrates auscultated, and one hundred years before Lænnec, Auenbrugger attempted to introduce percussion as a diagnostic agent. These attempts bore no fruit; pathological anatomy was needed to make clear the meaning of physical signs. It is by no means to be considered an accident that among the greatest advances in medicine made during the century just closed, the introduction of pathological anatomy and auscultation into the clinic, both were introduced by the same clear mind, Lænnec. He is one of the greatest physicians in history. Allbutt has said: "He deserves to stand by the side of Hippocrates, Galen, Harvey and Suydenham. His work was a revelation of the morbid anatomy of the internal organs during the life of the patient."

The physician who is truly successful in practice must depend in a great degree upon the good opinion of his fellow practitioners. Laymen have not the positive means of gauging our ability which those possess who are fitted to judge.

Nothing commends itself to the professional mind as does the thorough scientific investigation of individual cases. Certainly there are among those who have no medical education some who judge reasonably of the physician's worth, but the number of these is few. Of the majority, we may say they are the most ignorant who are most positive and loudest in their praise or denunciation, and these are often the most influential.

Herbert Spencer has well said: "Had we time to master all subjects, we need not be particular."

> "Could a man be secure
> That his days would endure
> As of old; for a thousand long years,—
> What things might he know!
> What deeds might he do!
> And all without hurry or care."

Bearing in mind our limited time for acquisition and action, the question which is of such transcendent moment is, whether the methods recently introduced are of sufficient benefit in the study of disease to claim our attention and time. We must determine, in other words, "the relative values of knowledge." If we consider the relative worth of these methods to the clinician from an unbiased standpoint, we must conclude in favor of the adequateness of the advantages. There is certainly a proportion between the required labor and the probable benefit. The young man needs the knowledge and training which the thorough study of disease develops, while those who have grown old in the treadmill must take advantage of modern methods and ideas to retain their standing in the profession.

Sir James Paget, in his Memoirs recently published, writing on the "Ways into Practice," and the "Various Ways out of Practice," speaks candidly on the conditions which affect success and invite retrogression. Between the lines one can read the thoughts of this clear-minded gentleman physician and the appreciation by him of the importance to the honest worker of receiving, after a sufficient period of probation, the methods which were included in the armamentarium of his juniors and pupils.

To those who are practising at a distance from centres where men are devoting themselves to the accurate methods in medicine, a word of warning may not be misplaced at this time. Your influence will not endure if you persist in ignoring methods which have been tried and found useful. You will finally hold only a remnant of your present clientèle. In spite of the fact that the public has never been more credulous or more ready to encourage quackery, the services demanded from the physician were never before expected to be of so high an order. His search must always be after the end of science. "The real and legitimate goal of all sciences is the endowment of human life with new inventions and riches." The individual has a right to demand of his physician accurate recording of all facts relating to his condition, with a painstaking investigation of every detail which the case offers, by every method needed for accurate observation and ultimate diagnosis. Believing that modern methods of diagnosis lead to the trustworthy interpretation of symptoms with a firm belief in the superior ability of those who have adopted these methods, the lay world is fast removing its former prejudices against hospitals, where medicine and surgery are practised rationally. The consulting rooms of those who are known to employ most thorough methods are filled with all classes of clients. There is a feeling abroad which calls for thoroughness from those charged with the recognition and treatment of disease.

The period has not yet been reached when we can truthfully deny that our art is in advance of scientific direction and explanation. Now, as always, we need common sense as well as knowledge, with ready decision and resourcefulness. This no college or teacher can supply. We must never allow our critical faculties to exceed the practical. It has been truly said that "Practice without scientific re-edification soon degenerates into stereotyped and sterile routine." No amount of extra labor bestowed on the study of disease will prove irksome to him who possesses the true scientific spirit; on the other hand, the consciousness of a duty thoroughly and consistently performed will prove an ample reward.

Out of the clinical laboratory "the new medicine is to come,—the medicine which, penetrating into the intimate processes of Nature, learns to turn Nature to her own correction,—the clinical laboratory is to be the scene of the study of the origins of disease."

"A life full of work and labor is no burden, but a boon, an enjoyment"—this served as the text of Virchow's original thesis. His life has been sweetened by the conscientious and scientific application of his great powers, and it is this spirit which will continue to inspire the physician.

*The moral force of scientific methods in medicine is the greatest factor in modern medical practice.*

## Original Articles.

### SUGGESTION IN MEDICINE.[1]

BY GEORGE C. SMITH, M.D., BOSTON.

IN these days, when such rapid advance is being made in the diagnosis of disease in its prophylaxis and treatment by rest, hydrotherapy and dietetics, it may be well to ask ourselves what we are doing for our patients psychically.

Many physicians, if they consider the psychical side of their patients at all, believe that it may be ignored; others, though recognizing it, feel that it would require too much of their time; while still others think that only the neurologist can do

[1] Read before the Clinical Section of the Suffolk District Medical Society Nov. 20, 1901.

this kind of work, as they do not possess the subtle knowledge necessary. Heretofore, no qualification in psychology and philosophy for admission to our medical schools has been required, and in many no instruction is given in these studies.

To show how this matter is regarded today, I will quote from the Shattuck lecture delivered by Dr. James J. Putnam in 1899. Speaking of the preparatory work for admission to the medical school he says: "I should rate a thorough preliminary course in psychology and philosophy far above a knowledge of botany or zoölogy, and as following close on chemistry and physics."

Edwin Checkley, Esq., professor of physical culture, New York, says the two faculties of mind principally cultivated are memory and imitation, and upon the development of these two the ability of an individual depends to reason, devise and make what he desires. The extent of his acquirement depends upon the desire, environment and possessions of the individual. These faculties are called voluntary.

Suggestion in the restricted scientific sense pertains solely to the subjective mind. The subjective intelligence accepts and acts upon suggestion without reason and without reflection; whereas, suggestion, in the sense that all our education is suggestion, appeals mainly to our reason and is approved or disproved by reflection. When we restrict the power of suggestion to the subjective mind we shall see that it is still the most potent factor in mental development. We first notice it in infancy, when the child cries for everything it wants. It first cries for food and gets it, and receives the suggestion that it gets what it cries for, till after a little it fails to get it, and learns the meaning of no. And as Hudson says: "Whipping a child for a confessed fault imparts a strong suggestion that falsehood is better than the truth, with the result that the next transgression is denied and punishment is escaped, and the child soon learns that lying is better than telling the truth." In this manner liars are made. The persistent suggestion to a child it is a liar, a fool, a thief, inevitably develops the character. Thus we see the dominant factor in molding character is suggestion, the education which addresses the reasoning and intellectual faculties alone being comparatively unimportant.

Dr. Tuke in 1872 wrote a work on the "Influence of Mind upon the Body." Today such an essay would be better entitled the "Influence of Suggestion upon the Body." Suggestion is the cause of the horrible perversion and inversion of sex, instincts and relations so ably set forth by Kraft Ebing. Here we see the danger of leaving a child in its tender years to the care of an illiterate nurse. Every minute it is literally absorbing suggestions made by the nurse and her ignorant associates, which will later form an integral part of the personality of adult life.

There is no doubt that early training would save many a person from hysteria, neurasthenia or insanity later in life — diseases which are often called hereditary but in reality quite as often acquired.

At no time in life do we see such power of suggestion as in childhood, and a patient under observation now will well illustrate the great impressibility of this period of life. The patient is 40, female, family history good; was frightened when 3 months old, while lying in her cradle, by a person blowing a tin horn over her head to see her jump. This was repeated, innocently, every day for some time, to the great amusement of her family and operator. Later, this story was often recounted in her presence, which fixed the idea, and since, every sudden or sharp sound not only frightens her, but even the expectation of it is quite as alarming. In no other way does this patient manifest nervousness. She is well nourished, and maintains a good degree of health by avoiding public places during celebrations and every place of amusement where firearms are used. This weakness not only shuts the door of many enjoyments, but puts her to great inconvenience to find a quiet place to which she can go.

As an example of the fixation of early impressions upon the future of one's life, you may recall the case of Miss Helen Keller, who, at the tender age of 19 months, was deprived by illness of all her special organs of sense except those of touch, taste and smell. In middle life she recognized the songs of "Black Crow" and "The Ten Foolish Virgins," which her father sang to her in her babyhood.

Dr. Waldstein has shown that our religious beliefs are not originally developed by reason. The religion of our homes is our religion, however great may be the influence of our intellect upon our attitude toward it later in life. And the importance of the formal side of spiritual matters in early life is recognized by religious teachers, and well expressed by Jacobsen in the words "The church bell has rung God into our souls."

The importance of training in childhood has been recognized for centuries, and such expressions as "Tell me what the child was and I will describe the man," "As the twig is bent the tree inclines," "Give me the training of the boy the first seven years and I will vouch for his future religion,"— all these illustrate the immortal effect of suggestion upon youth.

As the years advance this power lessens through adolescence and is least in middle life, but increases again in old age. Much more can be done, then, in the way of benefiting the race by educating parents in the mental care of their children. The so-called mothers' class, various neighborhood societies and the kindergarten have done much in this direction, and the physician who goes often to see the little patients can do much more.

A short time ago, when returning from an early morning call, I met on the Common an old classmate who occupies a pulpit of a conspicuous New England church, and jokingly remarked to him that he would have to walk more moderately or some day he would fall. After a few moments

devoted to pleasantry we separated, and I never thought of him again till a few weeks later I met his physician, who informed me that my old friend had spent a sleepless and miserable night, worrying over the thought that I had suggested to him early in the morning. Here was a man apparently in perfect health, and at an age least subject to suggestibility, yet unwittingly made to suffer to the extent of sending for his family physician to see if he had heart disease.

Without citing other cases to show the suggestibility of normal men, I think we may accept the results of the experiments of Sidis in Professor Münsterburg's laboratory, as well as those of Binet and Forel, which prove that man is a suggestible animal. If this is true of healthy individuals, how much stronger must the suggestibility be in disease.

The adult patient consulting the doctor is usually wide awake and specially attentive to learn all he can about himself, as is shown by the eagerness he evinces when some sentence or phrase is uttered by the physician which he does not understand, as he requests more lucid explanation, and he frequently interrupts the examiner to inquire the meaning of this or that inquiry. When asked if he arises in the night to micturate, he often inquires if there is reason to suspect kidney trouble. Or, when asked if he suffers with palpitation, have I heart disease?

He is in a very receptive mood, and consequently a ready recipient of any suggestion which the physician may make. Now, it is important to remember that he is, if in a pessimistic or melancholic mood, more open to evil than good suggestions, hence the necessity of using great caution in the method of examination not to arouse apprehension, as well as care in our suggestion of remedial therapeutics.

I can best illustrate the dangers of harmful suggestions during the examination and treatment, by relating some concrete examples. One of my patients recently told me, when I suggested that she use a mild laxative to move her bowels, that her former physician, a very prominent and able physician of this city, told her 25 years ago that she must never take a laxative, as it would weaken the bowels, adding that it did not matter if the bowels did not move for a week; hence all these years she had avoided the very thing she needed, and developed as a result a chronic endarteritis, arthritis, bronchitis and cardiac disease. More than this, I found it very difficult to overcome this strong prejudice, especially as daily defecation for one accustomed to weekly movements is fatiguing and serves rather to strengthen her belief in her former view.

A patient 28 years old, recently sent to me by a physician of another city, stated that among the diseases from which she had suffered in the past was gallstone, 8 years ago, and that her physician then told her that the formation of this stone was due to the strong medicine which her former physician had given her for the nerves, thus impressing her with the idea that she had been not only improperly treated, but also with the fallacy that strong medicine can produce gallstone.

Another patient, 36 years old, recently came to me complaining, among other things, of pleurisy, saying that 10 years ago he had had a sharp attack of pleurisy in right side, and the doctor advised him to wear extra clothing on that side of the chest, which he had done for 10 years since. This patient had no fever at the time, and attended to his usual routine business, and finding complete expansion of the lung on the affected side and a movable pleura upon deep inspiration, it is fair to conclude that he did not have a pleurisy.

Last summer, while one of my patients was spending a few months in the mountains in company with her sister, the latter became ill, and my patient offered her some bromide of sodium to take, saying that I had given it to her for similar troubles; but her sister very properly declined, and called in a medical gentleman of most excellent reputation in the neighborhood to prescribe for her. She acquainted him with the above fact, and he replied: "I am very glad that you did not take the bromide, as there are several different kinds of bromides and no one safe to give a patient. They are all dangerous; I never use them." Now, whereas this may be very true when prescribed by the laity, it certainly is not true in the sense in which these two people understood it or the laity as a whole would understand it. The natural inference is that it is dangerous when given by a physician.

Out of fairness to the fraternity we are apt to account for the foregoing statements by saying that patients misunderstand, exaggerate and equivocate, or that the physicians consulted were ignorant and careless. To this I can state that I was careful to select these patients, who had been previously under the care of men of unquestionable skill and ability in this and neighboring cities.

In an address on "Specialism in Medicine," delivered by Dr. F. C. Shattuck, before the Canadian Medical Association last year, he said: "Suggestion may be a more potent therapeutic agent in the hands of an unscrupulous and positive man, ignorant though he be, than in the hands of a highly trained and conscientious man, handicapped often by a painful realization of his ignorance."

The power of suggestion is seen in the faith of our patient in our diagnosis of his case when we have, during our examination, anticipated his symptoms. A gentleman past middle life, with atheroma and aortic stenosis, is asked if he suffers with vertigo upon suddenly changing his position from the stooping to the erect; if he has numbness and prickly feelings in his limbs; if he suffers with headache; if his memory has weakened; if he has lost confidence in his intellectual power, without telling him that he has premonitions of shock, he will believe that you know what ails him; hence a proper use of suggestion during our examination may become a valuable aid in establishing confidence, also in leading to an

autosuggestion that our treatment will be effectual. How many of us have suggested to our patients that a certain placebo or mild remedy would bring about a definite beneficial effect with happy results. Great care, however, in the selection of cases is necessary, as stoics and philosophers are on our lists, and, though susceptible, are not as amenable as artists, musicians and neurotics.

The classical work of Dr. Morton Prince, published in 1898 in the "Medical Communications" of the Massachusetts Medical Society, entitled "The Educational Treatment of Neurasthenia and Certain Hysterical States," clearly delineates, under the head of mental therapeutics, the proper method of employing the power of suggestion, and I would most earnestly request my hearers to read and reread this valuable contribution. Though written upon a neurotic subject, this division of it will apply to many of our patients, for how few of them fail to become neurasthenic at some time during their illness.

To secure the most good from suggestive therapeutics, we should not say this remedy may, but it *will*, relieve. We should make only one suggestion at one sitting, as the mind is best influenced by keeping one thought dominating all others for several days, until the idea becomes fixed, when another can be suggested, and so on. In this manner our patient, though bordering upon, is not quite in the hypnotic condition, and is especially open to suggestion.

Some patients have very little power of voluntary attention, and are therefore said to belong less to themselves than to any object that happens to strike their attention. Business men say the ability to gain the attention is often the secret of success in life. Druggists can sell any patent medicine that is shrewdly advertised.

Our suggestions should be founded upon facts, some of which at least can be demonstrated to our patients. Bacon said: "No pleasure is comparable to the standing on the vantage ground of truth." Oftentimes a suggestion of slight improvement in a symptom is hailed with great delight.

Most patients give the cue for our suggestion when they detail their symptoms. Emerson says: "The key to a man is his thinking." Every optimist believes he has a greater possibility, and we are wise if we take advantage of this element of his nature. No one needs to be told the value of a favorable reaction in the money market upon the depressed spirits of the losing broker, or of the salutary influence of great mental achievement upon the general well-being. When we have developed a feeling of self-confidence in our patients the victory is nearly won.

I once heard Dr. Lauder Brunton say in St. Bartholomew's Hospital, that physicians, after reckoning on all the good their medicine will do in the economy, should always ask themselves what harm they will do, and perhaps they will then not deem it wise to give them. So it is with evil suggestions. Professor James says man believes what he can, but as a gregarious animal man believes whatever is suggested to him. Sidis says that social suggestibility is individuality hypnotism written large. One needs only a retrospective glance over the mental epidemics of the past to see these statements confirmed. Suggestion and leadership alone did the work.

The crusade epidemics, Flaggellantism, the Antisemitic craze, Italian tarantism, the religious manias of the Jews, Holland's tulip mania, the witchcraft mania of later date, and still more recently in our own land have come epidemics of emotional religious manias alternating with business panics. The so-called faith cures, mental healing, Christian Science and Osteopathy are not evolutions of scientific thought and experience, but mere phantasms of evil suggestions. A little leaven leaveneth the whole lump. You all know how a patient returning from a tubercular sanitarium revolutionizes at once the hygiene of his household, and the idea spreads from the home throughout the community, until the sanitary conditions of the entire neighborhood are much improved. In a similar manner good suggestions take root in our patients, and the family and community are benefited.

The pernicious influence of evil suggestion is clearly illustrated in our cases of traumatic neurosis. Victims of railroad accidents are still further victimized by their sympathizing friends and impecunious lawyers, till they become imbued with fixed ideas that are false, and these ideas are often declared by our court trials to be true. It is a burning shame that such patients have to listen to expert testimony and arguments in their own cases.

Another evil result of suggestion is often seen when surgeons summarily dismiss their patients immediately after operation, without reference to subsequent treatment. This seems to me to be the cause of so many failures of surgeons, as the patients leave the hospitals thinking the operation has cured them, only to find, after a few days or weeks, that their old aches and pains are returning. They consult their friends, who criticise the surgeon and in this way bring the profession into ill repute. All this could have been avoided had the case been kept subsequently under the eye of the surgeon or physician till health was completely restored. That this effect extends to the community and reacts upon the medical fraternity as a whole is evidenced daily in our offices, and we find no solace when we visit the homes for incurables. We make the work of our colleague much easier by sending our patients to him or having them consult him of their own account, with minds free from old notions and prejudices. It often requires a long time to get out of our patients' minds ideas jeopardizing health, which have been carelessly allowed to take root.

Want of time has prevented more than a brief allusion to the good that may be done by wise suggestion, and I will merely add in closing that it necessitates in *us* a more thorough study of

human nature and psychology, makes our examinations more exhaustive, sharpens our observation, broadens our vision, enhances our power of concentration, and intensifies our interest. The result is better diagnoses, prognoses and treatment.

I hope by the foregoing to have aroused in your subliminal consciousness what you have already known a long time, but some of you, I am afraid, have regarded as cold storage.

If this paper elicits a liberal discussion and emphasizes two points its object will be realized: (1) The need of thorough psychological preparation for the medical school; (2) the danger of bad suggestive therapeutics.

## A CASE OF RAYNAUD'S DISEASE.[1]

BY GEORGE S. C. BADGER, A.M., M.D., BOSTON,

*Assistant in the Department of Theory and Practice of Medicine in the Harvard Medical School.*

MRS. M., 45 years of age, born in Ireland, came under my care April 1, 1900, complaining of intense burning pain in both feet.

The family history is excellent, the patient being one of 16 children, of whom 9 are living and well. There is no history of diabetes, tuberculosis or any other chronic disease. She has always enjoyed good health, save for pneumonia 10 years ago. There have been 13 children and 3 miscarriages. In June, 1896, 4 years ago, owing to an accident, she miscarried at 3 months. At this time she was confined to her bed 11 weeks because of sepsis. Two months later, at St. Elizabeth's Hospital, the cervix and perineum were repaired and the fundus sewed to the anterior abdominal wall. The records give no information about either the general physical condition or the urine. Six months after the operation she felt as well and strong as ever. Her catamenia returned and occurred regularly until July, 1900, when it ceased abruptly.

*Present illness.*—The patient considered herself well in February, 1899, when severe burning pains came on suddenly in both feet, extending from about 1 inch above the ankles to the tips of the toes. In a few days the toes became dark red but not swollen. This condition prevailed with varying intensity and without other symptoms for about 2 months, when a similar pain was felt in the middle finger of the left hand. This was followed by 3 red spots just above the nail. A few weeks later the left forefinger turned dark red, purple and then black. Gradually the last phalanx became wholly gangrenous and very slowly dropped off.

In December, 1899, a few months after the onset of the gangrene, she noticed marked increase of urine accompanied by a great thirst. A few weeks after this she went to the Boston City Hospital, where she was told she had diabetes. There is no record of a physical examination. Instruction about diet was given and followed, with the result that the polyuria and thirst subsided. There was some complaint of failing vision, but it was not enough to prevent the daily use of the eyes. Her weight, which before the accident had been 145 lbs., was now 96 lbs.

In March, 1900, some 6 weeks before I first saw her and shortly after her visit to the City Hospital, there was a return of the pain in the feet followed soon by a dark color of the toes. A few days later she noticed a sore under the ball of the right great toe, which became black, dry and hard. In about 2 weeks this dropped off, leaving a small scar.

This brings her history to the time when I first saw her, April 1, 1900, suffering again from pain in the feet.

Physical examination showed the patient to be a thin, tired-out, nervous little woman, with pupils equal and reacting equally to light and distance. The knee jerks were normal. The radial arteries were straight but in the condition of marked arteriosclerosis. The pulse was regular and of good strength and volume. The heart was apparently normal.

A few scattered râles were heard in the lungs. The abdomen presented nothing abnormal save the scar of the laparotomy.

*Extremities: Hands.*—The last phalanx of the left forefinger was absent. The rest of that finger and the middle finger were very cold, slightly tender, and much darker than the other fingers. They were stiff and clumsy, as if benumbed with cold. There was diminution of sensation. The radial artery pulsated in normal manner. There was no pain or tenderness of the nerves of the forearm; no atrophy or paralysis of the muscles.

*The feet.*—Both great toes and the 2 adjoining toes of the left foot were cold, glossy, and of a dark color, which faded away towards the tarsal bones to the normal color. There was no tenderness or redness along the nerves, no atrophy or paralysis of the muscles. They were the seat of intense pain.

*Urine.*—The 24-hour amount was not known. It was pale in color, acid, specific gravity 1,020; albumin a very slight trace; sugar 1.4%; no acetone or diacetic acid. Sediment; a few hyaline and granular casts, urates and some squamous cells; no blood.

She was placed on a diabetic diet, given tonics, and the extremities were massaged with chloroform liniment and bound in thick cotton dressings.

Within a week after this examination a superficial gangrene attacked the under side of the ball of the left great toe and of the 2 adjoining toes. These gangrenous areas appeared first as blebs, about the size of a ten-cent piece. These slowly dried with a resulting black eschar, which in the course of 2 weeks dropped off, leaving a small conical cicatrix.

Wishing to have her under better observation and control, she was admitted to the Baptist Hos-

[1] Read before the Clinical Section of the Suffolk District Medical Society, Nov. 20, 1901.

pital May 15, 1900. With a more careful diet, and the use of stimulating tonics, there was a general improvement with a slight gain of weight. The urine was secreted in normal quantity and free from both albumin and sugar. The extremities became natural in appearance, save on one morning, when, after washing her hands in cold water, the fingers previously affected became pale and cold. This local syncope lasted about two hours. At the end of a week she returned home apparently in good condition, remaining so all summer.

In November, 1900, with the beginning of cold weather, the pains in the feet returned. Living in a cold, draughty tenement house and compelled to do her own work, the conditions were most favorable for a recurrence of the disagreeable phenomena. The middle of November I saw her again, and the left hand presented about the same appearance as previously described. The fingers were cold and glossy, the middle finger very pale, the index finger purple. The corresponding fingers of the right hand were pale and cold. The great and two adjoining toes of both feet showed an intense asphyxia and were very painful. Physical examination presented nothing new; the urine contained neither albumin nor sugar. Exposure to cold was guarded against as much as possible, the feet were massaged with chloroform liniment and kept well covered with cotton dressings. Some slight improvement followed, but as she was compelled to use her hands, without protection, they were always cold and pale whenever I saw her.

In January, 1901, a cough developed, which rapidly grew worse. Examination at this time showed a general bronchitis, with signs of consolidation at the right apex, the sputum containing many tubercle bacilli. Again the extremities presented the remarkable vasomotor phenomena already described, with the areas of superficial gangrene under the toes. After these gangrenous patches had fallen off, there was an evident loss of substance with small cicatrices remaining. The urine, at this time, examined by the pathologist of the Boston Dispensary, was pale, acid, with a specific gravity of 1,010, albumin and sugar absent. Interesting cerebral phenomena now appeared. On two or three occasions she was found lying on the floor apparently having fainted. On another occasion, having started for the grocer's only a block away, she lost all idea of where she was and of where she was going. After a long aimless walk, a man, noticing her evident distress, explained to her that she was down town and sent her home in a cab.

During February she lost ground rapidly, and in March was confined to her bed. The extremities no longer troubled her, and during the remainder of her life the clinical picture was that of pulmonary tuberculosis. In May, 1901, she died. No autopsy was obtained.

This case certainly presented the phenomena of Raynaud's disease. The title of his original article, as translated by Thomas Barlow, is "Local Asphyxia and Symmetrical Gangrene of the Extremities." He claimed that the condition was due to a spasmodic contraction of the arterioles from a vasomotor excitation; presuming that there was no change in the circulatory apparatus adequate to explain the results.

In the case reported tonight there were two conditions present with which gangrene is frequently associated — glycosuria and arteriosclerosis. It seems possible, however, to eliminate these as the causes of the phenomena. Gangrene associated with glycosuria occurs almost always in those patients showing arteriosclerosis. It usually follows some slight injury, and if limited to one digit or extremity affects the whole part, and produces a rapid necrosis. It is usually attended with considerable inflammatory reaction at the line of demarkation, and is rarely symmetrical or recurrent. In this case, it will be remembered, the symptoms of diabetes came on some months after the beginning of the local gangrene. The glycosuria was easily controlled by a proper diet, and yet the local symmetrical gangrene returned in the toes, and the loss of the terminal phalanx of the finger followed evidences of vasomotor disturbance in other parts.

In only 6 of the 31 cases reported by Raynaud is mention made of the urine, and in none of these was sugar reported present. One case reported by him was later reported by Fox as dying of diabetes, albuminuria and general atheroma of the arteries.

It is more difficult to eliminate the arterial changes as the cause of the phenomena. There was decided arteriosclerosis, yet without any recognizable cardiac or grave renal disturbance. Senile gangrene is typically unilateral, or if symmetrical not synchronously so. It affects by preference the lower extremities, and involves the whole digit or extremity. It is progressive and serious. In the case reported, with the exception of the finger, the gangrene was symmetrical and limited to the skin of the toes, and was not progressive or serious.

It may be that in my case there was an arterio capillary fibrosis, involving especially the extremities. G. W. Jacoby [2] reports a case of numbness and coldness of the fingers followed by asphyxia and gangrene of the entire phalanx of the left middle finger. Later, interstitial nephritis with cardiac hypertrophy developed, followed by apoplexy and death. He thought the primary lesion was an arterio capillary fibrosis, extending later to the renal vessels and producing the nephritis. Such a condition could not be diagnosed with certainty during life, and cannot, therefore, be ruled out in the present case. There were no evidences of capillary fibrosis other than in the extremities. There were no signs of thrombosis or of embolism.

The absence of pain along the nerves, of anesthesia and of paralysis, seem sufficient to rule out a neuritis grave enough to produce such severe symptoms.

[2] New York Medical Journal, Feb. 7, 1891.

Raynaud's phenomena may appear during the course of many diseases; it has been noticed particularly in asylum cases, as a manifestation of hysteria, and as a complication occurring in the course of many organic nervous affections. It may appear, too, as an independent disease. It is not always symmetrical or limited to the extremities. Raynaud himself, and others since him, have observed with the ophthalmoscope the contraction of the central artery of the retina. Paroxysmal hemaglobinuria has been frequently observed during local manifestations of the disease. C. C. Aitken,[3] an English observer, reports an interesting case with Bright's disease, in which during the spasm of the arterioles in the extremities, and in the central artery of the retina, there was a marked decrease in the elimination of urea, accompanied by convulsions. The author thought the decrease of urea was due to a spasm of the renal vessels.

Severe cerebral complications are reported as convulsions, loss of consciousness and aphasia. William Osler[4] reports a case in which epilepsy occurred only during the local symptoms; and another case in which transient aphasia with loss of power in the right hand and paresis of the right foot occurred, with rapid recovery. This condition recurred, and always with local symptoms, in the hands.

Thus we see the diversity of the symptoms of Raynaud's disease, and it does not seem unreasonable to group under this name the many symptoms recorded in this case.

## VACCINATION AND SMALLPOX.[1]

BY S. H. DURGIN, M.D., BOSTON,
*Chairman of the Boston Board of Health.*

AN audience of this character does not need to be argued with as to the need of vaccination to prevent smallpox. It seems to me that the question of its need has been settled in every civilized country. I think the data already sufficient to warrant the expression that vaccination is a necessity if we would avoid smallpox. There is one thing, however, which ought to be impressed upon the medical profession, and that is that we do not vaccinate enough. We are having too many cases of smallpox among those who are supposed to be sufficiently vaccinated. Of this there is no sort of doubt, and this fact is helping those who are trying to prejudice the public mind against vaccination. They point out the fact that many people who have been vaccinated have smallpox, and some of them die. This is true, though it need not be so. I am fully persuaded that full vaccination will prevent smallpox. To secure this I believe that a child should not only be vaccinated when very young, but that the physician should feel called upon to exhaust all susceptibility to smallpox by repeating the operation until it will no longer take effect. I think at the age of 10 or 12 years this process should be repeated to the same extent. Later in life, on exposure, I think vaccination should be repeated. The data in our own city is evidence to us that, as a rule, the unvaccinated die and the vaccinated get well. Some serious cases of smallpox are found among adults who were vaccinated in infancy, but have since neglected it.

In regard to the difference between humanized and bovine lymph, I would like to say, as a matter of interest, that in the Republic of Mexico for 97 years they have used almost nothing but humanized lymph. This lymph was brought from Europe in 1800, and since that time it has been produced and handled by only four persons selected by the government. The children from whom the lymph is taken are well selected, the lymph is well cared for, and furnished free of expense, as it should be here. They never revaccinate, neither do they have smallpox among the vaccinated. My authority for this statement is Dr. Eduardo Licéaga, the president of the Supreme Board of Health of the Republic, a man of long public experience and unimpeachable character. This experience in Mexico has impressed me so strongly that I have asked that there be a committee appointed, and it was appointed in September, at the last meeting of the American Public Health Association in Buffalo, to investigate and report upon the respective immunizing power of human and bovine lymph.

I have been unable to satisfy myself whether the occurrence of smallpox among those who have been vaccinated depends upon our carelessness in vaccination or upon any possible deterioration in the bovine lymph which has been in almost exclusive use for the last 30 years. At all events, I think the question should be carefully studied. The many questions which are being asked concerning the technique of vaccination suggests the desirability of a more uniform and careful method. Aseptic conditions are as necessary in this little operation as in any other operation in minor surgery. A scarification $\frac{1}{8}$ to $\frac{1}{4}$ of an inch in diameter is ample, and it seems to me should never be exceeded. The drawing of blood to any extent is worse than useless. Scraping off the outer skin and bringing a redness is sufficient. The care in rubbing on and drying in the lymph are important. The shield, I think, on the whole, is a nuisance. It may be useful for an hour while the lymph is drying and for the early readjustment of clothing when time is valuable, but continued use of the shield is liable to be troublesome. The subsequent treatment should be conducted precisely like any other surgical operation. Many people believe if they get a big arm the vaccination is correspondingly good. This should be regarded as an error. The breaking of the vesicle gives an open wound, which should always be regarded as a misfortune. I believe the physician should always see the patient at the end of a week or ten days and tell him

[3] Lancet, 1896, p. 875.
[4] American Journal Medical Science, 1896.

[1] Remarks made before the Boston Society for Medical Improvement.

whether or not there is a typical vesicle, and if it is not, he should repeat the operation. Constitutional disturbances, local swelling of the arm and glandular tenderness are well known, and are a part of the disease vaccinia. It has been observed in a few instances lately with glycerinized lymph, that the vesicle, instead of appearing at the end of 5 or 6 days, may be delayed for a period of 12 days. Dr. Walsh of Washington, proprietor of the National Vaccine Establishment, told me yesterday that he is using blood serum from the vaccinated calf instead of water in preparing the dry points. This not only gives a dry point readily, but the glycerinated lymph dries very much quicker on the arm. He also told me of the interesting experiments with the blood serum from the vaccinated calf which was injected into the smallpox patients and which appeared to abort, or very much shorten, the disease. It was tried on several cases with rather interesting results.

As to what the Board of Health is doing with the present flurry of smallpox: we are picking up cases as rapidly as they are found and taking them to the hospital. We have now three hospitals full, which means about 175 cases. Within the next few days we expect to have increased accommodations for 150 more. The prevalence of the disease is not subsiding and is not likely to for awhile yet. People are not yet sufficiently vaccinated. The ambulant and unrecognized cases are spreading the disease, and have been doing it to an extent which has never before obtained in my experience. In the greater prevalence of smallpox in 1872 and 1873 there were 1,040 deaths, or about 30% of the cases; we are now losing about 13% of the cases.

In regard to the subject of vaccine lymph: we shall ask the legislature at its next session to authorize the State Board of Health to produce and furnish our vaccine lymph. The State Board of Health is competent, has the confidence of the people of the State, and can give its guarantee of pure and active vaccine lymph, free of charge, to every person in Massachusetts, just as is being done with diphtheria antitoxin. We shall hope for the backing of every physician in Boston. As to the percentage of vaccinated people in London, some of the figures quoted are a little old at the present time. They are beginning to suffer from the neglect of vaccination. The people of London are today suffering from smallpox more than any city in this country. England, in consequence of its neglect of vaccination, is in serious contrast with Germany, which enforces vaccination and has no smallpox.

With regard to Boston, I am sorry to say that she has been caught in a poorly-vaccinated condition. We went through the city in the winter of 1872 and 1873 and gave thorough vaccination. Since that time we have experienced an unusual freedom from smallpox, much indifference and some misguided objection to vaccination, and are, in consequence, easy victims to smallpox. Under the statute law, every child in Massachusetts must be vaccinated before it attains the age of two years, and for neglect of this duty the parent or guardian may be prosecuted and fined. An amendment to this law took place a few years ago, so far as school children are concerned, which allows any child to attend school who can bring a certificate from a physician stating that it is an unfit subject for vaccination. The antivaccinationists are apparently utilizing this law as a convenience to their belief, which is that nobody, however healthy, is a fit subject for vaccination, and they are certifying the most healthy children as unfit subjects for vaccination.

## Reports of Societies.

### SUFFOLK DISTRICT MEDICAL SOCIETY. SECTION FOR CLINICAL MEDICINE, PATHOLOGY AND HYGIENE.

HENRY F. HEWES, M.D., SECRETARY.

Regular meeting Nov. 20, 1901, Dr. V. Y. Bowditch in the chair.

Dr. G. C. Smith read a paper upon

SUGGESTION IN MEDICINE.[1]

Dr. Putnam: The subject that Dr. Smith has opened seems to me really one of the most important in medical therapeutics. Indeed, I think that everyone practically believes that to be true, and the reason that no more is said about the value of suggestion in therapeutics, and no more systematic attempt is made to use it and to avoid mistakes to which Dr. Smith has alluded, is, that it seems to many physicians to involve too personal an attitude toward the patient. Then, also, the methods require working out, and they have not yet become accustomed to them, and the idea is a little unfamiliar. A number of things that Dr. Smith said I should like to refer to. In the first place, in regard to the causation of disease through suggestion. Many of us have had a great deal to do with the traumatic cases to which he has alluded, and I think anyone who consults his notebooks will observe a great many of the neuroses, neurasthenias and hysteroneurasthenias and the like very commonly have their more or less sudden origin, which might be called quasitraumatic, as sudden grief or fright.

In regard to the physicians, it is certainly true that the doctors, by their thoughtless remarks, sow the seed of an immense amount of trouble. It is common enough to hear a patient say she cannot take this or that. You ask why, and she says: "Dr. So-and-so told me so." We all know that consulting physicians feel themselves under an obligation to be extremely cautious in what they say so as not to injure the attending physician, and how easily a thoughtless word or shrug of the shoulders or wise looks may make the attending physician extremely uncomfortable and the family uneasy about things he has done.

[1] See page 108 of the Journal.

Any of us who have occasion to consult are careful about such things as that, but I do not think we realize as thoroughly as we should, that whenever we see a patient we are practically consulting physicians; that the doctor who comes after us may suffer or gain from the sort of impressions we leave on the patient's mind, and that we are bound to leave such an impression that he will find his part easier to play, and not harder, for what we have done.

The scientific aspects of this subject of suggestion have gained enormously in the past few years through the immense advance in the study of the personality from certain particular points of view. We have learned to recognize, although as yet probably much less than we shall, the comparatively small part played by our conscious life and the comparatively large part played by the subconscious activity. It is that with which we have to deal all the time when we come in contact with patients whether we will or no, and with which we must learn to deal properly.

Dr. Smith referred to *diagnosis* as dependent on our interest in suggestion, and I think that is also very true. The recognition of our ability to treat certain sorts of diseases stimulates us to recognize the diseases themselves, and to draw fine distinctions among them.

As regards the *methods*, it is impossible to speak in detail. I believe they are susceptible of being worked up far more definitely than has hitherto been the case. At present we trust too much to our ingenuity in the particular case in hand, and to what is called personal magnitude, if we happen to have it, and by leaving the treatment unsystematized, in that way we throw too much relative power into the hands of those who rely unduly on their "personal magnitude." I was, therefore, glad to hear Dr. Smith speak of trying to enforce one thing at a time as just the sort of suggestion that would undoubtedly bear fruit. That was Lincoln's method of conducting an argument before a jury. He talked on one point, and hammered away at that, and left others, which might be very good, for the sake of enforcing that one. I have not at this moment anything to offer specifically as to methods. I believe that fertility of resource, patience and persistence are all of immense value. If one is determined to bring about the result I think one can generally do it. Recently I have had to treat a case of hysterical aphonia which Dr. Coolidge turned over to me,—a very intelligent young woman who had been inarticulate for 16 months. He had treated her carefully and thoroughly by various methods such as often succeed, and I tried a number of others, but at first without effect. I then told her I believed she could sing. That idea apparently caught her fancy, and she went home, sat down to the piano, and after some attempts brought out a note. The next morning she spoke slowly but clearly, and since then she has been able to talk freely.

These photographs illustrate 2 cases at the hospital of almost hysterical ptosis, one treated at the Eye and Ear Infirmary, the other at the Massachusetts General Hospital. The two sets of pictures represent two facts of considerable interest. One picture shows the patient trying to open the eyes and apparently unable to do so. The other picture shows that if she holds one eye closed she can open the other. The other girl, though she is evidently trying to open her eyes, yet is not trying in an efficient way, for the wrinkles are on the wrong side of the forehead. This is characteristic of all hysterical paralysis. Both of the cases have been cured, although the younger girl shows a tendency to relapse.

DR. MORTON PRINCE: I wish I had known the direction which Dr. Smith's admirable paper was to take, that I might have put together some ideas in a coherent fashion that would be worthy of the discussion. I am entirely in agreement with the general position which Dr. Smith has taken, and in this connection I think that everyone must be impressed with the great change of sentiment that has come over the medical profession on this subject within the last 10 years. I recall perfectly well the medical meeting about 10 years ago, when the subject of suggestion as a therapeutic agent was first brought up, and I recall what might be called the fulmination of professional opinion that was hurled by some of the speakers at the heads of those who ventured to believe in the psychological law of mental suggestion. The authority of great German names, in lieu of facts and personal experience (as is usually the case when these are wanting), was quoted and thrown at some of us who ventured to support this position. The paper of the evening was read by Dr. Osgood, and although he was somewhat extravagant in some of the claims that he made at that time, still it was known, or should have been known, that the principle of suggestion was as old as the hills and was one of the general laws of psychology. I have lived to see those who were skeptical at that time, skeptical from lack of knowledge of the subject, finally, with equal lack of knowledge of its true principles, recommending it for the cure of all sorts of impossible conditions.

There are two kinds of skepticism: One, based on a lack of knowledge of all the conditions involved, and, therefore, nothing but a general unfounded disbelief of the unknown; and the other, proper scientific skepticism which comes from a complete knowledge of all the conditions involved. The latter is the true skepticism of science, and without it scientific advancement would be impossible. It is this kind of skepticism which alone justifies the denial of observations made by competent observers. The principle of suggestion, although not as yet thoroughly understood in all its details, has come to be recognized as the expression of a psychological law. Its efficiency in the production of certain phenomena cannot be denied without convicting one's self of ignorance of psychophysiology. What is of more importance is that we should determine its limitations, and not attempt to apply it to conditions which it does not govern. It is de-

sirable that physicians should understand in what class of cases suggestion is likely to be effected and what class not. I have been astounded not a few times by requests made of me by practitioners to treat by suggestion diseases that were not only organic but even incurable. I have thought that it was no wonder that these practitioners were sometimes originally the most skeptical of the law of suggestion.

I believe there is a fertile field for suggestive influence which has not yet been thoroughly exploited, although some good work has been done in it, namely, pedagogy. I wish that somebody would take up this subject and make a systematic study of what can be done by suggestion in the way of development of character and establishing good habits in wayward children. Some time ago I was approached by the head of an orphan school with this idea in view. The principal of the school was dissatisfied with the effect of conventional discipline in training boys, some of whom gave an immense amount of trouble from their vicious and wayward habits, and offered me the opportunity to experiment with suggestion on a large scale. It was a fine chance, but I was too busy to take the subject up. It seems to me that pedagogy offers a splendid opportunity for the training of children in desirable habits of mind and body through suggestion, and at any rate is a field that ought to be exploited. I believe a great deal could be done in the training of wayward children, and particularly in institutions where vicious habits are largely the result of mimicry or moral contagion.

Now, as to the question which is the reverse of that of pedagogy, namely, the development of pathological processes through unconscious education, I agree with the reader that this plays a very large and important part in social life. There is no doubt in my mind that there is a large number of invalids whose symptoms, or many of whose symptoms, are nothing more or less than the products of education. This is particularly true with those who have what I have called pseudoneurasthenia. These symptoms may be created through self-education or autosuggestion, or they may be educated by suggestion from the environment, including the unintentional influence of the physician. If this were so, if symptoms were not created in this way, we should be obliged to formulate some theory to account for why it is not the case. It must be the case, because laws of the nervous system are general, not special; Nature works by general, not by special laws. The nervous system does not have one law for pleasant feelings and one for unpleasant. Physiologically speaking, it is plain that education depends upon the association of constant grouping of nervous processes, which are repeated over and over again in the same association until they become automatic. These associations are primarily started by suggestion, or mimicry, which is the same thing, but finally become automatic by repetition. Thus it is that all mental and physical acquisitions and accomplishments are brought about; this is the law of association, and without this law no education, no acquisitions, no accomplishments would be possible. There would be no such thing as memory, including in this term conscious memory and the unconscious physiological memory of muscular groupings. Thus language, singing, violin playing, golf, sparring and the sports are learned and performed. Now, among the possible activities of the body there are some which are pleasant sensations and some which are unpleasant; and there are some muscular actions which are desired and some which are undesired. Now, by suggestion and association a number of pleasant sensations and desired muscular activities may be grouped together, and then we call it an accomplishment; but, by the same law, unpleasant sensations and undesired activities may be grouped together, and then we call it a neurosis or psychosis. This principle is a very important one and I think cannot be insisted upon at too great length. It is the principle underlying functional disease; in fact, it may be said that it is only disease symptoms which are grouped in this way that can be said to be truly functional — functional in the sense that it makes use of physiological or functional processes. I repeat: Among the numerous physiological sensations and activities of which the body is capable, some are pleasant and some unpleasant; all are capable of being grouped together by association and habit in such a way as to become automatically excited. The pleasant activities become grouped together as educated accomplishments. By the same law the disagreeable and undesired sensations become grouped and automatic. An association process having been once started and then repeated over and over again, we get a group of physiological processes, phenomena, which we call a neurosis or psychosis. We may call it a habit or association neurosis. There are many neuroses of this kind involving widely different functions; some of them psychical, some of them corporeal, some both. But the principle underlying all is the same. Sometimes the bundle of sensations thus created form a group of symptoms in the midst of other symptoms due to true organic disease. If you look closely, I think you will find that in almost all long-standing cases of neurasthenia a group of symptoms can be recognized which form a sort of nucleus in the mass of other symptoms, and which are merely the habit products of autosuggestion or external suggestion. The symptoms of this nucleus have become grouped together and repeated over and over again, until by habit they have become automatic. I would be willing to make a wager that you cannot show me a neurasthenic who has been an invalid for a long number of years who does not show a group of habit symptoms which have been educated either as the product of her own ideas or of her habits and environment, including therein her physician. These symptoms thus come in time to form a true neurosis implanted in a true neurasthenia. Sometimes you will find that the symptoms constitute

a neurosis or a psychosis of this kind. Their variety is legion.

I want to mention here one very interesting example which is not generally recognized, namely, a particular type of hay fever. There is no question that there are numbers of cases of hay fever which are nothing more than a variety of habit neurosis, or association neurosis, as I have termed it. Even the physical symptoms are nothing more or less than the result of the grouping together of functional processes originally started by a true coryza. You will remember the classical case of Mackenzie of Baltimore, into whose office a lady came complaining of hay fever. He examined her with the greatest care to make sure she was at the time free from an attack. He then brought from behind a screen a bunch of roses, the sight of which immediately excited before her eyes an attack of hay fever. There was lacrimation, congestion, secretion of mucus and so on. Thereupon he showed her that the roses were artificial. I have had not a few cases of this kind which I was able to demonstrate were nothing but habit neurosis. For example, there was a family in which four members were affected with hay fever. Each of them had his or her day on which the neurosis developed after the subject was exposed to a special exciting cause, which was variously designated as pears or sunshine, dust or flowers, etc. Without going into the details of an individual case I would like to explain my theory of the genesis of this neurosis. If you inquire closely into a case of this kind you will find that it has dated from a particular time when the patient had a common coryza. At that time some one suggested, or in some way the idea was given, that it was hay fever and that it was due to come at a certain time each year. The day of the year becomes sooner or later fixed. We will suppose this is the 22d of June. About a week before that date the patient begins to be apprehensive, looks forward to the expected attack, and by apprehension suggests to himself that when exposed on the 22d of June to certain influences, for example, roses, he would have an attack. The patient does not expect that on the 22d of June, on awakening, he will have an attack, but that on the 22d of June, after exposure to a given cause, the attack will be excited. The 22d of June comes; some time during the day he is exposed to one or the other exciting causes and the neurosis is exploded. It is the irritation of dust or some smell or some visual image that excites the neurosis, but it does so, first, because the symptom group has been formed, and by apprehension the patient suggests that this event will occur. In every way it is similar to what is known as post-hypnotic suggestion. In hypnosis a suggestion is given that when a clock strikes the patient will sneeze; later, when awake, the clock strikes and the suggestion is carried out. Some of these cases of false hay fever can be cured by suggestion, and surely if hay fever can be cured by suggestion it must be a functional matter. I cannot help thinking from my experience that a very large proportion of cases of hay fever are nothing but neuroses, and that probably the great reputation which some places have obtained as cures of hay fever is because they are places to which people go as to a Mecca or Lourdes, with the expectation of being cured. I wish that those who have the opportunity of seeing more cases of hay fever than I do would study the disease from this point of view with the idea of determining what proportion of cases consists of a neurosis of this kind.

There is another neurosis which I mention here, because it is very common, but not generally recognized as a neurosis, namely, what I have called "fear neurosis." It is very common among musicians, lawyers, physicians and others who are in the habit of appearing in public. I have been frequently consulted by its victims. It is generally looked upon as a simple self-consciousness or stage fright, but I believe it to be more than this and a real neurosis. I say neurosis and not psychosis, because the psychical element may be entirely absent or so slight as not to be noticed. It consists almost entirely of the physiological manifestation of fear without the element of fear itself. The neurosis consists of flushing of the face, ataxia of the hands, palpitation, tremor, mental confusion, and so on. I have been surprised to learn from what seems to me to be reliable information how many of the great violinists of the world are affected to a degree that really hampers their playing. But it is not confined to such people. Private individuals are frequently affected when going among people in private social life and in public places. A patient under my care now, for instance, a physician, suffers intensely simply from meeting the passers-by in the street, or while driving, or going into public places like a smoking-car or theatre. The wife of a physician could not go to live in a hotel, or to church, theatre or social entertainments. A Harvard student was unable to pursue his studies in college. The neurosis may begin in early life as a sort of stage fright or self-consciousness, but finally becomes developed in the same way as does the hay fever neurosis of which I have spoken. The intensity of this neurosis may be so great as almost to spoil all pleasure in living.

DR. DOUGLAS GRAHAM: Is that easily cured by suggestion?

DR. MORTON PRINCE: No, not easily cured; no habit neurosis is easily cured; but I have been able to cure a number of cases.

There are a number of other types of neuroses which are the result of education but which I will not take the time to discuss at this time. One of the most important is pseudoneurasthenia, which I have already referred to, which mimics true neurasthenia. Many of the fixed or insistent ideas, fixed sensations in various parts of the body, some forms of *folie de doute*, are in my judgment only varieties of this type of neurosis, although they may be developed upon a neuropathic soil. These in themselves make an interesting study from this point of view.

It seems to me that the term functional, as applied to disease, should be limited to symptom groups which are the expression of physiological or functional processes. Unless used in this sense, the term functional disease has no meaning. All these neuroses make use of physiological processes and are therefore functional.

Dr. E. W. Taylor: Several points have not been as specially alluded to either by Dr. Putnam or Dr. Prince. In the first place, the question which Dr. Smith brought up, of the desirability of a qualification in psychology and philosophy for entrance to the medical school. That is an important question and one which I should suppose would come up before very long, before the men having the course of instruction in charge. So far as I am aware, neither philosophy nor psychology are even recommended for the student of medicine. How far it is desirable, with the large amount of biological study that is now demanded, to require the student to devote himself to metaphysics or abstract psychology is, I think, an open question, but that he should have the option and recommendation to pursue such studies in his academic course would certainly be very appropriate. It does seem to me, it is perfectly possible for the students in the medical school later on to have instruction which would be valuable in the line we have been speaking of without a profound knowledge of philosophy in the particular sense. With a skilful teacher it would be possible for the student to be given information and knowledge of practical use to him. What we need very decidedly in the curriculum of the medical school in this brauch is a recognition of the fact that suggestion is now a distinct therapeutic measure. This should come from the therapeutic chair, it seems to me. Of course it is spoken of in the various courses and particularly in the course of neurology, but so far as I know, it has no special recognition in the course in therapeutics. It should, to my mind, be introduced to the student in the second year by some one who has a particular interest in and knowledge of this subject. At present the student goes through the medical school without recognizing even in the vaguest sort of way the value of this treatment. It often happens that one of the papers before the Boylston Medical Society is on the general subject of suggestion, and the discussion that follows is usually of a considerable degree of value, showing the general interest which the student body has in this matter, and it has for a long time seemed a great pity that the instructing body should not recognize this fact. I speak not only of the Harvard Medical School; I presume the same condition prevails in all the medical schools and in Europe, although there certain courses are given in hypnotism.

The practical question of how to treat by suggestion I shall not take up. It is too large a subject. It was rather noticeable in the discussion tonight that no allusion has been made to hypnotism, which shows in a general way the recognition of the fact that we can do a great deal in the treatment of our cases without the actual intervention of the hypnotic sleep. I presume none of the gentlemen here would wholly deprecate the use of hypnotism in definite cases. I am aware that Dr. Prince has used it to a certain extent. However, it is an interesting point that it is coming to be recognized that hypnotism is not essential, and this, I think, is a very valuable fact as regards the attitude of the profession towards the general subject. The word for a long time frightened people. If we can eliminate the general word hypnotism from the subject, I have no doubt that suggestion or mental treatment will be very much more generally recognized and taken up by members of the profession who are not personally interested in this line of work.

Another thing: To my mind it is wholly wrong absolutely to limit suggestion to a certain class of cases. The tendency is for the physician in general to say: "Suggestion is very well for certain cases of disorder of the nervous system, but we cannot use it in our general practice." This seems to me to be a mistake. It may, and should, be used in any sort of case, whether surgical or medical, which comes into the hands of a physician. It should be used intelligently and with design by physicians, whatever their work may be, and, as Dr. Smith has said, I have no doubt the ultimate results of certain surgical operations would be very favorably affected by suggestion. I have in mind a case in which death was apparently about to result from hysterical symptoms apparently brought about through a surgical operation.

Dr. Prince has spoken of the absolute importance of early training of children. It is often said that those who are dealing particularly with the nervous system accomplish very little in their treatment; in individual cases they can do very little to alleviate the conditions. Just here comes the importance of prophylaxis in disorders of the nervous system, in the same sense that prophylaxis in smallpox comes in the field of bacteriology. Skilled neurologists should devote themselves to the education and to the direction of the education of young children. We have all had cases in which without difficulty we have traced a neurosis to disorders which had originated oftentimes in early childhood, building up gradually, as a snowball gathers size as it rolls down hill, until finally, at the twenty-eighth or thirtieth year, the ultimate disturbance comes and a definite neurosis is aroused, which the patient attributes to a condition of a few months' standing rather than to a lifelong condition. This leads to the great importance of separating the true neurasthenic state from the pseudoneurasthenic state, separating neurasthenia and exhaustion neuroses, which we have recognized since the time of Beard and which Dr. Mitchell has done so much in bringing to the attention of physicians at large, from association neuroses — neuroses which have absolutely nothing to do with fatigue, and which are on a different basis and should be treated in a

different way, usually not by rest, but by distinctly other measures, of which suggestion is the most important. I have no doubt we shall make a great advance in the treatment of these neuroses when we come to recognize that neurasthenia is a word which should not be applied to all, and that rest as a means of treatment is applicable to relatively few.

DR. C. F. FOLSOM: I think that the medical profession has been going back in the last 30 years in respect to what is now called suggestion, and it is due, I think, to the fact that medical schools have become so interested in teaching exact sciences that they have lost sight of treatment. Thirty years ago the late Dr. Clark was professor of therapeutics, and anybody who followed his lectures, and especially his practice, saw that an expansion of this idea was practically the foundation of his whole treatment, and it was to a very great extent so of the leading men of that time. I think that we are coming back in some respects to a sounder basis.

DR. GRAHAM: Enough has already been said on this subject, but I should like to add a word of confirmation. Suggestion is something I am getting more confidence in every day for sleep and pain and constipation. I think we should give the patient something tangible at the same time, whether it be massage, electricity, water or medicine. I have had a chance to go a step further in the last few days. In my own family there was a case of psoriasis, and finally we got Dr. Hamilton Osgood for another purpose and the psoriasis disappeared at the same time. A patient was sent to me 2 weeks ago with numbness and stiffness in the fingers and who also had patches of psoriasis on the backs of the arms. I suggested that the psoriasis would go away. In less than 10 days it is disappearing decidedly and I hardly know what to think of it.

DR. G. C. SMITH: I presume you have all heard the story about the young lady living in one of the Back Bay hotels being troubled with insomnia, and one night, she being accustomed to sleep with her transom open, found it very difficult to get to sleep and wondered if it was open. Finding it was not, she immediately took a stick and opened it, and went to sleep at once. The next morning she reported this to the proprietor, and said it must be kept open constantly, because she must have the fresh air. He appraised her of the fact that there was no glass in the transom, and in reality she had been sleeping with an open transom all the time.

Dr. Taylor emphasized one or two points I am glad to have brought up prominently about the work being done at present in medical schools, not only with regard to that, but especially with regard to the fact of using suggestion in all departments of medicine. I saw a case quite recently, referred to me by a gentleman from Lowell, and in the letter that he sent me introductory to the case he remarked that he had thought a good deal of her trouble was imaginary. One trouble from which this patient suffered was constipation, and 2 or 3 weeks before sending her to me he had given her a tablet which he said would relieve her, and that tablet, for want of some other placebo or the usual one of sugar of milk, was citrate of caffeine in one-half grain doses, and during the 2 weeks before coming to me that had been all that was necessary, while before, constipation had been a prominent symptom.

I was very glad to hear this subject discussed by Dr. Prince and others from the point of view of the education of children. That I am sure is a large field which will become more important in the future. Dr. Prince spoke of hay fever neurosis. During the past season 2 patients with hay fever have been referred to me by throat specialists as possible cases of neurosis, and both of them yielded readily to suggestive treatment.

I did not refer to hypnotism because, just at present, perhaps more harm can be done by talking about hypnotism in a mixed gathering of physicians than by leaving the subject entirely alone.

I am opposed to hypnotism unless it is practised by men who know what they are doing, and I think we have very few in this city who should ever hypnotize. I saw enough of it in Salpetriere and in Berlin to convince me that much more harm than good is done by it, and for the general practitioner to touch that matter seems to me a very great mistake.

DR. GEORGE BADGER reported

### A CASE OF RAYNAUD'S DISEASE.[2]

DR. PUTNAM: In connection with Dr. Badger's very interesting case I would simply like to say it seems to me that one is not obliged to exclude arteriosclerosis, for example, because many of the symptoms we are in the habit of associating with that disease are not present. I think it is quite curious how the disease manifestations show themselves in one case almost exclusively in one direction, and in another case in another. Of course, there is something superadded which we call predisposition or special tendency. There are some cases where the principal symptom is a recurrent numbness of the extremities, hands, feet, without leading to any of these more serious signs of impaired circulation, although presumably related more or less intimately. Then there is another set of cases where asphyxia comes on and persists for years, and yet gangrene never occurs; and still another set, of which I have seen one striking example, where the persons exposed have a severe aching in the muscles which comes on with the slightest use and passes off with repose. It is certainly quite extraordinary how true these different diseases run; how a person who has a tendency to one retains that tendency, and exhibits his special set of symptoms, which may not pass into either of the others, similar to it. And yet the pathology of all of them is perhaps more or less the same, so far as we are able to define it.

DR. GRAHAM: This subject interests me very much, and I have recently had much to say about

[2] See page 112 of the Journal.

it which I will not now repeat. Probably the first recorded case of Raynaud's disease is in 2 Chron. xvi, 12, 13: "And Asa in the thirty and ninth year of his reign was diseased in his feet until his disease was exceeding great; yet in his disease he sought not to the Lord, but to the physicians. And Asa slept with his fathers and died in the one and fortieth year of his reign." Here we have a case in which the disease had lasted for several years in both feet. If it was not dry, symmetrical gangrene, what was it?

The last case of Raynaud's disease which I saw occurred in a very intelligent woman sent to me after Pott's fracture. About 18 weeks previously she had been thrown from a wagon. The shock and fright were great. I was surprised to find what a beautiful result she had, union perfect, motion of the joint three-fourths normal, and though she did well under massage, the patient continued to have very disagreeable feelings. At each visit when she came to me the toes looked like purple grapes, and the foot was very cold. When she went away the whole foot was warm. I learned from her that after she went to bed that the foot felt very uncomfortable, and the back of it was black, while the toes were white and cold; so there we had three symptoms: coldness, constriction and dilatation of the vessels at one and the same time. She disappeared for a time and I did not know what became of her. Today she returned and told me that for several days she had vomited every 2 or 3 hours. Coincident with this the foot was very much better and the mental depression gone. Probably this trouble has now attacked the vessels of the stomach, or the nerves which preside over them.

## Recent Literature.

*Smallpox in London.* A description of the beginnings of the present outbreak, with suggestions as to executive and administrative measures. Illustrated by a series of spotted maps. By J. F. J. Sykes, M.D., Medical Officer of Health of St. Pancras. London: P. S. King & Son. 1901.

The author of this brief pamphlet has given therein a clear and concise account of the epidemic of smallpox in London, which began in August last and is still in progress. Beginning with last June it appears that some of the earliest cases were associated with the collection of dirty linen at certain laundries, and that the sorters and other persons engaged in handling linen on its receipt at the laundry are especially liable to infection, and that some of the sources of this linen were cases of unrecognized smallpox among persons from other countries staying at hotels, where linen was sent to the laundries to be washed. For the 16 weeks following and including the first week in August the cases reported were as follows: 3, 5, 7, 22, 60, 27, 53, 37, 41, 44, 28, 48, 55, 173, 64 and 104.

Dr. Sykes suggests several preventive measures, as follows:

(1) International notification of smallpox.

(2) Instruction of vaccination officials as to suspicious rashes and ailments observed by them in the course of their duties.

(3) The making of chickenpox a notifiable disease.

(4) Vaccination should be thorough and efficient in every case, and a description of the result should form a part of the certificate.

(5) Clinical examination should be provided in doubtful cases.

(6) Health officers and superintendents of smallpox hospitals should be in direct communication with each other and should furnish each other with immediate information necessary for the protection of the public.

He also raises the question whether laundries should be notified of the existence of smallpox among their customers.

The series of spotted maps appended show the progress of smallpox in London from July to the middle of November. First the local outbreak in and about St. Pancras caused by an unrecognized case, followed by smaller groups from secondary foci, followed again by single cases more widely distributed still, the cyclical periods being well marked.

*The Surgical Treatment of Disfigurements and Deformities of the Face.* By John B. Roberts, A.M., M.D., Professor of Surgery in the Philadelphia Polyclinic, Surgeon to the Methodist Hospital. Second edition, with a chapter on the Reconstruction of Syphilitic Noses. Illustrated with 62 figures. Philadelphia: The Philadelphia Medical Publishing Co. 1901.

This work is an abstract of the Muetter lectures, of the College of Physicians of Philadelphia, delivered by the author in 1900, under the title of "The Surgical Treatment of Congenital and Pathological Disfigurements of the Face." A brief review is given of the development of plastic surgery, followed by a rapid survey of the anatomy of the human face, in connection with the principles of plastic surgery. Enumeration of various facial disfigurements and deformities forms a long list, with a corresponding variety in methods of treatment. The multiplicity of procedures available has apparently compelled the presentation of general principles, rather than of detailed description of particular methods. Certain procedures described are original with the author. The author has approached his subject from the standpoint of surgery, and has omitted reference, in the chapters on the deformities of the nose, to methods of repair well known and practised among laryngologists. The work is valuable chiefly as a review of the principles of cosmetic surgery, and should be of more value to the surgeon than to the student.

Death of Hugo W. von Ziemssen.—The death of von Ziemssen is announced at the age of 79.

THE BOSTON

# Medical and Surgical Journal.

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## CALLS OF SYMPATHY ON THE SICK.

FORTUNATELY physicians themselves are not often expected to make simple calls of sympathy on their sick friends. Their profession makes it a delicate matter. It is a wise doctor who can talk for several minutes with an invalid not his own patient without saying something which will cause the attending physician to undergo an unpleasant cross-examination. But if they do not make them, they are often able to see such calls or to witness their effects. The doctor's chief responsibility in regard to such calls consists in determining whether the friends of the patient may be admitted to see the invalid or not. This offers sometimes a somewhat serious problem, as the patient is as anxious, usually, to see his friends as the friends are to see the patient, while the doctor feels that the utmost quiet is called for. Various things may unite to form the doctor's opinion. If the dutiful daughter insists on telling the invalid parent that her old schoolmate has come all the way from home to see her and is so disappointed, it may be better to permit the call than to allow the patient to fret over the disappointment. A deaf person in a feeble condition may not be allowed to see visitors early, as the strain of listening is especially trying. It is almost impossible to properly discriminate as to the person to be admitted. For instance, a deaf and sensitive young woman who was isolated during an exhausting but not serious illness, because the effort of listening was quite beyond her strength, on convalescence was first permitted to see a friend whose voice was singularly clear, but such discrimination against a relative whose tones were thick and difficult to understand nearly precipitated a family quarrel. Doctors learn to be extremely careful about forbidding the visits of certain individuals while others are admitted, as they thereby become involved in quarrels in which even those whom they try to shield take part against them. The doctor must be guided by his own common sense and not look for help from any existing volume on theory and practice.

The calls of clergymen are usually cheery and of good effect. The clergyman who just runs in on his way to church to see the member of his congregation whose face he will miss from her accustomed place is pretty sure to carry comfort, while the priest who starts to read a prayer for the sick and continues until he has exhausted all the forms provided by the church may leave a condition of exhaustion behind him which causes the doctor many an anxious hour. The attitude of the doctor will vary somewhat with his patient's creed. The Catholic priest must be admitted. He is equally entitled with the doctor to stand by the side of the dying, and what more loyal ally could the doctor wish. But even clergymen are sometimes exasperating. One can hardly believe such an incident as the following: A physician tells of a lady under his care who was kept alive with the utmost difficulty. The whole household might be described as holding its breath lest anything should occur to disturb the balance between life and death. The doorbell was clearly labeled with a request not to ring, and directions were given as to the course to be pursued by visitors. In spite of such directions the bell was rung at a late hour one night by a reverend gentleman who had come to see the lady who had been his parishioner many years before. Even after the critical situation was explained to him, he insisted on seeing her and desired also to introduce a stranger whom he had brought with him.

"I have just been to see a sick friend, and if it takes it out of you, as this call has taken it out of me, you earn your fees," was the exclamation of a genial gentleman as he entered the club of which he is an ornament, to the doctor who occupied an easy chair by the fire. He then explained that he was usually successful as a caller on the sick, but on this occasion he had found a friend to whose face he could bring no gleam of hope or interest in anything outside of himself, and on that single topic he resented conversation as an impertinence. The poor fellow who had made the call failed to regain his cheerfulness for full half an hour.

Patients themselves sometimes see the humor of the visits; and here is a placard found posted in a prominent place in the room of a young gentleman who was confined to his bed, but was able to receive such friends as chose to call. The invalid was the owner of a parrot, of infirm temper, of which he was very fond. The parrot greeted the attentions of strangers with most unearthly screams, to the annoyance of the patient, but his

visiting friends seemed possessed to talk to the bird. These are his suggestions for the visitation of the sick:

"Don't tease the bird; avoid all topics of an agitating nature; give no suggestions regarding the taking of medicine or nourishment. These are subjects to be decided by the intelligence of the doctor and the condition of the patient."

An interesting, almost a model, call was described somewhat as follows: The patient was a lady, somewhat of an invalid, and confined to bed in her room in a hotel by an acute and painful attack which made it necessary to limit visitors to very short interviews. One morning the door to her chamber was accidentally left open and there entered an elderly lady, an old but not specially intimate friend, beaming with smiles, saying: "I don't know as I ought to come in at all, but I did so want to see you. You look just as handsome as ever. No, thank you, I can't stay. Good-bye" — and off, leaving sunshine behind her.

In contrast with the above should be mentioned the visitor who burst into tears on her first sight of this same invalid, and explained it by saying: "I cannot help it. You are so changed, you know."

But if doctors do not make many calls of friendship on their sick friends they are sometimes privileged to receive them, and doubtless there is no doctor who has lain long on a sick bed who has not stored away in his memory a blessed remembrance of someone, perhaps least expected, who sat for a moment by his bedside and made things brighter, not for an hour, but for a lifetime.

## TRUSTEES OF NEW YORK HOSPITALS.

As noted in another column, the plan of appointing trustees to have charge of the management of Bellevue and allied hospitals in New York City has finally been carried out by the appointment of a board of seven men. These men were appointed by Mayor Low from lists given him for that purpose by certain organizations specified in the charter, which in itself is a guarantee of the earnestness and probable efficiency of the board. Among the number chosen is one physician, Dr. J. W. Brannan, who has long been identified with the movement of introducing the trustee system into municipal hospital affairs. There is but one physician on the board, which, however, is quite sufficient to represent the medical interests of the institutions under its charge — a matter which should never be lost sight of in the mass of administrative details. It is a source of congratulation that Dr. Brannan has not only been appointed for the longest term, seven years, but also has been made chairman of the board.

The management of city institutions by unpaid trustees is no longer wholly in an experimental stage. The Boston City Hospital has for many years been under the jurisdiction of such a board of trustees, with the result that it has developed into an institution wholly free from the pettiness and tyranny of a political organization. More recently, the Long Island Hospital in Boston Harbor, corresponding to the city institutions for chronic disease in New York, has gone through a like experience, and now finds itself developing into a highly creditable institution, untrammeled by political favoritism. Other cities have had a more or less similar experience, and the time is no doubt not far distant, particularly if New York's experiment succeeds, when we may expect to see the great charitable institutions of our cities wholly independent of political control and changing administrations. Development unquestionably lies in this direction, but more than in many appointments it is incumbent upon the official who has the appointing power that he be circumspect and wise in his selections. The one way in which the system of unpaid boards can fail is through the appointment of inefficient or otherwise obnoxious persons to these positions of high responsibility.

## A DOUBLE LOSS TO DENVER.

It is a peculiarly sad occurrence that has come to Denver in the death of two of her most distinguished physicians, Dr. J. T. Eskridge and Dr. Clayton Parkhill. A further element of sadness is lent by the fact that they died within a few hours of each other. Both had gone to Denver from the East, both had been medically educated in Philadelphia, and were connected with the same institutions in the city of their adoption. Dr. Eskridge, for many years, has been known and recognized as one of the leading neurologists of the West, if not of the entire country, and Dr. Parkhill was doing excellent work in his chosen field of surgery at the time of his death. Both men were in middle life and at the prime of their mental powers.

## MEDICAL NOTES.

Insurance of Smallpox Cases.— It is reported from London that considerable amounts are being insured with Lloyds in connection with the smallpox epidemic prevailing at several British ports. A premium of 2s 6d. % on recently vaccinated cases and 3s. 4d. % on those who have not been vaccinated since infancy is required.

Elderly Centenarians.— A despatch from Athens records the death at Khuti, Albania, of Ismail Hudjo, said to have been the oldest man

in the world. It is said that he was 160 years old. He leaves 200 descendants. Mrs. Ann Taylor, one of the historical characters of the city of St. Joseph, Mo., died there recently aged 110 years. For more than a century she had been addicted to the use of tobacco and liquor.

SCARLET FEVER AND SMALLPOX IN CHICAGO.— Scarlet fever is reported as very prevalent in Chicago. Eight cases of smallpox were reported during the week preceding the last report of the Board of Health, which is just at hand.

HOSPITAL FOR TUBERCULOSIS AT HAVANA.— It is reported that General Leonard Wood has appropriated about $8,000 for the establishment of a hospital for tuberculous patients at Arroyo Apolo.

BOSTON AND NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON.— For the week ending at noon, Jan. 29, 1902, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: Diphtheria 55, scarlatina 26, measles 139, typhoid fever 18, smallpox 50.

WEST END NURSERY.— At the recent annual meeting of the corporation of the West End Nursery and Infants' Hospital, the following-named officers were elected for the ensuing year: President, Clarence John Blake, M.D.; Secretary, Wm. Rotch; Treasurer, Nelson S. Bartlett; Directors, Frederick B. Allen, Oliver Ames, J. Arthur Beebe, George A. Draper, Charles E. Inches, Mortimer B. Mason and T. M. Rotch, M.D. During the past year 287 sick babies were admitted to the hospital and the total number of visits to the Out-Patient Department was 12,066.

MILTON (MASS.) WATER SUPPLY.— The State Board of Health has reported relative to the water supply of Milton, which has been held responsible for numerous cases of lead poisoning. The board finds that the water contains an excess of carbonic acid, which acts on lead pipes, and especially on new lead pipes, producing the poisonous carbonate. The water is harmless unless conveyed through lead pipes.

SURGICAL SECTION OF THE SUFFOLK DISTRICT MEDICAL SOCIETY.— At the next meeting of the Surgical Section of the Suffolk District Medical Society, Dr. Wm. J. Mayo of Rochester, Minn., will present a paper on "Problems relating to the Surgery of the Stomach." Dr. Mayo has had a wide experience in this increasingly important branch of surgical work.

PAWTUCKET MEDICAL SOCIETY.— At its annual meeting in January the Pawtucket Medical Society of Rhode Island elected the following officers: President, W. H. Heimer, M.D.; Vice President, T. H. McNally, M.D.; Secretary, Joseph E. Duxbury, M.D.; Treasurer, Ray Woodhead, M.D.

ENLARGEMENT OF SALEM HOSPITAL.— An enlargement of this hospital is said to be under consideration by the trustees. The plans are said to call for a number of one-story wards connected by a corridor, each complete in itself, and each with a sun parlor; also a two-story private ward.

NEW YORK.

INVESTIGATION OF ANTITOXIN AND VACCINE VIRUS.— At the last meeting of the New York County Medical Association the Committee on Public Health, of which Dr. N. E. Brill is chairman, made an elaborate report of its investigation into the antitoxin and vaccine virus products of the laboratories of the Health Department. The conclusion reached was that it was unanimously agreed that the character, professional qualifications and standing of the men engaged in the supervision and control of the manufacture of these products, none other than skilled help carrying out the details, are more than sufficient guarantee as to the quality of the curative sera and vaccine virus. These men represent the highest professional and scientific skill in these departments to be found in the city, and the methods which are used are beyond criticism. The committee stated that they had been unable to find any recorded cases of tetanus in New York following the use of antitoxin or vaccine virus, and it was their opinion that these products of the laboratories of the Department of Health are absolutely safe. They found that the horses selected for antitoxin production were under 9 years of age and perfectly healthy, and were stabled in a special building on East 57th Street. Until recently about two-thirds of them have been kept in the basement, and the remainder on the first floor, but at the present time all the horses are kept upstairs. All are exercised 1 hour daily, except in very stormy weather. Before treatment the horses are systematically injected with tetanus antitoxin, in order to prevent the possibility of their contracting tetanus, and since this plan was adopted, 5 years ago, no horse has contracted the disease. As to vaccine virus, the committee's investigations showed that the calves selected, the precautions for cleanliness employed, the care given to the stable, and the handling of the virus left nothing to be desired.

LOOMIS LABORATORY.— The act of incorporation of the Loomis Laboratory, founded and equipped by Col. O. S. Payne, contains a provision that under certain circumstances the trustees of the institution have power to transfer the property to the New York University. The uni-

versity recently brought an action to have a trust declared for its benefit in the real estate, the legal title to which is in the laboratory. It was claimed that the donor intended the gift to be for the exclusive benefit of the university, and that the late Dr. Alfred L. Loomis held the title upon a trust annexed to it; that the property should be transferred to the Board of Trustees to hold in trust for the use of the faculty and students of the university, and that the laboratory should be used to increase the teaching facilities of the medical department of the university. Colonel Payne, who was abroad at the date of the incorporation, when called as a witness on the trial of the action, testified that his purpose in giving the moneys was to build a laboratory for original research and elementary teaching in scientific medicine, and that his desire was that it should be entirely independent. On Jan. 24 a dismissal of the action was unanimously affirmed by the Appellate Division of the Supreme Court, which held that the proof adduced failed to establish the allegations of the complaint. Justice Patterson, in giving the opinion of the Court, stated: "That the laboratory was for a time used in connection with the instruction given in the Medical Department of the New York University, with the consent of the trustees of the defendant, does not establish the trust, nor does the provision of the act incorporating the defendant, which authorizes the trustees in their discretion to convey to the plaintiff the property in fee, establish that trust." At the present time the Loomis Laboratory is operated under the auspices of the Cornell University Medical College, the buildings for which, it will be remembered, were also donated by Colonel Payne.

Boards of Trustees for City Hospitals.— Under the amended charter of the city the jurisdiction over Bellevue, Harlem, Gouverneur, Fordham and the Emergency hospitals is taken away from the Department of Public Charities and lodged in the hands of a board of trustees, to be appointed by the mayor, and to serve without salary. Mayor Low has now announced the members of this hospital board, who are selected from a list of names presented to him by the United Hebrew Charities of the City of New York, the Society of St. Vincent de Paul, and the New York Association for Improving the Condition of the Poor. The only one of the number who is a physician is Dr. John W. Brannan, who, when the board organized, was elected president. Dr. Brannan has for a number of years been a visiting physician at Bellevue and the Willard Parker hospitals. Speaking of the new departure, Mr. Low said, in announcing the appointments: "The purpose of it, undoubtedly, is to remove the administration of these hospitals, as far as possible, from the baleful influence of politics in the baser sense of that word. But it is not, in any sense, to be interpreted as indicating that the city's interest in the management of these hospitals is to be lessened. On the contrary, the change itself is intended to be significant of the fact that the city's sense of responsibility for the care that it gives to its own sick and wounded has grown, and that it will hold you and your successors to a strict account for the manner in which you discharge your trust."

New Medical Advisory Board.— The new Medical Advisory Board of the Health Department, composed of 11 prominent physicians, held its first meeting on Jan. 20, and organized by electing Dr. Edward G. Janeway chairman, and Dr. T. Mitchell Prudden secretary. The following resolution was adopted and transmitted to the city officials: "In the opinion of the Medical Advisory Board the condition of affairs in the Health Department of this city is such as to require the immediate appropriation of a sum of money considered sufficient by the Health Department to meet the present emergency in the matter of disinfection and for increased vaccination facilities made urgent by the apparently impending fresh outbreak of smallpox. In urging the necessity of this immediate emergency appropriation, the Advisory Board would call attention at this time to the great inadequacy in the general facilities and plant of the Health Department, which, when the situation has been fully surveyed and the plans shall be formulated, will require a large appropriation in order to meet the necessities in the management of communicable and contagious diseases in each of the boroughs of Greater New York."

Appropriation by Board of Estimate and Apportionment.— At a meeting of the Board of Estimate and Apportionment held Jan. 22, the immediate appropriation asked for was granted. On the same day the Board of Health held a meeting at which 100 additional vaccinators were appointed, at a monthly salary of $100, the appointees being all taken from the list of medical school inspectors, the salary of which position is $30 a month. The board also determined to provide a disinfecting plant in each of the 5 boroughs, at a cost of $5,000 each, and to build an isolation hospital for contagious diseases on Staten Island.

Smallpox.— The discovery of 8 cases of smallpox in Flatbush and East New York lead to the closing on Jan. 20 of 2 public schools in which there was reason to suppose that some of the children had been exposed to the disease, and since then 2 other schools in the borough of Brooklyn

have been temporarily closed on account of smallpox. It is claimed that the cutting down of the force of diagnosticians in the Local Health Department from 4 to 2 since the first of the year has crippled the efficiency of the department in handling smallpox cases promptly, and some criticism has been expressed in regard to this method of retrenchment.

NEW YORK TRAINING-SCHOOL FOR NURSES.— The twenty-eighth annual commencement of the New York Training-School for Nurses, attached to Bellevue Hospital, was held on Jan. 14, the diplomas being awarded by the new commissioner of charities, Mr. Folks. There were 24 graduates. The class recently numbered 25, but 1 of its members, Miss Blanche Thomas, died on Dec. 4 from typhoid fever, contracted while on duty in the wards of Bellevue.

A NEW MANHATTAN MATERNITY HOSPITAL.— A plot of land, 100 by 100 feet, has been purchased for $33,000 for the new Manhattan Maternity Hospital and Dispensary on 60th Street, east of First Avenue. The proposed building, work on which will shortly be commenced, will not be a large one, as it is intended that much of the work of the institution shall be carried on in the homes of the poor. It is quite probable that a training-school for nurses will be erected on part of the plot.

BEQUESTS TO HOSPITALS.— By the will of the late Theodore G. Weil $2,000 is left to the Mount Sinai Hospital for a perpetual bed, $1,000 to St. Francis Hospital, and $500 each to the St. John's Guild Floating Hospital, the New York Skin and Cancer Hospital and the Montefiore Hospital for chronic diseases.

## ARMY NOTES FROM THE PHILIPPINES.

"SURRA," OR EQUINE RELAPSING FEVER.— The presence of this disease in the Islands was discovered Oct. 16 of this year by Capt. Allen Smith, assistant surgeon, U. S. Army, surgeon in charge of the Army Pathological Laboratory, and Dr. J. J. Kinyoun, surgeon Marine Hospital Service. Smith and Kinyoun, examining the blood of a sick horse, found an actively motile body which, on investigation, proved to be apparently identical with the parasite found by Evans in India and Burma in 1881 in the blood of horses, mules and camels ill with what the natives called "surra," which means "rotten." This parasite, the *trypanosoma Evansi*, occurs in enormous numbers in the blood of animals ill with the disease. This disease has never been recognized, to our knowledge, before in the Philippine Islands. Large numbers of American horses and mules as well as native ponies have died during the past 6 months. In some provinces there are Pueblos without a single pony. In the main corral here in Manila some 200 and more horses and mules have died from a "wasting" disease during the past 4 months. This disease was generally diagnosed "glanders," and hundreds of animals were killed, until General Chaffee stopped it by a general order. Investigation has progressed to such a point that it is possible to state positively that this fatal epidemic among horses, mules and ponies is *not* glanders but "surra." The blood of nearly a hundred horses and mules, most of whom were diagnosed as having glanders, was examined. But little glanders was found in the Manila corrals; four-fifths of the deaths among government horses and mules during the past 3 months have been from "surra." How the disease is disseminated is not known, but it has been induced in well animals — horse and monkey — by the subcutaneous injections of the blood of a horse ill with surra whose blood contained the *trypanosoma*. Treatment seems of little avail; quinin and methylene blue do not seem to affect the course of the disease. Work is now being done especially in the direction of the mode of transmission. The evidence points to transmission by some sucking insect.

ARMY MEDICAL LYCEUM OF MANILA.— In November Col. Pope, chief surgeon of the division, established the lyceum, consisting of all the medical officers in and near Manila. Weekly meetings (every Tuesday evening) are held. Every medical officer below the rank of lieutenant colonel is required to attend and to submit a paper, unless excused by the chief surgeon. One paper or several short communications are read and discussed at each meeting. The first meeting took place on the evening of Dec. 2, at which Dr. J. J. Curry, captain and assistant surgeon, U. S. Volunteers, presented the first paper on "Black Water Fever," with a report of 2 fatal cases occurring in soldiers. The next paper to be read is one on "'Surra,' or Equine Relapsing Fever," by Capt. Allen Smith, assistant surgeon, U. S. Army. Notification of papers in process of preparation was given by members of the lyceum on the following subjects: "Treatment of Dysentery," "Abscess of the Liver," "Intestinal Parasites," "Report of Operative Cases of Abscess of Liver," "Amebic Dysentery," etc. The two cases of black water fever reported by Dr. Curry were in men who had been on the island, one 2 years and 8 months, one 2 years and 3 months. Both had previous history of chills and fever 10 and 12 months before present illness; both came in with marked general icterus and urinating "black" water. In each case the attack came on suddenly — one the day of admission, the other the day before admission to hospital. The first had had 24 gr. of quin-

in, the other no quinin. In the first case 10 gr. of quinin hydrochlorate subcutaneously every hour for 4 doses; in the second, no quinin, the treatment being symptomatic. Blood examinations in both cases negative for malarial parasites. Case I died in 24 hours with practical suppression of urine, post mortem showing intense congestion of kidneys. Case II lived 4 days, dying in uremic coma. Autopsy showed that the patient had an old subacute (diffuse) nephritis, on which an acute nephritis had been implanted. At autopsy no evidence of old or fresh malaria was found in either case. Examination of splenic pulp and of blood from heart and various organs negative for malarial parasites. No pigmentation of spleen or other organs. These were apparently both cases of nonmalarial, black water or hemoglobinuric fever. Quinin appeared to be very harmful. In Case I, in which quinin was given, the man became delirious after the first injection, going from bad to worse, and dying in 24 hours. In Case II the man at first promised well. It was thought he would weather the attack, but his old damaged kidneys were too much of an obstacle to overcome.

Army Pathological Laboratory.— Every opportunity has been offered by Surgeon-General Sternberg for the prosecution of pathological work at Manila. The laboratory compares in equipment with the best in the States, and has an excellent outfit for microphotography.

## Correspondence.

### "AUSCULTATION OF THE KNEE-JOINT."

Boston, Jan. 22, 1902.

Mr. Editor: The paper with the above title by Dr. Blodgett, published in the *Journal*, Jan. 16, 1902, is very interesting. From an orthopedic point of view I doubt if the method will ever amount to much. For several years I have occasionally auscultated the knee-joint, and, except in cases where the presumably roughened joint-lining gave a *fremitus* feeling to the touch, have never been able to detect anything whatever by the method, of diagnostic value. Dr. Blodgett suggests that auscultation can be applied to any of the larger joints, and cites "a case of supposed complete ankylosis of the hip, in which detection of the joint sounds, transmitted by the trochanter, ruled out firm bony union, and suggested extra articular causes for the ankylosis."

Curiously enough, I find described another method to decide between true and false ankylosis, the method of auscultatory percussion by H. I. Bowditch in *The Young Stethoscopist*, published 54 years ago. Let me quote Bowditch: "It is hoped, likewise, that by auscultatory percussion we may be able to distinguish between *true and false ankylosis*. One case only had come under the notice of the inventors of the method at the time (1840) they (Camman and Clark) wrote on the subject. In this case there was supposed to be a perfect bony union at the hip-joint, and the sound of percussion was transmitted from the condyle of the femur to the pelvis, more distinctly by the diseased than by the healthy limb." In the question of ankylosis of the hip-joint I believe a careful use of both auscultation and auscultatory percussion will be of considerable diagnostic value.

Very truly yours,

Edward A. Tracy, M.D.

### TETANUS FOLLOWING VACCINATION.

Medico-Chirurgical College,
Laboratories of Pathology and Bacteriology.

Philadelphia, Pa., Jan. 21, 1902.

Mr. Editor: I shall be greatly obliged to any of your readers who may have had or know of cases of tetanus following vaccination if they will communicate with me concerning them. I am engaged in a critical analysis of such cases in the hope of determining their etiology, and desire to secure all the data possible.

Respectfully yours,

Joseph McFarland, M.D.,
*Professor of Pathology and Bacteriology.*

### RECORD OF MORTALITY

For the Week ending Saturday, Jan. 18, 1902.

| Cities. | Population* Estimated, 1902. | Reported deaths in each. | Deaths under five years. | Percentage of deaths from | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | Infectious diseases. | Acute lung diseases. | Diphtheria and croup | Typhoid fever. | Diarrheal diseases. |
| New York | 3,665,352 | 1,442 | 500 | 22.33 | 18.16 | 3.60 | .76 | 2.01 |
| Chicago | 1,852,828 | — | — | — | — | — | — | — |
| Philadelphia | 1,349,624 | 502 | 140 | 18.40 | 19.20 | 3.80 | 1.00 | .20 |
| St. Louis | 603,717 | — | — | — | — | — | — | — |
| Baltimore | 525,330 | 207 | 59 | 21.25 | 17.38 | 3.38 | 1.92 | .38 |
| Cleveland | 411,826 | — | — | — | — | — | — | — |
| Buffalo | 375,742 | — | — | — | — | — | — | — |
| Pittsburg | 341,401 | 146 | 31 | 25.34 | 19.18 | 2.05 | 8.22 | .68 |
| Cincinnati | 332,032 | — | — | — | — | — | — | — |
| Milwaukee | 304.975 | — | — | — | — | — | — | — |
| Washington | 289,537 | — | — | — | — | — | — | — |
| Providence | 185,870 | 53 | 12 | 18.86 | 15.09 | 5.66 | 1.87 | 1.87 |
| Boston | 588,736 | 225 | 60 | 18.65 | 17.32 | 2.22 | .88 | .44 |
| Worcester | 127,337 | 32 | 9 | 15.62 | 21.87 | — | — | — |
| Fall River | 111,872 | 22 | 7 | 22.72 | 9.09 | — | — | 4.54 |
| Lowell | 99,574 | 36 | 14 | 30.55 | 19.44 | 13.88 | 2.77 | — |
| Cambridge | 96,334 | 24 | 6 | 20.83 | 8.33 | 4.16 | — | — |
| Lynn | 71,144 | 20 | 1 | 10.00 | 10.00 | — | — | 5.00 |
| Lawrence | 67,275 | 17 | 9 | 5.88 | 29.40 | — | — | — |
| Springfield | 66,854 | 19 | 3 | 10.52 | 15.78 | — | 5.26 | — |
| Somerville | 65,882 | 17 | 7 | 23.52 | 35.28 | 5.88 | — | — |
| New Bedford | 65,574 | 21 | 4 | 19.04 | 9.52 | — | — | — |
| Holyoke | 48,065 | 14 | 4 | 35.70 | 7.14 | 7.14 | — | — |
| Brockton | 43,208 | 9 | 2 | — | 22.22 | — | — | — |
| Haverhill | 40,392 | 13 | 3 | 23.10 | 7.70 | 7.70 | — | — |
| Salem | 36,567 | 15 | 5 | 20.00 | 13.33 | 13.33 | — | — |
| Newton | 36,336 | 6 | 1 | 16.67 | — | — | — | — |
| Malden | 35,390 | 10 | 3 | — | — | — | — | — |
| Chelsea | 35,264 | 8 | — | — | — | — | — | — |
| Fitchburg | 33,848 | 10 | 5 | — | — | — | — | — |
| Taunton | 32,759 | 12 | 2 | — | — | — | — | — |
| Everett | 27,114 | 6 | 1 | — | — | — | — | — |
| North Adams | 26,583 | 7 | — | — | — | — | — | — |
| Gloucester | 26,121 | 9 | 3 | — | — | — | — | — |
| Quincy | 25,307 | 7 | 5 | — | — | — | — | — |
| Waltham | 24,612 | 4 | 1 | — | — | — | — | — |
| Pittsfield | 22,311 | 4 | 1 | — | — | — | — | — |
| Brookline | 21,679 | 5 | 1 | — | — | — | — | — |
| Chicopee | 20,390 | 4 | 3 | — | — | — | — | — |
| Medford | 20,014 | 8 | 4 | — | — | — | — | — |
| Newburyport | 14,478 | 3 | 1 | — | — | — | — | — |
| Melrose | 13,384 | 1 | 1 | — | — | — | — | — |

* The populations of the cities outside of Massachusetts were estimated on the basis of the rate of growth from 1890 to 1900. Those of the Massachusetts cities were estimated upon the rate of growth from 1895 to 1900, since the State had an intermediate census in 1895. The populations of Gloucester, Marlborough and Newburyport were allowed to stand as in 1900, they having suffered a slight decrease during the five-year period.

Deaths reported 2,963; under five years of age, 914; principal infectious diseases (smallpox, measles, scarlet fever, cerebrospinal meningitis, diphtheria and croup, diarrheal diseases, whooping cough, erysipelas, fevers and consumption) 625, acute lung diseases 521, consumption 308, scarlet

fever 30, erysipelas 13, typhoid fever 40, whooping cough 17, cerebrospinal meningitis 8, smallpox 25, measles 32, diarrheal diseases 36.

From whooping cough, New York 12, Philadelphia 1, Baltimore 2, Boston 2. From cerebrospinal meningitis, New York 3, Baltimore 1, Pittsburg 1, Boston, New Bedford and Somerville 1 each. From scarlet fever, New York 23, Philadelphia 2, Baltimore 2, Pittsburg 1, Boston 1, Waltham 1. From measles, New York 25, Philadelphia 2, Pittsburg 2, Boston 2, Lowell 1. From erysipelas, New York 7, Philadelphia 4, Baltimore 1, Pittsburg 1. From smallpox, New York 5, Philadelphia 16, Boston 3, Weymouth 1.

Beginning with January, 1902, the term "great towns" as employed in the Registrar General's Weekly Return of births and deaths includes the seventy-five municipalities of England and Wales which have a population of more than 50,000 in each.

In the seventy-five great towns of England and Wales, with an estimated population of 14,800,427, for the week ending Jan. 4, the death-rate was 20.1. Deaths reported 5,707; acute diseases of the respiratory organs (London) 452, whooping cough 80, diphtheria 83, measles 157, smallpox 30, scarlet fever 66.

The death-rate ranged from 5.6 in Handsworth to 28.1 in Tynemouth; London 20.6, West Ham 20.1, Croydon 17.8, Brighton 24.3, Portsmouth 19.5, Southampton 24.2, Bristol 19.3, Birmingham 24.1, Leicester 19.3, Nottingham 18.7, Birkenhead 13.5, Liverpool 24.1, Manchester 21.9, Salford 20.5, Bradford 17.4, Leeds 23.0, Sheffield 19.8, Hull 15.9, Newcastle-on-Tyne 23.6, Cardiff 20.7.

## METEOROLOGICAL RECORD

For the week ending Jan. 18, in Boston, according to observations furnished by Sergeant J. W. Smith of the United States Signal Corps:

| Date | Barometer. | Thermometer. | | | Relative humidity. | | | Direction of wind. | | Velocity of wind. | | We'th'r * | | Rainfall in inches. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Daily mean. | Daily mean. | Maximum. | Minimum. | 8.00 A.M. | 8.00 P.M. | Daily mean. | 8.00 A.M. | 8.00 P.M. | 8.00 A.M. | 8.00 P.M. | 8.00 A.M. | 8.00 P.M. | |
| S...12 | 29.24 | 26 | 34 | 17 | 97 | 79 | 88 | S W | S W | 11 | 12 | N. | C. | .53 |
| M..13 | 29.60 | 20 | 26 | 15 | 78 | 77 | 78 | W | W | 15 | 12 | F. | C. | |
| T..14 | 30.06 | 20 | 27 | 14 | 81 | 72 | 76 | W | W | 9 | 8 | C. | C. | |
| W..15 | 29.98 | 33 | 41 | 25 | 81 | 72 | 76 | S | S W | 5 | 12 | C. | C. | |
| T..16 | 29.83 | 35 | 44 | 26 | 82 | 69 | 76 | W | W | 7 | 6 | C. | O. | |
| F..17 | 29.93 | 26 | 34 | 17 | 66 | 71 | 68 | N W | N W | 12 | 12 | F. | C. | |
| S...18 | 30.06 | 30 | 42 | 17 | 64 | 67 | 66 | S W | S W | 8 | 15 | C. | O. | |
| ☞ | 29.81 | | 35 | 19 | | | 75 | | | | | | | .53 |

*O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow. †Indicates trace of rainfall.
☞ Mean for week.

## OFFICIAL LIST OF THE CHANGES OF STATION AND DUTIES OF COMMISSIONED AND NON-COMMISSIONED OFFICERS OF THE U. S. MARINE HOSPITAL SERVICE FOR THE SEVEN DAYS ENDING JAN. 25, 1902.

BROOKS, S. D., surgeon. To proceed to Bath, Me., for special temporary duty. Jan. 20, 1902.

MAGRUDER, G. M., surgeon. Granted 30 days' leave of absence on account of sickness from Jan. 22. Jan. 20, 1902.

THOMAS, A. R., passed assistant surgeon. To proceed to Liverpool, Eng., for special temporary duty. Jan. 23, 1902.

ANDERSON, J. F., assistant surgeon. Upon expiration of leave of absence to proceed to Washington, D. C., and report to the Director of the Hygienic Laboratory for duty. Jan. 23, 1902.

GARCIA, FELIX, acting assistant surgeon. Granted leave of absence for 30 days from Jan. 25. Jan. 22, 1902.

ALLEN, G. C., hospital steward. Granted leave of absence for 2 days from Jan. 27. Jan. 23, 1902.

## CHANGES IN THE MEDICAL CORPS OF THE NAVY FOR THE WEEK ENDING JAN. 25, 1902.

D. O. LEWIS, surgeon. Ordered to the "Pensacola."

J. E. PAGE, passed assistant surgeon. Detached from the "Pensacola," and ordered to be ready for sea duty.

W. K. VAN REYPEN, rear admiral, surgeon-general of the Navy, retired from active service Jan. 25, upon his own application, after 40 years' service, with the rank and three-fourths the sea pay of the next higher grade.

W. A. MCCLURG, medical inspector. Ordered to the "Olympia" Jan. 25.

E. O. HUNTINGTON, passed assistant surgeon. Commissioned passed assistant surgeon from May 24, 1901.

J. B. DENNIS, passed assistant surgeon. Commissioned passed assistant surgeon from May 25, 1901.

E. G. PARKER, assistant surgeon. Ordered to the "Pensacola."

U. R. WEBB, assistant surgeon. Detached from the "Pensacola" and ordered to the Asiatic Station, sailing from San Francisco, Feb. 7.

## SOCIETY NOTICES.

BOSTON SOCIETY FOR MEDICAL IMPROVEMENT.—The regular meeting of the society will be held at Spragne Hall Medical Library, 8 The Fenway, on Monday, Feb. 3, at 8.15 P.M. The committee appointed to consider the time of incubation, the duration of the common contagious diseases and the time of isolation necessary for the proper protection of families and schools, will report. Committee: Drs. Durgin, Cutler, McCollom, Morse and R. C. Cabot. Discussion by Dr. H. P. Walcott, Dr. Theobald Smith, Dr. T. M. Rotch, Dr. J. P. Oliver and others.

A. K. STONE, M.D., Secretary,
543 Boylston Street.

SUFFOLK DISTRICT MEDICAL SOCIETY. SURGICAL SECTION.—The next meeting of the section will be held in Sprague Hall, Medical Library, 8 The Fenway, Wednesday, Feb. 5, at 8.15 P.M. Dr. H. H. Germain will read a paper on "Thrombosis of the Cavernous Sinus." Dr. E. W. Dwight will open the discussion. Dr. William J. Mayo of Rochester, Minn., will present a paper on "Problems Relating to the Surgery of the Stomach." Discussion by Drs. J. C. Warren, M. H. Richardson, S. J. Mixter, J. C. Munro, and F. B. Lund.

F. S. WATSON, M.D., Chairman,
F. B. LUND, M.D., Secretary,
529 Beacon Street.

## APPOINTMENT.

DR. PHILIP HAMMOND of Boston has been appointed to the Consulting Staff of the Hale Hospital in Haverhill, Mass.

## RECENT DEATHS.

DR. CHARLES GEORGE SPROULL of New York died of appendicitis at Dr. William T. Bull's private hospital on Jan. 25, at the age of 34. He was a native of Philadelphia and a graduate of Princeton. He was graduated from the medical department of the New York University in 1893, and afterwards served as an interne at Bellevue Hospital.

DR. SAMUEL SEABURY JONES, a prominent New York practitioner, died from pneumonia on Jan. 21, at the age of 55. He was born in Oyster Bay, Long Island, N. Y., and was graduated from the arts and medical departments of the University of the City of New York, receiving the degree of M.D. in 1869.

DR. CLAYTON PARKHILL of Denver died there of Bright's disease on Jan. 16 at the age of 41. He graduated from Jefferson Medical College in 1883. He was professor of surgery at the Gross Medical College in Denver, and was a prominent member of many local, state and national medical societies. His exceptional ability as a surgeon had come to be generally recognized.

DR. J. T. ESKRIDGE of Denver died at his home in that city of cerebral hemorrhage in the course of Bright's disease on Jan. 16, at the age of 55. He was born in Sussex County, Delaware, and was a graduate of Jefferson Medical College in 1875. For a time he was post-graduate instructor in nervous diseases in that college, but removed to Denver in 1884. He was a member of many national and local medical societies, and held important teaching positions in Denver. He had attained a wide reputation as a neurologist.

## BOOKS AND PAMPHLETS RECEIVED.

Gynecological Pathology. A Manual of Microscopic Technique and Diagnosis in Gynecological Practice for Students and Physicians. By Dr. Carl Abel. Translated and edited by Samuel Wyllis Bandler, M.D., with a chapter on the Embryology of the Female Genitalia and the Pathological Growths Developing from Embryonal Structures. Illustrated. New York: Wm. Wood & Co. 1901.

# Original Articles.

## THE PROPOSED BOSTON ACADEMY OF MEDICINE.[1]

BY J. G. MUMFORD, M.D., BOSTON.

Since suggesting to our secretary the title of this paper, I have been so impressed with the extent and importance of the subject that I am led to treat it rather more fully than at first I had intended, though in general terms, even so.

No step in advance, when the proposition of a rational mind, is ever a freak or erratically at variance with popular undercurrent of thought; and so, last winter, when various gentlemen suggested the establishment of a Boston academy of medicine, the idea met with instant favor and seemed to embody the wishes of a considerable majority of our profession in this city.

Later, however, when an attempt came practically to be made to formulate a working plan, old prejudices, vested interests, sentiment and the normal minority which is always in opposition so blocked the way that up to this time little or no advance has been made.

The writer was one of various committees appointed to forward the project, and was constantly impressed with the indifference of men and the lack of interest in, and grasp of, the situation. Permit me, therefore, briefly, and perhaps incoherently, to set down my present views of the subject, evolved from considerable reflection and talks with many men.

It has come home to all of us, during the last 10 years, that interest in medical meetings and other methods of exploiting medical matters has been lamentably on the wane. Attendance at meetings has constantly decreased, the papers presented have been frequent and perfunctory — rarely final; the reading of medical journals has become a dreary and almost impossible task; a wide general grasp of medical progress has become constantly more difficult to the average physician. After a fashion, groups of men have attempted to remedy these evils by associating themselves together in small private clubs, offering that mental and social pabulum which the large societies fail to furnish. Perhaps this condition is the logical evolution and solution of the situation; but a review of the list of new organizations of the last 50 years would be discouraging, though instructive.

Medical societies, in this country at least, are but little more than 100 years old, and medical journals are still more recent. In the early days the purposes and conditions of societies were very different from what they have since become.

One hundred years ago all physicians were practitioners; they lived in scattered communities; even in the small cities of the day, each physician had his own circle and following. They met together rarely, and in their meetings discussed cases and exchanged views. The meetings were chiefly given up to professional gossip; formal papers were not common. This state of things existed almost down to our own day, the only marked change in the program being an increasing formality but with little increase in the seriousness or exactness of the discussion.

Now, in the last 20 years we have seen not only an enormous addition to the number of societies, but a proportionate increase in the number of medical publications. Whereas, formerly, papers and "remarks" found little circulation beyond the immediate auditors, today they are all multitudinous, almost uncensored, *shoveled* into the press; and a devoted professional public is required to absorb the undigested mass. Such is the state of clinical essays, medical addresses and extemporaneous remarks.

There is another type of work which, with the progress of exact research, has come to be called "scientific," and in all its details is being presented to us in an increasing abundance. I mean the reports of experimental medicine and laboratory research.

This work is largely, in its methods of presentation, divorced from clinical reports; and the essential interdependence of the one upon the other is rarely immediately evident.

So it comes about that we have among us three distinct types of societies: the gregarious unsystematized meetings, the small special gatherings, and the so-called scientific meetings; and these meetings are constantly multiplied. The wonder is, not that such a situation should have become uninteresting, distasteful, irksome and dreary, but that it should so long have persisted. We have waited many years for the conditions to rectify themselves, but there has come no improvement. On the other hand, societies have multiplied. Their calls upon our time are more constant, while their attractions have become less and less conspicuous.

So the feeling began to intrude itself years ago that our venerable methods were not meeting modern conditions, and that some plan was needed that might economize our time and energy, add interest to our gatherings, clear away the cobwebs that cloak our literature, and rescue precious material from the literary dustbins. No such satisfactory plan has ever yet been evolved. Various communities have what they call academies, — an all-embracing term, which may mean little or nothing; but those academies are mostly ancient now, their purposes are somewhat obscure, and their functions differ little from that of the societies we see here in our midst.

The problem presented to our languid enthusiasm, then, is this: We have several hundred physicians in our community, the majority of them well-equipped, zealous men. They divide among them the various specialties, follow many paths of inquiry, striving always to advance themselves and their calling and to live up to our best traditions. In the development of specialism, which reached its height some years ago, these men of ours began to centre their attention in nar-

[1] Read before the Warren Club, Nov. 21, 1901.

row lines, to lose interest in the work of others as well as in the great and broad advance in our art as a whole. They ceased to attend meetings of the general societies; they concentrated their interests in the little round of their little clan; consciously or unconsciously, they drew apart from their fellows, until, to the curious observer, it has sometimes appeared that, in the not distant past, the old word "physician" had come almost to be a term of reproach among many, and that as men grew more skeptical of each other's unfamiliar work, the broadly embracing bond was gradually melting away.

As men grouped themselves more closely with their kind, their progress, purposes, interests and results became less familiar to the general profession. It came about that they ceased to use a language always comprehensible, save to the very elect. Not that a multitude of special technical terms is an offense, but the structure and arguments of papers introduced for general professional reading became blind and dreary. Such was the state of affairs not many years ago; but as such it could not last. Already a reaction has begun,— we know that we are all interdependent, the one on the other; we are beginning to feel that just as a knowledge of literature, of art, of the matters that interest men mostly is essential to proper and comfortable living, and aids towards success in one's own special work, so most of all is it incumbent on us to keep in some touch, feeble though it be, with the work and achievements of our allied craftsmen in other branches of our art.

I need scarcely say to you here how futile to the open mind is the common talk, spoken volubly within this very year, of those who would persuade us that increasing specialism, increasing differentiation are good and essential. We must indeed know one thing well; but our purpose fails, perfection becomes impossible, if we wilfully shut our eyes to the rest of the world, and refuse to acknowledge relationships and perspectives. Such is, and long has been, the premise of our situation, and the question is this: In what way may the most important of these numerous facts, the special knowledge of the few, be brought to the attention of the many whom the facts more than indirectly concern? As cases in point, consider such familiar ones as these: Every practitioner, be he surgeon or some other, should know the bearing on general health of adenoids in the nasopharynx. The rhinologists finally told us what is the answer, but feebly, haltingly, confusing the main question with a multitude of names, with matters of technique and tales of instruments.

The relation of hemorrhoids to chronic constipation is of great importance, but what interest has the general practitioner in the minute anatomy of the anus and in the so-called Whitehead operation?

Such simple examples could be multiplied *ad infinitum*; but all go to show this: That most men, outside of their own immediate competitive concerns, have had little interest in popularizing their knowledge, and many, it must be confessed, have been too indifferent to put their knowledge into luminous language.

We have special societies, special publications, special clinics in abundance, but we must develop the machinery which may place in touch, for the average man, the great complexity of wheels turning within this factory of medical science. Now it has been with such thoughts as these in mind that the promoters of an academy of medicine have emerged from their hitherto futile gatherings.

Let us look for a moment at our various societies as they stand today. Setting aside the numerous small special clubs, we have first, the Boston Medical Library Association — a nucleus and center of medical work, as it were. This has a membership of about 410 men, and is growing constantly (June, 1901). Next, there is the Medical Improvement Society,— the exemplar of that ancient type which for three generations did so useful a work in our midst; — there are 232 members. The Boston Society of Medical Sciences, young, vigorous, with a positive immediate future, comes next, with 227 members. Then there are the various sections of the Suffolk District Medical Society, with a nominal membership of 586.

It were idle and futile to detail the work presented by these various bodies, but the summary of it is this: That the library is a vital, constant organism; the "Medical Sciences" is full of a teeming energy and, for the present, at least, fills an important place,— in a sense, indeed, it is unique,— while the Improvement Society and the sections, conscious of their traditions and directed by hard-working, devoted officers, are keeping up a frantic struggle against impossible conditions, with a steady decline in attendance and a fairly constant futility of discussion.

In the talk, held hitherto, regarding the organizing of an academy, two possible plans for its formation have been suggested: (1) The abolition of pre-existing societies, and the formation of an academy *de novo;* (2) the federation of the existing societies, whereby they might be governed by a central congress or council.

I must admit that for a time I advocated the federation scheme, but as I have attempted to plan it out it has seemed to me increasingly difficult. I doubt if the divers interests could be assimilated, and I have come to believe that membership in an academy should give equal privileges to all,— a condition impossible if some members belong to one of the old societies and some do not. Indeed, I have come to believe that a complete revolution in our societies is necessary if a successful working plan for an academy of medicine is to be adopted.

Briefly, then, to recapitulate our purposes: Let all the present small specialists clubs and societies, including the "sciences," — vital, popular, successful as they are,— remain to do their appointed work, but let us take the old, decadent, moribund organizations, break them up, shake them together, and ask them to provide us, for

popular consumption, with the cream of the work produced by the specialized clubs; let that work be so presented to us that he who runs may read, and let its bearing on general medicine and its value to the general practitioner be made instant and obvious.

Such being our proposition, let us give ourselves to its solution. Here there must be compromise, doubtless, for we are concerned with many men and many minds. Our first conception, though, is one of some sort of council or strong, active, controlling body,— all specialties should be represented in it,— but most of all, it should contain representative practitioners of general medicine and general surgery.

We have lately learned the advantage, in clinical teaching, of combining together, in one exercise, the physician and the surgeon. That gives the key to the thought that should run through the programs of our new organization. Frequently this council should meet, should select subjects and should learn from representatives of most diverse pursuits the bearing which their specialties have on the central theme. We must intrust to our council the question of making the meetings interesting and useful; but some thought given to the subject now may possibly prove of value in the future. One obvious and grievous fault of the past must be corrected — a superfluity of meetings. One or two academy meetings a month should suffice for our purposes,— perhaps 15 meetings a year. None of us want more than that added to our inevitable tasks.

When the subject is chosen, let us require that it be something vital and of broad bearing. Such subjects are almost innumerable. There are few uncomplicated diseases, and we all of us, mostly, are ready to take hints from other workers in other fields. Such subjects as typhoid fever, rheumatism, phthisis, leukemia, ovariotomy, hare-lip, obstinate forms of headache, constipation, etc., symptoms as well as diseases, illustrate what is meant. There is no doubt that many patients, after abdominal section, would benefit from the advice of an expert in internal medicine, and that many a case of typhoid fever or phthisis is saved or hastened towards recovery by the surgeon's art. In the study of symptoms, especially, the experience of many specialists is of the greatest value. Obstinate migraine may elude the surgeon, the physician, the neurologist, the oculist, the orthopedist, the dermatologist, the dentist, to fall at last into the hands of the rhinologist to be cured. Of course all this is no new thing, and is no panacea; it is only a suggestion that those things which hitherto we have done, haltingly and spasmodically, be done in the future regularly and thoroughly, so far as to us may seem good.

After we have provided the subject, and those who may best present it, let us urge upon them two things, hints for the benefit of the patient audience: make the papers short and make them lucid. Words spoken in public, at night, to a company of brain-weary men, should not be as the written monograph or the final mighty argument of the encyclopedia. Perhaps the papers were best censored, though that may well be left. But there are the debaters, the speakers from the floor; what shall we say of them? There are three types: (1) The forceful, brief talker, the man who has something to say to the point and says it; (2) the complimenting, verbose man, who siezes the occasion to discourse at unconscionable length on various cases of his own; and (3), in a thinly attended, unresponsive meeting, the charitable man, who knows that nothing of importance remains to be said, but talks to save the day.

How shall we deal with these friends of ours? We have tried the naming of appointed speakers; that works fairly well. We have tried leaving the debate to chance; that frequently ends in chilling silence. We have tried publishing in advance synopses of the papers, but no method has been satisfactory always. We have tried setting a time limit on each speaker — often an excellent plan. Perhaps, after all, the secret lies with the presiding officer, who should have some knowledge of the subject, and should call wisely on members from the floor.

One is reminded that in some scientific bodies, not too dissimilar from ours, the appointed papers are printed and distributed several days before the meeting, so that those who care to do so may study the subject and plan for the debate.

When an earnest desire to get at the truth exists, and the underlying thought is that the question must be probed to the bottom and discussed with intelligence to the interest and enlightenment of the auditors, this plan certainly has great advantages. It is said that where it has been used the interest in, and attendance at, meetings has increased, and the value of debate has been conspicuous.

These are some of the thoughts which have been drifting about in our atmosphere during the past year or more. I have tried to give them voice — not as settled plans or even as formulated propositions, but as collective hints for further talk, that in some way, if the conditions demand it, but forcing no one's hand, we may struggle beyond the sometime dreariness which most of us confess.

## A PLAN FOR THE MUNICIPAL CONTROL OF TUBERCULOSIS IN BOSTON.[1]

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The subject of tuberculosis is so vast that volumes have been, and will yet be, written about it. As this paper is prepared with a practical intention,[2] it will suffice to say that reduced to its

[1] Read before the New England Hospital Medical Society Oct. 17, 1901.

[2] Last winter, a number of citizens of Boston, men and women of the medical profession and of the community at large, met to consider the subject of tuberculosis in Boston, and to find some method for its control. From this Committee of the Whole, five

simplest terms the problem is this: Out of the darkness and confusion of ignorance, tuberculosis today stands acknowledged as a definite diseased condition of one or more parts of the body, due to the living in these parts of a special vegetable organism, called the bacillus tuberculosis. For varying periods of time, this vegetable growth remains confined to the part affected; after varying periods of time, this vegetable growth is discharged from the part affected, and if it finds congenial soil in the same, or in another, patient, it will again begin its life growth.

To express this differently and apply it to the problem indicated by the title of this paper: Today, in Boston, a very large proportion of the men, women and children have a weakened vitality of one or more parts of the body, furnishing excellent food for lower forms of life. Upon these weakened parts, in a large number of cases, is growing the vegetable organism called the bacillus tuberculosis; in a large number of these latter cases, the growth of the vegetable organism has been so great and the destruction of the part of the body affected has been so extensive that these little plants, together with the broken-down tissues upon which they have been growing, are being discharged from the patients and, meeting unfavorable conditions, are dying, or, meeting favorable conditions in the same or other persons, are renewing their vitality and growing and reproducing, to repeat the cycle over and over.

Coincident with the growth of this parasitic plant is the destruction of the part upon which it feeds; and, further, as the parasitic plant is a living thing, the making and giving off of waste products is incident to its life; these waste products are absorbed into the circulation of the patient and there act as poisons or *toxins*, which impair the vitality of the whole system. In this way this parasitic plant attacks the patient both locally and generally, and causes all stages of ill health up to death.

The one fact that stands out prominently in this bird's-eye view of the subject is that the problem is *dual*. It is the parasite and the host; the plant and the soil; the disease-causing germ and the prepared patient. And the human experience of centuries and the later researches of the laboratory show not only the same duality, but show also that the dual factors are strictly complementary. The relation of these dual factors may be broadly stated thus: The more favorable the soil, the less vigorous must the plant be to grow in it; and, conversely, the more vigorous the plant, the less favorable need be the soil.

Laboratory research, thus far, has shown:

(1) That the human body when in a state of high vigor or vitality or health, possesses in itself cells which bodily destroy these parasitic plants, and other cells or tissues which manufacture a chemical compound which antidotes the toxins produced by the life growth of the plants. Thus, the most unfavorable soil for this plant growth is a living body in a state of full health and vigor, as this means that both phagocytes and antitoxin-producing tissues are in full fighting trim.

(2) Laboratory research has shown, again, that these plants vary in strength or vigor or, to use the laboratory term, in *virulence*. It has shown that the power of the plant to overcome unfavorable conditions of soil depends on the vitality or virulence of the plant garden or *culture;* and that this virulence may be increased or decreased at will.

The logical sequence of this research is that the extinction of tuberculosis depends on the dual factors (1) of putting the men, women and children in the condition of highest vitality and vigor, so that they may of themselves be prepared to destroy any tuberculosis plants which may gain access to any part of the body, and (2) of decreasing the virulence of the tuberculosis plants wherever they may exist. Clinical observation in every physician's practice and in the experience of every community is in harmony with these results of laboratory research. The laboratory has shown us that tuberculosis can be controlled and cured. Stumbling clinical experience has shown us the same. Has the time not come for Boston to stumble blindly no longer, but to apply the clearly demonstrated facts of scientific research to everyday life, and to deliberately and purposefully control tuberculosis and eradicate tuberculosis, as we have already controlled and practically eradicated other former scourges?

It is not possible to say exactly how many people in Boston are cultivating little gardens of this parasitic plant, but the number must be very large, since, today, one-sixth to one-seventh of all deaths are due to tuberculosis, and the pathologists tell us it is comparatively rare to make a post mortem and not find traces of the person having had tuberculosis at some time in his life. But, indeed, exact statistics are not necessary to arouse interest in this subject; every district, every neighborhood, every family can give its own sad, personal statistics. The important fact is that tuberculosis is so widespread that its control has passed beyond the limits of individual powers. No individual, no family, no neighborhood can take efficient measures of control; it permeates the whole community, and it must be fought by the whole community. No law can control it, no law can exterminate it. The law can by penalties discountenance certain actions, but it can not regulate the details of people's lives, their eating, drinking, clothing, sleeping,

members were appointed a Committee of Ways and Means; of this latter committee the writer has the honor of being a member. This Committee of Ways and Means reported that tuberculosis is so widely distributed through out the community that its control has become a municipal question. Receiving authority to act, the committee then brought the matter before the City Government. The view of the committee was at once endorsed; the mayor gave it his hearty support; a bill appropriating a large sum of money was introduced in the City Council; and the Board of Aldermen gave a public hearing at which members of the committee and many prominent citizens spoke. The State Legislature passed a special bill giving the city of Boston power to act in such a matter, and eventually the City Government appropriated $100,000 for the purpose. At the present writing the question has progressed to this point. This paper explains in detail the suggestions made by the writer before the Suffolk District Medical Society and at the hearing by the Board of Aldermen.

breathing, even thinking, and nothing less than this is demanded for the eradication of tuberculosis. The people, the whole people, must learn that the prevention, cure and extermination of this diseased condition resides primarily in themselves; that no city government, no board of health, no hospitals, no system of sanatoria, no doctors, no medicines, can do what each man, woman and child must do for himself, every day of his life. All these other measures enumerated are, each in its place, valuable adjuncts but valuable only as seconding what he does for himself.

When a disease is to be combated, the first thought in the mass mind is that doctors and special hospitals will take care of the problem. In this case, sufferers from the disease are so numerous that enough hospitals could not be built to hold them all. The great source of difficulty in controlling tuberculosis is that stress being laid on its being a contagious disease, analogy and precedent lead us to group it with other contagious diseases and instinctively to call for similar methods of treatment and prevention. The first essential is to see how far a wise analogy and precedent will guide us. In studying the contagious diseases we find that, as regards prevention, they may be divided into two main classes: (I) Those in which matters of hygiene and sanitation are of prime importance, so that it is not chimerical to think that the ultimate eradication of this class of disease depends primarily on hygiene and sanitation. As a type of this class may be taken typhoid fever. The prevention and ultimate eradication of this class of contagious disease rests principally with the community as a whole. (II) Those which, while matters of hygiene and sanitation are of fundamental importance, are yet so insufficiently controlled by them as to lead us to think that the ultimate eradication of the diseases depends on some factor additional to hygiene and sanitation. In this class may be placed measles, scarlet fever, etc. In the prevention and ultimate eradication of this class of contagious disease, not only is the community as a whole responsible, but an additional necessity is further research by the specially qualified medical and biological professions.

In which of these classes may tuberculosis, at the present day, be placed? Remembering always that all contagious diseases are dual, that the plant and the soil must both be considered, shall we classify tuberculosis with typhoid fever in that while the plant and the method of contagion are well known, we know practically nothing of the predisposing soil; with diphtheria and Asiatic cholera, in that while the plants and the methods of contagion are more or less well known, only a little is known as to the predisposing soil; with scarlet fever and measles, in that plant, methods of contagion and elements of predisposing soil are all shrouded in darkness; and so on? Each contagious disease differs in so many ways from all the others that classification can be only in the most generalized way, as indicated above; and according to this classification, tuberculosis would belong in Class I. This classification is of the utmost importance. If people are taught simply that tuberculosis is a contagious disease, they immediately class it with smallpox, scarlet fever and diphtheria, and the consequence is the condition of panic which is becoming more evident every day. The mere suggestion of its presence tends to create a stampede; persons suffering with any kind of a cough or catarrh are ostracized socially; hotels, cities and whole sections of the country are quarantined; or they themselves seek to establish a quarantine against suspected patients. Everyone eyes his neighbor askance, with the result that people really suffering from tuberculosis are now driven in self-defense to try to hide it, and this attempted secrecy not only embitters the life of the patient and his caretakers, but it hinders his recovery and really increases the danger to himself and to the community. What people should be taught is that tuberculosis is a contagious disease, but that the contagion is controllable; that patients caring for themselves properly are not a danger to their surroundings, and that, so caring for themselves, they have a right to the same freedom of life, occupation, travel and sojourn as their unaffected neighbors. It follows logically from this that patients who do not control their contagion are guilty of offense against the welfare of the community, and should be taught, controlled or punished, according to circumstances, as we already teach, control or punish offenders against the decency, the health or the safety of the community.

The reasons for placing tuberculosis in the class described are that today we know perhaps more of the tuberculosis plant, its distribution, its laws, and the soil which favors its growth, than we know of the conditions of any other contagious disease. We know the plant is one of general distribution but of low vitality, tending to die or to remain passive and merely existing, gradually dying, powerless to grow except under the favoring environment of lodgment in the body of man and certain warm-blooded animals. Its growth is inhibited by light and favored by darkness; by temperature below 28° C. and above 40° C. It is easily killed by sunlight or even ordinary diffused daylight and by dryness. It is distinctly a parasite, and its growth in the human body depends on the existence of weakened tissues. Its virulence when lessened may be restored and increased by passing through susceptible animals. Its growth in the human body is entirely stopped and the plant itself killed by increasing the resistance of the system so that the antitoxin-producing tissues will be able to manufacture sufficient antitoxin to antidote the toxins made by the bacilli, and so that the phagocytes will be strong enough to destroy the bacilli themselves.

This increased fighting power of the system is attained by exposure of the patient's lungs to the open air, day and night, all the year round; by the practical obliteration of window-sashes and the control of the weather sensations by suitable

clothing; by the patient being entirely out-of-doors and in as much sunlight as possible for a minimum period of 10 hours a day; by carefully regulated passive and active movements and exercises designed to increase oxidation and heart and lung capacity; by cessation of active movements whenever the fever-producing toxins are present; by the carefully prescribed use of hydrotherapy to increase oxidation and heart and lung capacity, to tone up the nervous system, especially the vasomotor nerves, and to promote excretion; by eating judiciously selected, properly cooked food in such quantities and at such frequently repeated intervals as digestion and assimilation permit; by judicious medical supervision of the daily life; by surgical removal of such tubercular growths as do not yield to the general treatment and as can be safely reached.

It has been pointed out that the tubercle bacilli reach their most luxurious natural development, and hence their highest degree of natural virulence, in the human body and in certain warm-blooded animals, in a condition of lowered vitality. Now, the great causes of lowered vitality in people are, first, lowered vitality of their parents. However, Nature is conservative and every living thing is born into this world with upward tendencies. After it enters this world, it is subject to the laws of its environment, which are the same for all. The only difference is in the degree of reaction of differing individuals to these laws. Leaving the disputed and unsettled question of inherited tuberculosis, it may be accepted that a condition of lowered vitality, predisposing to the formation of favorable soil for the growth of the tubercle bacillus, is a frequent inheritance. Such people differ from people of other ancestry in that they must make more strenuous effort to increase their resisting power (as already indicated) and to escape the other great causes of lowered vitality which exist in environment. These great causes are: (1) Insufficient food; (2) insufficient air and light; (3) overwork; (4) worry.

(1) *Insufficient food.*— Insufficient in actual quantity, or relatively insufficient, from deteriorated quality, from adulteration, from substitution or from bad cooking or from unsavory serving.

(2) *Insufficient air and light.*— Actual insufficiency, as from overcrowding or from living in rooms possessing insufficient windows opening to proper air and light; or relative insufficiency, due to keeping windows closed on account of kind of employment, or from lack of sufficient fuel or clothing to protect from the weather, or on account of surrounding dust or noise.

(3) *Overwork.*— Too long hours; work disproportioned to strength in either duration or stress, or both, especially in children and in women who are incapacitated by ills developed by marriage, child-bearing, etc.

(4) *Worry.*— The increasing pressure of the struggle for existence in accordance with the demands of modern civilized life, especially according to the American standard; anxiety from insufficient tenure of employment; from insufficient wages.

The writer has purposely omitted from the above groupings individual causes of lowered vitality, and has included only those which are pertinent to the objects of this paper; that is, those considerations which the people of Boston, as a whole, must consider and act upon. Broadly speaking, the conditions enumerated are due to ignorance and poverty. I place ignorance first, and, indeed, it would be all comprehensive if I said ignorance alone is sufficient to explain the prevalence of these conditions, for poverty in Boston today is due only to ignorance. I can only indicate this, within the limits of this paper, by pointing out the remedy which the people of Boston must apply. The remedy lies not in teaching the community that tuberculosis is a widely distributed contagious disease, that patients who have this disease should be isolated and quarantined as are patients with other contagious diseases, and that a few hospitals or sanatoria must be built to receive the most hopeless or the most ambitious cases. On the contrary, the duality of the problem must be taught to all the people. Everyone must learn that the disease is due to a plant that will not thrive unless it has favorable soil, and that its most favoring soil is the human body in a condition of lowered vitality; that the natural virulence of the plant is increased by passing it through such human body; and that the bodies of the underfed, the overworked, the overcrowded and the unemployed or the precariously employed are the city laboratory, in which the virulence of the plant cultures is maintained and increased, and from whence it is, and always will be, continually distributed to the employed, the well fed, the well housed, the comfortable and the happy. If we will not be our brother's keeper, we awake and find that in some terrible way our neglected brother has become our destroyer. The poor man is at the mercy of the rich man for his daily bread, but the rich man is at the mercy of the diseases cultivated in the poor man by this daily bread being insufficient for maintaining a vigorous vitality.

How can such a stupendous lesson be taught? An unpaid municipal tuberculosis committee should be appointed — a committee of men and women fitted to grasp the subject in its entirety. This committee would study the subject broadly, and imparting its knowledge to the people, would soon have such an enlightened public sentiment behind it that no difficulty would be found in enforcing its recommendations. A series of popular lectures should be given in the public school buildings, in the evenings, to the parents and friends of the pupils, thus at once reaching into the centre of the mass of the people. The success of such a plan is very evident in New York, where a similar course of lectures on various subjects has become a permanent institution. In 1892, when Asiatic cholera threatened to visit this country again, the writer was one of a number of physicians invited to speak in this course on "Asiatic

Cholera: What it is and How to Prevent It," and she can vouch for the size and attention of the audiences. There is no doubt these lectures were a potent factor in averting the usual panic, as well as enlightening the mass of people regarding a visitation that would otherwise be but a cause of superstition and despair. In the schools themselves, the dependence of tuberculosis on hygiene and sanitation, as exemplified in the daily life, should be as important as arithmetic. Sub-committees should study the question of dust and noise, so that the great objection to open windows should be overcome. Can anyone believe that if the people of Boston really wanted to keep their windows wide open, street dust and noise could not be controlled? Other sub-committees should study the subject of foods, their cooking and serving.

It is a truism to say enough food is wasted by bad cooking and unappetizing serving to feed all the hungry. Anyone who has time or interest to examine the matter will be amazed, as has been the writer, to find how almost impossible it is, today in Boston, for a working man or woman who has not a housekeeper, to obtain good food, properly cooked and even fairly served. Mrs. Ellen Richards and her co-workers and the New England Kitchen have shown how unnecessary this is, but some concerted action on a large scale is necessary. Such a sub-committee as is suggested is what is needed. A sub-committee on tenements and dwellings and one on other buildings, workshops, factories, schools, churches, etc., would work to increase air and light space. A sub-committee on employment would endeavor to readjust workers and conditions — there is plenty of undone work, there are plenty of workers; the two factors need a third to make them complementary. The sub-committee on nursing and disinfection would have charge of visiting nurses, who would teach the people in their own houses how to receive discharged bacilli and render them harmless, and how to care for patients with safety to themselves and others.

The question of disinfection would be considered by this sub-committee in a rational manner. People would be taught that the best disinfectants are fresh air plus soap and water, and that where these latter cannot be applied (walls, bedding, upholstered furniture, etc.), a penetrating gas is the best substitute. This view of the subject would remove the superstition and panic attached to disinfection, and would make a daily disinfection of enclosed spaces frequented by heterogeneous masses of people (as lodging houses, cabs, street and railroad cars, etc.,) as much a matter of course as are now the absurd attempts at cleaning these enclosures by sweeping and dusting.

A model sanatorium should be erected in each section of the city, which should be a living example of what the people should emulate in their own homes; and selected cases should be sent there for short periods of time, not so that the public should carry the burden which should be borne by the family and friends, but so that the patient might learn by experience how to live at home. Finally, but last of all in importance in eradicating tuberculosis, there should be a hospital, distinctly charitable, to receive those poor, desolate people who cannot care for themselves and who have no home, family or friends. If the problem is properly faced, and the burdens placed where they rightfully belong, this hospital, under the plan outlined in this paper, will not need to be a very large one. The people should be taught what the disease is, that it is preventable, that it is controllable, that it is curable, but that the prevention, control and cure reside first of all in the patient himself; that the committee will teach him the methods of prevention, control and cure, and will help him to apply them, but that he must do his share for himself, and that he must protect from harm all who associate with him. The paternal system is not the American system; it is impossible to build enough hospitals and sanatoria to care for the tubercular patients in Boston — they are too numerous; if it were possible, it would not be the better way. That man's health is best guarded who guards it himself. Let every house be a sanitarium; some part of every house a sanatorium; let every roof be an out-of-doors resort; a selected corner of every roof a solarium. Thus, every family and every individual will work, each for his own good and all for the common good. Altruism does not appeal to all of us, but an enlightened egoism leads to the same material destination.

## RÉSUMÉ.

(1) Laying exclusive or even predominant emphasis on the contagiousness of tuberculosis is an error of fact as well as of judgment.

(2) Such a course is creating a condition of panic which works infinite harm and does nothing towards eradicating the disease. As a large proportion of the community has tuberculosis, this panic results only in universal suspicion, every person with a simple cough or catarrh being eyed askance; in social ostracism of individuals, even in the noncontagious stage; in foolish attempts at quarantining patients, and in unwise efforts to wall off the parts of the country climatically most desirable for people with impaired health.

(3) The course dictated by exact research is a recognition of the fact that the problem is dual; that tuberculosis is a diseased condition due to the growth of a vegetable parasite (the bacillus tuberculosis) upon a part of the body in a condition of lowered vitality; that this parasite when discharged from the patient affected is of low vitality and tends to die, especially when exposed to sunlight, to dryness and to temperatures below 28° C. and above 40° C.; that the extermination of this plant by attacking it outside of the living body is impossible, because its strong entrenchment is in the bodies of people in a condition of lowered vitality; that the virulence of the plant is maintained and increased by passing it through the bodies of such people, and that while such people exist the virulence of the plant can

never be destroyed; that the great sources in the community of such lowered vitality are (*a*) insufficient food, (*b*) insufficient air and light, (*c*) overwork, (*d*) worry. From this it follows:

(4) That the fundamental factor in the existence and increase of tuberculosis is the health of the mass of the people; and

(5) That the community which does not vigorously attack the removable causes that lower this mass health, passively supports a city laboratory for the manufacture and maintenance of virulent cultures of the tubercle bacillus.

(6) The only definite decrease in tuberculosis statistics yet recorded is (*a*) the cures effected in patients who adopt some modification of the open-air life, with superfeeding and freedom from overwork and worry; (*b*) the improvement in certain New England statistics during late years, the only changed factor of general extent being the almost universal use of the bicycle and other recreations tending to increase outdoor life, especially among women, and (*c*) the decreasing statistics of tuberculosis in German villages where tuberculosis sanatoria are established, the lives of the villagers, consciously and unconsciously, imitating the example of the sanatoria.

(7) In view of the conditions outlined above, and as Boston has now appropriated money and is standing ready to take municipal action looking towards the control of tuberculosis, the writer would suggest the following: An unpaid municipal tuberculosis committee of men and women fitted to view the subject broadly. Sub-committees on air and light in tenements and dwellings; in other buildings, as workshops, factories, schools, etc.; on cooking and savory serving of food on a large enough scale to give the poorest a chance to be well nourished; on employment, to put the vast army of unemployed or precariously employed in connection with the equally vast field of undone work; on dust and noise, which decrease the available air and light in even the wealthiest and wisest households; on nursing and disinfection; and so on. These committees will find many organizations of men and women already trained, but working now in isolated groups; this municipal tuberculosis committee will be the needed centre with which these trained groups can cooperate to make a coherent whole. To mention but one of the many lines of thought suggested—how those wise people who have established the "country week," the "fresh air excursions," the "vacation week" and kindred institutions, but who have striven unsuccessfully in other ways with the problem of the congestion of cities; how these people will find this problem illuminated and made easy by the teachings of this committee, that leaving the congested quarters of the city and beginning life anew in the suburbs or in the country is no arbitrary whim of charity or philanthropy, but is literally health and life to themselves and to those dear ones who are fading away before their despairing eyes.

(8) A model sanatorium should be erected in each section of the city, as a living example of the method of living which cures. To these sanatoria selected cases should be sent for short periods, to learn the lesson by actual experience; returning to their homes they will themselves be teachers to ever new and widening groups.

(9) Finally, but of least importance for the eradication of the disease, a distinctly charitable hospital is needed to care for the really destitute and desolate. But with the wiser, better control of the situation by the whole community, and if this charity is guarded against the abuse from which all medical charity suffers today,[3] this hospital will not need to be a very large one.

## SIX CASES OF OPERATION FOR CLEFT PALATE.[1]

BY C. A. PORTER, M.D., BOSTON,

*Surgeon to Out-Patients, Massachusetts General Hospital.*

I HAVE 6 cases of operation upon cleft palates to report as a contribution to the surgical treatment of this defect.

CASE I. A girl of 9 months, with hare-lip, protruding intermaxillary bone, and complete cleft of the hard and soft palate. The hare-lip had been previously operated upon, the intermaxillary bone had been turned inwards, and it was extremely difficult to get sufficient tissue for approximation. Result, complete breaking down in 4 days.

CASE II. Man of 35. Complete cleft of soft palate, and posterior half-inch of hard. As the man had a bad mitral lesion, operation was done under cocain, without requiring lateral incisions; primary union.

CASE III. Girl of 16. Cleft of hard and soft palate; lateral incisions; complete primary union.

CASE IV. Girl of 3. Hard and soft palates; lateral incisions; complete primary union.

CASE V. Girl of 4. Hard and soft palates; lateral incisions; primary union.

CASE VI. (*a*) Girl of 18 months. Hard and soft palates; lateral incisions; absolute failure at end of 3 days.

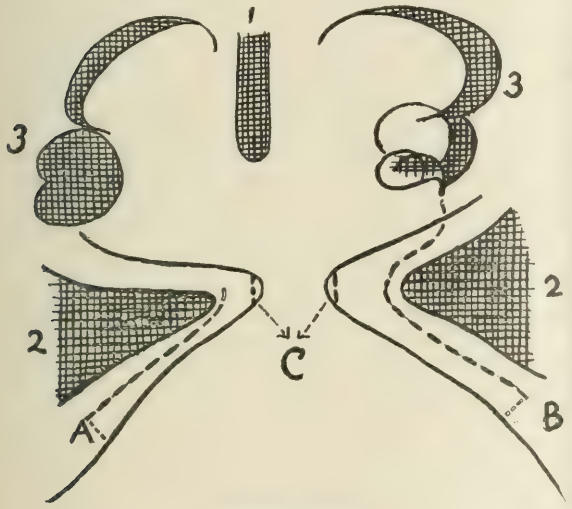
CASE VI. (*b*) Same case. Second operation, at age of 2½ years. Complete primary union.

While these cases are not many in number, the percentage of good results is probably above the average, and I attribute my success to a careful observation of the many operations done by my father, Dr. C. B. Porter. I have followed his operation in all essentials, with a few minor exceptions. I have not used plates. I have operated on younger cases than he has advised. I have made, I think, one important modification in the subsequent treatment of young patients, which, so far as I know, has not been previously mentioned. Immediately after operation the child is held firmly in bed, on its back, with a swathe. The hands are confined at the wrist by a band, which is pinned to the swathe in such a way that, while a certain amount of motion is possible, neither hand can reach the mouth. Both nostrils are plugged with cotton wool as soon as the child recovers from ether. Mouth breathing thus be-

[3] Agnes C. Vietor: The Abuse of Medical Charity. Boston Medical and Surgical Journal, May 4, 1899.

[1] Read before the Surgical Section of the Suffolk District Medical Society, November, 1901.

comes a necessity, and the palate, instead of being moist, is dry, and maceration does not occur. As a result of this confinement, the child is frequently very restless and fretful and requires most careful nursing; for instruction is given that the child should be kept from crying by small, frequently repeated doses of bromide and chloral or deodorized tincture of opium. The amount of these drugs which have to be given is very variable. I have noticed that such children require relatively large doses of opium to keep them quiet, and that while they are taking this they seem to be somewhat stimulated by it. Upon the withdrawal of the drug, however, the child is apt to sleep soundly for 24 to 36 hours. With a spoon, a little brandy and water may be given, but for the first 3 or 4 days the rectum should be used for saline and nutritive enemata every 6 hours. At the end of 4 or 5 days liquids may be given by mouth. In only 1




Vertical Section.

(1) Vomar.
(2) Hard palate.
(3) Turbinated bones.
(A) Usual incision near alveolar arch, periosteum and mucous membrane dissected up in flap.
(B) Incision prolonged through flap into nasal side of cleft, thus allowing flap to be swung clear to median line.
(C) Denuded edge of cleft.

case has any serious condition developed. This child (Case VI, second operation), on the fifth day, had a high fever, a very rapid pulse, with sunken eyes, and a dry scab on the palate. It was found out, on careful inquiry, that the saline enemata had not been given for 2 days. The plugs were immediately removed, the child frequently fed by mouth, and in 24 hours was again in good condition.

The majority of these children resent, by crying and struggling, any interference with the wound, and it seems to me that frequent swabbing of the mouth with peroxide of hydrogen, etc., does more harm than good. I have, therefore, preferred not to look at the wound for 3 or 4 days. In older children or adults, who are more tractable, the palate wound should be cleaned frequently with peroxide, and antiseptic nasal douches should be given several times in the 24 hours.

With regard to the technique of the operation, from a consideration of the failures which I have seen, it seems to me that the following points are of great importance:

A careful and complete denudation of the whole cleft, best accomplished by grasping the tip of the uvula with fine forceps, and cutting from before backwards, on either side, a continuous strip of mucous membrane about one-eighth of an inch wide. If, as sometimes happens, the edge appears too thin, the flap may be split for one-eighth of an inch before suture, thus giving a broader surface for approximation. Two lateral incisions, from the level of the canine teeth, close to the margin of the alveolar arch, back to, and through, the fan-like expansion of the tensor palati muscle. Each incision should not be nearer than one-half an inch to the tendon of this muscle, where it winds round the hammular process. By these incisions, tension on the stitches through the soft palate is avoided, and, after healing, the tensor palati again resumes some of its function. The levator palati muscle should not be cut. Enlarged tonsils and adenoid vegetations should be removed previous to operation. In 2 cases, where this had not been done, I have had troublesome bleeding and a larger raw surface than necessary was left open to infection. The most important point of all is that the edges to be sutured should never be crushed by grasping them with forceps and all tension must be avoided. I have seen several cases where tension was kept up by a lack of free division of the mucous membrane on the nasal side of the palate. This can, if necessary, be divided.

As a rule too many stitches are used. These stitches are placed too near together and not far enough from the edges of the cleft. Furthermore, the stitches are *almost always* tied too tightly, owing to the difficulty of tying them in such a small space, and not infrequently to the child's struggling under partial anesthesia. Subsequent swelling occurs from the trauma and infection, and the sutures, which at the operation may have been apparently loosely tied, will be found to be cutting on the second day. I have endeavored to place the stitches three-eighths of an inch apart, and the same distance from the edge of the wound. Usually six stitches will suffice. A non-absorbent suture is indicated. Silver wire, I think, causes too much irritation to the tongue. Silkworm gut frequently causes a small slough under the end of the suture. I have therefore used silk, previously soaked in Balsam of Peru. The stitches should be removed at the end of a week, and in spite of all precautions will probably have cut a little by that time.

Rose's position is, without question, superior to any other. Unless contra-indicated from the condition of the child, or the bias of the surgeon, chloroform anesthesia is unquestionably superior to ether, owing to the more quiet breathing and

absence of mucus. In children the danger of accident is very slight.

I have not yet used the old-fashioned silver plates advocated by Dr. Fillebrown. However, I can understand that in certain cases they may be of advantage.

The after-treatment of cases operated upon, has, I fear, been too much neglected. Adhesions about the palate should be divided, where present, and the soft palate exercised, massaged and made movable by voluntary contractions in adult cases, and by passive motion and stretching with the finger, in children. The power of speaking properly, in spite of a good technical result after operation, is almost always in direct ratio to the time spent in instruction and the intelligent effort of the patient.

One other consideration arises in regard to the question of the removal of enlarged tonsils and adenoids, previously mentioned. It seems not unlikely that they may, in certain cases, aid in closing the nasopharynx, and may thus be of definite advantage in speech. It occurs to me also, though I have had no experience, that submucous injection of paraffin, or white vaseline, as advocated by Gersuny of Vienna, may be of advantage in diminishing the nasopharyngeal space at a point opposite the soft palate.

## THE TREATMENT OF CONGENITAL CLEFT PALATE BY MECHANICAL APPLIANCES.[1]

BY DR. GEORGE A. RAYMOND, BOSTON.

IN presenting this subject, I shall try to omit some of the material which I have given before other medical societies, including one which I read before the Boston Society for Medical Improvement, which was published in the *Boston Medical and Surgical Journal* Dec. 9, 1897. And yet I find it necessary to retrace my steps to a certain extent. In my former papers I have demonstrated that there is but one function impaired by the deformity of cleft palate which justifies any attempt in its restoration, namely, the restoration of the normal voice. The inability of the infant to swallow may for a very short period seem to demand some attention, but long before a child is old enough for either an operation or an appliance (unless you operate at once) the nimble tongue has overcome the difficulty, and it has adapted itself to the conditions.

In order to have a good speech, there must be a roomy oral vault without obstructions. For the production of all the open vowels and all the consonants save the nasals, there must be perfect closure of the post-nasal space.

When the vault of the pharynx is shut off, the velum is so raised that it extends for a little space directly backward on a level with the palate bones, and then curves gradually downward and backward, its posterior surface striking the posterior wall of the pharynx, which process you are familiar with; therefore it is unnecessary for me to take your valuable time to explain those physiological functions.

In my former declaration I stated that I had been unable to find a single case where a perfect speech ever resulted from a surgical operation. Notwithstanding all that is claimed by the men who advocate the surgical treatment, I am obliged to declare that I cannot find any trace of a case where a perfect speech has resulted. I have seen them stand up and say "mamma" and "papa," and a few such words, but one of the worst cases I ever saw was a child who could say "mamma" and "papa" as distinctly as you and I can, but in every other way you could scarcely understand anything she said. There are certain known elements of speech, giving sounds and combinations of sounds that, if the speech be perfect, they must be able to articulate distinctly. In the onward march of progress a few zealous operators during the past few years have taken up the work with renewed interest, and now we are confronted with their claims of success in attaining to a perfect speech by some new methods of procedure in the operation. I will admit that with care any careful operator can close the cleft and make it a surgical success, but after years of investigation, and having examined a large number of cases, I will say that in no case have I found anything with even a resemblance to a physiological palate; hence their failure in producing a good speech.

During the past two or three years I have had cases presented to me where they thought they had seen the fruition of their hopes, and made the operation as successful as other operations of equal importance.

When we consider, however, that the great body of physicians and surgeons fail to find an improved speech, we are led to feel that there is something mysterious about such claims. Why, gentlemen, we even hear of faith cures and of Christian Scientists doing those things, and louder claims than this are in the air today; but I fear that they will always remain in the air. Some time ago a young lady from Portland, Me., whose case had been brought to my notice by her Christian Endeavor friends who wanted me to make her an appliance to correct her very bad speech, as the result of a cleft palate. Imagine my surprise when she wrote me that "She had asked the Lord to heal her speech, and she believed he had done so, although she herself had not received the full consciousness of it." Someone is to blame! With the mechanical appliance carefully fitted and adapted with the greatest possible accuracy, I find no difficulty whatever in having even a child become so accustomed to it that it is worn with as much ease and comfort as a set of teeth is worn by an adult.

I presented a case before the Improvement Society,—that of a child fitted to an appliance at the age of eight years, during the summer of 1895. She has worn the same appliance ever since, and her speech became so perfect that

[1] Read before the Surgical Section, Suffolk District Medical Society, Nov. 6, 1901.

every one pronounced it about perfect. She has now reached the age where the further development of the mouth and other organs makes it necessary to make a new appliance, as the limitations are now so great that the speech would very soon become impaired unless we fit the second appliance.

This is one of the advantages of the appliance, for you can at any time meet the requirements made necessary by the development. With the operation, what you may gain in childhood is lost when they arrive at an adult age. Realizing that the only hope of an operation being anything like a success, it has been done in very early childhood, but in after years we have found that the limitations brought about by the development of the surgical palate not being commensurate with the other organs of the mouth and throat, the last condition was worse than the first. To illustrate this fact I presented a case before the South District Medical Society at Cambridge some two or three years ago. A young lady who has grown to womanhood was operated on in Boston by one of our most distinguished surgeons. The operation was done in early childhood, and what she seemed to gain by the early operation was entirely lost when she reached an adult age. Her speech is now even worse than it would have been had she been left alone. Her name is Jennie, but if she speaks her name she will say "Yennie." This young lady has kindly consented to be here tonight so that you can hear her speech in person. I have also a model of her mouth, which you can see at the close of the meeting.

Another case, of a young man, son of a Boston barber, who was operated on some time ago at one of our hospitals in Boston, has many of the same defects; for instance, he will say "heam" for steam.

The only thing we can do now is to undo the operation, and fit appliances.

Mrs. C., 28 years old, was fitted to an appliance by a dentist when a young girl, but by its improper adjustment to the conditions she was unable to wear it. I fitted her to a new appliance in 1894, which she has been wearing ever since, and she can clearly articulate any and all the elements of speech. Dr. Richardson has seen this lady and heard her speak.

Miss W., 21 years old, with a wide congenital cleft of the soft palate reaching forward a little way into the hard palate, and including hare-lip. I fitted her to an appliance in 1897. She has since cultivated her voice in singing, and her speech is so perfect that she can pronounce any word or sentence in the English language, giving every element of articulate speech as perfectly as I can myself. Dr. Richardson also saw this young lady while she was here on a recent visit from her home in the West.

Miss F., 32 years old, sent to me from Pennsylvania, was fitted to an appliance by a prominent specialist in this department, some 10 years ago, in New York City. The appliance used was what is known as the soft-rubber velum, which is supposed to be flexible enough to allow the required amount of flexibility to the palate in the mechanism of speech. But in the wearing of such an appliance I found that the muscles were sort of cramped, as it were, and therefore was a hindrance to a clear articulation. I fitted her to an appliance, about a year ago, and in this case there was a marked improvement in the speech at once,— that is, I should say, as to quality of tone. She has done so well in the use of her appliance that I expect to make similar appliances this winter for a younger sister, and also a cousin, having the same trouble. As a matter of speech, we do not look for perfection at once, but if the former limitations are removed, I find that, just as soon as they become accustomed to the use of the appliance, the tone is changed in quality as much as the tone of a violin with the sounding-post put back in position after having been taken out, or the bridge changed from the wrong to the right position.

I have several times demonstrated the quality of speech on the phonograph, as well as by allowing you to hear them speak in person.

Miss D., aged 15 years, came to me 4 years ago this last summer through Dr. Richardson. The cleft was not large, but let me say right here, that some of the worst cases of speech I have ever seen have been cases where the cleft was small. This young lady is now attending one of our suburban schools for young ladies, and you will hear her speak in person tonight, that you may notice the improved speech brought about by the wearing of such a mechanical device. Of course, from 15 to 19 has brought some slight change in development, but still, the speech is very satisfactory indeed, and at such times as the limitations become greater by development we will make the necessary changes.

Mr. W., 23 years old, was fitted to an appliance 2 years ago. He has an exceedingly large cleft covering the whole roof of the mouth, the opening being about 2 inches wide at the back and reaching forward to within less than half an inch of the front teeth. You will see that formerly the cleft extended through the alveolus, terminating with the hare-lip. The lip was closed in Edinborough, Scotland, and an attempt was made, I think, to close the cleft, but was given up.

I did not know as I could retain a plate in the mouth firm enough to carry an obturator of such magnitude, but he has tolerated it with quite a degree of comfort. I am thinking of some little changes of adaptation, but consider the case one of interest, great enough to warrant presenting him to you tonight. I think he will be willing to let you hear his speech without the appliance.

The claim has been made by the advocates of the surgical treatment that neither the appliance nor the surgical treatment will give a good speech after one arrives to an advanced age. I find, however, that I can improve the speech very greatly at any age, but of course the younger the child the more nimble will be the tongue to imitate sounds. I could recite many other cases, and some even

more interesting, perhaps, than these, but will not trespass any further on your time.

Dr. Raymond exhibited the following cases:

(I) Miss H., 28 years old, operated on by one of Boston's renowned surgeons in her early childhood. She was asked to read the announcement of the meeting. Very few of her words, however, could be even understood, her speech being very defective. Dr. Raymond presented this case to prove his assertion that even an early surgical operation does not result in a good speech. This young lady had all the special instruction that could be given her by the best teachers in Boston, but her speech is now even worse than it would have been had she been left alone.

(II) Miss D., now 19 years old, with a congenital cleft in the soft palate, who was fitted to her appliance 4 years ago, came before the meeting and recited a selection showing her greatly improved speech by the mechanical appliance. Every element was so clearly uttered that no one would know that she had any defect whatever. In the young ladies' seminary where she is studying, even her teachers do not recognize anything out of the ordinary. Dr. Raymond had some ladies come from Pennsylvania, and while waiting in the office to see an appliance in the mouth of an older lady who was engaged to come in, this same young lady was present talking all the while, and they were more than surprised when they learned that she had a cleft palate.

(III) Mr. W., 25 years old, with a very wide cleft extending through both hard and soft palate, the opening reaching to within less than half an inch of the front teeth, at the back the opening being 2 inches wide. He has worn an appliance 2 years, and it was here shown that his speech was almost faultless. He is now filling a position which it would have been impossible for him to have filled without his appliance.

## RABIES: REPORT OF CASES.

BY CHARLES J. PATTON, M.D., CHICAGO, ILL.

*Late Resident Physician Cook County Hospital, Chicago.*

L. F., a French Canadian, age 46, a carpenter by occupation, was admitted to Cook County Hospital at 12.35 P.M. on the 23d of November, 1899. Patient said that he was bitten on the thumb of the right hand 11 weeks before by his own dog, which had been poisoned. The animal was chained up, and in its dying condition was in a highly excited state; he was trying to quiet it when it snapped at him, fastening its teeth just below the base of thumbnail. The dog had shown no dangerous symptoms before the poisoning.

The wound was cauterized and attended to by a physician, but suppuration set in, continuing for some weeks; the nail sloughed off; there was considerable localized pain, and the patient was unable to work during this period. Finally, suppuration ceased, the wound healed, the nail began to grow again, and he returned to work.

About 6 days prior to admission to the hospital he began to have a feeling of uneasiness, was nervous, had chilly sensation, with shooting pains in the body and to a lesser degree in the extremities; he experienced peculiar fits of depression; had to give up his work, but continued to do chores about his house. Following soon after these symptoms recited he complained of difficulty in breathing, a feeling of weight upon the chest with a catching sensation in larynx, a most uncomfortable suffocating symptom, producing a kind of spasm to overcome it. He noted, also, a numbness, beginning first in the hands, extending then to the arms, and gradually over the whole body. For 5 or 6 nights he had been unable to sleep, restless; for about the same length of time he had had difficulty in drinking water if given to him hurriedly, but could take solids; he had, in fact, partaken freely of a supper of meat, potatoes etc., the night before he entered the hospital, and also some bread and cheese the morning of entrance. Bowel movements and urination have been regular.

The patient's wife, who accompanied him, stated that she had been bitten about the same time by the same dog, but had had no abnormal symptoms. A nephew stated that the wife and neighbors had been almost continually talking to, or in the presence of, the patient of the possibilities of what might happen from the bite of a mad dog, until finally the man became so nervous that he could think of nothing else; that when he could be drawn away from these influences and his mind diverted, he acted and talked quite rationally. The patient walked into the hospital; was extremely nervous but fairly rational. His expression denoted great anxiety and fear at times, accompanied by a strange restless motion of eyes. The pupils were somewhat contracted, but responded to light and accommodation. The sclerotics were injected. The mouth was held open and the lips, tongue and pharynx were very dry. The skin was of a dirty straw color, poorly nourished, wrinkled and dry. There was a restless moving about of the arms and legs most of the time. The arms were weak, fingers of right hand could not be flexed or extended; he had more power in the left hand, but this was also weak. He said this condition of the hands had been gradually getting worse. The right thumb—distal phalanx—showed a cicatrix from the bite; he had also two cicatrices upon the back of the right hand which he thought were also result of the dog bite.

Abdominal muscles were tense. Superficial and deep reflexes were markedly impaired. Heat and touch senses were much diminished.

Systolic murmurs in the heart were heard best at apex; first sound hammer-like, pulmonic second sound accentuated; regularity of sounds.

Pulse 96, irregular, compressible but strong; temperature 100.2°; respiration 26; lungs, liver and spleen negative.

Liquids were offered him; if presented quite slowly, and after assuring him that they would

not hurt him, he would take a little, but these attempts were always followed by painful spasms of muscles of the larynx and mouth, and evident distress. If allowed to drink without any preliminary precautions the result was an immediate convulsion. He made complaint if a bright light was brought near, also of feeling draughts of air, although none were apparent to anyone else. The attempt to give him a warm sponge bath in bed had to be desisted from, as it started nervous paroxysms to such a degree that he was nearly uncontrollable from fright.

His family history was unimportant.

*Habits.*—Liquor and tobacco used moderately.

*Previous illnesses.*— Variola when young. Rheumatism many years previous, when he claims to have had some difficulty with hands and legs, which he thinks was somewhat similar to the present state of extremities (?). Chronic winter cough.

*Progress of case while in hospital.*— Treatment at first was directed toward obtaining for him quiet, rest and sleep. Sedatives and narcotics were administered. Relatives were prevented from worrying him, and every effort was made to allay his fears and give him encouragement.

On the evening of Nov. 23 (day of admission) the pulse rose to 104, but dropped to 80 after midnight; the temperature rose to 102°. He took about 1½ cups of milk at intervals. He was delirious the greater part of the night, but would at times lie perfectly still.

About 5 A.M., Nov. 24, slept for about half an hour, and drank a cup of milk at 8 A.M. and some water a little later. Before noon he could not take nourishment by the mouth and was given nutritive enemas. About 6 P.M. he felt better and actually ate a few pieces of meat and bread and drank a little tea from a tube; involuntary urination. The pulse ranged from 100 to 112, temperature about 100°. He slept greater part of the night; was quiet when awake.

Nov. 25, pulse averaged 112, temperature 100.5°, respiration 28. Nutritive enemas continued. About 11 A.M., while the nurse was attending to him, had a very severe convulsion lasting 5 to 10 minutes. Sank back exhausted. Cyanotic; did not rally. Died at 11.30 A.M., with no noticeable increase of paralysis.

An administration of the antidote was not considered, since disease had advanced too far. Apropos of this treatment Professor Wilcox, in White's "Materia Medica," writes: "The reports of the use of the hydrophobia antidote suggest that some of the deaths after treatment may be due to it rather than to the bite. Inasmuch as the incubation period is so variable, the pathological findings so inconstant and the symptoms so diverse, there is some reason for doubting the existence of the disease in man, at least, the majority of cases have been shown to have been those of various diseases. For this reason the antidote possesses but little interest save to those who are interested in spreading hydrophobia — phobia."

At first there was a question as to this case being one of lyssophobia, in view of certain statements in the history combined with the voluntary control the patient was able to bring into action at times in taking food and drink. But close observation soon demonstrated that any improvement was more apparent than real, that he was steadily failing, and that we had an undoubted case of rabies to deal with.

Respecting the fact that the wife, who also was bitten, did not develop the disease, Osler says that only a limited number of those bitten by rabid dogs become affected by the disease; according to Horsley, not more than 15%.

The incubation period in this case approximated the average, which is 6 to 9 weeks.

Two other cases I saw in the same hospital, also died within a short period after admission.

The first was a young man who had been bitten by a dog many months before (I think over six), so long that he had almost forgotten it, when he was rather suddenly seized with spasmodic constriction of the throat muscles. He was perfectly rational all the time in the hospital, clearly realized the situation, and would frequently ask for a drink just to test himself. As soon as he would get it to his lips a spasm would develop to such a degree that he would be thrown from his bed if not held.

The other case was a middle-aged man who attempted to caress a large Newfoundland dog lying quietly before the owner's door; the dog apparently misunderstood his intentions, sprang forward, and bit the man on the face. The wound passed completely through the cheek. It was cauterized by a doctor nearby. The man accepted a settlement from the owner of the dog and thought no more about it. Two weeks later he developed a difficulty in swallowing and a general uneasiness. When he came to the hospital he was staggering along like a drunken man, and as I was examining him for admission I at first thought he was drunk. He, however, was quite clear in mind, and excepting for the feeling of constriction of the throat muscles and a vague uncertainty of gait, said he felt well enough. In testing him with water he showed the characteristic spasm, although he made every effort to control himself.

In every case I have seen, the patient has been fairly rational, and has never attempted to do violence to anyone else. In no case were the dogs supposed to be rabid.

Unfortunately, the case of L. F. came under the jurisdiction of the coroner, and he refused to allow an examination of the cord.

The "rabic tubercle" of Babes is an accumulation of embryonic cells about the large motor cells of the anterior horns of the cord, causing their degeneration. The tubercle more recently described by Van Gehuchten and Nelis occurs in the spinal ganglia, and consists in a proliferation of the endothelial cells of the capsule which encloses the nerve cells, filling up the intercellular space and leading to the atrophy, invasion and necrosis of the nerve cells. When in conjunction with

one or both of these changes is found the perivascular exudation and congestion in the cord and brain, the diagnosis is reasonably established. Where the spinal ganglia can be obtained, Ravenel and McCarthy claim that they offer a simpler and easier method of diagnosis than do the brain or cord.

I have had opportunity lately to study such specimens in connection with some work recently reported by Dr. E. W. Taylor and Dr. Langdon Frothingham at a meeting of the Boston Society of the Medical Sciences. The drawings here reproduced are from a normal spinal ganglion of a

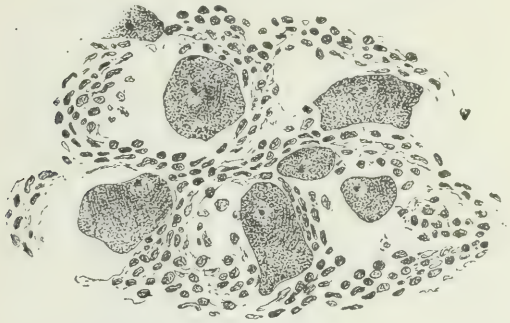


FIG. 1. Normal dorsal root ganglion, dog, showing nerve cells and their relation to the cells of the capsule.

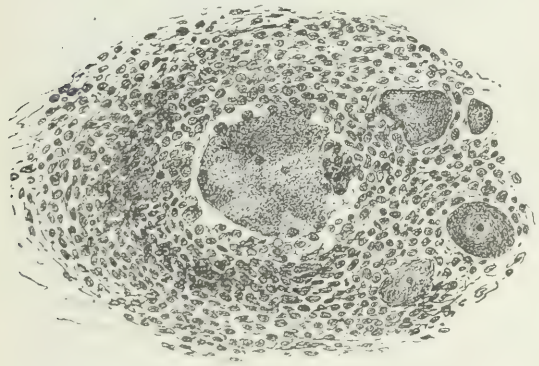


FIG. 2. Pathological dorsal root ganglion, dog, rabies, showing extreme proliferation of cells of the capsule, with accompanying necrosis of a nerve cell: rabic tubercle.

dog and from one taken from an animal suffering from hydrophobia. The changes regarded as typical of rabies are shown in Fig. 2, in which the proliferation of the capsular cells is marked, with the accompanying necrosis of a nerve cell.

An excellent recent résumé of our knowledge of this subject may be found in an article by F. R. Bailey.[1]

DURING 1901, according to a statement in the *Philadelphia Medical Journal*, 32 deaths from tetanus occurred in Baltimore, 26 of them in infants under 21 days of age. In no case did a case of tetanus occur after a vaccination, showing that the vaccine virus used here contained no tetanus germs, as that used in other cities has been claimed to do.

[1] Studies on the Morphology of Ganglion Cells in the Rabbit. Journal Experimental Medicine, 1901, v, 549.

# Medical Progress.

## PROGRESS IN THERAPEUTICS.

BY ELLIOTT P. JOSLIN, M.D., BOSTON.

### ENERGY EXPENDED IN COUGHING.

No one can see a phthisical patient in a spe of coughing without being impressed by the exertion demanded and the prostration which follows. Weiss[1] has calculated the energy required when such a patient coughs once every 15 minutes for a period of 10 hours. He finds this to be equivalent to 250 calories. This is approximately the quantity of nourishment contained in 3 eggs or 2 glasses of milk.

Two factors influence expectoration: (1) The rapidity with which the air is driven out of the lungs, and (2) the resistance which the excretion offers. The first factor is seldom appreciated. Its importance is obvious when one realizes that during violent coughing the rate at which air leaves the chest is 100 metres (300 feet) per second, but in normal expiration it is only 1.25 metres (4 feet). The necessity of lessening cough is plain, especially in laryngitis and pharyngitis, where there is little excretion to be removed, and consequently but little return for the energy expended. Increased rapidity of expulsion of air without increased exertion is obtained in high altitudes because of the low barometric pressure, and the consequent diminution of resistance to the expired air.

The other factor upon which the work of coughing depends is the difficulty which is encountered in the removal of tenacious sputum. Moisture in the air lessens this somewhat, and this can be favored by having moist cloths in the sick-room in the summer or a pot of boiling water in the winter.

A considerable amount of energy is lost by patients in coughing. Such patients will lose weight unless especial attention is paid to the diet.

### TANNOFORM IN THE NIGHT SWEATS OF PHTHISIS.

Nolda reports 12 cases in which he used the drug. In 8 cases with pronounced sweating 7 were entirely relieved and he noted marked improvement in the remaining patient. Three to five applications sufficed as a rule. The temperature, curiously (?) enough, in 3 of 4 other cases returned to normal and the night sweats ceased, though the other well-known internal and external remedies had been previously tried in vain. Tannoform is a combination of tannic acid and formaldehyde. It should be dusted over the chest each night, mixed with an inert powder 1 : 3, and washed off in the morning.

### SYMPTOMATIC TREATMENT OF COUGH.

It is ideal to treat the cause of the cough, but in very many cases this is impossible or impracticable. Under such circumstances Sænger[2] rec-

[1] Therap. Monats., 1901, p. 376.
[2] Loc. cit., 1901, page 359.

ommends inhalation of menthol. Sufficient fumes can be obtained by evaporating a few menthol crystals in a spoon over a small flame. Another method is to rub 10 to 20 drops of a 40 to 50% alcoholic solution between the hands and then hold these before the face inhaling the air through them. The menthol may cause at first increased irritation of the respiratory passages, but this soon subsides to be succeeded by the sedative and benumbing effect of the menthol on the mucous membrane. It is essential that overlying secretion should be removed before the menthol can produce the desired effect. This is brought about by the irritation and coughing which ensue when the strong menthol fumes are first inhaled or when a 10 to 20% solution of menthol in olive oil is sprayed into the throat. The advantage of menthol lies in the fact that it frees the patient from cough for several hours and obviates a resort to morphin and its derivatives.

### CINNAMIC ACID IN PULMONARY TUBERCULOSIS.

Staubb[3] reports 20 cases of pulmonary tuberculosis treated with cinnamic acid. Except for a possible tendency to the production of hemoptysis he considers the remedy harmless but useless. [This coincides with the general opinion today.]

### FLOOR INFECTION OF YOUNG CHILDREN WITH TUBERCULOSIS.

Dieudonne[4] examined the hands and nose of 15 children, 6 to 30 months of age, whose parents were tuberculous and poor. Tubercle bacilli were found on the hands of two and in the nose of a third child. This is a practical illustration of the dangers of infection, and forcibly suggests the need of hygienic measures.

### PROPHYLAXIS AGAINST TUBERCULOSIS AND THE ISOLATION OF PHTHISICAL PATIENTS.

Frænkel[5] believes that our attitude concerning food should not be altered even if Koch's suspicion of the difference between bovine and human tuberculosis proves correct. He agrees with Koch that the isolation of phthisical patients is of the utmost importance, since the possibility of the dissemination of the disease by the particles of sputum, scattered in the breathing, coughing and sneezing of tuberculous patients, is a great source of danger. It is the greatest exception for phthisical patients to hold a handkerchief before the mouth while coughing, and their relatives and fellow-workmen are too indolent to enforce protective rules. Several experiments on rabbits show how great the danger is. After these had been kept for a long time in a ward of the *Charité* with good food, they succumbed to tuberculosis, although sputum cups were used by all the patients. The surest method, therefore, for the restriction of the extension of tuberculosis is the isolation of the patients. Frænkel recommends that asylums be built in wooded regions free from dust. In these places the cases not bedridden could be cared for, while there could be a hospital for the desperate cases in the neighborhood. Entrance should be voluntary. These asylums need not interfere with the present sanatoria. In these latter, in Germany, 4,000 tuberculous patients are cured yearly, and as each phthisical patient infects probably at least one other a year, at the end of 5 years there should be 40,000 less tuberculous patients. With 8,000 patients in asylums disease would be so much more restricted.

### ASPIRIN IN PLEURISY WITH EFFUSION.

Aspirin[6] has apparently come to stay. It works well in rheumatism, neuralgia and headache. In the experience of the reviewer the dose need not be so large as that of sodium salicylate. v. Ssaweljew recommends it in pleurisy with effusion, especially because it is less irritating to the stomach. The patient took 4 gm. (60 gr.) daily for 9 days without harmful results. During this time the urine increased in quantity, although the patient perspired, and the exudation was absorbed.

### HEROIN IN CARDIAC DISEASE.

Lévy[7] has used heroin in a series of cases of cardiac dyspnea instead of morphin. He prescribed 3 times daily .004 gm. ($\frac{1}{16}$ gr.) heroin for a man 60 years of age, with advanced arteriosclerosis. The man had had severe dyspnea when walking a few steps quickly, and stabbing pains in the heart. Two doses of the heroin allowed him to breathe more freely and walk more rapidly without discomfort. The patient continued to use heroin for 7 months, 2 or 3 doses daily, without any loss of effect. This is in contrast to the action of morphin, and for this reason, as well as for its prompter action in stopping cough, Lévy recommends its use.

### DIETETIC PRINCIPLES IN THE TREATMENT OF GASTRIC DISORDERS.

Strauss[8] recommends in motor insufficiency the transitory use of a pure albuminous diet. He expresses his preference in the permanent treatment for a milk fat diet over one rich in carbohydrates, especially in those cases complicated with hyper secretion.

In cases of marked subacidity the food must be finely divided and of soup-like consistency. Soups or sauces made from meat extracts can here be used to advantage because they favor the secretion of gastric juice.

Fat is the mainstay in the treatment of hyperacidity, because it directly lowers the gastric secretion. But a distinction is to be drawn between the easily digested butter, cream, rich milk, emulsion of almond oil and some other oils, and the fat in bacon and fatty meats. He gives these patients bland and unirritating soups, such as those made with meal, milk or fruit. He warns against the soups rich in extractives because of their stim-

[3] Review in Therapeutic Monthly, 1901, p. 221.
[4] Loc. cit., 1901, p. 221.
[5] Rev. in Centrbl. f. inn. Med., 1901, p. 1155.
[6] Rev. in Centrbl. f. inn. Med., 1901, p. 1056.
[7] Loc. cit., 1901, p. 1060.
[8] Loc. cit., 1901, p. 1203.

ulating action on the gastric mucosa. Meats as free as possible from extractives, or eggs prepared with a great deal of butter, form the second course, together with thoroughly cooked vegetables also rich in butter. Sweets are prohibited only in case the patient feels they are not well borne. A cheese rich in fat serves as dessert. Oatmeal, cocoa with cream, hygiama with cream, or milk with or without cream, are recommended if coffee and tea are not well borne.

THE INFLUENCE OF SUGAR, ATROPIN AND MORPHIN ON THE EXCRETION OF GASTRIC JUICE.

Pawlow has contributed much to our knowledge of the secretion of the gastric juice by his experiments on animals. Instead of studying the functions of the stomach in the old way, by making a simple fistula, he has devised a means which enables him to collect the gastric secretion free from admixture with food or saliva. Starting out with the supposition that the vagus nerve controlled the flow of gastric juice, he planned in his operation to preserve this intact. He managed to do this as follows: The stomach was divided by a longitudinal section into two parts parallel to the branches of the vagus nerve. These two "stomachs" were sewed up independently, the one communicating by the pylorus with the intestine, the other by a small opening with the abdominal wall. They were separated by layers of mucous membrane alone at the dividing partition, but elsewhere were united by a bridge of muscle which enclosed the branches of the vagus.

Processes which took place unhindered in the larger stomach could be studied by observing what occurred in the smaller. It was shown that the mere sight of food or mastication of food without its being swallowed were enough to make the stomach secrete — quite as the mouth waters at the sight or thought of some delicious viand. Further, the secretion varied with the chemical quality of the food, adapting itself to the various kinds of nourishment. In contrast to the old idea that the gastric juice was a constant factor, he showed it was variable.

Riegel was the first to apply this new knowledge clinically. He argued that if the vagus nerve controlled the gastric secretion, atropin, which is a vagus depressant, should decrease this secretion. This proved to be the case, and he demonstrated its utility in cases of hypersecretion, hyperacidity, and in those cases of spastic cramps of the pylorus caused by these conditions. Moreover, he was able to show experimentally that pilocarpin — the antagonist of atropin — had quite the opposite effect on the stomach. Pilocarpin, unfortunately, is not adapted to clinical use.

Sclinle, Strauss and Aldor studied the effect of sugar on the excretion of gastric juice. They found that when 4 oz. were given at one time in a concentrated solution, the amount of hydrochloric acid was diminished. The importance of this observation led Clemm to investigate this question in dogs with a Pawlow fistula. They were given a 20% solution of dextrose in a litre of milk. The effect was striking. The gastric secretion was delayed 1 to 4 hours, the total quantity was decreased one-half, and the free hydrochloric acid as well as the total acidity was lowered 10%.

The bearing of these experiments on the treatment of hyperacidity is obvious.

MORPHIN.

Riegel's experiments on human beings and animals prove conclusively that morphin does not diminish the excretion of gastric juice. It matters little whether the morphin is given internally, subcutaneously or by suppositories, its action is the same. It is a stimulant to, rather than a depressant of, the gastric secretion. Given continuously it loses some of its stimulating action, but it never essentially lowers the gastric secretion. Riegel therefore concludes that we should confine the use of morphin in gastric disorders to those cases in which an increased secretion of gastric juice will do no harm. For pain in the stomach due to excessive gastric secretion, atropin, not morphin, is indicated.

VALUE AND EXPLANATION OF BLEEDING IN UREMIA.

Walko publishes the results of venesection in uremia in v. Jaksch's clinic. In the majority of the cases there was a striking disappearance of the uremic symptoms after bleeding, and this was accompanied by copious diuresis, profuse perspiration and diminution in the quantity of the albumin. These favorable results were almost wholly confined to uremia in acute nephritis and acute exacerbations of chronic forms. Blood-letting in the uremia due to advanced chronic nephritis was either of no avail or simply of transient effect.

Various explanations have been offered for the improvement:

(1) The removal of toxic substances from the blood during the venesection seems unlikely, because only $\frac{1}{20}$ to $\frac{1}{30}$ of the total quantity of the blood is withdrawn. Improvement should take place in chronic cases as well as in acute, if this explanation was correct.

(2) Changes in osmotic pressure are produced by venesection. When specified quantities of concentrated salt solution are injected into animals, general convulsions ensue. Koranyi showed that osmotic pressure was increased by the retention of dissolved molecules. This would form a physical basis for difficulty in the excretion of water by the skin and lungs in renal insufficiency. This explanation appeared all the more plausible because Lindeman showed that the blood serum in patients with renal disease was of normal concentration, but as soon as uremic symptoms appeared, the concentration increased, and there was a consequent rise of osmotic pressure. Attractive as this theory is, evidence has accumulated against it. In the first place, Richter showed that venesection in normal individuals did not lower the concentration of the blood, and in the second instance, Walko demonstrated that the change in the molecular concentration of the blood during

intervals of uremia and intervals free from uremia was too slight to account for the symptoms.

(3) Lowering of the blood pressure has been urged as an explanation, but it is not of constant occurrence.

(4) The most satisfactory explanation appears to be the following: In uremia there is a vasomotor constriction of the vessels of the kidney. Experiments show that such a condition leads to slowing of the renal circulation. The removal of a quantity of blood relieves the vascular cramp in the kidneys, and the circulation and consequent diuresis go on more freely. The increased flow of urine frees the blood and urine of retained products.

The narrowing of the renal vessels is not simply due to vasomotor action, but is partly mechanical. The inflammatory processes in the kidney, the hyperemia and exudation by counterpressure against the capsule, all tend to constrict the glomerular vessels. These unfavorable conditions are relieved in a measure by venesection in acute nephritis, but in chronic nephritis it is obvious that venesection could have little effect.

### THE DIETETIC TREATMENT OF EPILEPSY.

Balint recommends a diet which contains very little chlorin on account of the excellent results which he has obtained by its use. The diet is as follows: One to one and one-half litres of milk, 40-50 gm. (1½ to 1¾ oz.) of butter, 3 eggs (unsalted), 300-400 gm. (10 to 13 oz.) bread and fruit. This diet contains 2300 to 2400 calories, but in it there is little more than 2 gm. of sodium chloride. In addition the patient received 3 gm. (45 gr.) of bromide. This was put into the bread instead of common salt. Balint reaches the following conclusions:

(1) A diet deficient in chlorin is applicable and worthy of trial in all cases of epilepsy.

(2) Treatment is best carried on in an institution.

(3) Besides the diet, administer small doses 2 to 3 gm. (30 to 45 gr.) of bromides.

(4) The introduction of bromides into the food, especially in bread, instead of salt, is to be recommended on account of the agreeable manner of administration.

(5) The favorable action of the treatment consists chiefly in the striking increase in the sedative action of the bromide, and should therefore, in Balint's opinion, be tried in other nervous diseases in which large doses of bromides are indicated.

### GENERAL CONVULSIVE TIC TREATED AND CURED BY RESPIRATORY GYMNASTICS.

Pitres [9] reports the case of a young man of 20 who, since his ninth year, suffered with spells of severe twitching. These spread like electric shocks from the head to the limbs, and were accompanied by involuntary crying or *stöhnen*. The attacks, which might be termed Bergeron-Henoch's electric chorea, did not prevent the patient's eating and sleeping, but by their frequency made him incapable of any work. Pitres observed that the attacks diminished in number and severity when the patient sang, counted out loud or breathed slowly and deeply. Consequently he tried treatment with respiratory gymnastics, especially since attempts with hypnotism were in vain. The patient was directed to take long breaths 3 times daily for periods of 10 minutes each, all the time with his back against the wall. Improvement began at once. After a month the patient was discharged and continued the treatment at home, and with such good results that 8 months later he was completely cured.

No other treatment was employed. The heredity of the patient was in no way neuropathic. He was said to have contracted his disease as a child in consequence of a severe fright.

[9] Rev. in Centrbl. f. inn. Med., 1901, p. 1134.

### TETANUS ANTITOXIN.

Reports in general point to its inefficacy. It is practically impossible to employ it early enough in the disease. Thirty hours from the onset of the first symptoms was the limit first set by Behring, but this appears to be too long an interval. Dönitz infected animals with splinters containing tetanus spores, and then injected the antitoxin immediately on the appearance of spasms. Yet he was able to save but a half of the animals, and these were the animals who had the disease in the lightest form.

Möllers,[10] however, after reviewing the whole question, considers it the duty of the physician to use the antitoxin at once and in adequate amount in all cases of tetanus. Toxins still forming in the body may thus be neutralized, and their action not added to that of the toxins already present. Cases in which the fatal dose has just been reached or exceeded may be decidedly influenced.

The antitoxin is valuable in prophylaxis. In the present state of our knowledge the doctor who neglects its use in the treatment of badly infected wounds assumes a heavy responsibility. Tetanus antitoxin has been used in this way with most favorable results in many surgical clinics.

[10] Deutsch. Med. Woch., 1901, p. 814.

## Reports of Societies.

### SURGICAL SECTION OF THE SUFFOLK DISTRICT MEDICAL SOCIETY.

F. B. LUND, M.D., SECRETARY.

Regular meeting Nov. 6, 1901, Dr. F. S. Watson in the chair.

George A. Raymond, D.M.D., read a paper on

### THE TREATMENT OF CONGENITAL CLEFT PALATE BY MECHANICAL APPLIANCES.[1]

Dr. C. A. Porter: I have brought the report of 6 cases [2] upon which I have operated success-

[1] See page 138 of the Journal.

[2] See page 130 of the Journal.

fully, but if the appliance is going to supersede all operations, a great deal of the interest is taken out of them. One criticism I think it is fair to make — that these cases which have had obturators have probably received much more careful training than the cases operated upon. The majority of surgeons perform the operation on hospital patients, and after they are discharged see very little of them. I read an interesting paper in the *Journal* recently, showing that a great deal of the subsequent trouble with speech came from adhesions about the soft palate, which had not been rendered pliable by manipulation and massage, and active and passive motion. Certain exercises could be given for raising the palate as one would do for an atrophic muscle elsewhere, and the mother could be taught to massage the palate until it became movable. Until it has been proved conclusively that the surgical results, after this form of treatment has been carried out, are not as good as those following the use of the obturator, it seems to me we still have the right to try what we may do by the operation, for, if necessary, it would be a simple matter to destroy what has been done by the surgeon and replace it by a plate.

Dr. C. B. Porter: I still hold to the opinion I have expressed a number of times. I believe there is a large class of cases that should be operated upon that cannot, perhaps, obtain the appliances which have been recommended tonight. It seems to me that very poor people are better off to be freed from the rhinitis which is sure to follow and be developed sooner or later in all cases where the soft palate is wanting, and that can be done by approximating the edges, even if the speech is not much improved. Tonight we have seen a most beautiful exhibition of what the appliance will give; but I think Dr. Fillebrown will remember at the symposium some years ago, when the surgeons and the dentists showed cases, each was willing to say they were no longer wanted if the other could achieve such good results. At that time I showed a young lady who had been taught to speak after the operation, and spoke as distinctly as one could possibly wish. I had a letter from the mother of a child in a distant state, stating that for the first few years after the operation was done she taught her son at home because she did not want to have people know he had had a cleft palate, but he was now in school with others of his own age and no one knew of his previous deformity.

Dr. Fillebrown: The broad statement is made in the paper that the surgical operation is not a success physiologically. I will say that I can produce cases of my own, of Dr. Porter's and others, that I think no one can identify by their speech. I did a cleft 2 years ago for a young man 16 years old. The cleft involved both hard and soft palate clear forward almost to the lateral incisor teeth, indeed, the alveolar process was not quite perfect itself, and there was a small notch in the lip. The sutures were removed in 8 days and I sent him to visit several of my professional friends. I had a phonographic record taken of his speech before he left town which will verify my statement. He was one of 300 boys attending the Good Will Farm School in Fairfield, Me. After his return to school the editor of the *Good Will Farm Record* published an article saying: "Before the operation he could make himself understood only with difficulty, and it was supposed that he must go through life at a great disadvantage. All this is changed, and a stranger who would come to the farm and see all our boys or hear them talk, would not know that one of them had ever been so unfortunate." His speech was as perfect as though he had been born with a normal palate. Another patient, one of Dr. Gordon's of Portland, whom this society has heard read and speak, when I found her had lived 8 years at her present residence and not an individual had ever mistrusted she had ever had any trouble. She was one of the best speakers and readers in the Roxbury High School. Another case is one of Dr. Porter's. He speaks not so perfectly as the other 2 referred to, but yet quite as perfectly as either of the other patients shown tonight.

There are 2 classes of cases. One of them can be remedied perfectly well surgically. There are some few that cannot. I should say by the extent of the cleft in the mouth of the gentleman who spoke tonight it would be impossible to remedy that surgically. I have had 3 or 4 patients come into my hands who have been wearing plates, who could not get along with them. The artificial velum irritated the throat, and they could not improve their speech with them at all. One was 35 years old when I operated on her mouth. She had tried to wear a plate but could not; her speech was very bad, so bad she would not appear in company, had become a recluse; today she is going about in society with perfect ease, and there are only one or two sounds but what she gets very nicely indeed. All cases where plates are made are not successful. One patient who has consulted me and who intends to have something done, wears a plate made by one of the best operators in the country, and has had the best of instruction, but still her speech is very disagreeable and her articulation very faulty.

There is only one other point I wish to notice: The essayist of the evening and myself have come to quite different conclusions about the office of the soft palate. As I understand, all the vowel sounds are made with the palate open. A very few consonant sounds require the palate back, as b, d, p, s, t. Any person who attempts to give the vowel sounds with the palate back, produces a harsh, bad sound. I have given a good deal of attention to the physiology of vocalism, and am perfectly sure that this is the case, and that the open palate is needed to give full vent to the vibrations out through the nasal passages, else a poor voice and a perpetual sore throat are results. I think if the gentleman will examine the matter a little more closely he will find his physiology a little at fault in that direction.

I congratulate the community on the fact that there can be such perfect appliances made, and patients can get such benefit from them, for there are a good many who choose not to have surgical operations even if they can, and for that reason we are grateful that such can be made; but the statement that perfectly physiological results cannot be obtained with a surgical operation is absolutely without foundation. I hope the gentleman in the future will make his statements in accordance with facts, because we can demonstrate them.

Dr. J. T. Bottomley read a paper on

ABDOMINAL CONTUSIONS.

Dr. Watson: I am interested to find that the data presented by Dr. Bottomley are in the main in accord with those from other sources, since they give more weight to the inferences already drawn from the discussion of such as we have access to, and in a matter which is thus far rather deficient in the number of its well-recorded observations.

In the discussion of this subject of abdominal contusions with and without intra-abdominal associated injuries, which occurred at the French Surgical Congress in 1897, there was practically agreement as to certain points which Dr. Bottomley's communication contains, one of them being the failure of cases of abdominal contusions with concurrent severe injuries to the abdominal viscera, to present symptoms which can be taken as sufficiently characteristic or constant to warrant a confident diagnosis. As he has shown tonight, there are cases of rupture of the intestine attended from the start by the most violent symptoms of peritoneal injury and subsequent infection ending fatally,— that is to say, the evidence that we consider typical of that condition;— on the other hand, cases of the same internal injury, in which the symptoms are either so mild or few, or even absent, that they offer nothing characteristic, or too little to seem to call for surgical interference, and sometimes are not thought to be of enough importance to be mentioned by the patient at the time. The lack of characteristic features, the deceptive mildness, and the great variation are then conspicuous and often most misleading in abdominal contusions. It is also true, as has been pointed out, that severe and apparently characteristic symptoms of rupture of the intestine may occur in its absence and in the absence of any other intra-abdominal lesion that can be discovered.

The following are some of the features of these cases which seem to me to be especially interesting and important to be noted: The absence of external injury, which has been frequently reported. The slight force required in some cases to rupture the bowel, two striking examples of which are offered by the cases of Wiggin of New York and Buchanan of Pittsfield. Dr. Wiggin, it should be said, in a second case, performed the first successful operation for ruptured intestine from contusion done in this country, in 1890, and the second that is recorded. In this case the patient was kicked by a calf, and thought so little of it that he continued his work and did not mention it at the time. He had no sign of trouble that evening or on the following day, in which he went to church in the morning and again in the evening, and felt perfectly well until he was seized with violent pain while there, some 30 hours after the accident.

In Dr. Buchanan's case a man was struck by the handle of a long pair of tongs with which he was carrying something. The blow was, he thought, of no consequence, but it had ruptured the bowel, as was seen at the time of operation, which, by the way, was performed on the strength of two symptoms only: absence of peristalsis and rigidity of the anterior abdominal muscles.

Next is the delay in the appearance of symptoms, showing that it is not safe to assume that there is no danger from an abdominal contusion until a considerable interval has passed. The interval has extended even to more than a fortnight in some cases. This delay is, in many cases, explained by the nature of the lesion; for example, the intestine may be bruised sufficiently to slough later, or when there has been an injury involving the mesenteric blood vessels, there may be an interval before localized necrosis of the gut takes place. Or, again, embolism may result from such an injury, and secondary hemorrhage follow at a variable period from the receipt of the traumatism. Finally, the rupture may not have been complete in the first instance, but become so subsequently.

The conditions which determine the occurrence of the visceral lesion are interesting also. Presumably tenseness of the abdominal muscles is one of the chief safeguards against it; to this and their strength of muscle is due the usual immunity of football players and prize fighters, for example, else we should find it to be one of the commonest of accidents. Another illustration of the protection afforded in this way is found in what was a frequent custom with boys, at any rate when I was one, of making the abdominal wall tense and then inviting a comrade to deliver as hard a blow of the fist upon the epigastrium as he could strike, which never, to my knowledge, resulted in any harm. This suggestion is also strengthened by some experiments of Demons, who found in cadavers with rigor mortis, a blow of great force was required to rupture the intestine, while a moderate one sufficed when the abdominal wall was relaxed. Then, of course, the direction of the blow has some influence upon the result. Another factor tending to intestinal rupture is, of course, the condition of the intestine, rupture being much more probable if the bowel is distended, especially if there be a narrow outlet to a distended loop, such as might result from adhesions. Fixation by adhesions of the viscera also favors rupture.

With regard to the treatment of these cases there are two important things to be noted: Not to be deceived by the apparent triviality of the injury, but to keep the patient under observation and at rest, and to be ready to operate at once if

symptoms do arise later; and when there are any strongly suggestive symptoms at first to do an exploratory laparotomy promptly, except in cases of severe shock, when — unless it is thought that they are due to hemorrhage — it is better to wait a short time for reaction to set in. These are practically the unanimous conclusions of those surgeons who have had any experience with abdominal contusions, and accord with those presented in the excellent paper of the reader tonight.

## Recent Literature.

*A System of Physiologic Therapeutics.* A Practical Exposition of the Methods, Other than Drug-Giving, Useful in the Prevention of Disease and in the Treatment of the Sick. Edited by SOLOMON SOLIS COHEN, A.M., M.D., Professor of Medicine and Therapeutics in the Philadelphia Polyclinic; Lecturer on Clinical Medicine at Jefferson Medical College; Physician to the Philadelphia Hospital, etc. Vol. III — Climatology: Health Resorts, Mineral Springs. By F. PARKES WEBER, M.A., M.D., F.R.C.P. (Lond.), Physician to the German Hospital, Dalston; Assistant Physician North London Hospital for Consumption, etc. With the Collaboration for America of GUY HINSDALE, A.M., M.D., Secretary of the American Climatological Association, etc. In two books: Book I: Principles of Climatotherapy; Ocean Voyages; Mediterranean, European and British Health Resorts. Book II: Mineral Springs, Therapeutics, etc. Illustrated with maps. Philadelphia: P. Blakiston's Son & Co. 1901.

These are the third and fourth volumes of Cohen's "System of Physiologic Therapeutics," a work upon which we have already commented. The first part treats of climate, describing the fundamental principles that underlie the application of climates, health resorts and mineral springs in the prevention and treatment of disease. The second part describes health resorts, and the third part discusses in detail the special climatic treatment of various diseases and different classes of patients. Book II also describes the health resorts in Africa, Asia, Australasia and America.

In Book I ocean voyages are considered in detail, and their advantages and disadvantages, indications and counter-indications, as a therapeutic measure, are pointed out. The subject of altitude is treated in a similarly full and definite manner, and the question is discussed as to what classes of patients and disorders are benefited, for example, by Alpine and Rocky Mountain climates. The difference between summer and winter climates in Switzerland and the therapeutic indications for the different seasons are discussed at length. In addition, the seacoast and inland health resorts of the Mediterranean countries, those of Continental Europe and those of the British Islands, including mountain stations of various elevations, plains and mineral water spas, are succinctly described.

These two volumes are most worthy successors of those which have preceded; they are full of the information which physicians and laymen alike are constantly needing. This is particularly true now that traveling to distant places in search of health or recreation has become so universal a custom. We see no reason to alter our first favorable impression of the timeliness and excellence of this series of books.

*Anatomy in its Relation to Art.* By GEORGE MCCLELLAN, M.D., Professor of Anatomy at the Pennsylvania Academy of Fine Arts, etc., etc.; Author of "McClellan's Regional Anatomy," and the "Anatomy of Children." Illustrated by 338 original drawings and photographs made by the author, and expressly prepared for this work. A quarto of 142 pp. Philadelphia and London: W. B. Saunders & Co. 1901.

It is a daring venture to bring out another book on art anatomy when so many excellent works, such as Duval, Marshall, Rimmer, Richet, and numberless others are already in the field, and yet, when one sees what the author has to show and to say, he will be forced to consider him more than justified in doing so. The author tells us that an experience of 12 years in studying and teaching his subject has given him special knowledge as to the needs of art students, and in the work now before us, he proves conclusively that he knows how the subject should be best presented to them.

The book is arranged for the most part on thoroughly new lines. Many of the old ideas as to what an art anatomy should be have apparently been entirely discarded, and the author has built up this structure almost, if not wholly, from his own original ideas. His principal object is "to contribute to that knowledge of human anatomy with which artists are chiefly concerned," and not to give more than passing attention to the deeper parts, except so far as they may influence external form. He declares that dissecting-room knowledge is *not necessary* for the art student, and, in fact, that too much anatomical information is apt to mislead him into exaggerations. He evidently believes that anatomy should be taught to art students simply for the purpose of increasing their powers of observation, and making them understand more intelligently the living form in all its positions, motions and ever-changing surface contour.

In order to accomplish this object he brings out this book, which contains a great number of most excellent large-sized photographs, drawings, etc., with a minimum of text. From the latter he omits all technical phraseology that can be dispensed with. He recognizes that ancient sculpture owes its excellence largely to the great perfection in the living models and the frequent opportunity for studying them, and for this very good reason has freely made use of photographs

of two selected models, a male and a female, which are in his judgment as perfect in form and grace as can be found.

The man model is 24 years old, his height is 5 feet 8 inches, and his weight 145 lbs. His form is manly and strong, but not unduly muscular, and therefore well suited for artistic study. His stature is, according to classical standards, nearly perfect, as he is 8 heads high and the measurement from finger tips to finger tips of his outstretched arms is just equal to his height.

The female model is 23 years old, and is well and gracefully proportioned, except for the breasts, which lack the appearance of maturity. Her height is 5 feet 4½ inches, which being equal to 7½ heads in height, is the (generally accepted) proper proportion for a woman.

These models appear throughout the book in different positions and attitudes, sometimes alone, and sometimes, for purposes of comparison, placed beside an anatomical figure (bony or muscular) which has the same position. From time to time one of the models appears beside a photograph from the cast of some antique statue, the model assuming the exact pose of the statue. These poses of the model are most skilfully taken, though naturally they appear somewhat strained beside the statues.

The purely anatomical plates are from drawings made by the author, and are entirely satisfactory for the purpose in hand in respect to clearness, accuracy and detail.

With each new group of anatomical facts comes the opportunity to apply them to the living body, and to make them at once of practical value.

The author of this beautiful volume may well be proud of his work. Little can be said in the way of adverse criticism. It is a question whether such a knowledge of the individual bones of the skull, as the author evidently thinks necessary, can be of great use to the art student, while a few illustrations of certain familiar peculiarities of the body — even though they be deformities — might have been shown in illustration to help him appreciate the directions in which Nature sees fit occasionally to deviate from the normal standard. These, however, are small considerations which do not detract from the value of the book as a whole — a book which, probably for originality in arrangement, beauty and truth of illustrations, and, finally, for practical value to the student of art, cannot be excelled by any work which has thus far been published.

*A Practical Guide to the Administration of Anesthetics.* By R. J. Probyn-Williams, M.D., Senior Anesthetist and Instructor in Anesthetics at the London Hospital; Lecturer on Anesthetics at the London Hospital Medical College; Assistant Anesthetist at the Dental Hospital of London. London, New York and Bombay: Longmans, Green & Co. 1901.

The book is concise, conservative and sufficiently comprehensive. In the brief preface, the author states: "It is with the object of supplying all the essential points (of anesthetics) in as small a form as possible, and not with the idea of rivaling the larger manuals, that I have written this little book in the hope that it may meet the needs of students, and be read by them." The intention to make it a students' manual is apparent throughout, and is maintained to the end of its 200 pages.

The book possesses a distinct literary style, too often absent in medical works. The sentences are brief, the words short and well chosen, and grammatical errors are rare. The arrangement of its eight chapters is good. General Considerations (I) and Difficulties and Dangers (II) precede the discussion of Gas; Gas and Oxygen (III), Ether, Gas and Ether (IV), Chloroform (V), and Mixtures (VI), Choice of Anesthetics (VII), and Local Anesthesia (VIII), complete the volume. Ether, on the whole, is the anesthetic of choice. Many forms of inhalers are described, for gas, gas and ether, ether alone, and chloroform. Bennett's gas-ether apparatus is omitted. The chapter on Local Anesthesia is too much curtailed, and the Corning-Bier method of spinal anesthesia is dismissed in eight lines, with the remark that "no record of the use of this method in this country has as yet been published." The book is dated September, 1901, so that a fair idea of English conservatism may be gained from these concluding lines.

In spite of minor defects, the book is undoubtedly one of the very best that has appeared upon this subject for students and for general practitioners.

*A Manual of the Practice of Medicine.* By Frederick Taylor, M.D., F.R.C.P., Senior Physician to, and Lecturer on Medicine at, Guy's Hospital; Consulting Physician to the Evelina Hospital for Sick Children; Examiner in Medicine at the University of London; Late Examiner in Medicine at the University of Durham and to the Royal College of Physicians, and in Materia Medica and Pharmaceutical Chemistry at the University of London. Sixth edition. Pp. 1028. Philadelphia: P. Blakiston's Son & Co. 1901.

We have already commented favorably upon this condensed manual of medical practice. It has reached its sixth edition after a general revision of the text and the addition of a certain amount of new matter. The nervous system, the skin, and to a slight degree the throat, are considered in the text. The book offers an example both of the desirability and the extreme difficulty of including in one volume the extending field of so-called general medicine. As a brief outline and a ready book of reference the volume should retain its place of favor. It is clearly printed, well indexed, and contains very few illustrations.

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A Vivisection Bill in Congress.— Senator Gallinger has introduced in the Senate a bill prepared by the American Society for the Regulation of Vivisection, for the regulation of vivisection.—*N. Y. Medical Journal.*

THE BOSTON
# Medical and Surgical Journal.

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## MR. JOHN D. ROCKEFELLER'S GIFT TO HARVARD UNIVERSITY.

JUST seven months ago we had the pleasant editorial task of recording and commenting upon Mr. J. P. Morgan's gift to Harvard University, for its new Medical School buildings, and this week we find a similar agreeable duty imposed upon us by the announcement that Mr. Rockefeller proposes to offer Harvard University $1,000,000 to aid in carrying to completion this same project. Mr. Morgan's gift of something more than $1,000,000 was for the erection of three of the five new buildings as previously planned for upon the new territory of twenty-six acres which had previously been secured by friends of the Medical School for this and kindred purposes. As we understand it, Mr. Rockefeller's gift may be used for buildings or for endowment, and is to be accompanied by the stipulation that something in the neighborhood of $500,000 additional should be raised for these purposes by other contributors. We understand that between $190,000 and $200,000 towards this sum has already been promised within the last four or five days — among the large givers being some of the instructors in the Medical School itself.

We are inclined to classify a movement of this kind among the infectious and contagious diseases, and to express the hope that this particular epidemic may prove to be dependent upon a peculiarly virulent virus.

The whole movement up to the present is a gratifying example of the wisdom embodied in the old saw that the Lord helps those who help themselves. This scheme for the enlargement and development of the Medical School of the university was conceived several years ago, as a result of careful study of the problems and necessities then presenting or threatening to present themselves. It was conceived in a large and generous spirit, with a just appreciation of the claims of the future; it has been adhered to with pertinacity, and its progenitors and sponsors are now justly fortunate in reaching so soon a period of unusual prosperity which enables men of large means and of a large comprehension of what is for the world's welfare to give greatly of the fruits of this prosperity and of their abundance. It is also a source of congratulation that such a plant should be assured at a time when such funds as those of the Rockefeller Institute and of the Carnegie University are about to become available for medical and other scientific research.

Dr. J. C. Warren, chairman of the Advisory Committee on New Buildings of the Harvard Medical School Faculty, and his colleague, Dr. H. P. Bowditch, were most active in this whole project. They were instrumental in interesting Mr. Morgan in it, and with the most useful co-operation of Dr. W. B. Coley of New York, a graduate of the school, secured from Mr. Rockefeller, after a very careful and detailed study on his part, that evidence of his practical approval of their plan which is now made public. The "plant," as proposed, is unquestionably a very large one; the "working capital" should be amply proportionate.

The tract of land which has been secured contains in all twenty-six acres. In addition to the land required for the Medical School there is room for a new dental school building, for which funds are about to be solicited. Beyond this there will remain thirteen to fifteen acres which there is good reason to hope may become the site of one or more hospitals, which should before long be realized from funds soon to become available for such objects.

## A FUND FOR THE STUDY OF CHRONIC DISEASE.

WE note in another column the gift of the sum of $50,000 from the late Ellen O. Proctor to the Harvard Medical School for the prosecution of research in chronic disease. In more than one respect this is a most noteworthy bequest. It marks a tendency, which is gradually gaining force, to endow medical schools and that for which medical schools should stand — research. We have before commented on the great and increasing necessity for proper buildings and equipment in which, and by which, to carry on medical study, and have also expressed a mild warning that this should not be the sole aim of our endeavors. The buildings are necessary, but far more essential is the cultivation of a spirit of investigation, which can only be fostered by en-

dowment directed to that end. The Proctor fund is a definite step in this direction, as was the Croft fund for the investigation of cancer. The liberality shown in the disposition of the bequest is also noteworthy: it is to be under the control of the departments of medicine and pathology, and is to be devoted to the care and clinical investigation of persons afflicted with chronic disease. A more fitting disposition of the income of the fund could not have been made. With the prominent place which the study of infectious and acute disease has taken in the last few years, there has been a curious and lamentable neglect, especially in this country, of the still more fundamental problems underlying the long array of constitutional and chronic affections. We have had no adequate provision at hospitals, where such cases could be studied over considerable periods of time, nor have we had the interest which might have demanded that such provision be made. This bequest, liberal in its provisions and yet absolutely precise in regard to the use to which it is to be put, should serve as a stimulus to others to broaden this field of work, and finally to establish it on a definite basis of usefulness. We need endowment sufficient to make it possible for our large general hospitals to support beds for patients suffering from all forms of chronic disease. Until this is attained we shall fall far short of the ideal hospital both as an institution for the care of the sick and as a centre for medical education and research.

Still more significant for the future of teaching in this community is the fact that by this bequest, for the first time the Harvard Medical School has come into control of one or more hospital beds. This marks, therefore, the beginning, small though it be, of the independence of clinical medical instruction, and should lead in logical sequence to the much desired consummation of a university hospital.

## LEAD POISONING IN ITS RELATION TO PUBLIC WATER SUPPLIES.

The occasional occurrence of lead poisoning through the use of drinking water conveyed in lead pipes is by no means a new subject. It was recognized by the architect Vitruvius and by the physician Galen. The literature upon this subject is extensive, and the chemists of many nations unite in the opinion that certain waters act injuriously upon lead pipes. Until within the past 25 years, however, the majority of reported cases were those of individuals or of families using the water of wells drawn through lead pipes. One reason for this condition, so far as Massachusetts is concerned, is to be found in the fact that before 1870 fully two-thirds of the population were supplied with water from wells, but from that time to the present the introduction of public water supplies has progressed very rapidly, and, according to the last report of the State Board of Health (1900), more than nine-tenths of the population are now using the water of public water supplies, and 166 cities and towns are thus supplied, as compared with only 26 in 1870.

Most of the large supplies of the State which have been in use for 25 years or more, including those of Boston, Worcester, Fall River, Lowell, Cambridge, Lynn, Lawrence, Springfield, Holyoke and Salem, were surface water supplies taken from streams, lakes, ponds or other surface storage basins, and so long as this system of supply was continued in use cases of lead poisoning among persons using such waters were practically unknown.

In the second report of the State Board of Health (1871) a report was made by the secretary, being partly the result of certain inquiries which had been made by correspondence with physicians, and partly the results of certain examinations of Cochituate water made by Prof. W. R. Nichols. These examinations showed that the water then in use dissolved minute quantities of lead, but on a later page the board stated that "no authenticated instance of lead poisoning from the Boston water has come to our knowledge, although lead pipe is almost universally used for distribution." The same statement was made regarding Charlestown and Worcester. The Board also said in the same report: "The only safe practice with water which has not been tested with lead pipe by long experience, is to use some other material than lead for its conveyance."

Not until the past 10 years have cases of lead poisoning been reported in considerable numbers from cities or towns having public water supplies, but beginning with an epidemic of this character in Kingston, in 1895, several such incidents have occurred, the last being that of Milton, which was reported in December last. In all of these cases the public water supply was taken from the ground either by tubular wells or otherwise and not from surface sources.

At Kingston, where an old water company had existed for nearly a century, using water from the Jones River, the town bought the rights of the old company and introduced a public supply from a well and filter gallery upon the banks of the same river. This change was followed in a short time by the occurrence of 35 or 40 cases of lead poisoning upon the route of the public supply. In several instances the houses were served with water by lines of pipe of 100 feet or more, and in one instance 700 feet in length.

As long ago as 1842 a special committee was appointed in Lowell, which reported that the ground waters of that city dissolved lead in dangerous quantities, and warned the inhabitants against the use of lead pipe. A public supply of surface water was introduced in 1873 from the Merrimac River, and while this water was in use no cases of lead poisoning were reported from that city. But the increasing pollution of the river by the sewage of cities farther up the stream led the city authorities to seek for a supply from other sources. For this purpose water was then taken from driven wells, part of which were north of the river and part were in a district south of the river. In 1899 it was found that cases of lead poisoning had occurred in Lowell, and an investigation was made which resulted in finding 50 well-marked cases. Analysis of the water of the public supply showed that lead pipes were attacked by the water to such an extent as to make it dangerous to use for drinking or cooking purposes. This quality, however, was much more noticeable in the case of the water from the Cook and hydraulic wells on the south side of the river, than was shown by the water of the boulevard wells on the north side. The State Board of Health then communicated this fact to the Lowell Water Board and advised them that "the only way in which safety can be insured is by removing all lead service pipe which conveys water for drinking or cooking." After additional investigations the board, three months later, advised the city authorities still more emphatically upon the same subject.

The circumstances at Milton were as follows: The town of Milton receives its water from a local water company which purchases the water from the Hyde Park Water Company. The latter company obtains its water from wells, some of which are in the valley of the Neponset River and others are near Mother Brook. The latter were introduced late in 1899. No cases of lead poisoning were reported from Milton until near the close of 1901, when the State Board of Health was requested to make an investigation. This inquiry disclosed the existence of 17 cases of lead poisoning and one death, attributed to this cause. One of the peculiar conditions associated with these cases was the fact that a sewer was being laid in one district, necessitating a deep cut which resulted in the draining of several wells. Consequently, connections were made with the public water supply by means of new lead pipes which carried water to the houses formerly supplied by wells.

The local Board of Health applied to the State Board for advice upon the subject, and after investigation they were advised to remove the lead pipes or obtain a new source of water supply which would not act upon lead. The local Board of Health immediately communicated this advice to the people of the town.

A few cases of the same character have occurred in the towns of Fairhaven and Milford, in each of which places water is obtained from the ground by means of wells.

With reference to the peculiar characteristics of the water of these supplies where cases of poisoning existed, the chemist of the State Board of Health, Mr. Clark, says in the last report of the board (report of 1900, p. 487):

"The results of these investigations, up to the time of writing the report given in 1898, seemed to show that the cause of the taking of lead from the service pipes by the water of certain towns and cities was the presence of a considerable volume of free carbonic acid in the ground waters, which actively attacked lead, and further investigation has confirmed this conclusion."

Various statements have been made by different authorities as to the amount of lead in water which is necessary to produce poisonous effects. These vary from $\frac{1}{10}$ gr. per gallon to as small a quantity as $\frac{1}{100}$ gr. per gallon, one physician having reported a case in which the quantity was only $\frac{1}{1000}$ gr. per gallon. An amount exceeding $\frac{1}{20}$ gr. per gallon is mentioned as dangerous by several English authorities, including Dr. E. A. Parkes and Dr. Taylor. In the celebrated case in which the family of Louis Philippe were poisoned by the use of water stored in a lead tank, the amount was $\frac{7}{10}$ gr. per gallon.

In the report of the State Board of Health for 1898, the following statement may be found (p. xxxii):

"The exact amount of lead which may be taken into the system without producing harm is not definitely known, and may vary with different people, but it is known that the continuous use of water containing quantities of lead as small as .05 of a part per 100,000, or about $\frac{1}{33}$ gr. per gallon, has caused serious injury to health."

The symptoms of chronic lead poisoning, such, for example, as are liable to ensue after the continuous use of water containing small quantities of lead, are given as follows in the same report:

"The symptoms are usually slow in their progress. There is usually a rapidly developing anemia, with a consequent anemic pallor of the skin. There is often constipation and indigestion, with a feeling of depression at the outset. Then there may be a loss of appetite, an unquenchable thirst, a constant unpleasant metallic taste, and a foul odor in the breath. The countenance becomes dull and appears anxious. There is rarely any fever and the pulse is usually natural. The res-

piration is often rapid. There is frequently abdominal hardness and pain, the pain increasing as the case progresses, colic being the most common symptom. But little urine is usually passed, and there is dysuria.

"Far more commonly, lead paralysis is manifested. It may occur after a single attack of chronic lead poisoning, but is more often the result of a series of attacks, and occasionally occurs without being preceded by any attack. The upper extremities, and especially the extensor muscles, are most commonly attacked, those of the hand and forearm first suffering.

"The chief diagnostic sign is the blue line upon the gums at the margin of the teeth. This is due to the formation, in the capillaries of the gums, of sulphide of lead. It is not invariably present. The presence of lead in the urine constitutes a valuable diagnostic symptom.

"In mild cases the prognosis is usually favorable when the exciting cause has been removed. But in severe cases, and especially where paralysis exists as a consequence of lead poisoning, the injury may be permanent, and occasionally proves fatal."

## MEDICAL NOTES.

A Vigorous Action Against Smallpox.— A Michigan Central train was recently held up for 3 hours. There was a case of smallpox on board, and the health officer is said to have refused to allow the train to proceed until every person on board had been vaccinated.

### BOSTON AND NEW ENGLAND.

Acute Infectious Diseases in Boston.— For the week ending at noon, Feb. 5, 1902, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: Diphtheria 43, scarlatina 20, measles 128, typhoid fever 17, smallpox 46.

Meeting of Massachusetts Association of Boards of Health.— The annual meeting of this association was held last week in Boston. About 75 members and a few guests were present. Dr. H. P. Walcott presided at the dinner which followed the informal meeting. Smallpox and vaccination were the subjects of the after-dinner speeches.

Compulsory Vaccination.— During the past week several animated hearings have been held at the State House, in relation to a bill modifying the law regarding compulsory vaccination in Massachusetts. Among those who appeared as remonstrants against the proposed emasculation of the law were Dr. S. H. Durgin, Dr. Frank W. Draper, Dr. W. T. Councilman, Dr. H. B. Howard, Dr. I. H. Bancroft, Dr. Azel Ames, who had charge of vaccination in Porto Rico, and representatives of many large retail stores in Boston and the principal steamship lines. President Eliot of Harvard University placed himself on record as strongly in favor of compulsory vaccination, several times repeated.

Bequest to the Harvard Medical School.— The late Miss Ellen O. Proctor has given by will to the president and fellows of Harvard College and their successors, the sum of $50,000, the same to constitute a fund to be known as the Proctor Fund for the Study of Chronic Diseases; the income of said fund to be devoted to the care in a hospital, or hospitals, of persons afflicted with chronic diseases, and to investigations into the nature and treatment of the same; the special disposition of the income of said fund to be under the control of the heads of the Departments of Theory and Practice, Clinical Medicine and Pathology in the Harvard Medical School.

Opening of City Hospital Relief Station. — The new City Hospital Relief Station was formally opened at noon on Tuesday. The exercises were held in the presence of the members of the city government and a few invited guests. On Wednesday the building was opened for the inspection of the public, and after a few days it will be opened for actual service.

Massachusetts Medico-Legal Society.— The spring meeting of the society was held on Wednesday, Feb. 5, at the Boston Medical Library. The following papers were read: "The Serum Test for Blood Stains," by Prof. Edward S. Wood and Prof. William F. Whitney of Boston; "A Difficult Diagnosis," by Dr. Francis A. Harris of Boston.

The Medford (Mass.) Detention Hospital Burned.— The Detention Hospital at Medford, Mass., which was being used for smallpox patients, was burned Feb. 3, involving a loss of about $5,000.

Increase of Cremation.— According to the last report of the trustees of Mt. Auburn Cemetery, the number of cremations during 1901 was 119, as against 50, the total number preceding.

### NEW YORK.

Damage to Manhattan Eye and Ear Hospital.—The Manhattan Eye and Ear Hospital was damaged to the extent of about $20,000 by the Park Avenue dynamite explosion on Jan. 27, which occurred almost directly in front of the building. A number of the patients were more or less seriously injured, principally by broken glass, and several others suffered from shock and exposure. At the time of the explosion one of

the surgeons, Dr. Gage, was engaged in removing a foreign body from the eye of a visiting patient. Both were thrown to the floor, but while the surgeon, who fell on top, was quite badly cut about the neck and side of the face, the patient escaped entirely without injury. The patients were temporarily accommodated in the hospital annex, which was not so badly damaged as the main building, and later were transferred to various other hospitals and infirmaries, nearly every institution of the kind in the city having made offers of assistance.

ELECTION OF OFFICERS OF MEDICAL SOCIETY OF STATE OF NEW YORK.— At the 96th annual meeting of the Medical Society of the State of New York, held in Albany on Jan. 28, 29 and 30, the following officers were elected: President, Dr. Henry R. Hopkins, Buffalo; Vice-President, Dr. Wm. A. Moore, Binghamton; Secretary, Dr. Frederick C. Curtis, Albany; Treasurer, Dr. Ogilvie D. Ball, Albany. During the session a committee of five was appointed, on the recommendation of the president, Dr. Eisner, to confer with a similar committee representing the State Medical Association with a view to bringing the two organizations together.

DEFEAT OF OSTEOPATHY BILL.—Happily the osteopathy bill has been killed in committee. A public hearing on it was given before the Joint Committee on Judiciary on Jan. 29, during the meeting of the State Medical Society at Albany, and at the executive session of the committee which was held directly afterward the measure was dropped. Among those who spoke against it were Drs. A. G. Root and Albert Vanderveer of Albany, A. Jacobi of New York, and H. R. Hopkins of Buffalo.

TRANSFERENCE OF TUBERCULOUS PATIENTS.— As his last official act before surrendering his authority over Bellevue and the other city hospitals to the new board of hospital trustees, the commissioner of public charities on Jan. 31 transferred 21 tuberculosis patients from Bellevue to one of the pavilions on Blackwell's Island, formerly occupied by the Manhattan State Hospital for the Insane, which has been fitted up for this class of cases. It has accommodations for 120 patients.

## Obituary.

### JOHN T. METCALFE, M.D.

DR. JOHN T. METCALFE, for many years one of the leading practitioners and most eminent consultants and medical teachers of New York, died at his winter residence in Thomasville, Ga., on Jan. 30, in his 84th year. He was born in Natchez, Miss., was graduated at West Point in 1838, where he had as a classmate Gen. P. T. Beauregard of Louisiana. He served in the army for two years, for the most part in Florida. He then resigned and began the study of medicine, taking his doctor's degree at the University of Pennsylvania in 1843. He spent two years abroad, most of the time at Paris and Edinburgh. On returning home he quickly took and held, and that without much apparent effort, a place in the very front rank of medical practitioners in the city of New York. At one time Dr. T. Gaillard Thomas was associated with him in his practice, and subsequently for a time Dr. William M. Polk, the son of his old friend Bishop Polk, the famous "fighting Bishop" of the South.

For a number of years Dr. Metcalfe was professor of clinical medicine at the College of Physicians and Surgeons, and his lectures both at the college and at Bellevue Hospital were among the most popular ever given in New York. While he was idolized by his classes, he was not less beloved and esteemed in the community at large; and his genial presence, his delightful humor and rare urbanity of manner, as well as his brilliant professional attainments, will long dwell in the minds of all who knew him.

Some years ago Dr. Metcalfe retired from practice and was made professor emeritus at the College of Physicians and Surgeons, and since that time he had spent his summers with his son, Captain Henry Metcalfe, near West Point, on the Hudson, and his winters at Thomasville, where for many years he had indulged his tastes as an enthusiastic sportsman, tastes which were of material service in maintaining the health of an unusually sensitive and sympathetic nature.

During his professional career Dr. Metcalfe accumulated a large private library, which he donated several years ago to the New York Academy of Medicine, of which he was one of the original members. Within the past two years a fine portrait of Dr. Metcalfe was presented to the academy by Dr. T. Gaillard Thomas.

## Correspondence.

### THE PRODUCTION OF ANTITOXINS AND VACCINE BY BOARDS OF HEALTH.

AUDI ALTERAM PARTEM.

WE believe that the production of antitoxins and vaccine by boards of health is a subject fairly open to fair discussion. For this reason we publish the following communication from a firm of manufacturing chemists in whose products much confidence is justly felt:

MR. EDITOR: We have read, with considerable interest, your reply to the letter mailed you under date of Jan. 8, by Dr. A. M. Phelps of New York City.

Is it not rather coincident that the only fatalities that have ever occurred from the administration of diphtheria antitoxin have been those that occurred where the antitoxin was prepared in laboratories immediately under state or municipal control? We refer to the unfortunate experience at St. Louis, as well as the accidents that followed the administration of antitoxin in Italy.

There is not a firm engaged in the production of diphtheria antitoxin today that does not give to its laboratory generous appropriation, without waiting for any political party to state how much money shall be spent, and rather anticipates the needs and takes care to see that proper equipment is given to make the preparation a successful one.

The province of boards of health, both state and municipal, is to safeguard its constituents. No better plan could be adopted than to have tests made, and, if required, inspect the laboratories in which the preparations are produced, and where criticisms are made

let them be made openly. The very effective work which the Massachusetts State Board of Health did several years ago, in testing the antitoxins in the market, and showing physicians the quality of the serums furnished, stopped the sale of spurious products that did not contain the full number of units claimed for it. The subject of supplying pure vaccine and antitoxins, or any pharmaceutical product, really comes in the direct line of work which boards of health should undertake and carry out, but we do not believe that they should manufacture and place these in direct competition with private manufacturers any more than they should spend sums of money for the establishment and issuing of a medical journal, or the sale of epsom salts.

We vouchsafe the statement that if the small amount of money which the Massachusetts State Board of Health expends for the keeping and care of its horses was given to the purchase on the open market of a sufficient quantity of antitoxin, subject to their own bacteriological examination for purity, and also test for activity, it would more than meet the demand made upon them. The state can pauperize, as well as protect, the poor.

While we do not desire to carry on this controversy in the columns of your journal, we feel that it is the province of the municipal and state boards of health rather to inspect and test the various products than to attempt to compete in their manufacture.

Relative to our own products, every package that goes out bears a date. The products are as carefully tested and prepared as the expenditure of brains and money will allow, and we believe there are other firms who are just as earnestly striving to market reliable vaccine and antitoxins as ourselves. An inspection of the laboratories by your journal, as well as testing of samples bought in the open market, is the best way to prove the value of the preparations and that they are up to the mark. Let results be published, and if any product is not as it should be physicians can readily be made acquainted with the fact.

Meanwhile, we extend to you or your representative a cordial invitation to inspect our laboratories at any time.

## GLYCERINATED VACCINE LYMPH.

ROXBURY, Jan. 29, 1902.

MR. EDITOR: My attention has been called to an editorial in your issue of Jan. 2 on the "Production of Vaccine Lymph." If it were not evident that the writer has no practical knowledge whatever of his subject, but has merely made a sort of compilation from pamphlets, etc., I should be astonished at his statement that the *fact* of glycerinated lymph being produced from the pus layer of the vesicle was "false and misleading." The fact that certain authorities in Europe approve of using the pus layer, after immersion in glycerin, and that I have opposed this practice for some seven or eight years, is no reason why I should be insulted. Regarding the abuse he showers on private producers of vaccine, I can only say that the glycerinated lymph is a fad, at present, with the profession; that not one physician in one hundred knows anything of its composition; and that those producers who have the courage of their convictions and refuse to produce it simply do so at great pecuniary loss.

The truth is, that if the pus layer of the vesicle is immersed in glycerin until it is really sterile the vaccine principle is destroyed, as well as the other germs All samples of commercial glycerinated lymph that I have seen analyzed, or heard of, if they will still "take" successfully, contain colonies of pus cells.

Very truly yours,

FRANCIS C. MARTIN, M.D.

[In reply to the foregoing letter, we would merely say that the use of glycerinated vaccine lymph cannot properly be termed a "fad" in view of the following facts:

This method of preparing vaccine lymph has been adopted as the result of careful experiments and observations by the highest modern authorities upon the subject, and is now preferred by the officials in charge of vaccination in every one of the principal countries of Europe.

In Germany, for example, it is used by preference in every one of the largest cities of the empire, as shown by the official reports of the German Government for the last 10 years.

It is also used in preference to all other modes of preparation in Belgium, France, Italy and Switzerland.

The British Government, always slow to adopt new methods, sent a commission consisting of Drs. Thorne and Copeman, to the continent in 1897 to investigate the subject and these gentlemen visited Germany, Switzerland, France and Belgium. On their return they recommended the use of glycerinated lymph, and as a result we find the following statement in the Local Government Board Report of 1898: "We are now able to report that arrangements have been made for the inoculation of special calves and for the preparation of the lymph collected from them in the glycerinated form."

And in the last report of the board for 1900 (page x), the board further states: "Glycerinated lymph was, in response to 47,097 applications from public vaccinators, issued in 1899 to the amount of 499,281 packages."— ED.]

## RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, JAN. 25, 1902.

| CITIES. | Population* Estimated, 1902. | Reported deaths in each. | Deaths under five years. | Percentage of deaths from | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | Infectious diseases. | Acute lung diseases. | Diphtheria and croup. | Typhoid fever. | Diarrheal diseases. |
| New York . . | 3,665,352 | 1,392 | 456 | 22.33 | 20.17 | 3.45 | .80 | 2.08 |
| Chicago . . | 1,852,828 | — | — | — | — | — | — | — |
| Philadelphia. | 1,349,624 | 563 | 158 | 21.66 | 17.58 | 2.12 | 1.60 | .34 |
| St. Louis . . | 603,717 | — | — | — | — | — | — | — |
| Baltimore . . | 525,330 | 209 | 52 | 20.55 | 18.16 | .95 | 1.43 | .21 |
| Cleveland . . | 411,826 | — | — | — | — | — | — | — |
| Buffalo . . . | 375,742 | — | — | — | — | — | — | — |
| Pittsburg . . | 341,401 | 157 | 53 | 20.38 | 24.20 | 1.27 | 5.73 | 1.91 |
| Cincinnati . | 332,032 | — | — | — | — | — | — | — |
| Milwaukee . | 304.975 | — | — | — | — | — | — | — |
| Washington . | 289,537 | — | — | — | — | — | — | — |
| Providence . | 185,870 | 59 | 16 | 17.00 | 15.30 | — | — | — |
| Boston . . . | 588,736 | 209 | 45 | 22.00 | 16.25 | 4.30 | — | — |
| Worcester. . | 127,337 | 30 | 14 | 3.33 | 26.66 | 3.33 | — | — |
| Fall River. . | 111.872 | 35 | 13 | 11.42 | 20.00 | 2.85 | — | — |
| Lowell . . . | 99,574 | 28 | 16 | 21 42 | 21.42 | 14.28 | — | — |
| Cambridge . | 96,334 | 24 | 5 | 20.83 | 16.66 | — | — | — |
| Lynn. . . . | 71,144 | 15 | 2 | 6.67 | — | 6.67 | — | — |
| Lawrence . . | 67,275 | 21 | 9 | 28.56 | 14.28 | — | — | 9.52 |
| Springfield . | 66,854 | — | — | — | — | — | — | — |
| Somerville . | 65,882 | 22 | — | 31.81 | 9.09 | 4.54 | — | — |
| New Bedford. | 65.574 | 21 | 9 | 19.04 | 28.56 | 4.76 | — | — |
| Holyoke . . | 48,065 | 11 | 4 | 9.09 | 27.27 | — | — | — |
| Brockton . . | 43,208 | 8 | 4 | 25.00 | — | — | — | — |
| Haverhill . . | 40,392 | 7 | 3 | 57.20 | — | 14.30 | — | — |
| Salem . . . | 36,567 | 9 | 2 | 22.22 | 22.22 | 22.22 | — | — |
| Newton. . . | 36,336 | 8 | 2 | — | 12.50 | — | — | — |
| Malden . . . | 35,390 | 9 | 4 | 33.33 | — | 11.11 | — | — |
| Chelsea. . . | 35,264 | 17 | 6 | 5.88 | — | 5.88 | — | — |
| Fitchburg. . | 33,848 | 5 | 3 | — | 20.00 | — | — | — |
| Taunton . . | 32,759 | 5 | — | 60.00 | — | 20.00 | — | — |
| Everett . . . | 27,114 | 7 | 1 | 14.30 | 14.30 | — | — | — |
| North Adams | 26,583 | 8 | 5 | 25.00 | 37.50 | — | — | — |
| Gloucester . | 26,121 | — | — | — | — | — | — | — |
| Quincy . . . | 25,307 | 9 | 3 | 22.22 | 22.22 | 11.11 | — | — |
| Waltham . . | 24,612 | 5 | 2 | — | — | — | — | — |
| Pittsfield . . | 22,311 | 2 | 1 | — | 100. | — | — | — |
| Brookline. . | 21,679 | 2 | 1 | 50.00 | — | — | — | — |
| Chicopee . . | 20,390 | 8 | 3 | 25.00 | — | — | — | — |
| Medford . . | 20,014 | 4 | — | — | 25.00 | — | — | — |
| Newburyport | 14,478 | 7 | 1 | 14.30 | 14.30 | — | — | — |
| Melrose . . | 13,384 | 4 | 1 | — | — | — | — | — |

* The populations of the cities outside of Massachusetts were estimated on the basis of the rate of growth from 1890 to 1900. Those of the Massachusetts cities were estimated upon the rate of growth from 1895 to 1900, since the State had an intermediate census in 1895. The populations of Gloucester, Marlborough and Newburyport were allowed to stand as in 1900, they having suffered a slight decrease during the five-year period.

Deaths reported 2,954; under five years of age, 903; principal infectious diseases (smallpox, measles, scarlet fever, cerebrospinal meningitis, diphtheria and croup, diarrheal diseases, whooping cough, erysipelas, fevers and consumption) 631, acute lung diseases 554, consumption 327, scarlet fever 34, erysipelas 12, typhoid fever 32, whooping cough 14, cerebrospinal meningitis 7, smallpox 37, measles 27, diarrheal diseases 39.

From whooping cough, New York 10, Philadelphia 2, Lawrence 1, Chicopee 1. From cerebrospinal meningitis, New York 2, Pittsburg 1, Boston 1, Somerville 1, Brockton 2. From scarlet fever, New York 25, Philadelphia 3, Pittsburg 4, Boston 2. From measles, New York 22, Pittsburg 4, Boston 1. From erysipelas, New York 5, Philadelphia 3, Baltimore 1, Providence 1, Boston 1, Lowell 1. From smallpox, New York 11, Philadelphia 19, Boston 6, Cambridge 1.

Beginning with January, 1902, the term "great towns" as employed in the Registrar General's Weekly Return of births and deaths includes the seventy-five municipalities of England and Wales which have a population of more than 50,000 in each.

In the seventy-five great towns of England and Wales, with an estimated population of 14,800,427, for the week ending Jan. 11, the death-rate was 18.3. Deaths reported 5,183: acute diseases of the respiratory organs (London) 366, whooping cough 78, diphtheria 82, measles 124, smallpox 53, scarlet fever 58.

The death-rate ranged from 5.5 in Hornsey to 25.2 in Preston; London 18.6, West Ham 17.4, Croydon 16.3, Brighton 14.7, Portsmouth 16.8, Southampton 15.5, Bristol 17.5, Birmingham 18.8, Leicester 17.3, Nottingham 19.1, Birkenhead 18.6, Liverpool 20.8, Manchester 19.5, Salford 20.5, Bradford 16.1, Leeds 19.7, Sheffield 20.7, Hull 17.6, Newcastle-on-Tyne 20.5, Cardiff 15.4.

## METEOROLOGICAL RECORD

For the week ending Jan. 25, in Boston, according to observations furnished by Sergeant J. W. Smith of the United States Signal Corps:

| Date | Barometer | Thermometer. | | | Relative humidity. | | | Direction of wind. | | Velocity of wind. | | We'th'r * | | Rainfall in inches. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Daily mean. | Daily mean. | Maximum. | Minimum. | 8.00 A.M. | 8.00 P.M. | Daily mean. | 8.00 A.M. | 8.00 P.M. | 8.00 A.M. | 8.00 P.M. | 8.00 A.M. | 8.00 P.M. | |
| S...19 | 30.09 | 30 | 40 | 19 | 53 | 62 | 58 | W | N W | 12 | 10 | O. | C. | |
| M..20 | 30.44 | 24 | 31 | 16 | 51 | 82 | 66 | N W | E | 8 | 3 | C. | C. | |
| T..21 | 30.18 | 33 | 39 | 27 | 75 | 100 | 88 | E | E | 8 | 18 | O. | R. | T. |
| W..22 | 29.45 | 43 | 48 | 38 | 100 | 92 | 96 | S E | S W | 25 | 5 | R. | O. | .59 |
| T..23 | 29.54 | 36 | 41 | 30 | 79 | 85 | 82 | W | W | 14 | 10 | O. | C. | |
| F..24 | 29.96 | 34 | 40 | 28 | 68 | 45 | 56 | S W | N W | 9 | 7 | O. | C. | |
| S...25 | 30.40 | 28 | 33 | 24 | 62 | 74 | 68 | N W | E | 8 | 6 | C. | C. | |
| ☞ | 30.01 | | 39 | 26 | | | 73 | | | | | | | .59 |

* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow. † Indicates trace of rainfall.
☞ Mean for week.

## CHANGES IN THE MEDICAL CORPS OF THE NAVY FOR THE WEEK ENDING FEB. 1, 1902.

W. K. VAN REYPEN, rear admiral. Detached from duty as chief of the Bureau of Medicine and Surgery, Navy Department, and ordered home and to wait orders.

C. M. OMAN, assistant surgeon. Commissioned assistant surgeon from Dec. 18, 1901.

G. M. MAYERS, assistant surgeon. Detached from the Naval Hospital, Cavite, P. I., and ordered to the Isla de Cuba.

## APPOINTMENTS.

DR. HOWARD H. SMITH has been appointed Resident Assistant Physician at the South Department of the Boston City Hospital.

DR. JAMES B. AYER has been appointed by Governor Crane, a member of the State Board of Insanity, in place of Dr. Herbert B. Howard, who resigned to become one of the Board of Trustees of the State Colony for the Insane, to which position he has been appointed by the governor, and of which board he has been made chairman.

DR. FLAVIUS PACKER, first assistant resident physician of the Manhattan State Hospital for the Criminal Insane, at Matteawan, selected on account of his special ability as an alienist, has been placed by the new Board of Hospital Trustees in charge of the pavilion for the insane at Bellevue Hospital. Dr. Thomas De L. Burkhalter, removed from the latter, has been assigned a position in the Health Department.

## RECENT DEATHS.

SCOTT CAMPBELL NEWCOMB, M.D., M.M.S.S., died in Walpole, Mass., Dec. 31, 1901, aged 30 years.

DR. CHARLES H. BURNETT, an eminent aurist, died last week at his home at Bryn Mawr, near Philadelphia. He was 61 years of age.

DR. LACHLANS TYLER of New York died of appendicitis at the Post-Graduate Hospital on Jan. 26, at the age of 50. He was the son of President John Tyler, tenth president of the United States, by his second marriage. For many years Dr. Tyler was connected with the Health Department of the city. He was graduated from the College of Physicians and Surgeons, New York, in 1876. A brother is now president of William and Mary College, at which both the deceased and his father received their academic education. Dr. Tyler's body was taken to Richmond, Va., for interment in the family vault.

DR. DOMINICK G. BODKIN of Brooklyn, N. Y., died Jan. 26 after a long illness. He was born in Ireland, in 1833, but came to this country at an early age. While he was studying medicine in New York the Civil War broke out, and he went into the army as an assistant surgeon in General Canby's corps. At the close of the war he completed his medical studies, and was graduated from the medical department of the University of the City of New York in 1866. He was one of the best known physicians in Brooklyn, where he had practiced for 35 years, and for many years he was on the attending staff of St. Mary's Hospital.

## BOOKS AND PAMPHLETS RECEIVED.

Anisometropia. By Dr. Alexander Duane, New York. Reprint. 1901.

Is Medicine Founded on Truth? By W. J. George, M.D., Johnstown, Pa. Reprint. 1901.

The Diagnosis of Ocular Paralyses. By Alexander Duane, M.D., New York. Reprint. 1901.

Transactions of the American Ophthalmological Society. Thirty-seventh Annual Meeting, New London, Conn., 1901.

The Race Question in the United States. By R. P. Brorup. Fitzgerald, Ga.: North and South Publishing Co. 1902.

Hay Fever and Asthma. A Permanent Cure by Means of Nasal Surgery. By Floyd S. Muckey, M.D., C.M. Reprint. 1902.

Simultaneous Rupture of the Choroid and Paretic Mydriasis without Paresis of Accommodation. By Alexander Duane, M.D., New York. Reprint. 1901.

The Diagnostic Importance of the Examination of the Feces. By Charles D. Aaron, M.D., Detroit, Professor of Clinical Gastro-Enterology in the Detroit College of Medicine; Consulting Gastro-Enterologist to Harper Hospital, etc. Reprint. 1901.

The Present Status of Epileptics in Virginia. By William Francis Drewry, M.D., Petersburg, Va., Member Commission on State Care of Epileptics; Superintendent of the Central State Hospital of Virginia, Petersburg. Reprint. 1901.

The Practical Medicine Series of Year Books, comprising ten volumes on the Year's Progress in Medicine and Surgery. Issued monthly, under the General Editorial Charge of Gustavus P. Head, M.D. Vol. III. The Eye, Ear, Nose and Throat. Edited by Casey A. Wood, C.M., M.D., Albert H. Andrews, M.D., T. Melville Hardie, A.M., M.D. Chicago: The Year Book Publishers. 1901.

Jahresbericht über die Fortschritte in der Lehre von den Pathogenen Mikro-organismen umfassend Bacterien, Pilze und Protozoën Unter Mitwirkung von Fachgenossen bearbeitet und herausgegeben von Dr. med. P. von Baumgarten o. ö. Professor der Pathologie au der Universität Tübingen und Dr. med. F. Tangl o., o. Professor der Physiologie au der thierärztlichen Hochschule in Budapest. Fünfzehnter Jahrgang. 1889. Leipzig: Verlag von S. Herzel. 1901.

International Clinics, a Quarterly of Clinical Lectures, and Especially Prepared Articles on Medicine, Neurology, Surgery, Therapeutics, Obstetrics, Pediatrics, Pathology, Dermatology, Diseases of the Eye, Ear, Nose and Throat, and other Topics of interest to Students and Practitioners. By leading members of the Medical Profession throughout the world. Edited by Henry W. Cattell, A.M., M.D., with the collaboration of John B. Murphy, M.D., Alexander D. Blackader, M.D., H. C. Wood, M.D., T. M. Rotch, M.D., E. Landolt, M.D., Thomas G. Morton, M.D., Charles H. Reed, M.D., J. W. Ballantyne, M.D., and John Harold, M.D., with regular correspondents in Montreal, London, Paris, Leipsic and Vienna. Illustrated. Vol. III. Eleventh series, 1901. Philadelphia: J. B. Lippincott Co. 1901.

# Original Articles.

## SURGERY OF THE GALL BLADDER AND DUCTS.*

BY JOHN W. KEEFE, M.D., PROVIDENCE, R. I.,

*Attending Surgeon to the Rhode Island and St. Joseph's Hospital.*

The surgery of the biliary passages has made marked progress during the past 5 years, and I venture to say that in the next decade the general practitioner will become as familiar with gallstone surgery as he is at the present day with appendicitis.

I find in the literature of the subject the following: The operation was advocated or suggested as early as 1743 by Jean Louis Petit.[1] The first operation of cholecystotomy was performed by Baggs[2] of Indiana in 1867, yet it may be said that, as he did not know the nature of the tumor for which he opened the abdomen, the operation was accidental. Dr. Marion Simms,[3] in 1878, was the first to perform it as a formal operation.

In 1863 Thudicum[4] found indications and described the technique which is analogous to our modern. He describes cholecystostomy in two stages, the first consisting in suturing the gall bladder to the abdominal wall, and the second in incision and removal of the stone.

In 1878 Kocher[5] opened an enormous empyema of the gall bladder successfully, tamponing with Lister's gauze; in 1879 both Keen[6] and Lawson Tait[7] report cases, and in 1882 Langenbuch[8] first suggested cholecystectomy for dropsy and empyema of the gall bladder, due to obstruction of the cystic duct.

In 1882[9] von Winivarter devised a cholecystenterostomy, and in 1884 Kümmel[10] was the first to perform a choledochotomy combined with cholecystectomy.

Mignot[11] produced gallstones in rabbits and guinea pigs by introducing tampons, saturated with cultures of the bacillus coli, into an opening in the gall bladder. These cultures were of diminished virulence, otherwise the animals would have died. He obtained concretions, at varying intervals, which consisted of cholesterin.

Summa[12] says that the destruction of the epithelial cells of the mucosa of the gall bladder causes precipitation of the bile constituents, while Miyake[13] says infection is necessary for the experimental formation of a gallstone, as no stone follows the introduction of sterile foreign bodies or cauterization of the mucosa.

Naunyn[14] states that the mucous membrane of the gall bladder secretes a substance which by addition of acetic acid forms cholesterin. He says that gallstones, with few exceptions, originate in the gall bladder, the nucleus being hemic or bacterial.

Thudicum[15] combats the views of Naunyn as to the formation of stones and says that bilirubin is not a constituent of normal human bile, but that bilifuchsin is the coloring matter, and that the mucous glands do not take part in the formation of stones.

Lauenstein[16] performed 84 operations on the biliary passages, and in several cases found no bile in the gall bladder. He explains this by saying that a stone in the cystic duct acts like a ball valve, allowing fluids to flow inwardly but not outwardly. When the gall bladder is distended with bile, the calculus stops the flow through the cystic duct in both directions. As a result, the bile, instead of passing into the intestine only at meal time, flows continuously through the common duct, leaving its sphincter always open for infection to enter.

Housemann[17] found that 7 months was usually required for the formation of gallstones, yet they occasionally formed in less time. He reports a case in which a silk thread, introduced near the papilla for gastrotomy, caused the formation of gallstones in 4 months.

John Homans[18] reports a case in which the stone formed in 1 year and 8 months, and Kehr[19] cites one where the stone formed 1½ years after the introduction of a silk thread.

Of 2,619 autopsy reports found by Hirschberg[20] in the records of the past 10 years at the Pathological Institute of Erlangen, there were 158 cases of gallstones, namely, 6.3%.

In most cases where gallstones have proved fatal, it has been through peritonitis. Various authorities state that from 6 to 10% of the adult population are affected with gallstones. These stones may remain for many years without causing injury to their host, yet he is in imminent danger of an acute cholecystitis which in a short time may become gangrenous. The colored race are less prone to gallstones than the white. A Louisville surgeon[21] reports but 1 case occurring in a negro out of 106 operations performed.

Stones of an enormous size have sometimes been found. J. P. Lord[22] reports a case where a man aged 70 had a stone measuring 4½ by 6 by 2 1/16 inches; Marshall of Glasgow reports one 1¾ by 3½ inches; Smith and Fagge, single stones each 2½ by 4½ inches.

Biliary colic is now believed to be due to cholecystitis rather than to the passage of a stone, and, in chronic cases, an impaction of the stone in the common duct is not necessarily accompanied by jaundice or a distended gall bladder.

Exner[23] found, in 40 cases of gallstones, glucose in the urine to the extent of .4 of 1% or over, by the polarization or the fermentation test. After operation the sugar diminished inside of 8 to 21 days in some cases, while in others it disappeared. In 39 out of 40 cases cited by Czerny[24] in which sugar was present in the urine, no trace was found after operation.

Bevan[25] reported that in the French Laboratories, typhoid bacilli injected into the gall bladder produced stones. He believes that the etiology is mycotic. Chiari[26] reports 22 cases of typhoid in which the typhoid germ was found in 19 gall

* Read before the Rhode Island Medical Society, Dec. 5, 1901.

bladders. Fournier[27] found the typhoid bacilli in 38 of 100 stones examined. Typhoid infection is certainly connected in some way with the formation of gallstones.

Peterson[28] gives as absolute indications for operation: (1) Acute cholecystitis, empyema and threatened peritonitis; (2) chronic cystitis and dropsy of the gall bladder; (3) chronic recurrent cholelithiasis and severe pain; (4) chronic obstruction and jaundice which remains for a long time without change. Relative indications: (1) Chronic recurrent cholelithiasis with variable pains; (2) beginning obstruction, jaundice. Relative contra-indications: (1) Very acute jaundice which may probably disappear; (2) inflammation, marked swelling of the liver, fever and chills.

The technique of cholecystostomy, as described by Poppert,[29] consists in affixing the gall bladder to the abdominal wall. He places a long drain or a thick Nelaton catheter in the gall bladder and sews hermetically the ends of the wound about the drain. A small strip of iodoform gauze is placed about the drain, and the fluid in the gall bladder at the time of closure of the wound is secure for 8 or 10 days. Then the secretion begins to leak through, but it is not dangerous, for, by this time, granulation has begun. The iodoform gauze is removed after 14 days, the drain after 3 to 4 weeks, and the fistula closes spontaneously.

Lejars[30] mistook for a renal tumor, an enormously distended gall bladder containing 300 cc. of pus but no stones. The gall bladder, which was incised, drained and sutured to the wound, healed without complications.

In choledochotomy Langenbuch[31] advises not to suture the duct but to use a drain of iodoform gauze. He employs a transverse incision between the xiphoid and the umbilicus, a little to the right of the median line. Quénn,[32] Routier and E. Schwartz also recommend to drain and not suture the duct.

In cholemia Robson[33] advises administering, for 5 days before the operation and for a day or two afterwards, ½ dr. doses of calcium chloride 3 times a day by mouth and in nutrient enemata after operation.

In 1898 Meltzer[34] collected from literature, 191 cases of intestinal obstruction due to gallstones. In 73 the stones were discharged by rectum; in 3 cases the pylorus was stenosed by stones found at autopsy; in 98 cases the small intestine was obstructed by stones; of the latter 3 being in the duodenum, 24 in the jejunum, and 62 in the ileum. In 9 cases the stones were found in the large intestine, and in 8 the position was not noted.

Ransohoff[35] states that jaundice is an unreliable symptom. The average case requires a cholecystostomy with the formation of a fistula, but a cholecystectomy where the gall bladder is too much damaged. He says that stones in the cystic duct may be pressed upward into the gall bladder with the fingers or by irrigation; but if small and soft they may be crushed with the fingers or with a rubber-tipped forceps. Stones impacted in the common duct should be removed, since they may later cause cancer.

Senn[36] believes that the x-ray is of importance in the diagnosis of gallstones, but Kerr states that it is of little value. Senn also thinks that extreme radicalism in operations for gallstones is too frequent, while Deaver[37] is of the opinion that conservatism like Senn's is dangerous, as perforating peritonitis following gallstones is common. He believes that no x-ray diagnosis of gallstones is possible.

Riedel[38] favors cholecystotomy in 2 stages in cases where there is advanced cholemia. He reports 100 cases, with no deaths where cholecystotomy had been performed, and 2 deaths following cholecystectomy. In cases where shrunken, atrophied gall bladders are so friable that they cannot be sutured to the abdominal wall, Pean, Terrier and other French surgeons have performed and advocated cholecystectomy.

Mayo[39] states that excision of the gall bladder is indicated in 4 groups of cases: (1) for traumatism, namely, gunshot wounds, etc.; (2) phlegmonous cholecystitis and gangrene of the gall bladder; (3) malignant disease; (4) relief of permanent obstruction of the cystic duct, the common duct being patent. In the last group only the mucous membrane is at fault; if this were not present there would be nothing to drain, and obliteration of the cystic duct would be harmless. Removal of the mucosa of the gall bladder offers quick and safe relief in such cases. The danger of a complete cholecystectomy is infection of the pedicle and its close relation to the liver. The simple removal of the mucous membrane, on the other hand, is much safer, but little more dangerous, in fact, than ordinary cholecystotomy. During the past 9 years there were 132 operations on the gall bladder and ducts performed at St. Mary's hospital, Rochester, Minn., including 11 cholecystotomies. Of these, 7 were for relief of obstruction in the cystic duct, causing mucous fistulæ or recurrent attacks of biliary colic. Obstruction of the cystic duct occurred in about 10% of these cases as a secondary effect of operations for gallstones.

Mayo states that the technique of the removal of the gall bladder is easy. The mucous membrane is readily detached and the muscular and peritoneal coats of the gall bladder are sutured to the upper angle of the wound in the abdomen and drained as in an ordinary cholecystotomy. In removal of the mucous membrane as a secondary operation when cholecystotomy has failed, the incision in the abdomen is made to the inner side of the original wound. The adhesions are separated on the inner side sufficiently to explore, the other adhesions being left as a protection and gauze pads introduced as a further safeguard. The mucous membrane is separated in the middle, enucleated to the cystic duct, divided at the point of obstruction, and separated from within outwardly until entirely free. If the separation is begun at the attachment of the abdominal wall, it is very difficult. Drain the muscular

and peritoneal coats as usual and attach a piece of sterile gauze at the inner divided wall by a few catgut sutures.

McCosh [40] advises an early exploratory operation rather than wait and have to contend with the dangers of cholemia. He prefers cholecystotomy and reports 26 cases, not one of which was followed by permanent fistula. The average time of closure of a fistula was 42 days, the shortest 11 days. In 9 cases of choledochotomy, 2 died.

Loebker [41] reports 37 cases of cystotomy, all recovered; 87 cases of cystectomy, with only 2 deaths; 12 cases of choledochotomy, with 1 death. Of these 12 cases, cholecystectomy was performed 8 times. Early operation is advocated on account of the complications which attend later interference.

Riedel [42] states that operation is indicated as soon as the diagnosis of cholecystitis is made. Laxatives, including Carlsbad, lessen the pain. Eighty to ninety per cent of the so-called biliary colics or bilious attacks are cases of cholecystitis. He says: "Operate as early as possible. before infection has occurred, because, if the bile is sterile, there is no harm done should it get into the peritoneal cavity." The alpha and omega of the treatment is to remove the stones before they enter the common duct.

In one of the most important papers published on the surgery of gallstones, Naunyn [43] gives the following conclusions: (1) The tumor in cases of biliary colic is due generally to cholecystitis; (2) the pain or colic is due to cholecystitis; (3) jaundice in biliary colic is generally due to the cholecystitis or to the accompanying cholangitis. Lithogenous jaundice only occurs when the stones become impacted in the common duct. Cholecystitis may give the symptoms of biliary colic, or of a localized inflammation, or of a general infection with no local symptoms. The patient may die, the cholecystitis may become chronic, may develop into a dropsy or an empyema of the gall bladder, or the attack may terminate favorably by the expulsion of the stone. With the cholecystitis, a cholangitis may occur; then the liver is swollen, painful, there is marked jaundice, and symptoms of infection.

Normal bile is sterile, but following cholecystitis we almost always find the bacillus coli present. Pus is rarely found unless the staphylococcus and streptococcus are also present; hence, cholecystitis is distinct from empyema of the gall bladder and from suppurative cholangitis. Cholecystitis may become latent when the bile secures an exit, though the stone be not expelled. We cannot tell a successful attack of cholecystitis, namely, one in which all stones have been expelled, from an unsuccessful one, not even by finding the stones in the feces.

Chronic obstruction is usually caused by stones which get in the common duct when yet small and grow there. On the other hand, a stone may be in the common duct without causing icterus, while one in the cystic duct may cause icterus by compressing the common duct. In more than 50% of cases of chronic obstruction there is cancer of the duct. There may be adenitis of the duct lymphnodes and metastasis in the liver and peritoneum. Never forget to feel for glands in Douglass' pouch and examine the rectum. Ascites may give a valuable hint. Cachexia is not so pronounced in chronic obstruction from stones as from cancer. Indications for operation: The operation is not in all cases a radical cure, for stones may yet remain. Cholecystitis, acute or chronic, calls for operation. Cholecystitis and cholangitis, if they are very acute, should be operated on at once. Chronic recurrent cholelithiasis requires operation only after Carlsbad cure has been tried.

Kehr [44] of Halberstadt has the distinction of having performed the greatest number of operations for gallstones of any living surgeon. Up to Nov. 25, 1900, he had performed 547 operations for gallstones. If one excludes carcinoma, purulent cholangitis, peritonitis and cirrhosis of the liver, of which there is a mortality of 47%, there remain 422 laparotomies for gallstones, with 14 deaths, or a mortality of 3.3%.

Among the last 35 choledochotomies with hepaticous drainage, there are no deaths. During 2 years he operated 151 times with only 1 death, and that due to faulty technique; following cholecystectomy, the ligature slipped off the cystic duct. In all the cholecystotomies, in which the gall bladder was tied to the parietal peritoneum, there were no deaths. Fistulæ closed in all cases. No recurrence except in 4 cases where silk ligatures caused recurrence of the stone. Kehr says cystendesis or immediate suture of the wound in the gall bladder is a method to be rejected, as in no operation for stones can one say that all of them have been removed. In his 375th operation he overlooked a stone in the duct which measured ½ inch in diameter. This he removed later. Hence, the return of the sutured gall bladder is wrong. He has had a recurrence of pain and inflammation in 6% of cholecystotomies. He has performed 64 cholecystectomies in which he has as yet seen no recurrence. Before performing cholecystectomy he carefully searches the bile ducts. He prefers to separate a shrunken gall bladder as soon as possible from the lower surface of the liver so as to allow access to it. He reports the highest mortality in cases complicated by cancer of the pancreas, etc.

In 86 cases collected from literature, he finds a mortality of 31% following choledochotomy. His own choledochotomies give .6 of 1%. Of his 200 patients, 151 were women and 23 men. Of the women, 133 were married, 117 had borne children and 18 were single. He records 1 death in 127 operations for stones in the gall bladder or in the cystic duct. In 21 cases of cholecystectomy, where the gall bladder was shrunken and the cystic duct obliterated, he cites 1 death. Stones in the common duct, choledochotomy, 31 operations and 2 deaths. In 17 cases complicated with carcinoma, etc., 10 deaths and 7 relieved.

In 162 operations on the liver and bile passages at the Heidelberg Clinic, Peterson [45] found reduc-

ing substances in the urine in 23 of 24 cases. In 10 cases he made a diagnosis of stones, but found pure cholecystitis or extensive adhesions. In 65 cases of cholecystotomy at one sitting, he had 2 deaths, both from cancer; cystendesis, 6 cases, no deaths; cystopexy, 3 cases, no deaths; cystectomy, 10 cases, 2 deaths; cystotomy, 7 cases, 1 death due to peritonitis; choledochotomy, 20 cases, 4 deaths, 1 due to cholemia, 1 to secondary hemorrhage and 2 to peritonitis; choledochoenterostomy, 11 cases, in 4 of which the Murphy button was used. He concludes that the normal operation is cholecystostomy at one sitting. Of 80 cases followed up, but 2 had stones after cholecystostomy. The others had no recurrence of symptoms. Herniæ were present in 20%; permanent fistulæ in 8 cases; in 5, cured by operation. No such fistulæ since the use of a drain introduced into the gall bladder before suturing it to the parietal peritoneum.

Bacteriology of 50 cases. Twenty-six cases had the bacillus coli, 6 cases had the staphylococcus and bacillus coli, and in 4 no bacteria were found. The bile was almost always sterile after 2 to 4 weeks of steady drainage. In 1 case, the bile flowed into the peritoneal cavity for 5 weeks without harm as a result of a rupture of the gall bladder. Of 162 cases, 30 had carcinoma; in 4 radical operations for removal were attempted, and of these 2 died, 2 still live, one after 2 months, the other 5 months, without recurrence; 3 cases of sarcoma, operation of no avail in 2. Hemorrhage from liver checked by deep sutures, tamponing, elastic ligatures and hot air.

Poppert[46] reports 122 cases: 88 cholecystotomy, 5 cholecystodochotomy, 6 choledochotomy and 14 cholecystectomy. In his last 80 or 90 cases no permanent fistulæ or herniæ. He also advocates an early operation.

Fenger[47] recommends cholecystostomy in 2 sittings. He uses a spiral sound for removal of all stones, advises suture of the duct in choledochotomy, and believes in the expectant attitude in cases where operation is questioned. He reports a number of interesting cases, in one of which he had to resect the ribs to get at the gall bladder, which lay some distance under the liver, displaced upwards under the costal arch.

De Voogt's[48] experiments confirm the assertion of Oddi that ablation of the gall bladder is far from being so serious as generally thought. The gall bladder may grow again after operation, hence the operation may not be effective as a radical measure for gallstones. It is indicated in cases of neoplasm or degeneration of the organ.

Murphy[49] of Chicago prefers cholecystenterostomy in impacted stones of the common duct as against choledochotomy. This operation quickly relieves the tension in cases of obstruction of the common duct with inflammatory symptoms. If jaundice be present, he prefers to do a cholecystotomy, cure the jaundice first, then operate for stones.

Walker[50] of Detroit advocates cystendesis, closure and return of the gall bladder into the peritoneal cavity. Kelly[51] of San Francisco raises objection to the cholecystenterostomy, as infection from the intestine to the liver is possible.

Van Der Veer[52] of Albany urges the necessity for early diagnosis. In suppurative cases, examine for deep-seated stones. He advocates drainage by lumbar stab through peritoneal pouch in cases of prolonged operations on ducts, where adhesions exist. Operation is too late in cases of cholemia with ecchymosis, etc. Stones may cause cancer of the ducts, liver, etc. Patients should be informed of this fact.

Perkins[53] of Denver advises, in closing the wound, suture of the gall bladder to the abdominal wall with catgut. Stitches to close the parietal wound pass entirely through the abdominal wall. Those which are opposite the gall bladder are passed through the abdominal wall, then through the gall bladder, emerged from the gall bladder before reaching incision in it, carried across incision and made to enter the gall bladder on other side of the incision, finally through the abdominal wall like Lembert suture.

Richardson[54] states that he now operates as frequently at the Massachusetts General Hospital for gallstones as hysterectomy. The mortality depends on the time of operation. History of intermittent colic and jaundice points to gallstones, yet may be appendicitis. Exploratory incision is justifiable. The so-called ideal method, cystendesis, is dangerous. It is good surgery to excise the gall bladder in all cases where it is necessary to incise the duct. There is an analogy between the appendix and the gall bladder. Early operation is advocated. The bacillus typhosus was found by Richardson in the gall bladder in 5 cases. He also found the colon bacillus.

McBurney[55] advises the method of cystotomy of Jones of Nebraska. He inverts the orifice made in the gall bladder by the knife so that the peritoneal coats may be brought in contact. Thus the fistula may close in 48 hours after removing drainage.

Anders[56] advocates auscultatory percussion; relax abdominal wall, sink fingers deeply into gall bladder region; patient takes a deep breath, and the stethoscope is held just below the ribs, when gallstone crepitus may be heard.

Kehr advises in an acute case of serous or purulent cholecystitis, cholecystotomy; in the free interval, cholecystectomy. Open the cysticus and choledochus and drain the hepaticus.

*(To be continued.)*

## FAULTY UTERINE GROWTH.[1]

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THE subject under consideration is so commonly known that I feel as though I ought to state at the outset that to most of you much that

[1] Read before the Section for Obstetrics and Diseases of Women of the Suffolk District Medical Society Nov. 27, 1901.

will be read will probably seem most trite, still, if, as I believe, one or two new elements may be infused, perhaps our time will not be wasted.

Much has been written regarding faulty developmental conditions of the female generative organs, but many of the writings are merely quotations of former authors, or a different wording of the same text. If, perchance, what I am to say is old to you, it at least possesses the merit of being original with me, and careful search of textbooks and of many articles since the first by Simpson, has failed to show that it lacks absolute originality.

The reason for my choosing this subject is that more especially during the past three years a considerable number of these cases have come under my observation.

It has seemed to me that the uterine ligaments play a considerable rôle in these cases, and that unless proper attention be paid to them success in treatment is much more difficult, if not unattainable. In no article, either in textbook or journal, have I been able to find any allusion even in the least to this factor, and I wish to submit to the judgment of others whether or not my observations have been correct.

Starting at the beginning of normal development we know that in the female all the genital organs come from the Müllerian ducts, except the ovary, which is developed from the genital ridge from the mesial side of the Wolffian body. We know that writers ordinarily state that all that remains of the Wolffian body in the female adult is the parovarium, neglecting to mention that the round ligaments are also remnants of a very important part of the Wolffian body, namely, its inguinal ligament.

The round ligament begins to be of importance early in fetal life. L. Fürst, as quoted by Pozzi in his third edition, says that at the end of his (Fürst's) second developmental period, from the fifth to the twelfth week, the partition of the genital canal has totally disappeared; the fusion of the Müllerian ducts is carried higher; the insertion of the round ligament separates sharply that which will be the tube, above, from that which will be the horn, below.

This early differentiation of the round ligament and its comparatively prominent part in the later development is simply referred to here to bring out the fact that from the first the development of the round ligament goes on *pari passu* with that of the uterus, tubes and ovaries. The significance of this seems to me this: any factor influencing, at any time, the development of the uterus, would also influence the round ligament. Another reason why the round ligaments assume an important rôle is that they alone of all the uterine ligaments contain a considerable amount of fibrous tissue and a certain amount of muscular tissue, slight it is true, but still sufficient to differentiate it from the other uterine ligaments, which are practically folds of peritoneum. Whether cases of uterine developmental errors such as the bipartate, bicornate, unicornate, etc., are accompanied by abnormalities of the round ligaments it is difficult to ascertain, as these conditions are never fatal, and I have been unable to find any satisfactory observations noted.

However, I wish to deal more with faulty growth than with faulty development. Experience has seemed thus far to teach us that treatment of the latter condition is absolutely futile. So far as these cases of faulty growth are capable of classification I have separated them into two classes, considering as growth any postnatal change. These two classes comprise (*a*) inhibition, or absence of growth, and (*b*) tardy or delayed growth. In the former the uterus maintains the infantile characteristics of long cervix, small body and antiflexion, and in the latter a certain slight amount of growth has gone on, but growth at puberty failed. In the former class the distinguishing characteristic is the length of the cervical canal, which exceeds the length of the cavity of the body. In the second class the two cavities are of equal length, or that of the body is slightly the greater. It is in this latter class that treatment seems to be of value, and in which a hopeful prognosis may be given. In the former class, that is, the so-called fetal uterus, a very doubtful prognosis must be given, as in only a very small minority can any benefit result from any known form of treatment.

Given even the most favorable case, very much depends upon the attitude of the patient. If she be impatient, unwilling to devote herself first and before all to the task of getting well, the gynecologist will gain more credit and satisfaction from declining to treat the case than in interrupted and spasmodic attempts.

The least time in which I have ever been able to discharge a patient was nine and one-half months, and then she was discharged only on condition that she should immediately report the least lapse from regularity of menstruation or symptom of any kind. At the other extreme stands a patient discharged "on probation," as it were, last month after two years of constant treatment.

Müller of Berne says in the "Encyclopedia of Obstetrics and Gynecology," that when the patient is robust, the general health good, and no local disturbances are present, it will be best to avoid any action. I quote this merely to take occasion to emphatically disagree with it. The most that our treatment aims to accomplish is the establishment of a normal growth, and nothing else will further our efforts to so considerable an extent as a good general health, with good appetite, strength to take a sufficient amount of outdoor exercise, and good assimilation.

Then, too, I must disagree with the overcareful practitioner, who carries his wish to avoid subjecting a young girl to local treatment to too great lengths. Of course we must all admit it is far better to err on this side than on the other, and we will all agree that best of all is a wise discrimination which teaches us when to subject our young patients to this ordeal. If in doubt, per-

sonally I consider it far wiser to counsel a first diagnostic examination under anesthesia, than to lose valuable time in false delicacy.

Regarding the above citation from Müller it should be said that but few cases are seen to which his statement applies. Most cases are seen in girls who may be well nourished, but who show other evidences of tardy, or lacking, growth. A large majority of the cases personally observed have been in girls slight of frame, small of muscle and of low stature. Many of them even at 16, or even up to 20, years of age retain a marked look of childishness. Faulty mental development has very seldom been observed as a concomitant condition.

Patients requiring our care for faulty or delayed growth of the uterus almost invariably come for advice at three critical periods in a woman's life. First, they are brought to us at from 15 to 17 years of age by careful mothers who wish to know why their daughters manifest either no menstrual phenomena at all or but very irregular and scanty flow at long intervals. It is practically always, both in the foregoing and following classes, the amenorrhea which brings the patient to our attention. In the second class we find the young women who have several years ago passed the age of puberty, and either neglect or false ideas of modesty have prevented them from receiving proper attention. These come to us as to the advisability or propriety of contracting marriage. There are a third few who have passed both periods and only come to us after marriage. The prognosis, other things being equal, gets less favorable with each class, and in women who have passed the period of growth, say arbitrarily 22 years of age, treatment holds out but very little hope.

These cases may or may not be accompanied by other abnormal conditions than the faulty or insufficient growth, and so far as I have been able to learn, they do not materially affect the prognosis so long as they do not depend upon errors of development dating back to the prenatal period.

The most common accompanying condition is that of antiflexion of body, cervix, or both. This is commonly seen in a relaxed, small, thin-walled uterus, and seems most often to be an inability to maintain itself in a proper shape from real muscular weakness. When this is the case it is ordinarily easily ascertained, as the uterus can easily be straightened or even retroflexed by bimanual manipulation, whereas, in larger, firmer, well-grown uteri presenting these antiflexions, the position is strongly maintained by fibrous tissue in the angle of flexion.

The diagnosis is not difficult. The history and physical signs are never contradictory. The ordinary case presents a history of an age more or less remote from that of puberty, the patient being usually childlike in face and stature, but almost invariably her intelligence is quite equal to, or in advance of, her age. This would seem to point to the fact that a quiet, sedentary and particularly a studious childhood might play an etiological rôle. She gives a history of either never having had the slightest menstrual molemina or of having very scanty, abortive catamenia at widely separated and irregular intervals. She is almost invariably of studious or sedentary habit and constipation, in fact, sluggish metabolism is the rule. Almost invariably they are long and sound sleepers. On hearing such a history nothing remains but physical confirmation of a preformed diagnosis. The principal factor in this diagnosis is the uterine probe. Given a uterus in which the depth of the body cavity equals or exceeds that of the cervical cavity, a hopeful prognosis may be given, even though both measurements be small. If the cervical canal in the least exceeds that of the body a most unfavorable prognosis is the only one justifiable.

The treatment must be both general and local. It seems to me safe to say that neither alone will ever in a single instance suffice.

As I have said above, the patients are usually of a sedentary and studious habit, therefore our first indication is to limit very rigidly the amount of time spent in study or work, it usually being best to withdraw such a patient for one year at least from school or a sedentary occupation. Require an active out-of-door life. If their financial status will permit, horseback riding is a great aid, as it favors muscular growth in all directions and helps greatly in the correction of constipation. All forms of gymnastics, Swedish movements, etc., are indicated. It has seemed to me that iron has helped me greatly even in cases in which there seemed not the least anemia. This may be a result of the well-known action of iron in determining an increased amount of blood to the pelvis. The most useful method of administration has been Bland's mixture in combination with extract of nux vomica and extract of cascara. Either by this means or some other the bowels require careful regulation.

As to local treatment, the means most commonly used are old and familiar to you all, and I have had no occasion to add to them. In fact, it is probable equally good results might have been obtained by many methods of treatment which might appeal to others, but were not used in my cases. As in all obstinate lesions, a multitude of remedies have been suggested.

All growth depends absolutely upon a sufficient supply of the component elements of the organ in question, which are, of course, in the uterus and its appendages as in other organs derived from the blood. Therefore, to induce or increase growth it is first necessary to increase the supply of fresh oxygenated blood of the organ in which growth is to be induced. This implies not simply the production of congestion, because in many cases in which the desired growth fails an intense congestion often prevails long after all efforts at stimulating growth have ceased. It is absolutely essential to be certain that this congestion is active and not passive. In no case in which I had failed of an ultimate satisfactory result had I experienced the slightest difficulty in creating a

very decided active congestion, but this invariably within a few weeks gradually took on the dusky, turgid characteristics of passive congestion, and growth stopped, the uterus relaxed and became flabby and receded to nearly its original condition.

The means of inducing this congestion which I have used have, as I said above, not been new. They have been the intracervical application of impure carbolic acid, negative galvanism, and faradism, and these have been supplemented by prescribing for the patient's home use two quart, very hot douches each night.

Great care should be used in all manipulations in these cases to obtain especial cleanliness of all parts and of all instruments, as inflammation is never a factor at the beginning of these cases and is to be scrupulously avoided.

In obstinate cases in which the above produce no result discision may be practised, and has proven almost invariably useful. It appears to induce growth, just as a laceration of the cervix produces overgrowth.

Any of these methods and many others will almost invariably stimulate a growth in the uterus if the case is properly chosen, and undoubtedly all of you have seen a growth begin only to a little later cease, and eventually recede, much to your own disgust and your patient's disappointment. This at least has many times been my own experience until recently, when I have been more fortunate.

The proper method of correcting this retrograde tendency was first suggested to me during the treatment of an entirely different condition. Probably all of you have noted that in performing operations in which hemorrhage, directly or indirectly, from the uterine artery is a factor nothing will more promptly control this arterial hemorrhage than traction on the uterus, downward if operating through the vagina, upward if through the abdomen. It was while operating to repair a lacerated cervix at the time that I was much exorcised over one of these cases of faulty growth, that the application of this principle suggested itself. If uterine growth depended absolutely upon a free and abundant supply of arterial blood, and if even very moderate downward traction shut off or curtailed this supply, and at the same time favored passive, or venous, congestion, it seemed to account for all, or nearly all, past failures. This sagging is of course the inevitable result of an increase of weight in the uterus, with a weak, also undergrown, set of ligaments to support it. There is a very marked tendency to retroversion at this period. It is, therefore, at this point that the importance of the round ligaments, in fact, all the ligaments, comes into play.

After the uterus has begun to grow — not merely to swell — it of course must sag, and the tendency to retroversion is greatly increased if an intra-uterine electrode is used, as the uterus is more or less retroverted during treatment. As all of our efforts to cause the uterus to grow have operated by inducing a considerable increased arterial circulation, and as the sagging shuts off this circulation, the inevitable result is to stop the growth.

This sagging and retroversion are to be accounted for in two ways, both of which are operative at the same time: (1) The stimulation used to induce growth acts directly upon the uterus and only indirectly upon the ligaments, thus rendering the early growth in the uterus much more rapid than in its supports; (2) muscular tissue is much quicker to take on growth, and being started progresses much more rapidly than the fibrous tissue of which the ligaments are composed. The indication, then, seems plain to properly support the uterus from the start.

Owing to the use of the small hot douches by the patient at home, packings cannot be used, and as a marked tendency to retroversion exists, a pessary becomes the only practical method of giving this support, and I have ordinarily used a small soft or hard rubber retroversion pessary, with or without a bulb, according as the ovaries showed a tendency to prolapse or not. The smallest pessary that will do the work should be used, and, as the patient is so frequently seen, there is no danger of its doing any harm.

By following the above treatment I have been most gratified by results, and patients have gained uteri which gave every evidence physically and functionally of being normal. They have all, moreover, in varying periods, acquired an ability to support themselves by their own ligaments. I have thus far never had occasion to perform any operation to aid the ligaments in their work.

A patient is never to be discharged until she is physically and functionally up to normal, and it has become my rule to require the patient to wear the pessary six months after the uterus becomes of normal depth and menstruation is regular. It is then removed tentatively and the patient seen once a week until after the next menstruation, to make sure that the ligaments are sufficiently strong.

One caution seems to me necessary, that is, that we should satisfy ourselves that the flows of blood patients achieve during this treatment are really catamenia, and that the increase in the uterus is actual growth, as shown by the uterine measurement, and not merely swelling due to inflammatory reaction. Bleeding from the uterus accompanied by swelling are easily induced, but that is not what is desired.

## TREATMENT OF INVERSION OF UTERUS.[1]

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The treatment of recent cases of inversion is a part of the obstetric art and is sufficiently settled and well understood, so that it requires no comment. With chronic cases, however, where the

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uterus has undergone involution and the cervix has contracted, while adhesions have presumably been formed within the funnel of the inverted uterus, the best mode of treatment is by no means so easy to determine.

Leaving out of consideration the ingenious methods of constant elastic pressure by suitable apparatus, which are frequently successful when used early and faithfully, there remain the inveterate cases where surgical relief is demanded, and where all other measures are futile and really dangerous. For such cases three procedures are applicable: (1) There is the method of Thomas, in which the abdomen is opened and the funnel dilated so that the uterus can be replaced in its proper position; (2) the vaginal amputation of the uterus, which is easy of performance, and which of course cures the malady but robs a woman of her uterus; (3) there is the method of Kuestner, by which the cul-de-sac of Douglas is opened from the vagina, the funnel dilated if possible, and the uterus replaced, or, if this cannot be accomplished, the uterus is incised on its posterior aspect, as far as may be necessary to accomplish its reposition, and then the incision in the uterine tissue is sewed up, and the opening in the posterior vaginal fornix is closed. As a modification of this operation the anterior fornix may be incised, the bladder separated from the uterus, and then the latter may be incised anteriorly as far as is necessary, when the fundus is replaced, its incision sutured, and the uterus fastened forward by the method of Mackelrodt.

The operation of Thomas, which at the time when it was devised by him certainly was a bold and ingenious procedure, has fallen into a desuetude which I believe is unmerited. As described and figured by him in 1872 it consisted in laparotomy, followed by dilatation of the funnel, guided by the sense of touch in the depths of the abdomen, and naturally it was both difficult and dangerous. His first case was successful, although the vagina was torn, presumably so as to open the peritoneal cavity from below. His second case died. Mundé attempted the operation in 1888, but could not reduce the uterus, and therefore contented himself with removal of the ovaries, afterwards amputating the body of the uterus with the elastic ligature. Kelly reported an attempt at Thomas' operation, with failure to reduce the uterus. As far as I can learn it has never been performed in this country except in the instances above mentioned, and all the cases recorded number 12, with 7 successes and 5 failures, of which 2 were fatal.

The weight of surgical authority, as evidenced by textbooks, seems to be against the operation; for instance, Pozzi does not approve of it; Martin considers Thomas' operation as a last resort in cases of irreponible uterus, but does not think it is safe, considering the possibility of adhesions in the funnel; he prefers amputation of the inverted corpus. Auvard, 1892, suggests that perhaps Thomas' method could be tried again, although one out of two cases was fatal. He appears to prefer amputation by vaginal hysterectomy. Dudley, 1900, says only that Thomas' method has fallen into unmerited discredit. Other authors have very little to say as to what operation should be selected.

The vaginal methods seemed to offer various advantages, and, like vaginal hysterectomy and the vaginal operations for salpingitis, it was an improvement on former abdominal methods and a valuable procedure during the transition to modern and perfected abdominal procedure. It has the various disadvantages, however, of all vaginal operations in comparison with the corresponding abdominal procedures, which have caused the latter to be preferred lately, since abdominal technique has become so perfect.

Although, with others, I have formerly been satisfied to remove the inverted fundus by vaginal hysterectomy, yet in a case which recently came under my care I decided to use Thomas' method, for the following reasons:

This method has never been tried since the introduction of the Trendelenburg position, and there is reason to suppose that this posture will be as much of an advantage for cases of inversion as for cases of hysterectomy.

In case there be any adhesions, it is evident that they can be separated with more care and discrimination in operating from above, provided the Trendelenburg position is as useful as it may fairly be expected to be.

The uterus having been replaced, it is evident that the ligaments which are to support it will be elongated and weakened, and it will presumably be advantageous to fasten the fundus to the abdominal wall, thereby holding it in a proper position and averting any chance of a recurrence of the inversion.

The uterus having a great tendency to bleed and the patient being exsanguinated, it is clear that less blood will be lost if all the manipulation can be done from above, while the patient has the pelvis elevated and the ovarian and uterine arteries can be compressed.

The whole operation will be cleaner and with less chance of septic infection, if it is not necessary to open the cul-de-sac of Douglas, as must be done in Kuestner's operation. I am aware that in some cases a modification of the latter has been proposed, whereby the peritoneal cavity is not opened, but only the cervical portion of the uterus is divided in the vagina, and thus by pressure on the inverted fundus it may be reduced. In this method, however, we remain in ignorance of the presence and condition of adhesions in the funnel, and there is a chance of injuring or even perforating the fundus without knowing it, and if at the moment of reduction there is any tearing of the peritoneal surface of the uterus or injury to the blood vessels, there is no means of knowing it or of repairing the damage.

Mrs. X., age 25, was admitted to my service at the Woman's Charity Club Hospital, suffering with severe hemorrhage, with the following history: She was de-

livered of her first child 14 months previous to admission, and had severe shock and hemorrhage, but her condition was not recognized by her physician. She had a slow convalescence but finally got up and tried to resume her household duties, but could not perform them. At each monthly period she flooded profusely. Finally, after a year of suffering and weakness, she sought advice of another physician, who examined her and made the diagnosis of a uterine polyp. He gave her ether with the intention of removing it, when he discovered the nature of her trouble, and desisted He advised her to enter a hospital, and in fact she did enter a large general hospital. Here it was proposed to remove the uterus *per vaginam*, but she did not feel satisfied to lose her uterus, and left the hospital and entered my service. On examination the vagina was found to be occupied by the inverted uterus, which bled freely on the slightest touch. It was about the normal size, or only slightly enlarged, felt hard and was quite irreducible. Its position was such, and it occupied the vagina so fully, that any attempt to remove it or reduce it by Kuestner's method would have been difficult in execution.

The patient was very anemic, and the flooding at the last period had been so severe that her life had been considered in great danger at that time. The next period was due in a few days, and it seemed best to do nothing until that was safely over. She was therefore put on generous diet with iron, etc., and when menstruation came on the vagina was kept firmly packed with gauze, and the foot of the bed was well elevated In this way loss of blood was prevented almost entirely. At the operation, which was performed a week later, I had the efficient assistance of Dr. Elizabeth Riley.

When the abdomen was opened the patient was put in the Trendelenburg position, and the intestines being packed out of the way and covered with pads, the funnel of the inverted uterus could be seen at the bottom of the pelvis. I was much pleased to find that gentle traction on the round and broad ligaments brought the uterus up, and when to this was added moderate upward pressure by the hand of my assistant in the vagina, the top of the funnel, with the ovaries and tubes, could be easily brought outside the abdomen.

I now attempted to dilate the funnel with a Sims' dilator, and when it was somewhat enlarged I used a Goodel dilator. The tissues were exceedingly dense, and gave very little and very slowly. Still, something was gained, and moderate taxis in the vagina and moderate traction on the round ligaments kept all that was gained. It was slow work, but I knew that in the long run the steel dilator must overcome the resistance of the uterus, and I was more afraid of tearing than of delay. After about 20 minutes of dilatation and traction, with aid from the pressure through the vagina, the organ was all reduced except the fundus itself, and I was afraid that I should have to incise the resisting tissues, when suddenly out popped the fundus and the uterus was right side out again. At the moment of reduction the peritoneal surface of the fundus tore, not very deeply, but sufficiently so to require a catgut suture. There had not been many adhesions of the ligaments and tubes in the funnel, but now the whole organ had no support and would fall in any direction; so the fundus was stitched to the abdominal peritoneum, and the abdomen was closed.

Convalescence was uneventful. The cavity of the uterus was washed out repeatedly with an antiseptic solution. The patient went home well and has had no more hemorrhages.

My experience in this case was in entire conformity with what I expected *a priori*, and I think it justifies me in claiming that the use of the Trendelenburg position is of so great advantage in Thomas' operation for inversion of the uterus, that with this modification it becomes the operation of election, being easier, safer, cleaner and more surgical and satisfactory than any other. Referring to the illustrations of the original operation, where the dilatation had to be done blindly in the depths of the pelvis, it is easy to see that the method would not be satisfactory today. In fact, I could never have succeeded in this case by the original method. It is very different, however, when the uterus is brought up to or outside of the abdominal wall, when the intestines are out of the way and well covered up, so that there need be no hesitation in taking plenty of time for the dilatation. If it is objected that not all cases would permit of thus lifting up the uterus, I would reply that, at any rate, by opening the abdomen we can find out whether the organ can be brought up and whether there are adhesions present, and as the ligaments are always relaxed and elongated there is every reason to suppose that they will in all cases permit of the substantial elevation of the uterus to a point where dilatation can be employed under the guidance of sight.

## VARIOLA, OR SMALLPOX.[1]

BY JOSEPH E. DUXBURY, M.D., LONSDALE, R. I.

The subject I have chosen for my paper tonight is one which the general practitioner of today is necessarily unfamiliar with, and it is only through some unforeseen circumstance that we are enabled, in this country at least, to study this dreadful disease. It is only upon the advent of a local epidemic or an occasional isolated or sporadic case that we meet with it at all, and, consequently, the physician in general practice is seldom called upon to treat a case of smallpox. And although one of the great triumphs of modern medicine has been the stamping out of this terrible disease, it is still so frequently with us that we should be on our guard and, if possible, be able to diagnose it when it confronts us.

Therefore, I believe it to be the duty of a physician coming in contact with cases of this nature, to study them conscientiously, so that his observations may be of practical benefit, not only to himself but to the profession at large. It is for this reason, Mr. President and gentlemen, that I have chosen this as my subject tonight, and it is for this reason that I will try to confine myself to the cases I have actually seen rather than to a discussion of smallpox in general. I refer, of course, to the late epidemic in our own State in the town of Lincoln, and, as you know, I was appointed especially to handle the matter to the best of my ability, in the village of Manville, where the epidemic was in progress. The importance of diagnosis and the difficulty of diagnosis was well shown in this epidemic by several physicians of large practice, openly stating that it was not variola at all, but chickenpox, and I believe no one was able to positively diagnose

[1] Read at the Annual Meeting of the Pawtucket Medical Society.

the disease but the physicians who were brought in direct contact with it from day to day.

Although this paper is intended to apply more to our recent epidemic, I think it advisable in the beginning to present an outline of the principal symptoms of smallpox as laid down in our works on "Practice."

Variola, or smallpox, is designated as a specific contagious and febrile disorder, characterized, when unmodified, by the appearance in succession upon the cutaneous surface and occasionally also upon the mucous surfaces, of papules, vesicles, pustules, crusts and cicatrices. This *succession* of lesions characterizes the disease smallpox. As is well known, the variations of this malady as to the severity, character and duration of its symptoms are so great as to preclude the possibility of its complete description in a paper of this kind, still, it is nevertheless necessary, for purposes of comparison, to outline a typical case of the disease.

*The period of incubation* varies from 10 to 20 days, and usually occupies about 14 days. It is ushered in by a chill, succeeded by a fever, with a temperature of 103° to 105°, which is commonly associated with characteristic pains in the loins, headache, nausea and vomiting, and in young children, occasionally convulsions. During this stage a condition of erythema may exist, especially in menstruating or pregnant women, which is a positive sign that we have a disease of unusual severity and possibly smallpox to deal with. This symptom has been mentioned by some authors as being characteristic of the disease, but you will find that they always depend for a positive diagnosis upon other corroborative symptoms, for example, the pain in the back and loins and headache, which *are characteristic*. On the third or fourth day after the appearance of the efflorescence, the patient will be seen with the face and scalp covered with pin-head sized and larger, *firm conical papules*, feeling, as has usually been described, like gun-shot under the skin. Later, these develop on the trunk and limbs, and in well-marked cases every portion of the surface of the body is invaded, including the palms and soles, and when found in the latter situations, being quite diagnostic. As a rule there is complete defervescence when the exanthem appears, the patient feeling quite relieved. During the first two days of the eruptive period the papules increase in number and are correspondingly agglomerated, with the color changing to a darker red; and if they are watched closely at this time, a little lymph will be seen to appear in the summit of each, gradually developing into vesicles during the next two or three days.

From the fifth or sixth day the contents of the vesicles which have formed will begin to take on a milky appearance from the admixture of pus-corpuscles, so that by the eighth to the twelfth day pustules have fully formed and the disease has entered the *stage of suppuration*, the process beginning, as in all the metamorphoses of the disease, in the lesions of greatest age. Beginning with the appearance of the vesicular element of the papule (which has now attained the average size of a pea) a peculiar umbilication will be observed, which is one of the most characteristic diagnostic points of the disease, especially when the edge is corrugated or has the appearance of being divided into compartments, which finally shrivels and dries up or gives way to distention and rupture and the formation of crusts. At this time the patient is usually in a most distressing condition. The skin between the lesions is red and swollen, and owing to the tumid eyelids, the edematous lips, disfigured nostrils and pus-obstructed mucous outlets, the features are almost indistinguishable. Itching of the surface is now almost unbearable, and very often the amount of disfigurement resulting is governed by the ability of the patient to resist this temptation.

*The stage of dessication* occurs about the twelfth day of the disease, beginning in the lesions of first appearance. As the drying continues, the redness, tenderness and edema of the skin lessen and the patient assumes a more natural appearance. At first the crust is quite adherent, but about the fourteenth day it becomes loosened and falls, leaving a reddish brown stain which lasts for five or six weeks. Pitting of the skin as a result of the lesion does not always occur, and in fact is less common than many suppose. This point has been used a great deal by men who never saw a case of the disease, to prove the non-existence of smallpox. But when we remember that pitting depends upon violent removal of the crust by scratching or otherwise necessitating a renewal of the scab, it is easy to see why it may occur or be prevented. This is further proved by the fact that chickenpox very often leaves cicatrices to mark the site of the disease. Again, the young people of this country at the present time are more particular and careful of their personal appearance than persons of the past, especially of foreign birth, and in this country nearly all of our smallpox patients, especially severe cases, are treated in hospitals where removal of the crusts is guarded against instead of leaving the patient to himself and his temptation to scratch.

Dessication usually requires from 2 to 15 days for its completion, after which convalescence begins, so that from 4 to 6 weeks are required to complete a cure in a typical case of variola of moderate severity such as I have described.

As regards *treatment*, I will say that outside of rigid and proper hygienic care of the patient the less medication he receives the better he will get along. To be sure, complications that may arise must be promptly dealt with. This is another point the antismallpox agitators enlarge upon. They say it cannot be variola because when not treated at all the patients get well. I admit this; but when they say the cases were not treated at all they mean they were not dosed and filled up with drugs, but it is very probable that the hygienic necessities of the case were carried out to the letter, and we all know that this is very important and efficacious treatment in any case,

and not confined to smallpox alone. I think we will agree that uncomplicated cases of scarlet fever, measles, etc., get along very nicely if only proper hygiene is carried out, so that, to my mind, it is foolish to claim that this cannot be smallpox because it was not necessary to feed the patient with drugs.

In conclusion I will compare the foregoing description of a typical case of smallpox with cases coming under my personal observation during the recent epidemic in Manville. As we all know, the majority of the cases referred to were of a mild form, and in this respect they correspond with cases that have been reported in different parts of the country within the past year or two; and although there seems no doubt in the minds of those members of the profession who were brought into most direct contact with the disease, there were a few who were ready to claim that it was not variola at all, but varicella, or chickenpox. As for my own opinion, after handling over 50 cases, I am positive it was genuine smallpox we had to deal with. Opinions to the contrary were readily volunteered by laymen who were not supposed to know any better, backed by a few medical men who not only had not seen one of the cases they claimed to know all about, but had never seen a case of smallpox at all. It is true the disease was of a mild form, although we had three or four very bad ones in which the eruption covered nearly every bit of the external surface of the body—but must every patient die in order to prove a diagnosis of smallpox? Must every patient with scarlet fever or diphtheria die before we will admit the nature of the complaint? The late Professor Loomis once remarked to me that he had never seen a genuine case of diphtheria recover, and although that may have been true at that time, it certainly is not the case today, because great improvements have been made in the care and treatment of diphtheria, and I am sure they have been equally as great in variola. As to the cause of the mildness of the recent epidemic throughout certain parts of the country, I do not pretend to dogmatize, but it seems plausible that, inasmuch as the disease has been nearly entirely obliterated, the severity of certain cases may have been mitigated. I surely can see no reason why we should not have a mild case of smallpox as well as a severe case.

It is well known that certain epidemics of scarlatina are mild, while in others the death-rate runs high. The claim has been made that the disease did not follow the symptoms as laid down in our textbooks, and that has been partly admitted by the other side, but I go further, and say the symptoms and the succession of lesions (which I claim is diagnostic) in the cases coming under my notice were almost identical with those taught in our works on diseases of this nature, the only difference and variation being in their severity.

As in the beginning of this paper, I say that variola is distinguished by certain symptoms and lesions, such as headache, pain in back and loins, followed by the appearance of papules, vesicles, pustules, crusts and cicatrices, and it is the regular succession of these symptoms that is diagnostic of the disease, and in the 50 cases I saw they were typical in this respect. The headache and pain in the back were so marked that it was common to hear the patient say he knew he was going to have the disease from the severe headache.

The average age in 51 cases coming under my notice was 14¼ years, which is too high an average for it to have been chickenpox, it being rare to find this disease in one over 14 years. After the premonitory symptoms and the appearance of the eruption the lesions progressed to their final destruction in regular order. The shot-like feeling, the vesicular element, the umbilication and the corrugated appearance were all present one after another, and finally cicatrices were left to mark the site of the disease, although more marked in some instances than others. Varicella, or chickenpox, does not run this regular course. From the appearance of the rash in the beginning in any form, they seem to jump into the form of a scab. It is not even a crust, as in variola, but a fresh scab, and, as one author says, "the child can easily rupture the vesicle," which is a good point. The vesicle of variola is very tough and goes on almost to the end without rupture, and, in fact, often does so, while this, I may say, never occurs in chickenpox, all the vesicles rupturing themselves even if left alone.

Finally, I will say that the eruptive disease occurring in the epidemic in Manville during the months of June, July and August of the present year was positively smallpox, and although I realized a negative diagnosis would have been hailed with delight by the community, I could conscientiously form no other opinion.

It is true there were persons who did not agree with me, but I was fortunate in having Dr. Swarts of the State Board of Health, whose ability as an expert on diseases of this nature was recognized by a subsequent interstate conference, corroborate my diagnosis.

## Medical Progress.

### RECENT PROGRESS IN GYNECOLOGY.

BY F. B. LUND, M. D., BOSTON.

#### RESULTS OF VAGINAL HYSTERECTOMY FOR CANCER.

Knauer[1] gives a careful and interesting review of the results of vaginal hysterectomy in Chrobak's clinic, in the 10 years and 6 months from January, 1890, to June, 1900. The total number of cases of cancer of the uterus presenting themselves for treatment during that time was 1,374, or about 3.4% of about 40,000 gynecological cases. The total number admitted to the wards for treatment was 760, of whom 9 refused operation, and 1 died of an intercurrent affection; so that 750 cases remain to consider, upon 236 of

[1] Beitr. zür. Geb. u. Gynecol., 1901, .ii, 205

whom radical operation was possible, and 514 were inoperable. Radical operation was therefore practicable upon 32.8% of the cases admitted to the wards. Radical operation was performed in 236 cases, in 213 the procedure adopted being vaginal hysterectomy, in 23 cases other methods, high amputation of the cervix, Freund's operation, or extirpation by the sacral route.

To restrict the cases to vaginal hysterectomy, we must omit the 23 cases in which other operations were done, and are left with 213 vaginal hysterectomies in 727 cases of cancer, making the percentage suitable for radical operation, 29.2.

The percentage of operable cases to the total applying at the clinic for treatment, was 213 out of 1,374, or 15.6. This notable difference may be explained by the fact that many inoperable cases were not admitted for want of room, and sought treatment elsewhere, while the operable cases were generally admitted.

The care necessary in the compiling and exegesis of statistics is made evident by the fact that the percentage of these cases suitable for radical operation by vaginal hysterectomy has been estimated at from 5 (Gusseron) to 61 (Schuchardt), and 92.9 (Mackenrodt). The low percentage of operable cases in Chrobak's clinic (15.6 to 29.2) Knauer explains by the large proportion in which the disease had advanced outside the body of the uterus.

In 93 out of 188 operated cases the disease had progressed beyond the uterine body, and of these 8 died as a result of the operation. In 68 the disease was limited to the body, and of these 1 died; and in 27 the extent of the disease was in doubt; of these 3 died.

Cases were considered operable when the operator thought that the dissection could be carried out in healthy tissue, or when the disease had not extensively invaded the boundaries of the uterus either toward the vagina or the broad ligament.

The total number of vaginal extirpations done was 234, of which, as before explained, 21 are left out above, because the dissection was carried through diseased tissue, and the operations could only be considered palliative. Seventeen of these latter cases could be traced after operation, and only 4 were alive at the end of a year.

Operations upon carcinoma of the uterus, which has progressed beyond the uterine body, are, therefore, though of great value for the relief of pain, discomfort from foul discharge, etc., not successful to any extent in prolonging life. Partial operations, such as high amputation of the cervix, etc., are in general to be preferred in these cases to total hysterectomy.

Of the total 213 cases in which radical operation by vaginal hysterectomy was done, 158 were cancers of the portio, 26 of the cervix, 27 of the body, and 2 were carcinomatous polypi. Twelve died from the operation, the most frequent cause of death being sepsis; 1 death resulted from ligature of the right ureter and kinking of the left, and 1 death from the anesthetic. The mortality from the operation was 5.6%.

Of the 201 cases which survived the operation all but 19, a total of 182 cases, were followed after the operation from 1 to 11 years, and of these 6 died of other causes from 1 to 7 years after operation, leaving 176 cases upon which to estimate the therapeutic results of the operation.

"Permanent cure" is estimated on the basis of a freedom from recurrence 5 years after the operation, thus making available the cases operated between January, 1890, and May, 1896, 78 in number (after subtracting 9 not traceable, 7 dying from the operation and 3 of other diseases). In 51 of these 78 cases recurrence took place, in 27 there was no recurrence, making a percentage of cures, therefore, of 34.6, which, considering the nature of the disease, is a very favorable showing for the operation. Of carcinoma of the cervix and vaginal portion, 22 out of 70 cases, or 31.5%, were cured, and of carcinoma of the body 6 out of 8 cases, or 75%.

Comparing the cases cured by radical operation with the total admitted to the wards, we have a percentage of operable cases of 29.2, of which 34.6 were permanently cured, making a percentage of 10.1 of absolute cures of the cases admitted for treatment. Comparing the cures with the total presenting at the clinic we have 5.39% of curable cases. A fair estimate of the total percentage of cures in all cases would probably lie midway between the two, or about 7.7.

The percentage of cures to cases treated corresponds closely with Winter's estimate for the Berlin clinic, 9.4; Leopold's, 10.2; Thorn's, 8.7; Kaltenbach's, 8.4.

It is therefore probable that from 8 to 10% of cases of carcinoma uteri presenting themselves for treatment are curable by radical operation. The cases suitable for radical procedure cannot always be accurately determined before operation, and of the cases in which radical operation is successfully performed, 34.6% will be without recurrence at the end of 5 years. A review of the cases in which the carcinoma was found strictly limited to the uterus, showed that 22 of 23 such cases recovered from the operation, and 13, or 59%, were permanently cured, a showing which emphasizes sufficiently the importance of early diagnosis and operation in these cases.

A review of the 116 cases operated between 1896 and 1900 naturally throws no light on permanent cures. Five of the 116 cases died from the operation. The improvement in mortality the writer attributes to improvements in technique, notably the employment of Schuchardt's paravaginal incision, the use of the pressure forceps instead of ligatures, and Mackenrodt's extirpation with the cautery. The use of the cautery instead of the knife is believed to have a favorable effect in preventing recurrence from inoculation. In the total of 234 vaginal hysterectomies one or both ureters were injured 3 times, the bladder 4, and the rectum once.

SCHUCHARDT'S PARAVAGINAL INCISION IN VAGINAL HYSTERECTOMY.

In order to gain free access to the uterus in vaginal hysterectomy, especially in cases where the disease has somewhat invaded the broad ligaments and an extensive dissection is required, Schuchardt[2] recommends a paravaginal incision by means of which the perineal tissues may be freely spread open, and the uterus drawn downward so that the dissection is easily carried on under the guidance of the eye. As median section of the perineum would involve the rectum, the incision must be carried to one side; therefore the author recommends the following procedure:

The patient being in the lithotomy position and the thighs well flexed and held by assistants, the operator grasps the posterior portion of the left labium and vaginal wall between the thumb and forefinger of the left hand, while an assistant grasps the central portion of the labium with the thumb and forefinger of the right hand and makes tension upon it.

The incision is carried slightly outward and then downward far enough outside the rectum to escape the sphincter ani, and slightly inward to the sacral region. With the first cut the incision is carried as deep as the left vaginal cul-de-sac. The resulting venous hemorrhage is stopped with sponges, the rectum being drawn well to the right, as the wound is retracted and operation proceeded with by carrying the upper end of the incision around the portio, freeing the bladder by blunt dissection or a few scissors cuts, opening Douglas's cul-de-sac, forcing forward with the left index finger in the fossa, first one and then the other parametrium, and tying off the latter by means of sutures passed as far as possible from the uterus with short, thick, full-curved needles. The parametrium is then divided, and access gained to the broad ligaments, which are dealt with in a corresponding manner. The uterus is manipulated during these maneuvres by an assistant by means of a thick silk ligature passed through the cervix and employed as a retractor. The removal of the uterus when this incision is employed requires only 8 to 10 minutes. The wound is closed by suturing the opposing peritoneal surfaces with catgut, the stumps of the broad ligaments being brought into the upper angles of the wound so that their cut surfaces project into the vagina. After ligature of bleeding vessels the superficial wound of the skin and vagina is carefully closed without drainage by deep and superficial sutures. Primary union generally occurs. By means of this incision vaginal hysterectomy, which is often rendered difficult when the usual methods are employed, both by narrowness of the vagina and by cicatricial narrowing of the parametrium, becomes a simple and easily managed operation, and even extends the field of the vaginal operation to cases heretofore considered inoperable, or operable only by the sacral or abdominal routes. Invasion of the vagina by the growth is also easily dealt with by this method, as a considerable portion of the vagina may be easily removed, together with the uterus, and diseased tissue in the parametrium may be thus reached more easily than by any other method. The mortality of the operation is no higher than by other methods, although the facility of the procedure leads the operator to undertake a larger number of cases of extensive disease.

Schuchardt's statistics regarding recurrence are very favorable, as he found out of 25 cases of carcinoma operated over 5 years before, 10, or 40%, without recurrence. The total mortality of the 58 cases of carcinoma, including these in which vagina or parametrium or both were invaded, 59 in number, was 10.17%. In only 9 of these cases was a simple operation, uncomplicated by extension of the disease, possible, and none of these died.

[2] Monatssch. f. Geb. u. Gynecol., 1901.

INSTRUMENTAL PERFORATION OF THE UTERUS.

Krusen[3] reports an interesting case in which this accident occurred, and gives a brief discussion of the subject. The conditions which favor such injury are those which cause abnormal fragility of the uterus. When the body of the uterus has been invaded by carcinoma, the effort to obtain a specimen for examination may prove disastrous. Atrophy, anemia and tuberculosis are causes of abnormal fragility of the uterus, as is also frequently recurring pregnancy with a short interval between the labors. Attempts to explore or curette the uterus immediately after labor or abortion must be made with unusual care, owing to the softened condition of the uterine muscle. A failure to recognize the position of the uterus, which may be acutely anteflexed or retroflexed, may lead to injury, because the physician fails to properly direct his instrument, which may perforate at the point of angulation. Proximity to the menstrual period, when the uterus is much congested and softened, may contribute in a high degree to the possibility of uterine injury. Perforation may be either partial or complete, cervical or fundal. In one unpublished case the cervix was perforated laterally, and the omentum drawn into the vagina. The results of such injury may be: (1) Infection, due to sepsis of an instrument or the canal; (2) hemorrhage, which may be sufficient to induce considerable shock; (3) visceral injury, the intestine or omentum being injured by the instrument or drawn into the uterine or vaginal canal; (4) the introduction of toxic material into the peritoneal cavity (chemical antiseptics).

Peritonitis from any of these causes is naturally more common from perforation in the hands of a criminal abortionist, due to uncleanliness and unskilful manipulation. The diagnosis is usually easily made by the sudden slipping of the curette clear up to the handle into the canal, a sensation which once felt is never forgotten. It is possible but rare for the instrument to slip into a Fallopian tube.

[3] American Medicine, Dec. 14, 1901.

When simple perforation of the uterus has occurred under aseptic conditions without symptoms of shock or visceral injury, no operative interference is indicated. In all cases where visceral complications are present, celiotomy should be immediately done and the injury repaired. Several cases are reported, notably those of Pullen and Kelly, where wood and sponge tents were found to have perforated the uterine wall and produced septicemia. Mann and Noble have reported cases where successful resection was done for detachment of intestine from its mesentery by the perforating curette. The accident in Krusen's case occurred during the curettement of a softened and relaxed uterus, the indication being hemorrhage, and the probable cause, incomplete abortion. The perforation was due to prolonged efforts to clear the upper part of the fundus with the sharp curette, and was not recognized by the usual slipping of the curette, but by the appearance of a portion of omentum at the external os, which was brought down after some effort by the curette, the operator being under the impression that it was an imperfectly detached portion of membrane. The omentum was pushed back with difficulty through the internal os, the cavity packed, and the writer summoned at once. Celiotomy within two hours of the injury showed an opening in the fundus of the uterus large enough to admit the index finger, showed omentum projecting through the opening above, and gauze packing from below. Suture of the uterus resulted in the recovery of the patient.

The writer seems fully warranted in his belief that the case is one of many that show how easily accidents may occur even in the hands of careful men; and emphasizes the need for care, cleanliness, and special training in intra-uterine manipulation.

### THE TREATMENT OF VAGINISMUS BY THE COLPEURYNTER.

Huppert[4] calls attention to the difficulties which attend the treatment of vaginismus by the introduction of specula and plugs. These difficulties are easily explained by the increased sensitiveness, abnormal narrowness or inflammatory condition of the introitus vaginæ, which naturally interfere, as is well known, with the introduction of the ordinary glass or hard rubber specula. These, especially during their introduction, excite the very pains and cramp-like contractions of the vagina which are the reason for treatment.

By the employment of the soft rubber colpeurynter the author is able to introduce the collapsed instrument without pain. Cocainization of the introitus is a valuable aid. After dilatation of the bag by the introduction of fluid through a syringe until the patient begins to complain of slight discomfort, the procedure is stopped until the pain passes off, then the fluid is drained off and the colpeurynter refilled once or twice more, and at the last filling allowed to remain in place for half an hour or so. Then the fluid is allowed to drain off, and the instrument may be removed without the slightest irritation. In order to gauge the amount of increase at each sitting, the writer employed a graduated syringe. After two or three weekly sittings the writer found that he could introduce without difficulty a speculum 3 cm. in diameter. The colpeurynter was then introduced with slight, or no, cocainization, a few times, and followed by the speculum, and the patient then discharged. Coitus, which had been absolutely prohibited during treatment, was now allowed. As most of his cases concerned young married women, the writer had the satisfaction of noting that conception took place soon after the cessation of treatment in several cases.

The hypersensitiveness of the vulva and introitus was combated with Goulard's solution, or a wash of alum and Plumbic acetate, or painting with 3 to 5% solution of nitrate of silver. The strongest cocain solution employed was 10%. The advantages of the treatment by the colpeurynter over the employment of hard specula are evident, since it is necessary to avoid the slightest irritation of the vulva and vagina, which will at once excite the dreaded spasm of the vagina and destroy the patient's confidence in the method of treatment. The very gradual and universal dilatation by the colpeurynter contrasts favorably with the sudden pushing open of the vagina by the end of a cylinder. The writer notes that his method was successful in the treatment of vaginismus complicated by inflammatory conditions, and that finally he was able to avoid in all his cases operative procedures, such as excision of the hymen or division of the constrictor vaginæ muscle. He also was successful in avoiding recurrence.

[4] Centrbl. f. Gynäk., 1901, No. 32.

### A NEW METHOD OF TREATMENT FOR CHRONIC PELVIC EXUDATE.

Polano[5] of Greifswald has been led, by observing the favorable effect of hot-air treatment in chronic diseases of the joints, to apply the same to the pelvis with the view of favoring the absorption of exudates. Cases of chronic pelvic disease are alone suitable for the treatment, and resorption is favored by the free supply of blood and lymphatic vessels which the affected parts enjoy. Several cases in which exudates were absorbed after from 14 to 20 sittings are reported by the writer. He believes the hot-air treatment a great aid in the absorption of the inflammatory material remaining after evacuation of an abscess by an incision in the abdominal wall. The treatment is to be carried out while the wound is open and granulating. The writer found it a distinct help in alleviating the symptoms and softening the exudate in a case of actinomycosis of the abdominal wall after incision and curetting.

In addition to improvement in the physical conditions, the subjective symptoms, notably pain, was almost always markedly relieved. Patients who had to be lifted into the hot-air apparatus were able to get up without assistance at the end of treatment, and to perform complicated movements, such as bending of the back and the lift-

[5] Centrbl. f. Gynäk., 1901, No. 30.

ing of objects, without pain. No bad after-effects were noted in any of the patients, most of whom were weakened by long-continued disease.

The apparatus employed is similar to that ordinarily employed for joints, but is provided with padded and elevated supports for the back, pelvis and hips. The top of the apparatus turns back on a hinge, the patient lies down on the supports, with the shoulders projecting from one end of the box and the thighs from the other, and the top is closed into place. Ordinary devices are employed to prevent burning. The heat is supplied by a Bunsen's burner, which is placed in a chamber connecting with the main hot-air chamber. The apparatus is made of wood covered with sacking, and painted without and within, with soluble glass to lessen the danger of combustion. A thermometer registering as high as 150° C. is provided.

The patients will bear at first a heat of 120° C. for 20 minutes, and after a week or so will endure for three-quarters of an hour a heat of 135° to 150°. The effect on the skin is remarkable; the patients drip with sweat, even the face and upper extremities. The skin of parts included in the apparatus is deeply injected, sometimes bright red. The introduction of the speculum shows a marked increase of the cervical secretion. The only sensation of which the patients complain is a slight prickling. Cooling is allowed to take place gradually, and the patients are then dried off and lie in bed for an hour. The treatment takes considerable time, about an hour to each patient, but after the surgeon has started the apparatus, the care of it may be safely left to a nurse.

Further experience will be necessary to establish the value and limitations of the method.

### MEDIAN SECTION OF THE UTERUS: A PLEA FOR THE MORE FREQUENT EMPLOYMENT AS AN AID TO OPERATIVE PROCEDURES.

Küstner[6] of Breslau calls attention to the value of median section of the uterus, a procedure already of frequent application in operations by the vaginal route, as applied to the removal of myomata by abdominal incision.

In dealing, for instance, with a large spherical interstitial myoma, which extends well above the navel, it is unnecessary to carry the abdominal incision clear to the upper limit of the tumor. The incision may terminate below the navel, and be carried, after opening the abdominal wall, directly into the tumor, so that it divides the capsule and penetrates several centimetres into the myoma itself. Then vulsella are applied, first to one side of the incision and then the other, and thus generally one-half and then the other of the myomatous uterus may be brought outside of the abdomen. This procedure enables the operator to partially or completely enucleate the myoma either before or after the uterus is brought outside the abdomen, according to convenience, or he may proceed to complete section of the uterus according to Krönig's suggestion, as a preliminary to total extirpation.

[6] Centrbl. f. Gynäk., Nov. 2, 1901.

The writer also advocates median section of the uterus as an aid in vaginal fixation. Although himself an advocate of laparotomy and the separation of adhesions under the guidance of the eye, as a rule, in retroflexion with adhesions, he has found vaginal section an advantageous procedure in certain cases where the adnexa, although adherent, were not enlarged; such conditions, for instance, as have to be met in mobilization of the uterus after a septic puerperium, or in the presence of slight adnexal adhesions.

In these cases, if after the opening of the vesico-uterine fossa it is found that the uterus is not readily drawn forward, a longitudinal incision into, but not through, the anterior uterine wall will be found of advantage. A vulsellum applied to either lip of the incision will be found a very efficient aid in mobilizing the uterus; the left index finger may now be introduced above the vulsella, and the adhesions separated by blunt dissection. The incision may then be carried higher over the fundus, the forceps reapplied, and the finger carried still further over. The uterus may often be brought so far into the vaginal wound that the adhesions may be divided with scissors or cautery. By means of the incision into the anterior wall the necessary mobility may be gained for bringing the adnexa into the vaginal wound, and making them accessible for the separation of adhesions. The incision in the uterine wall may be closed, if deep, by catgut sutures, or if not of special depth, by the sutures which fix the organ to the vaginal wall.

Naturally the experience of the operator must guide him in deciding how far it is safe to go in the separation of adhesions, especially of the adnexa, and one must not be led by the facility attained by this incision to divide adhesions which might lead to perforation of the intestine or hemorrhage too great to be safely controlled through a vaginal incision.

(Although the separation of posterior uterine adhesions through an anterior vaginal incision is a procedure which does not recommend itself from a surgical point of view as advisable except possibly in most exceptional instances, the above account is interesting as illustrating the advantage of median section of the uterus in facilitating its delivery through a vaginal incision.)

### PRIMARY SARCOMA OF THE PELVIC CONNECTIVE TISSUE.

S. Reichenfeld[7] (Budapest) has reported in literature up to the present time 9 cases of sarcoma of the pelvic connective tissue. In the woman's clinic at the University of Budapest the following case was observed: A iv para, 44 years of age, had complained for 2 years of pelvic pain, constipation and enlargement. She presented the following condition: Between the rectum and the uterus and bulging forward the posterior vaginal wall was a hard tumor the size of a fetal head at term, filling the true pelvis, elevating the cervix uteri and apparently connected with it. An at-

[7] Orvosi hetilap, 1900, No. 23; Centrbl. f. Gynäk., 1901, No. 37.

tempt was made to enucleate the tumor through a sagittal incision in the posterior vaginal wall. This resulted in the detachment of a large amount of hard, partly degenerated tumor tissue. The capsule could not be removed, and the operation was completed by curetting, tamponade, and, later, drainage of the cavity. Microscopic examination showed an alveolar sarcoma, no myomatous tissue being found. The tumor took its origin from the retrocervical connective tissue, and so resembled a myoma of the cervix. Recurrence took place in 6 weeks, and exploratory incision gave the same microscopic picture.

Sänger [8] reported a similar case.

## Reports of Societies.

### BOSTON SOCIETY FOR MEDICAL IMPROVEMENT.

ARTHUR K. STONE, M.D., SECRETARY.

REGULAR meeting, Nov. 4, 1901, DR. E. H. BRADFORD in the chair.

DR. JAMES C. WHITE read a paper entitled

ERRORS IN THE DIAGNOSIS OF SYPHILIS.[1]

DR. ABNER POST: The postal card notice of this meeting asks for confessions. Before I say another word I will say that after talking to this society for an hour on extragenital lesions last spring, I have had the misfortune to fail to recognize a primary lesion of syphilis on the finger of one of my brother practitioners this fall. He helped to make the diagnosis difficult, for he would not let it alone. I do not know how many incisions were made in the primary sore by him and his brother physicians, and after I had covered it with collodion to shield it from further interference he tore the dressing off and made another incision. However, the diagnosis was established at length, but I can but think I ought to have made it before. I like to say in connection with syphilis that the man who would be a perfect syphilographer needs to know everything to be known in medicine, and any man who desires to have great knowledge in the diseases of any portion of the body, however small it may be, needs to know all that there is to be known about syphilis in that particular region. Syphilis is so multiform in the character of its appearances, it complicates so many other diseases, that I do not see how a man can possibly go through life without making some mistakes in connection with its diagnosis.

I want to differ mildly with Dr. White in one or two minor points. He has alluded to the fact that syphilities are liars. Of course they are liars. Under certain circumstances many syphilities will consider it their duty to lie. Perhaps it is; but to say that syphilities always lie is, it seems to me, misleading. Patients lie, of course, under certain circumstances. For instance, let me tell of a woman who was my patient for a long time with syphilis. She was apparently cured. One evening she came into my office excited and in tears, and detailed to me some symptoms which seemed very ordinary and not syphilitic, and asked if they showed a return of her syphilis. She said that while at her mother's house she had called in the family physician, who proceeded to ask if she had had such a rash, etc., going through the category of the symptoms of syphilis, which were perfectly familiar to her. She said: "I do not know why he asked such questions. I told him I did not have a single one of those symptoms." The doctor asked these questions in the presence of the mother, and she naturally lied to him, not because she wanted to lie, but because the doctor had asked the questions in a place and manner where he could not expect her to do otherwise than defend herself.

It seems to me that one reason for difficulty in making the diagnosis of syphilis is that physicians expect to find all the characteristic symptoms of early syphilis in each and every individual case. If they fail to find some falling of hair, some iritis, that case is to them not syphilis. The fact that each case of syphilis shows only a certain number of a very large number of possible symptoms does not occur to them, and that fact needs to be emphasized a good many times.

One difficulty in recognizing the syphilitic dermatoses lies, it seems to me, in the fact that the textbooks on the subject are complicated, that different authors use different terms. We really lack a simple nomenclature on which all teachers of syphilis are agreed, so that the multiplicity of names is in itself confusing.

In regard to primary lesions and the differential diagnosis of other things, it is a surprise to a great many men to find it is possible to have any other lesion than a venereal lesion upon the genitals, and it is, I am sure, useful to repeat the fact, which is a self-evident fact, that lesions which occur on other parts of the body may occur upon the genitals.

Some of the mistakes in regard to primary lesions are almost comical. Within a very little while I have seen a woman whom I had every reason to believe had a primary lesion upon the tonsil. She lived some dstance from the city. She had had a swelling at the angle of the jaw for some time, which I believe to have been a bubo of a chancre. The sore upon the tonsil did not attract attention until after the glands were pretty well enlarged, then she found the ulceration covered with a whitish membrane. She went to her physician, who told her she had diphtheria. She thought it impossible and told him he must be mistaken. He called in two other physicians, who also made the diagnosis of diphtheria. No culture was taken. I am giving the woman's story. The physicians insisted that when three of them agreed that it was diphtheria that it must be diphtheria, and she was sent home. The warning

[8] Archiv. f. Gynak., Bd. xvi, 1880, and xxi, 1884.

[1] For Dr. J. C. White's paper see Journal, Jan. 16, 1902. This report was received too late to publish with the paper.

placard was put upon the door of the house, and she was supposed to be confined with diphtheria. She was still unable to accept the diagnosis, and in order to escape from the odium of the disagreeable condition she removed to the city of Boston, leaving the placard on the door.

To mistake the syphilitic macular eruption for measles is occasionally an easy mistake to make, but that it should be made when the mouth is covered with mucous patches, when there is a splitting nocturnal headache, when the glands on the neck and other parts of the body are enlarged, seems a little bit unusual or unexpected.

I have recently seen an interesting case which fell into my hands in this way: A young lady, college graduate, had some trouble with one eye, which made it somewhat difficult to hold her position as a teacher. This was seen later: a conjunctivitis which was circumscribed occupied a circumscribed part on the ocular conjunctiva. That continued something like a year, followed by some trouble in her mouth which was called syphilis. She saw an oculist in Boston who, catching sight of her mouth, told her she had syphilis, though the lesions in the conjunctiva would not allow such a diagnosis. The young lady refused to accept the diagnosis of syphilis. The diagnosis was sufficiently difficult, so that I was the fifteenth or sixteenth physician allowed to examine her. She showed in her mouth a series of slight ulcerations, the inside of the lips, gums and tongue all ulcerated, profuse salivation, and I thought she was much more likely to be suffering from mercurial stomatitis than from syphilis. There were absolutely no lesions which could be attributed to syphilis. I said I thought she was suffering from mercurial stomatitis; what she might have behind it I did not know; I saw nothing resembling syphilis; if there was any syphilis it was entirely covered up by the other lesions. I saw her a little while afterwards in company with the oculist, and attempted to demonstrate to him the hydrargyrism, but at that time I could see there was the distinct trace of a vesicle which had broken on her lips, and looking more closely the inside of the cheeks, which ought to have been swollen and ulcerated from excessive mercury, were comparatively free from disease. She went home and I have since seen her there. She is now covered with an eruption of vesicles from head to foot. Looking at her eye one can see a recent vesicle there; her mouth is ulcerated again from the effects of a series of vesicles that have broken out. The surface of the tongue is desquamating, and these vesicles come and go over the general surface of the body. She has a disease which must be classed somewhere in the pemphigus group, which showed itself first on the conjunctiva and then in the mouth. In that case my denial of syphilis was right, but my diagnosis of mercurial stomatitis I am inclined to think was wrong.

In regard to the administration of the iodides in early stages of syphilis. I want to agree with everything that Dr. White has said on the subject, until he reached the spot where I understood him to say that iodides should never under any circumstances be used in the early stages of syphilis. The iodides certainly should never be used before the diagnosis is made — never! But there do occur certain symptoms in the early stages of syphilis which are made more comfortable by the addition of a certain amount of iodide. Patients who are troubled in the early stages by very severe nervous symptoms, especially very severe headaches, are relieved a little more quickly by the addition of small doses of iodides at bedtime. There are certain early malignant forms of syphilis which are wholly exceptional, and which are also best treated by the addition and sometimes by the substitution of the iodides. These cases are exceptional, but these exceptional cases call for exceptional treatment. Dr. White's principle I agree with entirely. I only note certain exceptions which, perhaps, should be put in fine print at the bottom of the page.

Dr. White did not, I believe, speak of manifestations of syphilis in the nails. Syphilis attacks the nails both of the fingers and the feet occasionally, not very infrequently. One form of disease it is easy to recognize, but certain other forms of diseases of the nails of syphilitic origin I believe are impossible to discriminate.

Erythema indurata, which Dr. White mentions, is certainly a very puzzling disease until one learns to know it. The ulcerations which take place in that disease are rounded, punched out. They correspond, I think I may say, exactly to the appearance of ulcerated gummata. They occur, however, in younger people than you would expect to find such ulcerating gummata in.

It seems to me that speaking of syphilitic alopecia as occurring in patches is liable to a little misunderstanding. Dr. White distinguishes between the *patches* of alopecia syphilitica and the *areas* of alopecia areata, and if that distinction is held in mind it is not misleading, but the term "patches" is usually understood by students to mean areas of very sensible extent, and to them the small portions of the scalp from which the hair is denuded are a surprise. The patches from which the hair is denuded are in most cases but small ones close together, connected, you may say, by zigzag lines, so that when one sees a syphilitic head that has lost a moderate amount of hair the appearance is rather as though it had been worm-eaten or destroyed by moths rather than occurring in very distinct patches.

I want to close with a single little bit of advice. In trying to make a diagnosis of a syphilitic lesion one should not be ashamed to use all the means in his power to arrive at a conclusion. One may very easily be mistaken on seeing some isolated patch of eruption, when the diagnosis would really be comparatively easy if the patient were thoroughly looked at from head to foot. Above all, in the diagnosis of syphilitic lesions, as much as anywhere in medicine, one must be willing to confess at times that he really does not know.

DR. HARDING: I cannot help feeling that one cause for failure to make the diagnosis of syphilis or to distinguish between syphilitic and some other lesions lies in the fact that sometimes patients who come with an eruption give the history of having some years before had a lesion on the penis followed by an eruption. When you come to inquire you find he had gonorrhea and had been taking something, and the eruption may have been a copaiba eruption or something of that sort. Dr. White has spoken of the practice of burning lesions on the penis. Herpes or lesions of that sort are frequently touched with caustic, and leave an indurated area which may later be mistaken for the remains of a primary lesion.

Iodide of potash is often given as a test for syphilis, and this is not always reliable, because there are many other lesions than syphilis which will resolve under iodide of potash.

In speaking of seborrhea of the scalp Dr. White did not mention what sometimes occurs — seborrhea about the face, particularly the nose, sometimes particularly marked.

Another condition which I did not hear Dr. White mention is lichen planus. The lesions appear frequently upon the penis, and for that reason the disease is apt to be mistaken for syphilis.

DR. SMITH: I think Dr. Post said that any lesion might appear on the penis that might appear on any part of the body. That suggested to me a patient that came to the dispensary a short time ago who said that he had a chancre. He said it had been there four or five months, and had been treated in a hospital outside of Boston, that he had been circumcised, had used antiseptic dressings, and was unable to get his chancre to heal. He had a large thickening in the prepuce, and it suggested itself to me that he probably had a chancre years before, and that his chronic chancre of four or five months duration was a gummatous formation in the prepuce. With a little proper medication the chancre promptly healed.

DR. DEBLOIS: A most obscure case was sent to me by a physician out of town. There was an ulcerated perichondritis of the larynx and a history of having had a growth also from the lower lip. This cicatrix had a hardened raised edge, and I immediately suggested that it was carcinomatous. The patient said: "Oh, yes: epithelioma is what they told me it was in Worcester where it was removed," and I was inclined to believe that the larynx was also carcinomatous. However, it looked very much like tubercle, and I sent a culture to the Board of Health. The reply was returned that no tubercle bacilli were found. So I was thrown off my guard, not only by that, but by a report from Worcester that the growth removed from the lip was not carcinoma. I said, therefore, that it might be syphilis, and put the man on iodide of potassium, and, as frequently happens in lesions of tubercle, he improved very rapidly under the iodide, and then I thought my diagnosis was correct. The man's son was in a medical school and had two examinations of the sputum made, and both showed the bacilli of tubercle, and a second examination by the Board of Health resulted in finding the bacilli, so that I had made a mistake in my opinion regarding syphilis.

I think iodide is very frequently a good diagnostic test, and as regards its administration in the early forms of syphilis I do not know what I should do in endeavoring to arrest the destructive processes in the throat unless I could have the iodide and use plenty of it. As to eruption, the small red spots appearing underneath the palmar surface I never have seen in anything else than syphilis. I have had under my care for the last four years a young man who has now apparently recovered. He was engaged to be married to a very decent young girl. I had warned him all along of the great danger of inoculating her from the mouth, because, as frequently happens when the mouth seems to be selected as the point for lesions, those lesions will continue during the whole course. He had mouth and tongue lesions up to the end. Last April he was conscience-stricken and brought the girl to me, and said no doubt she had it in the mouth. There were a few little spots on the tongue which did not seem to amount to anything, and there was a slight tonsilitis. I said I did not think it was syphilis; at any rate, I would not give her medicine. She came in week before last with a rash all over the body and distinct mucous patches in the mouth, and these little fine spots in the palms of the hands. She had been infected from the mouth.

DR. WHITE: With regard to Dr. Shattuck's inquiry with reference to the pruritus connected with syphilitic lesion, it is a rare exception, but they sometimes do itch very much. The rapidly developing erythematous type over the surface of the skin sometimes produces a good deal of itching, and one might be misled thereby.

With regard to the use of iodide of potassium, I did not mean to intimate that iodide of potassium did not have its province, and that a very important one in the treatment of syphilis, but it is never called for in the eary stages, unless in the malignant cases Dr. Post has alluded to. In cases of nerve syphilis and brain syphilis it is our sheet anchor. We could not abolish it from the treatment of syphilis any more than mercury, but it has its place, and it is a late place. Given out of place it is capable of making great mischief in the way of diagnosis.

DR. JEFFRIES: As an instance of a person making a mistake I would say that one of my medical friends, who studied in Vienna when I did, was afterwards visiting physician to the dispensary at that time when there was an epidemic of smallpox. He once asked me to see a case with him of a woman who had smallpox, which an old practitioner who had attended before he was called in, had said lasted quite a time. When I went into the room the woman was sitting up in bed, and when stripped down to the bedclothes showed a most perfect syphilitic imitation of smallpox. That case, curiously enough, was reported to the state as one of smallpox, continuing in the same

condition for six weeks. In the Observation Society, the last time I was called upon to read a paper, I took as my text "Syphilis as an imitator." I formerly was interested in diseases of the skin, and have a large collection of plates from which I took all those of syphilis, and selected from those of other skin diseases the ones the former imitated. These I showed together. The imitation was quite perfect and rather astounding, and I think the younger men felt there was a fair excuse for any mistake they might make. I now think that after what we have heard we may feel absolved for mistakes ever made.

Dr. C. A. Porter: I have had a considerable number of cases in the last few years which illustrated the value of microscopical examination of a portion of excised chancre. If I quote Dr. Councilman correctly, he tells me he can tell almost invariably by examination of a piece of the tissue whether it is or is not a chancre within 3 months of the onset of the lesion, provided it has had no treatment at all. As a result of that I have been incising quite a number of chancres the last 2 or 3 years, and now have 16, all of which were confirmed by the subsequent development of symptoms. What led me to do this was a case sent for circumcision by one of the former physicians of the Massachusetts Hospital. He watched this case 3½ months. The patient contracted a disease from the meatus 3 weeks after connection in Moscow, and was suffering from a very tight phimosis. The physician made the positive statement that at no time did he show any signs of eruption, and he had followed him through the 4 months succeeding the coitus. I did the operation of circumcision, and found a perfectly distinct Hunterian chancre, limited, hard, in every way characteristic. He had small glands in both groins, but those might easily have been explained by the discharge from the phimosis. There was no eruption that I could see at the time he was under ether and no signs in the mouth. Dr. Councilman examined a piece of that so-called chancre, and said there was absolutely no question about the diagnosis. The man at present is absolutely untreated. I had nothing to do with the treatment except to do the circumcision and refer him back to his physician, who said that having seen no secondary symptoms he would not treat him on a microscopical diagnosis.

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Gift to Hospital Good Shepherd, Syracuse. — At the opening of the new hospital of the Good Shepherd at Syracuse, on Feb. 4, it was announced that Mr. W. B. Cogswell had presented the hospital with $100,000, and also that he had agreed to pay the interest for an indefinite period on a loan of $100,000 arranged for the benefit of the institution.

Smallpox among Medical Students. — The course of studies at the University and Bellevue Hospital Medical College has been temporarily interrupted by the appearance of a case of smallpox among the students.

## MEDICAL SOCIETY OF THE STATE OF NEW YORK.

Ninety-Sixth Annual Meeting held in Albany, N. Y., Jan. 28, 29 and 30, 1902, Henry L. Elsner, M.D., of Syracuse, President.

### FIRST DAY.

### PRESIDENT'S INAUGURAL ADDRESS.[1]

Dr. M. J. Lewi of New York presented the report of the

### STATE BOARD OF MEDICAL EXAMINERS.

It showed that 749 candidates had applied for license, and that 20% had been rejected. There had been a grand total of 6,349 candidates, of which number, 1,379, or 21.7%, had been rejected.

### GOITRE: ITS MEDICAL AND SURGICAL TREATMENT.

Dr. Thomas Scully of Rome was the author of the first scientific paper presented. It was based on 47 cases. He said that while death had been reported as following parenchymatous injections of iodine, there was much to be said in favor of this mode of treatment. Of course, such injections should be made only under aseptic precautions, and immediately afterwards the site of the puncture should be sealed with iodoform collodion. His personal preference was for a mixture composed of equal parts of tincture of iodine and a 5% solution of carbolic acid. From 10 to 30 minims of this should be injected into the goitre once a week, a different spot being selected for each injection. The addition of the carbolic acid greatly reduced the pain following the injection. In the cystic form both electricity and drugs were useless, though for the parenchymatous goitres galvaro-puncture was beneficial. The chief surgical procedures used in the treatment of cystic goitres are ligature of the thyroid arteries, division or resection of the thyroid isthmus, and excision of the goitre. In a series of 2,000 cases Professor Kocher had had a mortality of only 1%.

### WHAT SHALL BE DONE WITH THE PROFESSIONAL MIDWIFE?

Dr. M. J. Lewi read a paper on the subject, in which he rehearsed the many and well-known abuses and horrors of the present system whereby ignorant women are allowed to attend cases of confinement. It was not necessary to do away with the midwife altogether, but such legislation should be demanded as would prevent ignorant and unqualified women from acting as midwives.

### HUMAN ASYMMETRY.

Dr. W. S. Ely of Rochester read this paper. He spoke of the asymmetry of the testicles and of the veins of the scrotum; of the inequalities in length and circumference of the lower limbs; of the lack of symmetry in the feet, the lungs, the heart and the kidneys, and of the unequal power of the two eyes and the two ears.

[1] For this Address in full see Journal Jan. 30, p. 101.

DR. LUCIEN HOWE of Buffalo extended the subject by pointing out that the left lung was apt to be first involved in disease, that the left lobe of the prostate was more frequently enlarged than its fellow of the opposite side, and that, in general, the left was the weaker side.

A CASE OF SARCOMA OF THE TONSIL.

DR. ARTHUR G. ROOT of Albany reported this case, which occurred in a man of 23, and demanded lateral pharyngotomy.

THE TREATMENT OF PELVIC SUPPURATION.

DR. CHARLES P. NOBLE of Philadelphia, Pa., presented this paper, which was founded on the author's experience in 200 cases. Prior to 1895 his mortality in these cases was 16.3%, but since then it was only 6.5%. Incision and drainage should be the operation of choice in puerperal cases.

THE SIDEROSCOPE.

DR. THOMAS R. POOLEY of New York exhibited this instrument, as improved by Hirschberg. The instrument is intended for the detection of pieces of iron or steel in the eye. It consists of a magnet, with a small mirror attached, suspended in a glass tube from a fibre of silk. The mirror is strongly illuminated and its reflex is received on a graduated scale. The eye to be tested is brought as closely as possible to the glass tube, when, if a fragment of iron or steel is present, the magnet and mirror, and hence the spot of reflected light, will be deflected more or less from the position of rest. Dr. Pooley claimed that he was the first to employ the magnet for this purpose, and that in June, 1880, in a paper read before the Section on Ophthalmology of the American Medical Association, he had described his work in this field.

GONORRHEA OF THE PROSTATE.

DR. JOHN VANDERPOEL of New York was the author of this paper. Concerning the frequency of this affection, he said that in 190 dispensary and private cases it was present in 36 or 39.7%. The Thompson two-glass test was not frequently sufficient to detect this disorder. In the great majority of cases the symptoms of posterior urethritis were more or less marked. Rectal exploration and examination of the fluid obtained by massage should be made in order to make the diagnosis. The presence of many leucocytes indicates posterior urethritis and prostatitis. After voiding the urine, the meatus should be cleansed with ¼ to ½% solution of protargol, and then with the patient in the horizontal position, the anterior urethra should be filled with a ½ to ¾% solution of cocain, and then, after 3 or 4 minutes, the protargol should be injected into the bladder by means of a large urethral syringe rather than by the irrigating apparatus. Usually from 200 to 400 grammes were employed, and then the patient was allowed to void it. The treatment should be instituted if possible within the first day or two. Instrumental massage was both unnecessary and dangerous; it was far better to use the finger and make the massage light in the acute cases. The author was of the opinion that epididymitis was not more common after such irrigation treatment.

FRACTURES OF THE NOSE.

DR. JOHN O. ROE of Rochester presented this paper. He advised early replacement of the fragments by means of a smooth sound in the nose and the finger externally. Having done this, an external splint should be fashioned out of aluminum or copper so as to form a mold of the whole nose. It is applied with an intervening covering of adhesive plaster, and is held in place with a broad strip of plaster across the face. This external support he considered of chief importance, but it was also advisable to insert into the nose a spring covered with rubber, or a packing of gauze or cotton for the first 3 or 4 days.

DR. LEONARD WEBER of New York described 2 cases in which he had succeeded admirably by the use of an internal splint made of 2 large rubber tubes.

THE CONSTITUTIONAL STATE VERSUS CATARRHAL DEAFNESS.

DR. SARGENT F. SNOW of Syracuse read this paper. In it he insisted that little could be expected in these cases from local treatment without cold bathing, frictions, attention to the liver — in short, good personal hygiene.

DR. WENDELL C. PHILLIPS of New York said that anyone who attempted to treat catarrhal diseases of the middle ear simply by mechanical methods would fall short of the possibilities of treatment.

DR. A. JACOBI of New York declared that local treatment of the nose and throat was almost everything in the treatment of diseases of the ear. Some of the infiltration could be removed by the prolonged internal administration of the iodides in small doses.

THE EDUCATIONAL MANAGEMENT OF THE NEURASTHENIC.

DR. EDWARD B. ANGELL of Rochester in this paper described the effect on the neurasthenic of a well-ordered system of daily education, and pointed out the great value of suggestive therapeutics.

A NEW METHOD OF BISECTING THE UTERUS.

DR. C. H. RICHARDSON of Albany described this method as follows: With the patient in the Trendelenburg posture the uterus is separated from the rectum, brought well up and one corner seized with forceps and drawn upon. An incision is then made into the median line of the uterus, into the body and uterine cavity. With the fingers the adhesions of the tubes and ovaries are separated, and the incision is carried along the border of the broad ligament, the vessels being clamped as divided.

AN EPIDEMIC OF TYPHOID FEVER IN THE BACKWOODS OF MAINE.

Dr. E. F. Brush of Mount Vernon presented this report, which was of interest because of the complete isolation of the cases and the mode of mouth contamination of drinking water by which several members of the first family were infected.

A CASE OF STRANGULATED HERNIA OF THE LEFT OVARY AND TUBE.

Dr. A. Tibristow of Brooklyn reported this case, and gave a résumé of the literature, embracing about 100 cases. He said that there were often other congenital defects. The inguinal variety was the most common, but all cases of hernia of the ovary demanded operation. The operation was practically without mortality.

TOXIC DOSAGE IN THE TREATMENT OF SOME NERVOUS DISEASES.

Dr. William C. Krauss of Buffalo read a paper with this title. He said that failure in the treatment of nervous disorders often resulted from the use of small and inefficient doses. Thus, the dosage of bichloride of mercury was said to be $\frac{1}{20}$ to $\frac{1}{10}$ gr., but to be effective in brain syphilis it was necessary to give the drug hypodermically in doses of 1 or 2 gr. a day. Again, the usual dosage of Fowler's solution was between 1 and 10 minims, yet he had obtained some surprisingly good results in chorea by increasing the dose to 30 or even 60 minims 3 times a day. In neuralgic and neuritic disorders nitroglycerin should be boldly pushed up to the point necessary to cause a cessation of the pain. This drug had proved in his hands especially satisfactory. If the large doses caused a throbbing headache, it could be easily relieved by the use of the bromides.

Dr. Henry R. Hopkins of Buffalo said that during the past year the mortality in severe cases of delirium tremens had been reduced from about 80 to less than 2% by first the abstraction of 1 or 2 pints of blood and then the infusion of double this quantity of normal salt solution.

THE PATHOLOGY OF THE TISSUE CHANGES CAUSED BY THE RONTGEN RAYS.

Dr. Carl Beck of New York said that under the prolonged influence of the Röntgen rays the hairs of the skin become altered in structure, and the small blood vessels of the integument become narrowed. The nutrition of the superficial strata of neoplasms was reduced greatly, and might even result in necrosis. This easily explained the curative influence of these rays on lupus, carcinoma and sarcoma of the integument. The part to be treated should not be more than 3 or 4 inches distant from the tube.

THE POSITION OF THE EYE AT REST.

Dr. Lucien Howe of Buffalo exhibited a fixation apparatus that he had devised, and described his method of making the observations.

Dr. Francis Valk of New York objected on the ground that this, or any other, matter that eliminated the fusion power of the eye was not worthy of confidence.

Dr. Howe replied that in order to find the position of the eye the light should be allowed to fall on the macula of one eye, and then by inserting a prism the image of the other eye would be thrown off the macula. In this way there was no tendency to fusion, and the eye swings into the position of greatest comfort.

## Recent Literature.

*A Reference Handbook of the Medical Sciences.* Embracing the entire range of scientific and practical medicine and allied science. Edited by Albert H. Buck, M.D., New York City. Vols. II and III. New York: William Wood & Co. 1901.

The second and third volumes of this excellent handbook maintain the high standard set by the first volume. A goodly proportion of the second volume is taken up with articles on the brain, of which those by Wilder, Barker and Keen are especially noteworthy. There is a certain inevitable confusion of nomenclature, owing to Wilder's strict adherence to the new, but not generally accepted, terminology, as applied to the nervous system. To those familiar with Barker's recent publications, much of what he writes will be a repetition which, under the circumstances, is natural. Keen writes on the surgery of the nervous system. The third volume brings the articles partly through the letter E. We have nothing to add to what we said in our review of the first volume, beyond the fact that we have in these succeeding ones a renewed evidence of the assiduity of the editor and his contributors, and of the painstaking work of the publishers in illustrating and printing.

*Dose-Book and Manual of Prescription Writing.* With a List of Official Drugs and Preparations, and Many of the Newer Remedies with Their Doses. By E. Q. Thornton, M.D., Ph.G., Demonstrator of Therapeutics, Jefferson Medical College of Philadelphia. Second edition, revised and enlarged. Philadelphia and London: W. B. Saunders & Co. 1901.

This small manual of 362 pages has been revised to meet the increasing knowledge in its province. It offers a great mass of information of the most practical sort to the student of medicine for whom it is primarily intended. In view of the fact, however, that the student period does not end with the attainment of a degree, the usefulness of the book may be extended indefinitely into professional life. The book is most attractively bound in flexible covers and printed in a clear type on good unglazed paper. The illustrations are exceptionally well executed.

THE BOSTON
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## THE ANNUAL REPORT OF HARVARD UNIVERSITY, 1900–1901.

FROM President Eliot's own report and summary of the departmental reports one may, as usual, pick out, according to one's own interests, some interesting statements of fact and of opinion. Among the most so to the medical reader are some paragraphs on the last page of his report, deduced from that of the treasurer, which show that, although the total endowment of the university continues to increase, the Medical School now has a larger endowment than any other professional department of the university, and that without including recently promised gifts. This fact is the more striking, because 30 years ago it had the smallest endowment among the professional departments. In 1869-1870, the invested funds applicable in the Medical School amounted to $45,136.54. On the 31st of July, 1901, the funds applicable in the Medical School amounted to $1,098,489.74. The benefactors of the university come from a wider territory than they used to, and represent a much greater variety of racial stock, religious opinion, and professional, commercial or industrial connection.

But, "lest we forget," this statement is immediately preceded by another even more pregnant, to the effect that: Many urgent needs weigh upon the minds of the faculties and the governing boards, and impair in a very significant measure the usefulness of the university. The income of $10,000,000 could be applied in a week to university objects long known and thoroughly studied; and even then the President and Fellows could not think of relaxing for a moment the cautious and frugal methods in which they have heretofore used the money entrusted to them.

Notwithstanding this apparently flourishing financial condition of the Medical School, it is today, on account of its necessarily numerous corps of instructors and the expensive nature of its laboratory work and training, one of the poorest departments of the university — much more so, for instance, than the Law School, with its comparatively meagre endowment.

In the Medical School the experimental rearrangement of the studies of the first and second years, with its condensation of such basic subjects as anatomy, physiology, histology, chemistry and pathology, has had its second year of trial and is reported on favorably by all the professors concerned and enthusiastically by some of them, although the professor of anatomy is still inclined to think that some modification in his department may prove to be indicated. The merits of the system now await the verdict of the clinical teachers in the last two years before graduation.

Almost all the instructors in charge of the subjects of the first two years complain that their work is seriously hampered for want of space. However, the diminished number of students this year, due to the increased standard of admission, must have temporarily mitigated this difficulty.

Elsewhere President Eliot tells us, it is clear that men of means, who reflect on the uses and results of educational endowments, are more and more inclining to endow research, and that it is also to be noticed that in endowing professorships recent givers have more than once specified that they desired the professors on their endowments to have leisure enough to contribute to the advancement of learning in their several departments.

Some interesting tables are given in the report bearing upon the affirmation, occasionally heard, that success or failure in athletic sports has an immediate influence on the resort to colleges, victory increasing the resort within a year or two, and defeat diminishing it. From a tabulated statement of the contests in track athletics, baseball, rowing, football, and debate, for the calendar years from 1891 to 1900 inclusive, between Harvard and Yale, compared with the preliminary and final candidates for admission during the same years, the conclusion is drawn that there is no relation between athletic victory or defeat for Harvard and the increase or decrease of either preliminary or final candidates for admission in the following year. The same inference is drawn from a similar table concerning Yale and Princeton though in a less positive manner.

President Eliot suggests that: "If the American colleges and universities could satisfy themselves that success in athletics is not indispensable to college growth, or, better still, be persuaded that too much attention to athletic sports, or a bad tone in regard to them, hinders college

growth, there would probably result a great improvement in the spirit in which intercollegiate contests are conducted: they would come to be regarded as the by-play they really are, and would be carried on in a sportsmanlike way as interesting and profitable amusements.

It appears that tennis is the sport which still affords to the largest number of students the means of out-of-door exercise; 790 students were reported as playing tennis. The next most popular sport is rowing, 640 students having taken part in that sport. Football comes next with 242 players; and baseball fourth with 220. Track athletics engaged the attention of 146; and no other sport attracted so many as 100 persons.

Sickness reports for the departments in Cambridge were presented by the medical visitor. The principal disorders are colds, indigestion, diseases of the eyes, the grip, surgical injuries, tonsilitis, diarrhea, headache and diseases grouped as miscellaneous. The number of cases of appendicitis, 33, was more than double the number of cases of typhoid fever, 15. The months in which most sickness prevailed were November, January and March. The smallest percentage of reported sickness occurred in the Law School; the next smallest in the Graduate School; and the next in the Divinity School. The college had the largest percentage of sickness, the younger students being apparently decidedly more liable to sickness than the older. President Eliot thinks the probability is that the older men do not so easily yield to or report slight disorders. And the facts recall to him a remark which President Kirkland is said to have made to a malingering student,— "that sicknesses prevail within the precincts of the college in a greater proportion to the deaths than in any other place."

## ORGANIZED METHOD IN THE DESTRUCTION OF THE MOSQUITO.

A friend of the writer, an old gentleman of eighty years, a genuine philanthropist, living in a suburban town, has spent very much of his time during the past ten years in killing English sparrows, brown-tail moths, and other pests. The town makes a small annual appropriation for the work, but the time and labor which he devotes to this end far exceed in value the small sum which the town devotes to the purpose at its annual meeting. The general opinion throughout the town is in support of this measure of public protection. This class of work, however, like a well organized fire department, relates mainly to the preservation and protection of property, but not so much to the maintenance of the life and health of the community. The latter, the protection of life and health, constitutes the chief duty of boards of health, and is of much higher importance. Within the past five years the campaign against mosquitoes has assumed a distinct sanitary character, as is illustrated by recent work of the Board of Health of Brookline, by the health officer of New York City, in his work upon Staten Island, and by very many foreign sanitary authorities. Dr. Ross of the British Army has performed a useful service in preparing a handbook of the methods to be employed by local authorities for dealing with this pest.[1]

The discovery of the inoculation of the germs of malarial fever, yellow fever and elephantiasis by the bites of mosquitoes has revolutionized tropical hygiene, and is destined to play an important part in its effect upon sanitary work in all places where these insects abound. Window screens and gauze canopies have one great defect: they protect only those who can afford them, and therefore constitute only a partial method of protection. The question therefore arises, would it not be better to get rid of the mosquitoes altogether than to take so much pains to protect ourselves against them? The object of the treatise of Major Ross is to show how a crusade against the mosquito may best be carried on. The information given is based upon several years' experience in different parts of the world, combined with a careful study of these insects.

The following summary of objects and methods illustrates the character of the work undertaken by these brigades:

*Objects.*— (1) We propose only to deal with them in the town in which we live and in its suburbs.

(2) We aim only at reducing the number of the insects as much as possible.

(3) We aim at dealing with as many as possible.

(4) We content ourselves with preventing the insects from breeding in the town itself, but cannot exclude those which may possibly be blown into town from miles away.

*Methods.*— (1) We start work at once, with whatever means we can scrape together.

(2) We operate from a centre outwards.

(3) We clear houses, backyards and gardens of all rubbish; empty tubs and cisterns containing larvæ or destroy the larvæ in them by means of oil.

(4) We show people how to do these things for themselves, and how to protect tubs and cisterns by means of wire gauze.

(5) When we have cleared as many houses as we determine to deal with, we clear them again and again.

[1] Donald Ross, F.R.C.S., D.P.H., etc.: Mosquito Brigades, and How to Organize Them. New York: Longmans, Green & Co. 1902.

(6) We fill up or drain away all the pools, ditches, old wells and puddles we can — especially those which contain most larvæ.

(7) Such pools as cannot be filled up or drained are deepened and cleared of weeds, if they contain larvæ.

(8) Streams and water courses which possess larvæ are "trained."

(9) When we can do nothing else we destroy the larvæ with oil periodically, or by brushing them out with brooms, or by other means.

(10) We endeavor to interest our neighbors in the work, and to educate the town into maintaining a special gang of men for the purpose of keeping streets and gardens absolutely free from stagnant, mosquito-bearing water.

In fine, our motto should be: "No stagnant water."

The style of the book is terse, vigorous and intelligible, though at times egotistical, as where, in the appendix, the author charges several well-known Italian authorities with composing the "most impudent scientific piracies on record,"— since, as he states elsewhere, "the first determination of the kind of mosquito which carries human malaria, and of other facts of leading importance in this connection, were obtained solely and simply by my researches of 1895-1899." This book should be in the hands of every health official who desires to act intelligently and successfully in carrying out measures for the improvement of malarious regions.

## ADMISSION TO STATE SANATORIUM FOR TUBERCULOSIS.

OWING to carelessness or a failure to understand the conditions under which patients should apply to the Massachusetts State Sanatorium at Rutland, a considerable degree of annoyance has been caused the authorities of the institution. So many wholly unsuitable cases have been recommended for admission that the trustees have seen fit to issue a circular stating, in general, the rules which govern the choice of patients.

In the first place, it is urged that only persons who are in an early stage of pulmonary tuberculosis will be admitted, a fact which has been generally known, but which has, in many instances, not been regarded by physicians seeking admission for their patients. "In no sense," the circular goes on to say, "is the sanatorium to be considered a 'consumptives' home,' in the ordinary acceptance of the word. It is intended only to be an institution where the patients with slight disease can be sent with a hope of cure, or of such amelioration of symptoms that they may become wage earners again. It is, moreover, an educational institution, where the patients are taught the simple but important laws of hygienic living, and as such is a factor in the foundation of preventive medicine." It is an injustice and hardship to patients as well as an annoyance to the hospital authorities that unsuitable far-advanced cases should come, at times long distances, often at the advice of their physicians, only to be rejected and returned to their homes as ineligible.

Cases suitable for treatment are: (1) "Those in which there may be signs of incipient disease only, such as slight changes in percussion note or respiratory murmur, with or without râles in one or both apices, the general condition being good, that is, where there is little or no fever and an absence of symptoms showing laryngeal and marked digestive disturbance." (2) Less favorable, but still suitable: "Those showing only slight changes of temperature; some impairment of general strength, with one or both apices showing dulness, with râles, sometimes even with cavity formation, if a dry condition seems to prevail; absence of all symptoms showing laryngeal and marked digestive disturbance." On the other hand, the distinctly unfavorable cases which are not received are: "Those with marked symptoms of digestive and laryngeal disturbance, accompanied with fluctuations of temperature, hectic flushes, night sweats, great loss of flesh, occasional diarrhea and general malaise, even when accompanied by comparatively few abnormal signs in the lungs. These form the chief number of the rejected cases, having been sent as incipient because of the lack of abnormal signs in the lungs alone, regardless of other more important factors. It is almost needless to say that patients with the above symptoms, combined with evidence of consolidation and cavity formation in the lungs, cannot be admitted under any conditions."

Physicians who propose sending patients to the sanatorium are also urged to send with the admission application a record of morning and evening pulse, the temperature, and as accurate a statement as possible of the physical signs and general symptoms. If the profession at large could bear in mind these facts there would be much less useless demand made upon the time of the examining physicians, and also many fewer disappointments to those seeking relief.

## MEDICAL NOTES.

BANQUET IN HONOR OF DR. GREGORY.— The medical profession of St. Louis, under the auspices of the St. Louis Medical Society, will give a testimonial banquet to Dr. E. H. Gregory, who for 50 years has been an active teacher of medicine. The banquet will be held at the Planters House the early part of April. A large number

of guests will be invited, including all the ex-presidents of the American Medical Association, out of compliment to Dr. Gregory, who was president of the association in 1887.

Widener Memorial Training School.— Plans have been completed for the buildings for the Widener Memorial Training School for Crippled Children in Philadelphia. The improvements and endowment will represent an outlay of about $2,000,000 by Peter A. B. Widener in memory of his wife. At the institution the children will be cared for, receiving the needed medical and surgical attention, and instruction in such industrial lines as will assist them in supporting themselves.

A Notable Operation.— It is reported that Doyen of Paris has operated upon twins who were united in a manner somewhat similar to the Siamese twins. The operation of separation was successful in spite of considerable loss of blood, but how the patients will prosper as individuals remains to be determined.

Christian Science in Germany.— It is reported that Emperor William of Germany has protested strongly against the growing influence of Christian Science in Berlin, and is likely to take definite action against the promulgation of the doctrine.

### BOSTON AND NEW ENGLAND.

Acute Infectious Diseases in Boston.— For the week ending at noon, Feb. 12, 1902, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: Diphtheria 56, scarlatina 31, measles 129, typhoid fever 8, smallpox 45.

Boston Mortality Statistics.— The number of deaths reported to the Board of Health for the week ending Feb. 8 was 199, as against 215 the corresponding week last year, showing a decrease of 16 deaths, and making the death-rate for the week 18.1. The number of cases and deaths from infectious diseases is as follows: Diphtheria, 41 cases, 6 deaths; scarlatina, 31 cases, 2 deaths; typhoid fever, 10 cases, 3 deaths; measles, 165 cases, 1 death; tuberculosis, 13 cases, 30 deaths; smallpox, 54 cases, 7 deaths. The deaths from pneumonia were 19, whooping cough, 2; heart disease, 29; bronchitis, 11; marasmus, 2. There were 6 deaths from violent causes. The number of children who died under 1 year was 37, under 5 years, 58; persons more than 60 years, 45; deaths in public institutions, 58.

Vaccination Upheld by Homeopathists.— At a recent meeting of the Boston Homeopathic Medical Society a resolution was passed opposing any change in the law regarding compulsory vaccination.

Vaccination Vindicated.— We cut from a daily paper the following quaint testimonial to the efficiency of vaccination, which was found recently among some family papers:

HE IS SLAIN.

Milton, 25th October, 1809.

The twelve individuals whose names are writen on the back of this card were vaccinated by Doct'r Amos Holbrook at the Town inoculation in July last. They were tested by Small Pox inoculation on the 10th Instant, and discharged this day from the Hospital, after offering to the world in the presence of most respectable witnesses who honored Milton with their presence on that occasion, an additional proof of the never-failing power of that mild preventive, the Cow Pock, against Small Pox infection, a blessing great as it is singular in its kind — whereby the hearts of men ought to be elevated in praise to the Almighty Giver.

Oliver Houghton.
*Chairman of the Committee for Vaccination.*

Verdict Against a Christian Scientist.— A warrant has been sworn out in Portsmouth, N. H., charging a Miss White, Christian Scientist, with practising as a physician without being registered. A patient died under her ministrations. The coroner's jury found that "the disease was aggravated by lack of proper attendance and medical treatment; that if proper nourishment and medicines had been administered to her at proper times it is probable that she would have recovered."

Medical Staff of the Relief Station of the Boston City Hospital.— The following appointments for the recently completed Relief Station have been announced: Dr. John T. Bottomley, Supervising Surgeon; Dr. Henry Germain, Resident Surgeon; Dr. Richard Collins, Assistant Resident Surgeon.

Precautions Against Smallpox in Chelsea, Mass.— The Board of Health of Chelsea has expended upwards of $2,000 in protecting its residents against smallpox. The result has been that but 3 cases have occurred since the first appearance of the disease, all of which have recovered.

Pneumonia at Groton School.— Several cases of pneumonia having developed among the boys at Groton School, the school has been temporarily closed and the boys dismissed to their homes.

### NEW YORK.

Harvard Men on the Board.— The chairman and two more of the trustees of the new board to have charge of the management of Bellevue and allied hospitals in New York are Harvard graduates.

Alumni Association's Annual Dinner.— At the dinner of the New York Alumni Association of the University of Michigan, of which Dr. A. M. Phelps is president, held at the Hoffman House on Feb. 6, Dr. Victor C. Vaughn, dean of the

medical faculty of the university, responded to the toast "Advances in Medicine," Dr. A. Jacobi to the toast "The Medical Profession," and Dr. D. B. St. John Roosa to the toast "State Medicine." The latter in his remarks strongly advocated the establishment of a national department of health, the head of which should have a seat in the President's cabinet. He incidentally mentioned that while $600,000 had been expended in the United States during the last three years upon researches in disease among animals, less than $30,000 had been spent for the investigation of human disease.

VACCINATION OF EMPLOYEES OF CITY DEPARTMENTS.— The president of the Board of Health has sent a circular letter to the heads of all the city departments requesting that they make early appointments, so that their entire forces of subordinates may be vaccinated by the vaccinating corps of physicians. He pleads the great necessity because of the large increase in the number of smallpox cases recently reported, and also because of the very large number of persons with whom most city employees come in contact every day. While earlier in the season the number of smallpox cases in New York was smaller than last year, so that the impression has become prevalent in the community that the disease is less serious than then, the actual figures show that for the past six weeks the number of cases has been considerably larger than during the same period in 1901.

ANNUAL MEETING OF MT. SINAI HOSPITAL.— The annual meeting of the Mt. Sinai Hospital, the last to take place in its present buildings, was held on Jan. 26. In the president's report it was stated that during the year the hospital, which is under Jewish management, had received an anonymous gift of $38,000 from a Gentile and his sister, in recognition of the nonsectarian character of the institution. During the year 3,196 patients were treated in the hospital, the death-rate of which was 9.71%, and 32,976 patients in the dispensary department. The per capita cost of support in the wards was $1.54 a day. The present hospital property, on Lexington Avenue, 66th and 67th Streets, has been sold for $425,000. The new buildings, located on Fifth Avenue, at 101st Street, will have double the capacity of the old, and will accommodate 422 patients.

FOR PROFESSIONAL HARMONY.— At the recent meeting of the Medical Society of the State of New York, the retiring president, Henry L. Elsner, was made chairman of a committee of five to confer with a committee of equal number representing the New York State Medical Association for the purpose of formulating a plan by which the regular profession of the State of New York might be united. Dr. Elsner has selected as his associates on this committee Dr. Abram Jacobi of New York, Dr. Albert Vander Veer of Albany, Dr. A. M. Phelps of New York and Dr. George Ryerson Fowler of Brooklyn.

## Miscellany.

### PREVENTION OF SMALLPOX ON A LARGE SCALE.

AN effort in preventive medicine on a scale of considerable magnitude was inaugurated last week by the Chicago Health Department. Its field is an area of some 600,000 square miles of territory in the ten states of which Illinois is the southern centre and the remotest boundaries of which are within a few hours' railway travel from Chicago. Among the 25,000,000 people living in this area the number of cases of smallpox has increased more than 900% since the first of the year, over the number reported during the corresponding period of 1901. That is to say, between Dec. 28, 1900, and Jan. 24, 1901, there were only 1,070 smallpox cases reported in this territory, while during the similar period ended Jan. 24, 1902, there were 10,820 cases reported—an increase of 911%. Authentic information, gathered by wire and mail, from state and local health authorities and from personal investigation by the contagious-disease experts of the department—sent to a number of infected localities most directly menacing Chicago—convinced the health commissioner, Dr. Reynolds, that the disease is still spreading unchecked, that it is not being fought intelligently or adequately, and that its continuance seriously threatens not only the public health but the material interests of this vast area by the certainty of "shotgun quarantines" sooner or later and consequent costly and vexatious interference with travel and traffic. These views were presented at a conference with the representatives of the leading railways centering in Chicago, and their co-operation with the department was urged in a concerted effort to "stamp out" the pestilence. Ready assent was given, the necessary men and means were assured, and it is confidently believed that the situation will be well in hand within a fortnight after operations are begun.

The plan contemplated wholesale vaccination and revaccination in every infected locality; the provision and maintenance of suitable isolation hospitals where necessary; thorough disinfection of smallpox premises and belongings; strict inspection of all persons offering to travel from infected localities, and refusal to carry those who do not comply with the requirements. This is the measure relied on to control the objectors, "conscientious" or otherwise, and is one fully within the power of the railways to enforce. Special attention will be paid to the condition of employees in manufacturing establishments,—particularly those of textile fabrics,—and the railways will set the example by still more rigorously making recent vaccination a condition of further

employment. Competent vaccinators and supplies of pure, tested vaccine lymph will be furnished gratis in all proper cases. The work along each railway line will be under the direct charge of the medical director or chief surgeon of the company, and a central office will be maintained in the city for the receipt of reports, requisitions, etc., from those engaged in the campaign. Dr. Reynolds has volunteered to take charge of the central office. This action is not taken solely, or even chiefly, in the interest of Chicago. The situation here has never been alarming at any time during the 3 years of the epidemic, and at the close of last week there were but 21 small-pox cases in the Isolation Hospital, 5 having been received and 7 discharged during the week.

## THE SOCIAL EVIL IN NEW YORK.

The Committee of Fifteen is about to issue in a volume of nearly 200 pages the report on "The Social Evil, with Special Reference to Conditions Existing in the City of New York," which it was commissioned to prepare by the meeting of citizens held at the Chamber of Commerce in November, 1900. The report is divided into two parts, the first of which, relating largely to the history of regulation, was prepared by a sub-committee, assisted by Alvin S. Johnson, instructor in economics at Bryn Mawr College. In the preface to the work the committee as a whole express the belief that not only does this section constitute a valuable scientific contribution to the subject of prostitution and the various experiments which have been made in many countries looking towards its suppression or its regulation, but that in no other publication can there be found so clear and comprehensive a statement of the problems involved. The second part of the volume, which is devoted to the recommendations of the committee, opens with the statement that the careful investigation of conditions existing in countries countenancing regulation has led to the conclusion that this is not an adequate remedy, even for the physical aspects of the evil. "But if not regulation, what then?" the report goes on to say. "The social evil is assuming alarming dimensions. What is needed at this time is a definite policy, a policy that shall not attempt the impossible, . . . but which, nevertheless, shall be practical with respect to the immediate future."

As an outline of such a policy the committee suggests: (1) Determined efforts to prevent overcrowding in the tenement districts; (2) the furnishing by public provision or private munificence of purer and more elevating forms of amusement than the low dance halls and theatres; (3) the improvement of the material conditions of the wage-earning class, and especially of young women who, in numerous instances, it is stated, are impelled to a vicious course of life, not by passion or corrupt inclination, but by the force of actual physical want; (4) the adequate increase of hospital accommodations in the City Hospital on Blackwell's Island for those suffering from the physical results of prostitution, and coercive reformatory treatment for minors who have entered on careers of vice. Above all, the committee recommends a change in the attitude of the law, which at present regards prostitution as a crime. The proposition is to exclude it from the category of crime, but the committee is careful to explain that this should by no means be understood as a plea in favor of laxer moral judgments. Some of the most grievous offenses are not subjected to legal penalties simply because it is recognized that such penalties cannot be enforced, and a law in the statute book which cannot be enforced is a whip in the hands of the blackmailer. Corruption in the police force can never be exterminated until this prolific source of it is stopped.

To the question "What, then, is to be the status of prostitution in New York?" it is answered: In the first place, it must be rigidly excluded from the homes of the poor. Second, it must not be segregated in separate quarters of the city, because (1) such quarters tend to become nests of crime and plague spots, and (2), segregation does not segregate, just as it has been shown that regulation does not regulate; (3) all public obtrusive manifestations shall be sternly repressed. Not prostitution itself, when withdrawn from the public eye so as to be noticeable only to those who deliberately go in search of it, shall be punishable, but all such manifestations of it as belong under the head of public nuisances. To carry out the desired ends the creation is recommended of a special body of morals police, analagous to the sanitary police already existing, selected on grounds of exceptional judgment and fitness, to whom alone shall be entrusted the duties of surveillance and repression. While the measures suggested for the prevention of the spread and the curtailment of prostitution would for the most part require considerable time and the education of public opinion, there are two which are practicable in the immediate future. The first is the exclusion of the evil from tenements, and this is already being accomplished under the new law and the new tenement-house department. The other, on which prompt legislative action is demanded, is the abolition of the so-called Raines law hotels. In the appendix to the report it is stated: so far as the problem of prostitution is concerned, the essential thing is to put an end to the abnormal tendency to make hotels out of saloons. New York presents the unique feature of providing victual houses of accommodation throughout the city, quite without regard for the actual demand for them. By the Raines law, saloons are compelled to provide ten rooms each, for which there is no decent use, and the temptation of the saloon keeper to put them to indecent use is very generally yielded to. By this process of the law, not merely are many saloons turned into houses of assignation and prostitution, but these iniquitous adjuncts of the saloon are made the secret means of attracting those who would

never seek such houses separate from the saloons. The entrance upon a life of shame is made attractive and easy, and the spread or demoralization thus made possible for the young of either sex is incalculable in extent and in evil effect.

## AN ARMY CONTRACT (?) SURGEON.

IN the District Court of Montgomery County, Kansas, in December, 1900, in the case of Samuel F. Lewis, plaintiff, *vs.* Edgar Zinc Co., defendant, No. 9,166, the following deposition was taken on the part of the plaintiff.

Witness stated that his name was Dr. J. S. Hamilton, that he lived in Coffeyville at present, and had previously lived in Wichita, that he was a physician and surgeon, and had been practising since 1862. He stated that he had been a surgeon in the U. S. Volunteer service, and had two discharges, showing that he had served for 25 years lacking 23 days. He was (1) with the Eleventh Kansas Cavalry; (2) with the Sixth at Fort Sill, Fort Dodge and Fort Wingate; (3) with the Ninth at Fort Burt and back to Fort Sill, and then at what is known as Dobie Wall in Texas, Fort Dobie. He testified that he had examined the plaintiff, Mr. Lewis, who came to him for examination and treatment. The following are extracts from the questions put to the witness, and his answers:

*Q.* I will ask you if you discovered any evidence of any nervous trouble? *A.* Yes, sir, I found him, what I considered, as a physician and surgeon, on a line where it might consist in very nervous prostration and engenderment of the brain, caused from asphyxia, for the simple reason that I noticed the eye being diluted.

. . . . . .

*Q.* Doctor, what did you say you discovered with reference to his eyes, if anything? *A.* I found the pupil of the eye diluted — a nervous twittiling; found that it followed him clear up; in an examination for it, stripped his coat and found it went to the spine, and traced it as low down as his waist, if I recollect right; so I told him there was no use for me to look any further, the devices it would take to bring him up that I didn't have there, and I didn't want to be at the expense of bringing them there; and absolutely refused his case, and didn't go no further with it.

*Q.* For what reason? *A.* For the reason that it would take — that I couldn't expect a complete cure, and only a part of restoration, and that my work would probably more or less be a failure; and if I couldn't do the man good, and make him sound or well, didn't want to fool with him, or take the case at all.

The Court: *Q.* Is this what you told him? *A.* Yes, sir. It was a case of too much expense attached to it to bring it up, and I didn't think it was possible to make him a sound, healthy man, and refused the case on that ground. I advised him to go to a hospital, and to a good one, where they understood curbing and sweating the mineral poisons out of the system; told him it would probably take a surgical operation at the base of the skull here, the first thing, and that I didn't do no surgical operations only in the field.

. . . . . .

*Q.* Where were you before you came to Cherryvale? *A.* Why, I am making my home in Wichita.

*Q.* But where were you? It says on your advertising matter "Old Dr. Hamilton, on his pilgrimage." Where had you pilgrimaged before coming to Cherryvale? (Objected to by plaintiff). *A.* I will just refer the gentleman to every town from Wichita, Kan., to San Francisco, Cal., and north to the north line of Nebraska, and south to the south line of Texas, under that old firm there of old Dr. Hamilton.

*Q.* Then, if I understand you, you are a traveling doctor, and go from one place to another? *A.* I advertise myself up there as a kind of a tramp and horse doctor.

. . . . . .

*Q.* Now, when you were called to see Mr. Lewis you looked him over — did you feel his pulse? *A.* Not thoroughly; I didn't thoroughly look the man over; just looked over far enough to convince myself that it was the other man that needed to be called in, in place of me, sir.

*Q.* Did you feel his pulse? *A.* Yes, sir, I felt his pulse and tested his heart.

*Q.* How was his heart? *A.* I considered his heart then 5 below normal.

*Q.* Five what? *A.* Five below normal, 5 beats to the minute below normal.

*Q.* What is normal. *A.* 1,760.

*Q.* 1,760? *A.* 1,760, double, single pulse pulsations half that, and double.

*Q.* I don't quite understand that, doctor; you may explain that a little plainer to me. What is normal? *A.* Five vibrations of the heart inside the human body, each one making a distinct pulsation within itself; taking the 5 within itself to the minute, it makes 1,760 pulsations a minute — 5 beats less.

*Q.* How many? *A.* The sebra vetrum artery makes a pulsation from the heart — beings you asked me, so you can go ahead — located over the spinal column, and at both ends is an ejector, and one has got a receiver, making a double from that; there is one from the kidneys.

*Q.* One what? *A.* Blood station; one artery forms blood station in the heart.

*Q.* That is from the kidneys? *A.* It comes from the kidneys and Telcile glands.

*Q.* How do you spell that? *A.* Telcile glands. Now you will have to go to a homeopathic to get that.

*Q.* Telcile? *A.* Yes, sir.

*Q.* Is that the name? *A.* I will spell it, T-e-l-c-i-l-e.

*Q.* And that is in the kidneys? *A.* No, sir, I say that is the Telcile glands of the heart, when the blood from the kidneys comes to the heart.

*Q.* I am trying to get my finger on the Telcile gland. Where is it? *A.* It is at the sebra vetrum of the heart. I got nothing to say, but I don't like to be bullied in the court room.

*Q.* The Telcile gland — where is that? *A.* That is the lapel pocket of the heart — the lapels that turn from the heart; there are 5 of these in the heart, that feeds the body in 5 different ways; feeds the limbs, feeds the extremities, right and left, and feeds the head; there are 5 of them it takes to build the human system. Those are the old fogy principles, they claim, of the blood from the right to the heart and to the left; it makes a turn; it doesn't go into one limb and across over to the other one and back, but goes into the pocket into the heart and back into the limb, and back into the heart, until it makes 5 turns of the body—

The Court: Don't talk quite so fast; you must have a little mercy on the reporter; he has to take this all down.

. . . . . .

*Q.* I will get you to tell the jury, doctor, what are the different parts of the heart called? *A.* Just let me have it here (the sketch) and I will explain the point, sir, you asked me there a minute ago. The right ducket of the heart —

*Q.* Just say that again, doctor? *A.* The left-right ducket of the heart, upper valve.

*Q.* The left-right ducket of the heart, upper valve? *A.* Yes, sir.

*Q.* What else? *A.* Centre ducket, brain valve.

*Q.* Brain valve? *A.* Yes, sir, valve running to the brain. I am not giving it to you in Latin, gentlemen. If you want that I will furnish it to you tomorrow.

*Q.* Go ahead in Anglo-Saxon? *A.* Lower textile artery of the heart,— that means for to catch the blood below.

*Q.* "Lower textile artery?" *A.* Yes, sir, that means to catch the blood below.

*Q.* What other part of the heart is there? *A.* Exterior and interior.

*Q.* Exterior and interior? *A.* Yes.

*Q.* Any other part? *A.* Well, yes, there is lots of parts, medically speaking. If you want to go into them there is enough in the heart to keep a man here a month; but then I will tell you now that I cannot answer only the general outside lines, and I want to say to you this, and I think that you will yourself, to stand in reason, if you would let me simply make the explanation as near as I could.

*Q.* Now, just tell us the names of the other parts of the heart, whether medical names or common names? *A.* Well, there is about, if I recollect right,— there is something in the neighborhood of 62 or 63 names, but I couldn't give them all to you.

. . . . . .

*Q.* These four are all you remember now — these four you have given me, the left-right ducket, and the centre ducket, and the lower textile artery, and the exterior and interior — these are the only names you think of now, are they, in connection with the heart? *A.* (No answer.)

*Q.* Now, you said Mr. Lewis' eye was "diluted"? *A.* Yes, sir.

*Q.* Was it diluted with anything? *A.* Well, sir, I considered it diseased when I first seen the man; to be honest with you I thought he had mineral poisoning, because the pupil of the eye was diluted, and I noticed the right one was worse than the left one, if I recollect right; one of them was worse than the other.

*Q.* How is that "diluted" spelled? D-i-l-u-t-e-d — is that the way it is spelled? *A.* Well, now; I would not be sure at all, sir.

*Q.* Now, doctor, I wish you would tell me what are the different parts of the human eye? *A.* Pupil, cornea, that is, two of them, of the eye.

*Q.* Yes; what else? *A.* Well, there are others.

*Q.* Can you name any others, doctor? *A.* Outer globular lining and inner.

. . . . . .

*Q.* Now, you spoke of some engenderment. How do you spell that, doctor? E-n-g-e-n-d-e-r-m-e-n-t? *A.* Yes, you can spell it that way, and they will understand it pretty well that way; that really is not the way to spell it.

*Q.* How is the real, sure-enough way to spell it? *A.* It is pretty hard for me to turn around and spell this. I tell you, sir, I want to be honest with you; I go into the field to make a fight of medicine and I treat, and I refer you to anybody there. If to come around and pick up medical books in cases, I am willing to confess to you that I do not do it; and you might call me up — you may call anyone up, after they have read a thing up and run through it, and turn around an hour or two afterwards and ask them over, and they wouldn't be able to promptly answer one-fiftieth of the questions; and I will confess to you that I cannot. If you know of any doctors in Cherryvale, ask them if they ever met with me.

. . . . . .

*Q.* Did you ever run across such a thing in the human system as an "iris"? *A.* Why, I have heard of such a thing, from a Latin standpoint.

*Q.* Well, where is that located? *A.* I don't wish to go any further and state (turning to the court): Judge, I would like to be protected from *this* man! ! !

The court: If you know, tell him. *A.* I just simply pass the case.

*Q.* You don't know where that is. Well, do you know into what parts the brain is divided, doctor? *A.* No, I do not, right now.

*Q.* You cannot give the names of the different parts of the brain, can you? *A.* I cannot do it here. I cannot go to work and go into details of the human body, and do it at all.

*Q.* Can you tell the names of the bones in your arm? *A.* Why, I have heard of a long bone.

*Q.* Any other bone? *A.* There is other bones there, but I don't know them.

*Q.* You don't know their names? *A.* No.

*Q.* Do you know the names of the bones in your legs? *A.* Yes, I have heard of the long one in the leg.

*Q.* The name of any other bone you know of besides the long bone? *A.* I could not go into detail with them to save my neck and answer the questions rightly and honestly, unless I have a chance to do it.

*Q.* Is there a bone in the body by the name of "clavicle"? *A.* Is there not two of them, located —

*Q.* Well, where are they? *A.* Two central cavities of the human heart, and one in the head, and one in the coupling of the spine.

*Q.* That is where the clavicles are? *A.* Yes, there is one in the head.

## Obituary.

### PAUL F. MUNDÉ, M.D.

Dr. Paul F. Mundé, an eminent gynecologist of New York, died on Feb. 7, of cardiac disease, in the fifty-sixth year of his age. He was born in Dresden, Saxony, and while still a child was brought to this country by his father, Charles Mundé, a man of old family and liberal education, who was a political refugee. He was graduated from the Boston Latin School and from the Harvard Medical School in 1866. He then studied abroad, and in 1871 took his degree as Master in Obstetrics at Vienna. The degree of LL.D. was conferred upon him by Dartmouth College in 1897. During his residence in Europe he entered the medical service of the Bavarian Army, was made a battalion surgeon, and served through the Franco-German War. In 1873 he came to New York, and soon attained distinction as a gynecologist and consultant in obstetrics. Among the positions which he held were the following: Professor of gynecology in the New York Polyclinic and in Dartmouth Medical College, surgeon to the Woman's Hospital, gynecologist to Mount Sinai Hospital, consulting gynecologist to Columbus, St. Elizabeth's, Mothers' and Babies', and Skin and Cancer hospitals, and consulting obstetrician to the City Maternity Hospital. He was also president of the New York Obstetrical Society. Dr. Mundé was very widely known by his writings. From 1874 to 1892 he was editor of the *American Journal of Obstetrics*, and, in addition to his long and highly appreciated labors in this capacity, made many valuable contributions to obstetrical and gynecological literature. Among these was the practical rewriting, under Dr. Thomas' supervision, in order to bring the work abreast of the scientific advances of the day, of the latter's classic treatise on "Diseases of Women."

### HENRY RUTGERS BALDWIN, M.D., LL.D.

Henry Rutgers Baldwin, M.D., LL.D., president of the Board of Health of New Brunswick, and one of the most prominent medical men in New Jersey, died at his home in New Brunswick on Feb. 3, from pneumonia and cardiac disease. He was born in New York City Sept. 18, 1829, his father being the Rev. Dr. Eli Baldwin, a distinguished minister of the Reformed Dutch Church, and was graduated from Rutgers College and the New York University Medical School. He was treasurer of the New Jersey State Medical Society from 1867 to 1875, and afterwards served as its vice-president. At the time of his death he was on the medical staff of the Wells Memorial Hospital at New Brunswick and a member of the board of managers of the New Jersey State Hospital for the Insane.

## METEOROLOGICAL RECORD

For the week ending Feb. 1, in Boston, according to observations furnished by Sergeant J. W. Smith of the United States Signal Corps:

| Date | Barometer. | Thermometer. | | | Relative humidity. | | | Direction of wind. | | Velocity of wind. | | We'th'r * | | Rainfall in inches. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Daily mean. | Daily mean. | Maximum. | Minimum. | 8.00 A.M. | 8.00 P.M. | Daily mean. | 8.00 A.M. | 8.00 P.M. | 8.00 A.M. | 8.00 P.M. | 8.00 A.M. | 8.00 P.M. | |
| S...26 | 30.50 | 32 | 39 | 24 | 87 | 82 | 84 | W | S | 4 | 14 | O. | O. | T. |
| M..27 | 30.00 | 39 | 54 | 24 | 100 | 37 | 64 | S W | W | 22 | 24 | O. | C. | .10 |
| T..28 | 30.54 | 18 | 24 | 13 | 34 | 37 | 36 | N W | W | 19 | 16 | C. | C. | |
| W..29 | 30.55 | 16 | 19 | 12 | 59 | 52 | 56 | N W | N W | 12 | 8 | F. | O. | |
| T..30 | 30.30 | 19 | 25 | 13 | 93 | 51 | 72 | N W | N W | 11 | 12 | N. | C. | T. |
| F..31 | 30.40 | 20 | 28 | 13 | 59 | 76 | 68 | N W | E | 7 | 12 | O. | O. | |
| S....1 | 30.22 | 32 | 36 | 28 | 85 | 100 | 92 | E | N E | 13 | 10 | N. | R. | .16 |
| ☞ | 30.36 | | 32 | 18 | | | 67 | | | | | | | .26 |

*O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow. †Indicates trace of rainfall. ☞ Mean for week.

## RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, FEB. 1, 1902.

| CITIES. | Population * Estimated, 1902. | Reported deaths in each. | Deaths under five years. | Percentage of deaths from | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | Infectious diseases. | Acute lung diseases. | Diphtheria and croup. | Typhoid fever. | Diarrheal diseases. |
| New York . . | 3,665,352 | 1,359 | 482 | 22.44 | 17.80 | 3.75 | .59 | 2.90 |
| Chicago . . | 1,852,828 | — | — | — | — | — | — | — |
| Philadelphia. | 1,349,624 | 530 | 149 | 22.00 | 17.35 | 2.20 | 3.96 | .28 |
| St. Louis . . | 603,717 | — | — | — | — | — | — | — |
| Baltimore . . | 525,330 | 215 | 57 | 16.74 | 21.39 | 1.86 | .93 | .93 |
| Cleveland . . | 411,826 | — | — | — | — | — | — | — |
| Buffalo . . . | 375,742 | — | — | — | — | — | — | — |
| Pittsburg . . | 341,401 | 130 | 40 | 20.00 | 32.30 | 3.84 | 4.61 | 2.30 |
| Cincinnati . | 332,032 | — | — | — | — | — | — | — |
| Milwaukee . | 304.975 | — | — | — | — | — | — | — |
| Washington . | 289,537 | — | — | — | — | — | — | — |
| Providence . | 185,870 | 82 | 28 | 20.74 | 18.30 | 3.66 | 1.22 | 1.22 |
| Boston . . . | 588,736 | 228 | 54 | 28.95 | 14.91 | 1.75 | .88 | .88 |
| Worcester. . | 127.337 | 33 | 9 | 9.09 | 24.24 | — | — | — |
| Fall River. . | 111.872 | 24 | 12 | 37.49 | 12.50 | 12.50 | — | 4.16 |
| Lowell . . . | 99,574 | 30 | 6 | 26.66 | 20.00 | 13.33 | — | — |
| Cambridge . | 96,334 | 21 | 9 | 14.28 | 33.33 | 4.76 | — | — |
| Lynn. . . . | 71,144 | 24 | 5 | 25.00 | 8.33 | — | — | — |
| Lawrence . . | 67,275 | 22 | 11 | 22.72 | 4.54 | — | — | — |
| Springfield . | 66,854 | 16 | 4 | 18.75 | 18.75 | — | 18.75 | — |
| Somerville . | 65,882 | 16 | 5 | 25.00 | 12.50 | 6.25 | — | — |
| New Bedford. | 65,574 | 23 | 9 | 17.39 | 17.39 | — | — | — |
| Holyoke . . | 48,065 | 16 | 8 | 18.75 | 37.50 | 6.25 | — | — |
| Brockton . . | 43,208 | 7 | 2 | 14.30 | — | — | — | — |
| Haverhill . . | 40,392 | 12 | 2 | 25.00 | 16.67 | — | — | — |
| Salem . . . | 36,567 | 8 | 2 | 25.00 | 12.50 | 25.00 | — | — |
| Newton. . . | 36,336 | 8 | — | — | 25.00 | — | — | — |
| Malden . . . | 35,390 | 8 | 1 | 12.50 | — | 12.50 | — | — |
| Chelsea. . . | 35,264 | 7 | 2 | — | — | — | — | — |
| Fitchburg. . | 33,848 | 8 | 2 | 12.50 | 50.00 | — | — | — |
| Taunton . . | 32,759 | 4 | — | 25.00 | — | — | — | — |
| Everett. . . | 27,114 | 5 | 2 | — | — | — | — | — |
| North Adams | 26,583 | 8 | 3 | 12.50 | 25.00 | — | — | — |
| Gloucester . | 26,121 | 6 | 2 | — | — | — | — | — |
| Quincy . . . | 25,307 | 6 | 3 | — | 16.67 | — | — | — |
| Waltham . . | 24,612 | 7 | 1 | 28.60 | 42.90 | — | — | — |
| Pittsfield . . | 22,311 | 2 | 1 | — | 100. | — | — | — |
| Brookline. . | 21,679 | — | — | — | — | — | — | — |
| Chicopee . . | 20,390 | 7 | 3 | — | — | — | — | — |
| Medford . . | 20,014 | 5 | 1 | — | 60.00 | — | — | — |
| Newburyport | 14,478 | 7 | — | — | 14.30 | — | — | — |
| Melrose . . | 13,384 | 3 | — | — | 66.67 | — | — | — |

* The populations of the cities outside of Massachusetts were estimated on the basis of the rate of growth from 1890 to 1900. Those of the Massachusetts cities were estimated upon the rate of growth from 1895 to 1900, since the State had an intermediate census in 1895. The populations of Gloucester, Marlborough and Newburyport were allowed to stand as in 1900, they having suffered a slight decrease during the five-year period.

Deaths reported 2,912; under five years of age, 923; principal infectious diseases (smallpox, measles, scarlet fever, cerebrospinal meningitis, diphtheria and croup, diarrheal diseases, whooping cough, erysipelas, fevers and consumption) 637, acute lung diseases 539, consumption 275, scarlet fever 46, erysipelas 9, typhoid fever 43, whooping cough 16, cerebrospinal meningitis 12, smallpox 41, measles 30, diarrheal diseases 9.

From whooping cough, New York 6, Philadelphia 2, Providence 1, Boston 4, Lawrence 2, Revere 1. From cerebrospinal meningitis, New York 4, Pittsburg 1, Worcester 1, Lynn 4, Somerville 1, Brockton 1. From scarlet fever, New York 29, Philadelphia 9, Pittsburg 2, Boston 4, Holyoke 1. From erysipelas, New York 6, Philadelphia 1, Pittsburg 1, Boston 1. From smallpox, New York 15, Philadelphia 13, Providence 1, Boston 12.

Beginning with January, 1902, the term "great towns" as employed in the Registrar General's Weekly Return of births and deaths includes the seventy-five municipalities of England and Wales which have a population of more than 50,000 in each.

In the seventy-five great towns of England and Wales, with an estimated population of 14,800,427, for the week ending Jan. 18, the death-rate was 17.7. Deaths reported 5,035; acute diseases of the respiratory organs (London) 307, whooping cough 90, diphtheria 85, measles 158, smallpox 59, scarlet fever 57.

The death-rate ranged from 4.8 in Hornsey to 27.9 in St. Helens; London 18.0, West Ham 16.1, Croydon 17.0, Brighton 15.5, Portsmouth 14.7, Southampton 13.1, Bristol 14.6, Birmingham 21.8, Leicester 12.8, Nottingham 17.4, Birkenhead 10.7, Liverpool 21.8, Manchester 20.9, Salford 18.4, Bradford 16.5, Leeds 19.1, Sheffield 15.7, Hull 14.4, Newcastle-on-Tyne 21.9, Cardiff 15.4.

## OFFICIAL LIST OF THE CHANGES OF STATION AND DUTIES OF COMMISSIONED AND NON-COMMISSIONED OFFICERS OF THE U. S. MARINE HOSPITAL SERVICE FOR THE SEVEN DAYS ENDING JAN. 16, 1902.

GLENNAN, A. H., surgeon. Detailed to represent the service at meeting of International Sanitary Conference at Havana, Cuba, Feb. 15. Jan. 11, 1902.

GUITERAS, G. M., passed assistant surgeon. Detailed to represent the service at meeting of International Sanitary Conference at Havana, Cuba, Feb. 15. Jan. 11, 1902.

DECKER, C. E., assistant surgeon. Granted leave of absence, on account of sickness, for 30 days from Jan. 15. Jan. 16, 1902.

LAVINDER, C. H., assistant surgeon. Bureau letter of Jan. 2, 1902, granting Assistant Surgeon Lavinder leave of absence for 2 days, amended so that said leave shall be for 1 day only. Jan. 11, 1902.

CRAIG, R. C., acting assistant surgeon. To report to Surgeon F. W. Mead for duty. Jan. 15, 1902.

SWEETING, C. B., acting assistant surgeon. Granted leave of absence for 5 days from Jan. 23. Jan. 16, 1902.

## SOCIETY NOTICES.

SUFFOLK DISTRICT MEDICAL SOCIETY.—The Section for Clinical Medicine, Pathology and Hygiene will meet in Sprague Hall, Boston Medical Library, 8 The Fenway, Wednesday, Feb. 19, at 8 P.M. Subject: "The Treatment of Hay Fever," Dr. J. P. Clark, Dr. A. Coolidge, Jr., Dr. J. L. Goodale. Dr. R. F. Chase will report a "Case of Continuous Hypersecretion of the Gastric Juice with Hyperchlorhydria (Reichmann's Disease)." Discussion by Dr. Smithwick and Dr. Hewes.

H. F. HEWES, M.D., Secretary.

OFFICERS OF HARVARD MEDICAL SOCIETY OF NEW YORK CITY.—At the annual meeting of the Harvard Medical Society of New York City held at the Metropolitan Club on Saturday evening, Jan. 24, 1902, the following officers were elected: President, William B. Coley, M.D.; Vice-President, Myron P. Denton, M.D.; Treasurer, Joseph A. Kenefick, M.D.

## AWARDING OF PRIZE.

THE NATHAN LEWIS HATFIELD PRIZE FOR ORIGINAL RESEARCH IN MEDICINE.—The College of Physicians of Philadelphia announces that the sum of $500 will be awarded to the author of the best essay in competition for the above prize.

Subject: "The Relation Between Chronic Suppurative Processes and Forms of Anemia."

Essays must be submitted on or before March 1, 1903. Each essay must be typewritten, designated by a motto or device, and accompanied by a sealed envelope bearing the same motto or device and containing the name and address of the author.

The competition is to be open to members of the medical profession and men of science in the United States.

## Original Articles.

### THE SIGNIFICANCE, PATHOLOGICAL AND CLINICAL, OF ABDOMINAL PAIN.[1]

BY MAURICE H. RICHARDSON, M.D., BOSTON.

The foregoing title suggests a broad field for comment, not only because pain is the earliest symptom of practically all acute abdominal lesions, but because upon early recognition of its significance and upon prompt surgical intervention depends successful treatment. Not only in acute abdominal lesions, but in many chronic ones,—functional as well as organic,—pain is an early, persistent and distressing symptom. Alone, it indicates danger in general; in combination with other signs, it indicates danger in particular, and guides the surgeon's hand to its source. The general teaching used to be that pain should be immediately combated with drugs,—dulled by opium, overcome by anesthetics. This is but to extinguish the light altogether—to destroy the guiding beacon. The teaching today should be to seek at once the cause of pain, and to subdue it by the removal of that cause.

The subject is of great importance to everyone—the physician, the surgeon, the patient. Excluding certain zymotic diseases, few abdominal lesions are met with in which pain is not at one time or another a prominent feature. Pain dependent upon organic disease often begins long before signs appear upon which to base a diagnosis. It is almost the only prominent feature which always appears at a time early enough for successful intervention. We must, therefore, study its very earliest manifestations—how it begins; where; what its nature; how it ends; what symptoms accompany it or immediately follow it, and what their significance.

Abdominal operations have added enormously to our knowledge of the significance of pain by demonstrating both its immediate and its contributing causes. The earlier the exploration after the onset of pain, the more accurately can we determine its exact prime cause. Repeated explorations at the earliest possible moment will some day enable the observer to recognize with certainty the direct connection between pain and its cause, and to decide upon a remedy which, applied at that early hour, will prove successful.

In the great proportion of acute abdominal lesions, pain is the earliest, the most persistent, the most significant sign. Pain is the great danger signal which cannot be overlooked, unheard or forgotten. It calls aloud in the strongest terms for relief, and if relief is not afforded, it calls again and again more loudly for relief. Our response to the call of the infected peritoneum for cleansing, of the bleeding vessel for ligation, of the obstructed intestine for relief, is, unfortunately, but too often a smothering of it with morphia, while, under the apparent relief which dulling of the pain gives, the deadly evil goes on unchecked.

Can we by study, observation and reasoning learn to interpret the cry for help which, through pain, the fatal lesion utters? Can we understand that cry which says: "Help the perforated stomach, the gangrenous appendix, the bleeding artery, the ruptured gall bladder, the obstructed intestine?" If we cannot interpret the exact nature of the call, we can, I think, at least know that it is a life-and-death one. Instead of calmly ignoring that call or of smothering it, we can make an immediate response to it, and can at least try to find and to remove the cause.

Space is too limited even to enumerate the different lesions which are preceded, ushered in, or accompanied at some time or other by abdominal pain. I would confine my remarks to some of the most frequent and therefore most important causes of pain; to a brief consideration of the diagnostic value of the pain itself and of its commoner accompanying signs.

In the classification of abdominal lesions in accordance with the rapidity with which they cause death, and therefore with the importance of the earliest possible intervention, we must consider (1) those lesions which unrelieved cause death within a few hours; (2) those fatal in a few days; (3) those which, unrelieved, become fatal in weeks or months, and (4) those in which there is no urgency.

(1) The first group includes the rapid hemorrhages, with or without complications, penetrating wounds with hemorrhage, rupture of solid viscera,—the liver, spleen and kidney with hemorrhage,—rupture of extra-uterine pregnancies with hemorrhage, post-operative hemorrhages, the excessive hemorrhages of gastric and duodenal ulcers, hemorrhage into ovarian cysts with twisted pedicle. Although in some of these conditions pain is not a prominent symptom,—indeed, it may be absent,—in most of them it is an early and important sign. The most important of these is the ruptured extra-uterine pregnancy, in many cases of which death is a matter of only a few hours, or even of a few minutes. The hemorrhage into a large ovarian tumor caused by twist of the pedicle is sometimes excessive and rapidly fatal. Pain in both is a prominent symptom. In perforating wounds of the abdomen pain may be an unimportant feature and hemorrhage an important one. In post-operative hemorrhages pain is frequently absent. In both, the signs of hemorrhage are plain and occur after a perfectly adequate and conspicuous cause.

In the severe hemorrhage of gastric and duodenal ulcers pain may be absent or slight. The nature of the emergency is, however, made plain by the signs of exsanguination, occurring in the course of recognized gastric or duodenal disease, with or without vomiting of blood.

In the first group of cases the prominent symptom may not be pain, though in many of the lesions it is the earliest and most significant feature. The most conspicuous sign is that of internal

[1] Read before the Obstetrical Society of Boston, Nov. 19, 1901.

hemorrhage. In some of the lesions, notably a ruptured extra-uterine fetal sac, or in an ovarian tumor with twisted pedicle, pain is of such a nature and situation as to suggest a grave lesion and to indicate operation long before the signs of hemorrhage become plain. The chief significance in the pain which precedes or accompanies an internal hemorrhage lies in its value as a guide to the probable lesion. The success of early intervention is most brilliantly illustrated in this group of abdominal emergencies. Immediate intervention proves almost invariably successful in the lesions essentially aseptic. Even in lesions unavoidably septic — in the hemorrhage of gastric and of duodenal ulcer, of ruptured solid viscera — the outlook is encouraging.

(2) The group second in importance, judged by the necessity for and the brilliant success of early intervention, includes those cases of fulminating and extensive peritonitis dependent upon rapid extravasations of septic material into the peritoneal cavity. This class comprises a great variety of lesions — perforations of gastric and duodenal ulcers; perforation of intestinal ulcers, typhoidal, tubercular, cancerous; perforations of appendices, especially of those of large lumen freely communicating with the intestines; stabs and gunshot wounds of the intestines; rupture of abscesses of great variety into the abdominal cavity; wounds and ruptures — traumatic and ulcerative — of the gall bladder, urinary bladder and kidney; rupture of a septic and friable spleen; acute intestinal necroses due to volvulus, intussusception, internal strangulation; mesenteric embolism and thrombosis; and to other causes,— acute hemorrhagic pancreatitis and fat necroses; torsion of tumors about their pedicles, — in a word, all lesions causing rapid and extensive general peritoneal infections, and directly or indirectly rapidly fatal.

In every lesion of this group the first symptom is pain of the severest character. The call for intervention, first and loudest, is pain. If the remedy could be at hand at the first burst of pain the success of surgical intervention would doubtless be of the most encouraging order. Even when the operative remedy is delayed a few hours the results are as a rule favorable. When general peritonitis is under full headway the prognosis is most unfavorable. It is in this group of cases that surgical intervention too long delayed has so few successes, and it is in this group especially that we should study the significance and prognosis of the initial pain.

(3) Third in importance are the slow infections of the abdominal cavity — cases of localized peritonitis with localized abscess. This group includes the milder forms of appendicitis; inflammations of the gall bladder; minute perforations of the alimentary canal; slight extravasations or abscesses; inflammations of the tubes, ovaries and uterus, with localized peritonitis; the various obstructions of the intestine without necrosis of the intestinal wall; cicatricial strictures of the intestines; impaction of foreign bodies in the intestine; pressure of out-lying growths and inflammations. All of these lesions, unrelieved, may cause death in the course of a few days, but all may be followed by spontaneous recovery. In this group the significance of pain is great. There is, however, always time for observation and for deliberate intervention. No harm can be done, however, by mistaking lesions of this group for lesions of the preceding, for even in this group operation loses nothing of its safety by early application.

(4) The last group of abdominal lesions includes those in which there is abundant time for study; abdominal tumors causing gradually increasing pain; chronic intestinal obstructions caused by the gradual contraction of ulcers (cancerous, tubercular, diphtheritic, typhoidal); the impaction of gallstones in cystic duct; the impaction of renal stones; pyelitis; pyelonephritis; hydronephrosis; slowly forming abscesses in various viscera, and the like.

The fatalities, if relief is not immediately at hand, are the greatest in the first group, and diminish rapidly in the succeeding groups. The causes of death in the first group are hemorrhage and shock; in the second, general peritonitis; in the other groups, chronic infections, exhaustion, and sudden conversion, through rupture or other causes, of a localized into a general infection — of a comparatively safe lesion into one of the most rapidly fatal. On the other hand, the mortality in these groups would be in a different order were help immediately at hand. By far the most brilliant results of early operative treatment would be found in cases of hemorrhage. The success in the group of general peritoneal infections would be in direct proportion to the promptness of intervention, though in some cases the infection of the peritoneal cavity is so rapid and overwhelming that even the most prompt relief is ineffectual. Surgical intervention in other groups — time being an unimportant factor — varies in its success with the nature of the lesion, the skill and experience of the operator, the strength and endurance of the patient.

If it were possible to know the day before what was going to happen in that first group of lesions; if the patient and the surgeon were ready at the very moment of rupture and the first appearance of hemorrhage, there would be little if any mortality. The fatal issue in concealed abdominal hemorrhage is caused by the loss of time — unavoidable, it is true — loss of time on the part of the patient in calling the assistance of his family, loss of time on the part of the family in calling the physician, loss of time on the part of the physician in summoning the surgeon, loss of time on the part of the surgeon in preparing for and performing his operation. The loss of time in the aggregate in abdominal hemorrhage is sufficient to account for the mortality. Even when help is at hand, as at the hospital, the lesion may be so rapidly fatal that the patient will be beyond aid before the house surgeon can apply the remedy. So in a less degree in the treatment of the second group — the rapid extravasations

and general peritonitis—cases in which a few hours may see a hopeless general infection fully established.

In the group of general peritoneal infections the first object of treatment is the saving of time — the earliest possible application of the remedy. The only way in which enough time can be saved to apply the remedy sufficiently early is for the practitioner to recognize at once the significance of the pain.

The significance of the pain is determined by its manner of onset, its character, its effect upon the patient's mind, upon his temperature, his pulse, its accompanying local signs in the abdomen.

When hemorrhage is the only lesion, pain is the expression of violence done the peritoneum. The commonest cause is the rupture of an extra-uterine pregnancy — usually tubal. The fluid extravasated in the pelvis is aseptic, yet the pain, situated low down in the pelvis, is usually of the most excruciating character. It is often knife-like and paroxysmal. Such a pain, occurring in women of child-bearing age, should always suggest the possibility of hemorrhage from the rupture of an ectopic gestation. If there is the least sign of hemorrhage, and if there is the least confirmatory sign of pregnancy, the abdomen should immediately be opened. Even if there is no evidence of pregnancy, the chances favor the rupture of an extra-uterine fetal sac, or of a hematosalpinx.

An interesting question in connection with this form of hemorrhage is the cause of pain. When, after simple ovariotomy, the pedicle slips out of the ligature and the patient bleeds to death, there is as a rule no pain. When an extra-uterine sac bursts, there is pain of the most excruciating kind. In both cases there is a simple abdominal hemorrhage without sepsis. Pain makes the difference. It cannot always be that pain is caused in the rupture of an extra-uterine pregnancy by injury to nerve filaments through an infiltrating and dissecting hemorrhage, for in many cases characterized by intense sudden pain nothing is found except a simple bleeding point with a pelvis full of blood. In many cases, however, extensive infiltrations are found in the layers of the broad ligament, subperitoneally, or even in the visceral peritoneum. It seems not unreasonable to say that in some cases at least pain is simply the expression of the peritoneum when blood is suddenly poured into it. In post-operative hemorrhages the peritoneum has already been exposed to the shock of the operation itself, and fails to respond to the additional shock of a secondary hemorrhage. The occasional absence of pain in the gravest emergencies of concealed hemorrhage must be carefully borne in mind, therefore, and the surgeon must be prepared to operate when the signs of a simple painless hemorrhage are present.

In the hemorrhage of an acute hemorrhagic pancreatitis the pain is sudden and acute. It is situated in the epigastrium. This form of hemorrhage is in the beginning an aseptic one. The bleeding is usually infiltrating, though free blood mixed with serum is abundant in the abdominal cavity. The pain may be caused by the violence done the retroperitoneal tissues, accentuated later perhaps by beginning sepsis, fat necrosis, or other effects of the pancreatic juice. The pain of acute pancreatic disease is violent and far-reaching; the constitutional signs are marked, and in most cases rapidly fatal. The pain itself is not sufficiently distinctive in pancreatic hemorrhage to differentiate it from the pain of other epigastric lesions considered later, though, in connection with other evidence, it may be strongly significant of the true lesion.

In rupture of liver, spleen or kidney, pain is at times an insignificant factor; at other times it is a prominent one. Inasmuch as these injuries result, when the organ is healthy, from extreme violence, more or less pain naturally results from that violence. I have seen, lying free in an abdominal cavity, distended with blood, the spleen broken into several pieces (Mixter's Case). I have found a fragment of liver completely separated from the great lobe, with a large hemorrhage into the peritoneal cavity. In each case pain was an early and prominent symptom, calling attention to a probable visceral fracture — a diagnosis confirmed by the signs of hemorrhage. The severe pain of initial violence, increased indirectly by hemorrhage, gradually subsides as the signs of hemorrhage become marked. The diagnosis in traumatic cases must depend upon the signs of hemorrhage following a violent blow, rather than upon the character of the pain. The pain in ovarian torsion is owing partly to the sudden interference with the circulation of the tumor, and partly to the excessive distention of the tumor either by blood extravasated from the obstructed veins, or by other fluids of a passive congestion. The pain is that of a suddenly enlarging and sensitive ovarian tumor — hemorrhage, with its familiar signs, sometimes augmenting the shock of ovarian torsion. In the hemorrhage of gastric or duodenal ulcers no pain is present unless there is at the same time a perforation into the abdominal cavity.

The pain of abdominal lesions dependent upon rapid and extensive extravasations of septic material is sudden, sharp and overwhelming. It is the very first symptom of extravasation, often introduced by a sensation as if something had suddenly given way. In the beginning the pain is continuous, violent, and almost unbearable. Later it becomes paroxysmal and intermittent, or dull and continuous. The pain, which is at first localized sharply in the region of the extravasation, becomes quickly generalized as the septic material spreads about the abdominal cavity. When the peritonitis becomes generalized, and the distention excessive, pain usually subsides. It often leaves the patient entirely when the general condition is hopeless. Complete cessation of pain is in the later hours, therefore, a sign of grave significance. The effect of pain upon the patient is

often extraordinary. It is marked mentally by anxiety and physically by shock.

The diagnostic and prognostic value to be given the single symptom pain is hard to determine, for pain alone is a very unusual symptom. Indeed, pain by itself is observed only in simple neuralgias; and even in simple neuralgias there is generally some accompanying sign by which its severity may be judged. In the paroxysms of trifacial neuralgia, for example, the violence of the pain is shown by involuntary reflex facial spasm. So, in the frightful pain of biliary and renal colic, the patient shows by involuntary reflex muscular contraction the severity of his suffering. In no case of simple functional pain is there the effect upon the mind of grave apprehension, or upon the body of constitutional shock. Functional pain, therefore, cannot be weighed except by the accompanying signs of facial suffering or of muscular spasm. On the other hand, the pain dependent upon organic lesions can be estimated by pulse, temperature, and constitutional shock.

In rapid septic extravasations pain is manifested, as already shown, by marked apprehension on the part of the patient and by shock more or less profound. It is, however, questionable whether the pain itself — except perhaps from its situation — produces any greater apprehension, or any deeper constitutional effect than the functional pain of a simple neuralgia. It is probably no subtile quality in the pain of peritoneal extravasations which makes its character and causes its far-reaching effects; but the beginning changes in the peritoneum itself. It seems clear that pain alone cannot always be relied upon in estimating the gravity of the causative lesion. It is rather what precedes and what accompanies pain, and more often perhaps what is conspicuous by its absence, that gives pain its real significance. Were it possible to discriminate between pain that means pain alone, and pain that means the most disastrous issues, the gravest conditions in abdominal surgery could be more easily and more safely met.

It must not be forgotten, however, that in not a few cases pain is not characteristic of the lesion which causes it, neither does it guide the surgeon to that lesion. It may apparently justify an exploration which proves entirely useless. Under some circumstances its significance cannot be correctly appreciated.

In estimating the weight to be given pain due to sudden and extensive extravasations, one must be aided by the accompanying general and local symptoms. If with sharp, excruciating and overwhelming pain there is rigidity of the abdominal muscles and general tenderness; if the temperature is normal or subnormal, and if the pulse is rapidly rising, the diagnosis of some extensive infection of the peritoneum is sufficiently warranted to demand immediate exploration. The surgeon can hope to see such a combination but seldom, for in an almost incredibly short time the temperature will have risen, and distention, vomiting and obstipation will have developed. The perforation of a gastric ulcer, for example, puts the patient almost immediately in a state of collapse. There is excruciating pain, epigastric rigidity, general tenderness, and shock, so closely following each other as apparently to be synchronous. In a brief period of time, however, — in a few hours or even in a few minutes,— the temperature rises, the abdomen becomes distended, and a general peritonitis is under full headway. Pain of the character described, followed almost immediately by shock and collapse, means, in the great majority of cases, a general infection. If in such cases the remedy could be immediately applied, the mortality would be greatly reduced. Unfortunately, the significance of the onset of the pain and of the early accompanying symptoms is not appreciated. Pain is at once controlled by large doses of morphia; but during the resulting ease, septic contents of stomach, bowel, or abscess are escaping and spreading themselves through the remote areas of the peritoneum. With the passing of the opiate, pain returns, local signs are seen to be more widely spread, and constitutional effects more pronounced.

Large perforations of the bowel, of the appendix, of the stomach — whether from disease or from violence — all have the same course. It needs no argument to prove the cause of the great mortality in gunshot wounds of the small intestine. It is clearly an unimpeded escape of fecal matter in the first instance, and secondarily the delay in applying the appropriate remedy. No argument should be needed to show the cause of the corresponding mortality in perforations from disease. The commonest of perforations — that of an appendix with large lumen communicating with the cecum by a large opening — may be quite as rapidly fatal as that of a gunshot wound. The signs and symptoms that such a perforation causes should be just as easily seen and as quickly recognized as in perforations from any violence, and the remedy should be just as promptly applied.

Although a great variety of lesions may cause peritonitis,— through perforations of large size with rapid extravasations,— a differentiation of these lesions in a general way may be made by careful consideration of the initial pain and its accompanying symptoms.

The pain of appendicitis — the commonest of all — usually starts about the umbilicus or in the epigastrium. The pain is accompanied by signs of peritoneal violence — shock, normal or subnormal temperature, an increased pulse with tenderness, rigidity and vomiting. These symptoms, however, would indicate a perforated gastric ulcer, an acute pancreatitis, or even a perforated gall bladder, quite as much as a perforated appendix, except that very soon after its onset the pain becomes localized in the region of the appendix. In all varieties of abdominal extravasation it is quite common for the pain to start at or about the umbilicus, or in the epigastrium, and to be-

come localized in a short time near the seat of the lesion.

At the very onset of the pain, then, if it is localized in the epigastrium, one might hesitate between a biliary colic, an appendicitis, a pancreatitis, a perforation of a gastric ulcer, of an inflamed gall bladder, of a subphrenic abscess, or some other rarer lesion. One might hesitate if he saw the patient immediately, and if there was no history pointing to some previous disease in the epigastrium — gastric or duodenal ulcer, gallstones or chronic pancreatitis.

The predominance of the pain, rigidity, tenderness, however, soon localizing itself in the region of the appendix, points to the appendix. If the pain continues in the epigastrium, and if most of the symptoms are localized there, and if there is the least history of dyspepsia or gastric irritation, the perforation of a gastric ulcer is indicated; if there is a tender tumor in the region of the gall bladder, an acute cholecystitis; if other acute lesions are eliminated, an acute pancreatitis.

The initial pain in all lesions attended by rapid and overwhelming extravasation can be described by no other word than *excruciating*. The pain is so severe that it shows itself immediately by constitutional signs over which the patient has no control, and in the production of which microorganisms and their products play no part, for as yet there has not been time even for absorption. Like the pain of an extra-uterine pregnancy, this pain is the expression which the peritoneum gives to the violence which it has received. The temperature falls, the face is pale, the skin is covered with perspiration, the hands and feet are cold,— in a word, the patient is in a state of collapse. Though shock is severe and collapse profound, the effect of this violence done the peritoneum is never — as it often is in hemorrhage — an immediately fatal one. Recovery from shock soon follows. The patient begins to feel the effects of septic peritoneal absorption: the temperature rises; the pulse, if high at first, for a time falls; the cold and clammy skin becomes hot and suffused. In a few hours a general peritonitis is under full headway. The pain — which was at first excruciating and continuous — may have intervals of remission; it may become even paroxysmal. It is so severe that the patient often writhes in agony. There is no mistaking its extreme violence.

In a general way the pain of the second group — that of more or less rapid and extensive extravasation into the abdominal cavity — is the same in all the lesions. The only diagnostic significance of the pain itself lies often in the actual seat of the pain as observed by the patient, for the physician is never at hand at this crucial moment. The seat of that initial pain must be determined by careful questioning, though the patient is often unable, when first seen by the surgeon, to give intelligent replies.

The agonizing pain starting suddenly in the epigastrium indicates a perforation of the stomach, an acute pancreatitis, a rupture of the gall bladder, an acute appendicitis; in the right iliac fossa, an appendicitis; in the pelvis, in women, a ruptured extra-uterine pregnancy, a ruptured tubal abscess; situated in close relation with an already existing abscess, a rupture of that abscess. An acute sudden pain of indefinite situation may indicate any of the more unusual lesions of the second group — a perforation of the small intestine, of the large intestine, the strangulation of a Meckel's diverticulum.

The diagnosis of the initial symptoms of the lesions of the second group can, in a very rough, general way, be determined when, in addition to pain, other early symptoms are considered. A sudden violent pain in the epigastrium suggests, as already stated, perforation of the stomach, a rupture of the gall bladder, an acute pancreatitis, an acute appendicitis. It indicates perforation of a gastric or duodenal ulcer if there has been the least previous history of those diseases, in a person of suitable age — though not infrequently perforation of the stomach takes place in a person apparently well, in whom no symptoms of gastric ulcer have ever been observed. The pain indicates an infection of the gall bladder, or the rupture of an infected gall bladder, if there has been a previous history of gallstones, or if there is tenderness, tumor, or both, in the usual position of the gall bladder. It points to the pancreas if there are no symptoms of a cholecystitis; and if there has been a history of gallstones in a person of suitable age,— 40 or 50,— of full habit; if there is nothing pointing to the stomach, and if the localizing symptoms are in the centre of the epigastrium. The initial pain in an acute appendicitis may be distinctly referred to the epigastrium, though, as a rule, it is a general pain, becoming localized in the right iliac fossa. A sharp pain, permanently localized in the epigastrium, is unusual in acute appendicitis. Often when the symptoms and history indicate a pancreatitis, the disease will be found to be an appendicitis. If the diagnosis of acute appendicitis is made in all cases that suggest an acute pancreatitis, or other equally obscure lesion, that diagnosis will, in the great majority of cases, be correct. The acute, sudden, overwhelming pain occurring in the course of a typhoid fever points to the perforation of a typhoid ulcer.

The symptoms of a perforation not localized in the region of the stomach, duodenum, gall bladder, or pancreas, not localized in the region of the appendix or in the pelvis, with a history of previous intestinal symptoms, may indicate perforation of an intestinal ulcer other than typhoidal, especially if the history points toward intestinal ulceration of any kind. At times these symptoms are accompanied by the well-recognized tumor of intestinal cancer or intestinal tuberculosis.

In stabs and gunshot wounds pain is the natural sequence. The pain when the alimentary canal is perforated, however, can be distinguished from the pain when no perforation has taken place; for, in the latter case, there is only the simple

pain of the stab or gunshot wound, which is usually transitory and trivial, whereas the pain of perforation is, as already stated, severe and accompanied by other signs of extravasation.

Wounds and ruptures, traumatic and ulcerative, of the gall bladder, urinary bladder, or kidney, or the spontaneous rupture of a septic and friable spleen, present the pain of a rapid and widespread peritonitis. The seat of the initial pain will be in the region of the gall bladder, urinary bladder, kidney or spleen. Suggestive signs will have been observed in the history of a cholecystitis or of a septic spleen. Rupture of the urinary bladder and rupture of the kidney, always occurring from violence, will be confirmed by the presence of blood in the urine.

Though the pain when the patient is first observed is, in most of the localized infections, general, and though in general peritonitis it becomes localized for a short time after becoming general, the very first attack should be, and doubtless is, limited to the exact seat of the extravasation; but not in all cases in equal proportions. For example, an appendix perforation may have a sharp pain in the exact region of the appendix, followed by a severe pain at the umbilicus or in the epigastrium. Later the pain is at the right iliac fossa, where it is distinctly localized in a localized peritonitis, but whence it spreads over the whole abdominal cavity in general peritonitis. The initial pain in acute appendicitis is, however, in my experience, less frequently confined to the exact origin of the extravasation than in any other acute abdominal infection.

The pain of those forms of intestinal obstruction caused by volvulus, intussusception, internal strangulation, mesenteric embolism and thrombosis, is not at first to be distinguished from the pain of simple mechanical obstructions, because some hours must elapse before extravasation will follow necrosis of the affected bowel. When the case is seen for the first time after gangrene and giving way of the affected coils has taken place, the pain of a general and overwhelming infection will be present. The nature of the lesion will be indicated by the history of a preceding acute intestinal obstruction, occasionally with physical signs of the lesion present.

*(To be continued.)*

## THE TREATMENT OF ECLAMPSIA BY THE METHOD OF PROF. W. STROGANOFF.[1]

BY F. S. NEWELL, M.D., BOSTON.

THE subject of the treatment of eclampsia has been discussed so often by this society that I feel that an apology is necessary in forcing it once more upon the attention of the members. My excuse is, however, a sufficient one.

Within the last year a remarkable series of cases of eclampsia has been reported by Prof. W. Stroganoff, which occurred under his direct supervision, and which gave, under the method of treatment to which they were subjected, absolutely unique results as far as I have been able to ascertain. This series included 58 cases which came under Stroganoff's observation in his hospital and private practice during the 3 years 1898 to 1900. In all of the cases included in this series a definite routine treatment was adopted, and the hitherto unheard-of result (that is, in any considerable number of cases) of absolutely no mortality was obtained.

When we consider that the average mortality in eclampsia, treated in hospitals under the most approved methods, whether in this country or abroad, has varied from 20 to 30%, it is obvious either that the cases reported were of an unusually benign type, or that the treatment adopted was markedly more efficient than any previous method, or at least more intelligently applied. Since it is hardly conceivable, however, that among so many cases, covering so long a period of time, there should have been no grave cases, we are led to conclude that the method of treatment adopted must have been responsible to a greater or less extent for the excellent results obtained.

After a careful study of the pathology and symptomatology of eclampsia, Stroganoff formulated a theory of the disease for himself, and instituted a method of treatment to meet the indications which he considered as the essential features of the disease. His views on the nature of eclampsia may be briefly summarized as follows: Puerperal eclampsia is an acute infectious disease which runs an almost definitely self-limited course of a few hours' duration, seldom exceeding 24 and still more rarely 48 hours in length. In the great majority of the cases the principal source of danger to the patient lies in the convulsions, which exert a harmful action on the heart, the respiratory centre, the kidneys and the general condition of the patient. They are often the cause of apoplexy in the fetus, resulting in its death before delivery. Now, it must follow as a natural result that if the convulsions can be eliminated or lessened in severity, the malignant character of the disease will be done away with to a considerable degree, since the resisting power of the organism will probably suffice to nullify the effect of the infective agent when the strain induced by the convulsions is removed. This should, therefore, be the main object of treatment, since we are unable at present to remove the cause of the disease.

In accordance with these views which have just been stated Stroganoff institituted a method of treatment which was designed to accomplish the following results:

(1) The prevention of the convulsions by lessening the irritability of the nervous system and by removing all external sources of irritation, especially those connected with the birth canal.

(2) The strengthening of the vital processes by careful supervision of the cardiac and pulmonary circulations; by securing as large a quantity of oxygen as possible; and by prompt delivery, if,

[1] Read before the Obstetrical Society of Boston, Nov. 19, 1901.

with these measures and with a proper diet, the convulsions do not cease.

The treatment is in brief the following: The administration of oxygen during the convulsions; the use of morphia and chloral to control the convulsions; the free use of cardiac stimulants when the heart action weakens; prompt delivery when the convulsions do not yield to treatment; a milk diet; and the avoidance of all methods of treatment which tend to depress the patient.

The administration of oxygen is recommended as the only treatment to be applied during the convulsive attacks. The use of chloroform and ether during the convulsions he considers to be not only ineffective in stopping the convulsion, but also injurious to the patient. Ineffective, because, since respiration is almost suppressed during the attacks, not enough of the anesthetic can be inspired to produce the desired result, that is, the suppression of the given convulsion; and injurious because the use of the anesthetic still further decreases the scanty supply of oxygen which the patient is able to obtain, and which is, on account of the asphyxia due to the interference with the respiration which accompanies each convulsion, the element which is most necessary for the welfare of the patient. The indications during each convulsive attack call for the free administration of oxygen, with precautions to prevent the patient from biting her tongue, and the removal of all weight from the thorax.

If the patient is under observation at the time of the first convulsion, morphia sulphate $\frac{1}{4}$ gr. is given hypodermically at once, and otherwise as soon as the physician reaches the case, to be repeated in cases of average severity at the end of an hour. In severe cases, that is, if another convulsion occurs within that interval, or if the patient is restless and unruly, the dose should be repeated earlier, while in mild cases, especially post-partum, the interval may be lengthened to 2 hours. In severe cases a third injection of morphia should be given after the same interval.

About 2 hours after the last dose of morphia, or earlier if the patient is restless, chloral hydrate is given (20 to 40 gr.), by mouth if the patient can swallow, otherwise by rectum. Light narcosis is to be maintained for the next 24 hours by the repetition of the chloral at intervals of from 6 to 10 hours without reference to the cessation of the convulsions. If the patient is restless or unconscious the narcosis should be continued for a second 24 hours. If at any time during this interval convulsions recur or threaten, the morphia should be repeated as at first, and the use of chloral should be continued.

Stroganoff believes that the size of the doses of morphia is of great importance, and should never exceed $\frac{1}{4}$ gr. at a single dose, as serious depressant effect may follow the exhibition of the larger doses ($\frac{1}{2}$ gr.) recommended by Veit.

If the convulsions do not yield within a reasonable time to the use of morphia and chloral, immediate delivery is indicated, as in 60% of all cases in which the convulsions begin during labor they cease with or shortly after delivery. The method of operative delivery to be adopted should be that which will produce the least degree of shock, as in a patient suffering from the severe toxemia of eclampsia a degree of surgical shock which would be well borne under ordinary conditions may prove fatal.

The further treatment of eclampsia as recommended by Stroganoff may be summarized in a few words: All irritation of the patient, especially of the birth canal, is to be avoided as far as possible. The use of general anesthesia is advised whenever the patient is to be catheterized, a vaginal examination made, etc. A milk diet is to be insisted on. If the patient requires stimulation the use of normal salt solution is advised as the most satisfactory method of stimulation, although the use of brandy and sulphuric ether is advocated for sudden emergencies.

In regard to the sweating treatment, which is so generally employed in eclampsia, Stroganoff takes the opposite view from that which is usually held. He claims, and my own experience, though too limited to be of any particular value, corresponds with his, that the use of hot-air and hot-water baths has in many cases a distinctly harmful effect, acting not only to depress the overburdened heart still further, but also to increase the nervous irritability and thus favor the recurrence of the convulsions. These disadvantages more than counterbalance the gain to the patient which is due to the comparatively limited excretion of toxins which takes place through the skin. A warm bath to cleanse the skin has, on the other hand, no harmful effects, and in many cases produces a distinctly soothing effect on the patient.

Within the last few months 9 cases of eclampsia have been treated at the Boston City Hospital and at the Boston Lying-in Hospital, more or less in accordance with the principles advocated by Stroganoff, that is, morphia and chloral were employed as advised by him, but in only 5 cases was his method followed in detail, that is, to the exclusion of the depressant sweating treatment. The cases are too few in number to throw any light on the true value of the treatment, but the results proved satisfactory in the main, post-partum cases in particular yielding readily to the sedative treatment.

It is not worth while to report the cases in detail, but such general points of interest as the cases furnish may well be studied. In 8 of the 9 cases the convulsions ceased promptly as soon as the second dose of morphia was administered. In the ninth case the treatment was not begun until late, as the patient did not come under observation until she had had several convulsions, and the sedative treatment had apparently no effect in checking them.

Among the 9 cases 4 were post-partum and 5 were ante-partum. In all the post-partum cases the convulsions ceased promptly and the patient recovered. In the ante-partum cases the convulsions ceased promptly in 4, while in the fifth the

treatment had no apparent effect on the convulsions, which continued and increased after delivery in spite of all the measures taken to prevent them, the patient dying about 24 hours after the first attack.

In 4 cases the details of the Stroganoff treatment were not carried out, the only change from the usual sweating treatment being the use of morphia and chloral. Three of these cases were ante-partum and one post-partum. Only 1 of the ante-partum cases required delivery at the time of the attack, labor having begun after the onset of the convulsions. In this case the convulsions ceased promptly, but the patient died 3 or 4 days later of cardiac complications, the strain of the convulsions having induced acute dilatation of the heart. The other ante-partum cases yielded promptly to treatment, and both patients recovered, but both miscarried within a few weeks. The post-partum case made a normal convalescence. Of the 5 cases in which the attempt was made to follow out the details of the Stroganoff treatment, 3 were post-partum and 2 ante-partum. In the 3 post-partum cases the use of morphia and chloral stopped the convulsions promptly, and all of the cases recovered without further complications. Of the 2 ante-partum cases 1 recovered and 1 died. The patient who recovered had no convulsions after treatment was instituted, and did not require operative delivery, but on the third day from the beginning of the attack delivered herself of a dead child. Her convalescence was complicated by a protracted attack of bronchopneumonia, but she eventually made a complete recovery.

The second case did not come under observation until she had had 4 convulsions, and the use of morphia and chloral had no apparent effect on the convulsions. The patient was in labor at the time she entered the hospital and delivered herself of a living child soon afterwards, but the convulsions steadily increased in frequency and severity, and the patient died about 24 hours after the onset of the symptoms.

These cases do not, of course, furnish sufficient evidence to judge of the true value of any method of treatment, but certain conclusions may be deduced from them which may prove to be valuable:

(1) In post-partum eclampsia the use of morphia and chloral in combination seems to have a distinctly beneficial action in controlling the convulsions.

(2) In ante-partum eclampsia the treatment is less efficient than in the post-partum form, but the course of the disease seems to be altered for the better in the majority of the cases.

(3) Although the treatment has not given as good results in our cases as in those reported by Stroganoff, a further trial is indicated, since our results have not been any worse than under any other method of treatment which has been tried, and further experience may disclose errors in the application of the treatment which may be remedied to good effect. At any rate, a method of treatment which has proved so efficient in the hands of its originator should not be abandoned until it has had a more thorough trial than we have been able to give this one as yet.

## SURGERY OF THE GALL BLADDER AND DUCTS.*

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[Concluded from No. 7, p. 160.]

I SHALL now mention a few points which will enable us to determine the presence of gall bladder disease. A careful history and examination is necessary to determine the presence of gallstones. One should inquire carefully the age, sex and occupation of a patient, the cause of death of parents, brothers and sisters, as Riedal states that there is an hereditary tendency to the formation of gallstones. Previous illness should be carefully discussed, as patients frequently come with histories of appendicitis, floating kidney, ulcer of the stomach, malaria or dyspepsia, when the true condition of affairs is caused by gallstones. The character of the pain is one of the most important signs as to the presence of gallstones. The pain of gallstone colic is not always cramp-like, and does not always show itself with extraordinary violence. A serous cholecystitis may cause but slight discomfort, felt as a light pressure in the region of the gall bladder and as a moderate cramp of the stomach. An acute inflammation of the gall bladder may cause intense pain, especially if the surrounding peritoneum participates in the inflammation. If stones are in the gall bladder, the pain is chiefly in the right hypochondriac region, and usually radiates into the breast and back. If stones are in the common duct, the pain is more often felt in the epigastrium. A patient with gallstones may have very little pain after eating lobster, mayonnaise and cucumber salad, while the pain may be severe, although the diet is unirritating; the reverse being true in ulcer of the stomach. The biliary colics are more apt to occur at night rather than shortly after eating, while the pain in ulcer of the stomach occurs immediately after the ingestion of food and drink. The pain of gallstone colic is localized in the region of the gall bladder. It may be boring, burning or nagging in character.

Kehr states that the majority of pains which are called cramps of the stomach are gallstone colics. If one examines carefully, he will find a sensitiveness to pressure over the lower border of the liver, in the region of the gall bladder. Cholecystitis may be mistaken for appendicitis where the appendix is turned upward, so that its extremity may reach the vicinity of the lower border of the liver. The pain in ileus resembles gallstone colic, but the location of the pain will

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oftentimes, with other symptoms, differentiate the diseases. The pain in kidney colic, when not typical, may resemble gallstone colic, but usually the pain radiates along the ureter to the bladder. Jaundice occurs with all possible diseases of the liver, and the care in diagnosis will be to exclude all liver diseases which develop with pain and enlargement of the liver. Although jaundice occurs in gallstone diseases relatively seldom, its presence is an important factor. In obstruction due to tumor, the jaundice constantly increases, while in stones in the choledochus the intensity of the jaundice varies. The character of the stools should be carefully noted.

The amount of fever often determines the intensity of the inflammatory process. If vomiting occurs, its character should be carefully noted as to presence of blood, whether a stone has been vomited and the color of the vomited matter. Gallstone patients frequently have disorders of the intestines. The occurrence of stones in the feces is the best evidence of cholelithiasis. Constipation at one time and diarrhea at another frequently occur. The patient loses in body weight and often a cachexia develops, although cancer is not present. By constant pain, the nervous system may be sorely tried. On account of the severity of gallstone colic, many patients become affected with the morphin habit.

By inspection one determines the presence of cachexia, the expression of the face and the existence of jaundice. In thin patients we may see the lower border of the liver standing out clearly, may even see the fullness from a distended gall bladder. We are also able to note a change of its position on inspiration and expiration, and in an acute cholecystitis we may see the characteristic prominence of the right hypochondrium and the pit of the stomach. By palpation we may determine the size of the liver, the condition of the gall bladder, and by the area of sensitiveness one determines how extensive the painful region is. Bimanual palpation should also be practised. The patient should lie on his back with his knees drawn up and the mouth open.

In diseases of the liver, percussion helps us in many ways. We determine the upper and lower borders of the liver and thus judge of the size of the organ. Percussion over a gall bladder may be deceptive, as a coil of intestine may intervene between the bladder and the abdominal wall. Auscultation in cholelithiasis is of little value, as the rattling of stones rarely occurs. The diagnosis by exploratory puncture must be condemned, because purulent fluid may fill the gall bladder and leak out into the peritoneal cavity. A careful examination of the blood may help in the differential diagnosis of gallstone disease.

Early operation will more frequently be resorted to when medical practitioners become more familiar with an accurate diagnosis of diseases of the biliary passages and the remarkable results obtained in gall bladder surgery. In no field of capital surgery may a careful operator obtain such brilliant results.

Case I. W. B., male, 52 years, policeman, entered St. Joseph's Hospital Feb. 28, 1896. Operation Feb. 29, 1896.

Cholecystostomy: Removal of gallstone. Discharged from hospital with biliary fistula April 23, 1896. Fistula closed May 27, 1896. Complete cure to date, Nov. 20, 1901.

I first saw patient Feb. 28, in consultation with Dr. J. E. Brown, and later with Dr. Noyes. Four years ago he had acute attacks of cramps in right hypochondriac region, which lasted a few days. Since, has had three well-marked attacks of these cramps. Has suffered from dyspepsia, and considered it the cause of the colics. Last attack two years ago.

*Present illness.*— Five days ago taken with severe pain over gall bladder region, which has continued with more or less severity ever since. He has been nauseated at times but has not vomited, constipated bowels, perspires freely and has hot flashes. Temperature 101°, pulse 90, urine normal. Inspection shows a corpulent, well-built man with marked jaundice of a greenish hue and anxious expression of countenance. Abdomen distended. A point of localized tenderness over gall bladder region is found and a small mass is easily detected on palpation. Has had copious bowel movements; no stone found.

*Diagnosis.*— Cholecystitis with cholelithiasis.

Feb. 29, 1896. Operation: Ether narcosis; incision four inches long, parallel with free border of ribs, on right side. On opening peritoneal cavity, the gall bladder was found distended and adherent to the omentum and intestines. An aspirator withdrew several ounces of dark, seropurulent fluid. No stones could be felt in the ducts. The gall bladder was stitched to the skin with silk sutures, incised, irrigated and drained by means of a perforated glass drainage tube. Abdominal wound partially closed with silkworm gut sutures; aseptic dressing applied.

March 1. Considerable mucous discharge from gall bladder, but no bile.

March 7. Daily dressing. Today, temperature 103°, pulse 120. There is considerable cellulitis over greater portion of abdominal wall.

March 14. Temperature 99°, pulse 100. Cellulitis has almost disappeared.

March 20. The gall bladder has been frequently probed to determine the presence of a stone, and not until today could one be found. A gallstone the size of a pigeon's egg was removed with some difficulty, after which there was a free flow of bile.

March 25. Temperature and pulse normal. Bile escaping freely; wound drawn together.

March 30. A less amount of bile discharging; wound filling in rapidly.

April 3. Patient sits up.

April 23. Patient returns home with biliary fistula.

May 3. Fistula completely closed. Has gained in weight and strength.

Nov. 20, 1901. Patient the picture of health.

Case II. W. H. S., female, 50 years. I saw in consultation with Drs. Noyes and Ely, April 15, 1896. Operation April 18, 1896, at her home.

Cholecystotomy: Removal of numerous stones; atrophied gall bladder; drainage. Died four days later.

This patient had been ailing over 6 months with gastric disturbances and severe recurring pains over gall bladder region. She was a medium-sized woman, who had lost considerable flesh, was markedly jaundiced and had a cachectic appearance with an anxious expression as though she was in pain. There was pronounced tenderness on pressure over the centre of a line drawn from the ninth costal cartilage to the umbilicus.

Although the patient's general condition was unsuited to undergo an operation, it was thought that she would soon die from exhaustion if not speedily relieved.

*Diagnosis.*— Cholelithiasis with obstructive jaundice.

April 18, 1897. Operation at her home with careful aseptic precautions, assisted by Drs. Ely, Noyes and McGuirk. The gall bladder was found lying very deep

and markedly atrophied, its diameters being about two inches by one-half inch. The gall bladder, cystic and common ducts were filled with small stones. The ducts were opened and the stones removed. This was attended with a free escape of bile. A drainage tube, surrounded by iodoform gauze, was placed in the gall bladder and ducts. The peritoneal cavity was carefully walled off with gauze so that there was no soiling of the peritoneum. The size and position of the gall bladder rendered stitching it to the peritoneum out of the question.

The patient stood the operation fairly well, and while there was subsequently no evidence of peritonitis or untoward condition in the wound, the patient gradually sank and died four days after operation. An earlier operation would probably have saved her life.

CASE III. G. S. S., male, 50 years.

Cholecystitis: Numerous adhesions; pain; gallstone colic; jaundice; celiotomy. Adhesions destroyed. Complete recovery.

This man I assisted Dr. Baxter to operate on at the Woonsocket Hospital Jan. 31, 1899. Dr. Baxter first saw him on Nov. 22, 1898. He had then been confined to bed since Sept. 20, 1898, suffering from chills, fever, vomiting, intense pain in upper right quadrant of abdomen. Two physicians who had previously attended him had diagnosed malaria, but antimalarial treatment failed to relieve him. He was emaciated, anemic and jaundiced, was vomiting almost constantly, particularly on taking nourishment. Every second or third day he had a chill followed by a fever; temperature 102° or 103°. Severe paroxysms of pain over region of gall bladder, relieved by morphin. Numerous remedies were tried, sodium phosphate, olive oil, etc. He gradually became weaker and abdominal pains greater. He then consented to enter the hospital and undergo an operation.

Dr. Baxter made an incision about four inches long, parallel with free border of ribs on right side, into the peritoneal cavity. A mass of adhesions presented; so we broke up numerous adhesions about ilium, colon, gall bladder and ducts. The gall bladder was small and deeply seated on the under surface of liver. No stones could be felt either in ducts or gall bladder. Bile was forced through the ducts by pressure on gall bladder. Abdominal wound was closed with buried sutures in peritoneum, muscles and fascia; catgut in the skin.

Patient was in considerable shock following the operation; but in a few days had rallied completely.

Nov. 25, 1901. Nearly three years since his operation; he is reported as well and strong.

CASE IV. E. W. B., male, 61 years, engineer; entered Rhode Island Hospital March 14, 1899.

Cholecystitis: Cholangitis; adhesions. Operation March 14, 1899: Laparotomy; removal of adhesions; pressing out contents of ducts. There was a complete recovery.

Father died of pneumonia, aged 84; mother died of cerebral hemorrhage, aged 93; brother and sister living. During Civil War had two attacks of typhoid fever. Twenty-one years ago thinks he passed stone, judging from pain and cramps. In July, 1898, he was taken suddenly with intense pain of a colicky character in the epigastric region. This pain lasted a day or two and was followed by pronounced jaundice. The stools were hard and slate colored. Morphin in large doses was necessary to relieve pain. After 3 days the pain again returned but lasted a short time. Felt fairly well until Jan. 3, 1899, when he had a recurrence of above symptoms. Since then he has had four more attacks. During paroxysms the urine is high colored and scanty, the stools slate colored, the skin jaundiced, the white portions of eyes pronounced yellow tint. Pain in right hypochondriac region is sometimes sharp, as if made with a knife, and radiating toward the right shoulder. Soreness in the right side remains for several days after the attack. No vomiting; tenderness on pressure over gall bladder region; temperature and pulse normal. The attacks are so frequent and painful of late that he has lost considerable flesh and is unable to attend to his work as foreman in a car-repair shop.

March 17, 1899. Operation: Four-inch incision through right semilunar line, parallel with and four inches to the right of median line. Lower end of wound on a level with umbilicus. Abdominal cavity walled off with gauze. Gall bladder and ducts brought plainly into view after separating light adhesions. The gall bladder was somewhat distended, and no stones could be felt either in the ducts or the gall bladder. Pressure was made with the thumb and fingers on the gall bladder, forcing its contents into the bowel. Abdominal wound closed in layers without drainage. Continuous catgut in peritoneum. Silver-wire mattress sutures in fascia, these being designed to remain *in situ*. Silver-wire subcuticular suture for approximating the integument. Patient took ether poorly, but was in good condition at close of operation.

March 21. Patient has had normal pulse and temperature until today, when he complains of pain which lasted four hours, relieved by one-fourth grain morphin suppository. Temperature 101°, pulse 120.

April 3. Severe attack of abdominal pain, character similar to previous attacks; lasted two hours. Relieved by morphia administered hypodermatically and by suppository. Temperature 101°, pulse 130.

April 10. Paroxysm, relieved by anodyne; some jaundice.

April 11. Patient insisted on going home.

Nov. 17, 1901. Patient examined at my office. Says he has had no return of attacks since leaving the hospital. Has gained in flesh and has been able to work steadily ever since.

CASE V. A. M., 36 years, female, married.

Cholelithiasis: Cholecystitis; empyema of gall bladder; cholecystostomy; later, hydrops of gall bladder; removal of stone occluding cystic duct.

Patient was admitted to my service at the Rhode Island Hospital Jan. 11, 1900, having been sent to the hospital as a case for immediate operation for appendicitis. On inquiry we learned that she had been treated on the medical service of the hospital from Nov. 17 to Dec. 20, 1899, no positive diagnosis being made, although it was thought the disease might be typhoid, as the blood gave a positive Widal reaction and rose spots were found. The records state that in August she had malaria (?). Twelve days ago commenced to feel badly, and 8 days ago had nausea, vomiting, headache, abdominal pain and pain in back, chill, and slight diarrhea, loss of appetite and strength. Temperature 103.4°, pulse 100, respiration 28; urine, acid, 1,028; trace of albumin, granular casts; tongue dry and coated; some tympanites. Treatment: dilute 10 minims hydrochloric acid; to be taken every 4 hours.

Nov. 19. General condition good; feels better.

Nov. 21. Widal positive; rose spots; feels comfortable.

Nov. 23. Some tympanites and abdominal pain.

Nov. 25. Quinin, 5 gr.; taken every 8 hours; not so much pain.

Nov. 27. Comfortable; abdomen less distended.

Dec. 1. Temperature falling.

Dec. 3. Improvement continues; temperature normal; solid food.

Dec. 16. Improving until today. Attack of indigestion.

Dec. 20. Discharged. Cured.

*Present illness.*— She was taken with severe pain, sharp and cutting in character, greatest near the right ninth costal cartilage, radiating toward the back. Vomited a greenish fluid; temperature and pulse elevated; tenderness on pressure over gall bladder region, slight dulness on percussion and sense of resistance. Has never been jaundiced, but says she has had several attacks similar to the present. Bowels have not moved in four days. Cathartics and enemata give free evacuations with great relief. Given sodium phosphate and strychnia.

*Diagnosis.*— Cholelithiasis.

Jan. 24. As patient had been confined to bed for so many weeks, and had been kept on a liquid diet, she was advised to leave the hospital, with an idea of improving her general condition, and to return later for operation.

Feb. 10, 1900. She re-entered the hospital. She has had more or less gastric disturbance and pain since she left, 2½ weeks before. A sensitive mass could be felt just below right ninth costal cartilage. Urine normal, as well as temperature, pulse and respiration.

Feb. 14. Operation was today abandoned, as patient became cyanotic from faulty administration of gas-ether.

Feb. 16. Operation: Ether; 3-inch incision in right linea semilunaris. Gall bladder found distended; it was aspirated and creamy pus withdrawn. A purse-string suture closed opening made by aspirator needle. Gall bladder was stitched to parietal peritoneum with chromicized gut, incised and irrigated with normal saline solution; considerable pus was removed. By probing no stone could be detected; iodoform wick placed in gall bladder. Cigarette wick placed in peritoneal cavity, as adhesions had been broken up. Wound in peritoneum partially closed with chromicized gut and silkworm gut.

Feb. 17. Dressed; wick removed from abdomen.

Feb. 18. Wick removed from gall bladder and irrigated with saline solution.

Feb. 21. Daily dressing; some discharge of bile in dressing today.

Feb. 23. Operation: Ether; sinus leading into gall bladder dilated; probed for stone, but none found; drainage tube and gauze wick inserted into gall bladder; aseptic dressing.

March 6. Considerable distress from food; wound discharges pus and mucus.

March 17. The discharge is practically all mucus.

March 26. Left hospital today with sinus discharging mucus; to return twice a week to have dressing changed.

April 9. I thought I felt a stone on passing a probe into sinus.

April 13. Gas-ether. Sinus dilated; gall bladder explored but stone could not be felt; gauze drain; aseptic dressing.

April 18. Pain and discomfort over region of gall bladder.

Dec. 22. Much improved.

Jan. 5, 1901. Re-entered Rhode Island Hospital. Fistula had closed on several occasions, and following closure pain ensued; so sinus was reopened. At times bile had been discharged, but more frequently mucus. General condition of the patient had greatly improved.

Jan. 8, 1901. Operation: Gas-ether; incision 1 inch to left of former incision and 2 1-2 inches long, into abdominal cavity. A finger introduced discovers stone wedged in cystic duct. Stone was pushed into gall bladder, sinus enlarged and stone one-half inch in diameter removed. Abdominal incision was closed. Cumol gut in peritoneum with chromicized gut in fascia and a subcuticular silver wire in skin; gauze wick in gall bladder. Acted badly under anesthetic.

Jan. 11. Bowels move freely; wick replaced in sinus.

Jan. 12. Daily dressing free from discharge of bile.

Jan. 20. Silver suture removed; primary union.

Jan. 26. No discharge; fistula closed.

Jan. 29. Discharged from hospital. Cured.

Case VI. J. R. W. Male, 42 years, deputy sheriff, married; patient of Dr. Rouse; seen by Drs. Horace Wilcox and Geo. F. Keene.

Cholelithiasis: Cholecystitis; jaundice; cholecystostomy. Removal of stone. Recovery.

Entered St. Joseph's Hospital May 18, 1901. Twenty years ago first noticed colicky pains in abdomen, and a number of times since has had severe gallstone colics. Has not enjoyed good health during this time. Bowels always constipated. Six months ago had an attack of severe pain in gall bladder region, vomited several times and was deeply jaundiced; severe symptoms passed off in 48 hours; relieved by morphin. During last two months has been in poor condition, has lost flesh and strength and has been confined to bed most of the time. One week ago he was taken with severe pain in gall bladder region; frequent vomiting, clay-colored stools, marked jaundice. Patient is of large frame, very much emaciated, an anxious expression, conjunctiva stained yellow, skin greenish hue, tongue thickly coated; urine, 1,022, acid, dark-brown color, small amount of albumin, no casts, great quantity of bile pigment; tenderness over gall bladder region; what appears to be an inflammatory mass may be felt,

*Diagnosis.*— Cholelithiasis; Cholecystitis with obstructive jaundice.

May 20, 1901. Chloroform; incision four inches long along outer border of right rectus muscle; lower end of incision on a level with umbilicus. Gall bladder found distended and adherent to omentum; freed from adhesions and aspirated, removing clear yellow fluid. By palpation 13 small and 1 large stone were found in gall bladder, cystic duct and occluding common duct; they were pushed into gall bladder and removed, through an opening made in gall bladder. The gall bladder was sutured to the parietal peritoneum with silk and catgut, its cavity irrigated with warm normal salt solution and an iodoform drain introduced. Silkworm gut sutures partially closed abdominal wound. Reacted well from operation.

May 23. Stools dark brown.

May 28. Bile flowed through wound.

June 1. Large amount of bile discharged, necessitating changing dressing three times a day.

June 15. Amount of bile diminished; stools normal.

July 2. Sat up today. General health greatly improved.

July 8. Discharge of bile slight.

July 11. Patient to go home. Was advised to remain a short time longer, but went home.

July 19. After returning from a short drive was taken with chill, pain and slight jaundice. The wound was explored, calomel, salines and enemas given, with daily doses of sodium phosphate. Since this time there has been gradual improvement. Wound healed in one week.

Nov. 12, 1901. Examined patient today at my office. General condition excellent. He has gained 40 pounds since leaving the hospital.

Case VII. M. N., female, 33 years, married, sent to me by Drs. Hills and Thiebault. Entered St. Joseph's Hospital Aug. 27, 1901.

Cholelithiasis: Hydrops of gall bladder; cholecystostomy; removal of 42 stones; immediate suture of gall bladder; abdominal wall closed without drainage. Recovery.

Patient had not been feeling well for a year. She had loss of appetite and uncomfortable feeling in the epigastric region. She had lost considerable flesh. Two months ago she noticed a mass in the right side of the abdomen, which could be moved about. Stools normal; never jaundiced; urine negative; no attacks of colic. The patient looked pale, and was quite worried about her uncomfortable general condition. Examination revealed a mass in the right lumbar region, about the shape and consistency of the kidney. There seemed to be a tympanitic note between this mass and the liver. The mass could be moved upwards under the ribs; downwards nearly to the crest of ilium; and across, five inches beyond the median line to the left side. This great range of motion was one of the reasons which led us to think that the mass was more likely to be a wandering kidney than a distended gall bladder.

August 27, 1901. Operation: Gas-ether; incision three inches long in right linea semilunaris, lower end of incision on a level with umbilicus. The mass was found to be the distended gall bladder. The abdominal cavity was walled off with gauze; the gall bladder opened and several ounces of clear watery fluid escaped. Forty-two gallstones were removed, the greater number being small; two were about one-half inch in diameter. One stone completely occluded the cystic duct. After removing the stones the gall bladder was

irrigated with six-tenths of 1% salt solution. Its walls appeared so little changed from normal that, feeling sure that all the stones were removed, I decided to close the wound in the gall bladder with silk Lembert sutures. This being accomplished I closed the abdominal wound in layers, continuous cumol catgut in peritoneum, chromicized gut in fascia, and subcuticular silver wire in skin.

Sept. 6, ten days after operation. Silver wire stitch removed; primary union. The highest temperature was the day following operation, 99°; normal ever since.

Sept. 13, seventeen days after operation. Patient returned to her home with a good appetite and happy countenance.

Nov. 20. I learned she has been quite well since leaving hospital.

CASE VIII. R. G., female, 27 years, married, entered St. Joseph's Hospital Oct. 14, 1901.

Cholelithiasis: Cholecystostomy; removal of stone. Recovery.

During the past 6 years, with intervals from 3 to 6 months, she has had attacks of pain in the right hypochondrium, radiating to back. These attacks lasted about 3 days and were relieved by morphin. First noticed jaundice 2 years ago during an attack with clay-colored stools. At that time she remained 2 months in a hospital in Fall River.

*Diagnosis.*— Gallstones.

Operation advised but patient declined. She has frequently had chills followed by profuse perspiration. She entered St. Joseph's Hospital for repair of lacerated cervix and perineum and relief from a retroverted uterus. While being prepared for operation she was taken with severe biliary colic, the pain being so intense that she lost consciousness on two occasions and had convulsive twitchings. There is localized tenderness over gall bladder area; pain radiates to back.

Oct. 22. Operation: Ether; incision 3½ inches long at outer border of right rectus muscle. Gall bladder deeply seated, very much atrophied, about two inches long. Stone filling cystic duct. Gall bladder incised and stone removed in fragments. It was impossible to stitch gall bladder to parietal peritoneum, so abdominal cavity was walled off with gauze and an iodoform gauze wick placed in bladder and cystic duct. Peritoneum was partially closed with cumol catgut; the fascia with chromicized gut and skin with subcuticular silver wire suture. The next day bile appeared in the wound.

Oct. 24. Walling-off gauze removed.

Oct. 25. Gauze wick removed and replaced by smaller wick.

Oct. 27. Bile appeared in stool.

Nov. 1. Bile ceased discharging from wound.

Nov. 18. Biliary fistula closed. Has had no recurrence of symptoms. Disposition much more cheerful

Nov. 19. Operation: Ether; curettage; amputation of cervix; perineorraphy and Alexander's operation.

Nov. 25. Patient doing well. Temperature and pulse normal.

Since this paper was read, I have operated on 6 cases of cholecystitis, with recovery in every case.

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## ON THE VALUE OF MODERN METHODS OF DIAGNOSIS AND TREATMENT IN GASTRO-INTESTINAL DISEASES.

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MUCH of the recent journal literature on subjects pertaining to the stomach has been of a somewhat scientific nature, of principal interest to those who are concerned in the modern methods of diagnosis and treatment of gastro-intestinal diseases. A great deal of it has perhaps been beyond the comprehension of the general physician. Very likely it has to him seemed characterized by reports of endless chemical analyses and by elaborate technical methods of examination of the stomach. As a result, I believe many physicians have come to the conclusion that these methods are practical in the laboratory only, and that the results obtained are hardly worth the time devoted to them. This belief has recently been strengthened by skeptical remarks made to me on the subject by fellow practitioners. Moreover, the adverse attitude maintained by some of the members of the medical staff of the Boston Dis-

pensary, towards the establishment of a gastro-intestinal clinic, has led me to an appreciation of the true disposition of the general physician regarding these methods at the present time. There may be other good and sufficient reasons for this disposition; I attribute it to a lack of familiarity with the subject.

Physicians as a rule have not yet become familiar with these methods, and as a natural consequence do not appreciate their value. Many very likely have not had an opportunity to learn them, and doubtless there are others who have scarcely had their attention called to them, but certainly there are some who before this should have acquainted themselves with these new and valuable methods.

It is now three years since I began the use of these newer methods, in private and dispensary practice, and I believe sufficient time has elapsed to allow a "cooling off" of any undue enthusiasm which is so liable to take possession of the novice. Therefore let me ask you not to attribute the motive of the following remarks to overenthusiasm, but rather to a desire to make more generally known some of the beneficial results which may be derived from the employment of these methods in gastric diseases.

Before further considering the newer methods let us for a moment review the older ones. By these older methods our diagnosis is made almost entirely from the subjective symptoms of the patient. If he has a pain in the epigastrium we guess it may be due to the presence of gas, not knowing whether the conditions of the gastric contents are such as to cause its formation or not. Or, if our attention is called to vomiting, nine times out of ten we cannot tell positively whether it is due to conditions associated with a dilatation of the stomach or if its origin is a neurosis. In fact, diagnosis by these older methods is scarcely more than a mere matter of guess-work. Our treatment, it must be admitted, has been mainly empirical. That we have dosed our patients with alkalies after meals when they have been suffering from a deficiency of hydrochloric acid, and that we have frequently prescribed hydrochloric acid when the patients' stomachs were being gnawed by the pains resulting from an excess of this acid, are facts which these modern methods disclose.

In fact, the revelations made by the use of these methods, I can well compare to those made by the x-rays in surgery.

But what about these newer methods? I have lately been asked if they really aid one in practical results? If they are of more than mere scientific value? My answer is that they aid one very much in the diagnosis and treatment of gastric disorders; but I must add, that thus far they have not enabled us to diagnose or cure all gastric diseases. These methods are still new, and doubtless we are not yet sufficiently familiar with them to correctly interpret all the results that they disclose. It is also very probable, judging from the present rapid advance in this line, that in the near future other tests will be instituted which will help us to clear up many of the mysteries of gastric affections now existing.

That these methods will prove of such great value that they will be generally employed in the clinics of all of our larger hospitals and dispensaries, I do not hesitate to predict. That they will soon be taught in all of our better medical schools, I firmly believe.

From the large amount of experience necessary to their successful employment, the finer details of these methods will probably never be used by the general practitioner, but I have no doubt he will gather from the mass a sufficient number of valuable tests to enable him to more rationally treat his ordinary gastric cases and to aid him in recognizing those cases beyond his skill.

New works on this subject are constantly appearing, and to them I must refer you for the details and technique of these methods; suffice it for me to show in a small way some of the advantages which may be derived therefrom. I feel that I can best do this by briefly reporting two cases which lately came under my observation on the same day at the Boston Dispensary. How well these cases serve the following purposes I will allow you to decide: (1) They are to show that very similar subjective symptoms may be produced by entirely different gastric conditions; (2) that the employment of these newer methods is absolutely necessary in determining the true conditions of the stomach and its secretions, and in directing proper treatment.

Case I. Oct. 22, 1901. Man, age 40, trader. Has had gastric disturbance past 10 or 12 years; the last two months it has been more severe. The chief symptom is a diffused pain in the epigastrium, sharp in character, occurring $1\frac{1}{2}$ to 3 hours after eating, and continuing until he eats again; as a consequence, of late, he has eaten 5 to 7 meals a day. The pain frequently occurs at night. In the daytime it is so severe that it often prevents him from attending to business. Tenderness in the epigastrium accompanies the pain. The appetite is good; there has been no loss of flesh. The bowels are regular. Slight gaseous eructations usually occur 15 to 20 minutes after eating. Slight nausea precedes attacks of vomiting, which lately have occurred once a week. The sensation of a lump in the stomach is constantly present. Flatulence is considerable. There has never been hematemesis nor colic. He uses neither alcoholic liquors nor coffee, but drinks 2 cups of tea a day and smokes 4 cigars. He believes vegetables disagree with him. The breath is not offensive. The teeth are in good condition except the molars. The tongue is slightly coated. Palpation reveals no tumor and but moderate tenderness in midepigastrium; no succussion sounds elicited. Inflation and percussion gives the greater curvature at $1\frac{3}{4}$ inches above the navel. Resonance in xipho-umbilical line $5\frac{1}{4}$ inches. Stomach lung resonance extends to midaxillary line and up to fifth rib. Fasting contents for 13 hours were 30 cc., one-third of which was food particles; there was considerable

mucus and a few bloody particles. Test meal contents, 45 cc.; free HCl, .4 per M.; total acidity, 30 per C.; lactic acid, none. Lavage with sodii bicarb. was done, and an alkali before meals prescribed. A semiliquid diet was ordered, meals three a day.

Oct. 25. Reports practically no pain since last visit. Fasting contents for 15 hours, 25 cc. They contained no food particles, but considerable mucus and a little blood. Test meal contents, 12 cc.; free HCl, .2 per M.; total acidity, 26 per C. Treatment the same.

Oct. 30. Reports no pain thus far worth mentioning.

Nov. 7. Some days he has very slight pain 4 to 5 hours after eating his noon meal. Test meal contents, 30 cc.; free HCl, .1 per M.; total acidity, 50 per C. Patient considers himself practically cured, and for this reason it is difficult to induce him to continue treatment. A more liberal diet is allowed, observation to be continued.

CASE II. Oct. 22, 1901. Man, age 24, carpenter. Has had stomach trouble past 6 months. During this time he has lost 12 pounds of flesh. The chief symptom is pain in the epigastrium, diffused, dull in character, occurring 2 to 4 hours after eating and lasting until he eats again. The pain at night is not sufficient to awaken him, but in the daytime it frequently prevents him from working. Gaseous eructations are slight, there is no pyrosis. Slight nausea precedes attacks of vomiting, which have occurred several times during the past 6 months. The sensation of a lump in the stomach is constantly present. The appetite is fairly good, but on account of a feeling of fullness in the stomach, at times he does not eat his regular meals. The bowels are moderately constipated. There has never been any flatulence nor colic. No hematemesis. He knows of no particular foods that disagree with him. He drinks 3 or 4 cups of tea a day and one of coffee. Does not use alcoholic liquors nor tobacco. The breath is not offensive, teeth fairly good condition, tongue slightly coated. Palpation gives moderate tenderness in epigastrium, no tumor. Succussion sounds are elicited from the stomach after 12 hours fasting. Inflation and percussion gives the greater curvature at level of navel. Stomach lung resonance extends to midaxillary line and up to sixth rib. Resonance in xiphoumbilical line not recorded. Stomach contents after 12 hours fasting amounted to 130 cc., slightly turbid but without food particles or mucus; free HCl, .7 per M.; total acidity, 42 per C. One hour later test meal contents, 110 cc.; free HCl, 2.4 per M.; total acidity, 84 per C.; lactic acid, none. Lavage with silver nitrate solution, 1 per M., was done and repeated on alternate days. Antacid tablets equivalent to sodii bicarb., 10 gr., 2 to 6 after meals were ordered; also a nitrogenous diet. Cascara sagrada was given for the bowels. After 8 days' treatment the patient was obliged to leave the state. On the day of his departure he reported that he had had no pain of consequence for the past 3 days. With the aid of a stomach tube and a supply of medicines he was to continue treatment as best he could.

The appended tables give the amounts of fasting and test meal contents, also the amounts of free HCl and total acidity for the 6 occasions on which I saw him.

| Date. | Hours Fasting. | Amount. | Free HCl. | Total HCl. | Total Acidity. |
|---|---|---|---|---|---|
| Oct. 22 | 12 | 130 CC. | .7 per M. | — | 42 per C. |
| " 23 | 16 | 160 " | 1.3 " " | 1.9 | 64 " " |
| " 24 | 16 | 205 " | 1.4 " " | — | 60 " " |
| " 26 | 15 | 80 " | 1. " " | — | 58 " " |
| " 28 | 14 | 100 " | 1. " " | — | 54 " " |
| " 29 | 19 | 95 " | 1.4 " " | — | 69 " " |
| Dec. 14 | 12 | 35 " | .2 " " | — | 24 " " |

| Date. | Test Meal Contents. | Free HCl. | Total Acidity. |
|---|---|---|---|
| Oct. 22 | 110 CC. | 2.4 per M. | 84 per C. |
| " 23 | 80 " | 2.3 " " | 64 " " |
| " 24 | 70 " | 2.4 " " | 82 " " |
| " 26 | 30 " | 2.4 " " | 84 " " |
| " 28 | 70 " | 1.9 " " | 74 " " |
| Dec. 14 | 40 " | 1.8 " " | 61 " " |

NOTE.—It will be remembered that normally free HCl is present in about 1.5 to 2. per M. one hour after a test meal, and that the total acidity should be 40 to 60 per C.

Of the marked similarity of the subjective of these two cases I believe there can be no question. I also believe that ordinarily these cases would have received the same diagnosis and treatment. Yet how different are the conditions found to exist.

In Case I we have grossly (1) a low acidity, (2) a large amount of mucus, and (3) a large, but not dilated, stomach.

In Case II the most notable features are (1) a secretion of gastric juice as late as 19 hours after last meal, and with an acidity nearly as high as is usually found one hour after a test meal, (2) an acidity after test meal abnormally high, and (3) a moderately dilated stomach. How else but by these modern methods could these conditions be ascertained? And is not the knowledge of them absolutely necessary to rational treatment?

## Medical Progress.

### RECENT RESEARCH IN PHYSIOLOGICAL CHEMISTRY AND PHARMACOLOGY.

BY M. VEJUX-TYRODE, M.D., BOSTON.

MOST of the following extracts are from articles published during the last six or seven months. Some were published at a slightly earlier period.

K. Hedbom[1] (Upsala, Sweden) performed pharmacological experiments with antiarin, the active principle of antiars. He obtained convulsions in warm-blooded animals and increase in the systolic contraction of the frog's heart. He

[1] Arch. f. Exp. Path. u. Pharm., April, 1901, No. 45. p. 317.

also finds a direct antidotal effect between antiarin and hydrocyanic acid on the heart of frogs.

Nebelthau,[2] in Konigsberg, while working on the influence of fever on diabetes, finds that acute fevers do not produce any change in the sugar metabolism of a dog made artificially diabetic by extirpation of the pancreas. He finds that tubercular infection strengthens the carbohydrate metabolism, that less sugar is excreted by the urine, other conditions being equal.

Harnack,[3] in Halle, quite in opposition to former views, demonstrates that manganese, both in the organic and inorganic forms, is absorbed by the intact intestinal mucosa. Excretion takes place almost wholly through the intestines. The kidneys do not excrete any, or only the slightest traces, thus differing in this respect materially from iron. After subcutaneous injections of permanganates, manganese is absorbed into the circulation and excreted by the intestinal tract and not by the kidneys.

C. Archangelsky[4] (Tomsk, Siberia) anesthetized animals with acetone and chloral. He made quantitative determination of these substances in their different organs and found that the brain contains notably more of these substances than the liver or blood. On account of this unequal distribution of these narcotics, he concludes that narcotics probably form chemical compounds with some portion of nervous tissues. Quite in agreement with former work, he does not find any splitting up of chloral into chloroform in the living organism.

Hans Meyer,[5] at Marburg, in former articles has shown a relationship between the narcotic properties of drugs of the alcohol group and their solubility in oils. He supported the theory that narcosis was the result of a solution of some element of nerve cells having a solubility similar to that of fats. In this recent article he shows that such drugs as alcohol, chloroform and acetone, at different temperatures, vary in toxicity directly with their (Theilung coefficient) affinity for fats.

Ulrici,[6] in Marburg, worked upon the influence of benzoic, gallic, tannic and quinic acid on the excretion of uric acid. He found that benzoic and gallic acids decrease; that quinic and tannic acids do not influence, and that salicylic acid increases the excretion of uric acid. Salicylic acid may increase the excretion of uric acid to the extent of 7%.

Gotlieb and Magnus,[7] in Heidelberg, have worked upon the much discussed question as to how digitalis and other members of this group bring about the rise of blood pressure observed after their administration. Schmiedeberg states that the increase in the force of contraction of the heart was sufficient to account for the observed rise of blood pressure. Brunton and his school, basing their conclusions upon oncometer experiments, maintained that the rise in blood pressure following the administration of digitalis and its allies was due at least in part to contraction of the blood vessels. Gotlieb and Magnus, after having performed both oncometer experiments and experiments in which the rate of blood flow was measured, came to the following conclusions:

(1) Digitalin, strophantin and convallamarin produce a contraction of the blood vessels in the splanchnic area with simultaneous dilatation of the other blood vessel areas.

(2) Digitoxin produces contraction of all the blood vessels.

(3) The rise in blood pressure resulting from the administration of members of the digitalis group results from the increase in the force of the heart's contraction plus a contraction of the vessels of the splanchnic area.

R. Klapp,[8] in Greiswald, tried to find out the influence of various conditions upon the absorption from subcutaneous tissues. The conditions which he studied were bleeding, starvation, passive congestion and elevation of the limb under study. His experiments were conducted upon dogs, and consisted in injecting a known quantity of milk sugar under the skin and thereafter examining the urine for the quantity of sugar excreted, which would vary quite constantly with the amount absorbed. He found that moderate bleeding and moderate starvation increase absorption; that severe bleeding and great starvation decrease absorption. The elevation of the limb in which the injection was given produced a great decrease in absorption. During passive congestion the absorption is decreased, but after its suspension absorption is more active than before.

Weber,[9] in Strassburg, investigated the pharmacology of dimethyl sulphate $\frac{CH_3}{CH_3} > SO_4$ and compared it with that of other fatty esters. This substance produces severe local irritation at the place of application. The violent irritation of the primary air passages forms the chief element of danger while working with this substance. The author points out the fact that this body differs in its action from other similar esters in that it produces convulsions besides the coma and paralysis brought on by the other esters. He also concludes that the action of dimethyl sulphate is not dependent upon the splitting of this body into methyl alcohol and sulphuric acid, but its activity depends upon the action of the molecule as a whole.

N. V. Westewryk,[10] in St. Petersburg, found that the inhalation of carbonic acid in small doses decreases pathologically increased temperature in rabbits. He believes that this action of carbon dioxide may later be used in practical therapeutics.

Bergman,[11] in Marburg, found that phosphoric acid is not excreted by the intestinal wall of dogs even after copious administration of calcium salts, but that it regularly increases the quantity in the urine. In herbivora, such as

[2] Arch. f. Exp. Path. u. Pharm., 1901, Bd. xlvi, H. 5 u. 6.
[3] Loc. cit., 1901, Bd. xlvi.
[4] Loc. cit., 1901, Bd. xlvi, H. 5 u. 6.
[5] Loc. cit., 1901, Bd. xlvi, H. 5 u. 6.
[6] Loc. cit., 1901, Bd. xlvi, H. 5 u. 6.
[7] Loc. cit., 1901, Bd. xlvii, H. 1 u. 2.
[8] Arch. f. Exp. Path. u. Pharm., 1901, Bd. xlvii, H. 1 u. 2.
[9] Loc. cit., 1901, Bd. xlvii, H. 2.
[10] Loc. cit., 1901, Bd. xlvii, H. 1 u. 2.
[11] Loc. cit., 1901, Bd. xlvii, H. 1 u. 2.

sheep, almost all the phosphoric acid is excreted by the intestines. Phosphoric acid in organic combination is excreted as inorganic phosphorus in the urine in dogs and in the feces in sheep.

Otto Löwi,[12] in Marburg, performed experiments to find out the reason for the discrepancy between the results of the administration of phloridzin subcutaneously or by mouth. It was a matter of common experience that the amount of sugar excreted was very much larger when a dose similar to that given by mouth was injected under the skin. Löwi showed that this increase was not due to an increase splitting up of proteids, as the nitrogen excretion was not increased sufficiently to explain the entire increase in sugar excretion. The author found that when phloridzin was administered by mouth, a derivative of phloridzin, which is insoluble and absorbed with difficulty, was formed in the intestines. This compound could be extracted from the feces. It produces marked glycosuria when it is injected under the skin of an animal. He could not increase the glycosuria by increasing the quantity of sugar-forming material unless he simultaneously increased the dose of phloridzin. Changes in body temperature exert no influence upon the size of the phloridzin-glycosuria.

The same author [13] finds that camphor causes a diminution of phloridzin-glycosuria, but quite independent of the glycuronic acid excretion. He concludes that this diminished glycosuria is not due to the production of specific inflammation of the kidneys, as in the case of chromic acid and cantharides poisoning, the latter which also checks phloridzin-glycosuria, because long-continued poisoning by camphor does not proportionately decrease the excretion of sugar in phloridzin diabetes.

The same author [14] drew the following conclusions from another series of metabolism experiments with phloridzin:

(1) A nitrogen moiety of the proteid molecule may be retained, while a carbohydrate portion is excreted as sugar in the urine after phloridzin, or is burnt up in the body under normal conditions.

(2) The amount of nitrogen is decreased by the administration of fat during the phloridzin period, and the ratio between dextrose and nitrogen is increased. This would show that the fats cause a retention of the nitrogen, and not that sugar is formed from the fats, because the total quantity of sugar in the urine is not increased, but even diminished.

Hartogh and Schum,[15] in Hamburg, after somewhat similar experiments, conclude that the sugar under such conditions probably comes from the fats, although they admit the possibility of proteids as a source.

S. Weber,[16] in Marburg, performed metabolism experiments upon sheep, in which he produces fever by the injection of bacteria free filtrate of swine erysipelas. He concludes that during fever an animal loses more nitrogen than is ingested, even if he be given as much proteid and nonnitrogenous food as is necessary to maintain the nitrogen equilibrium and body weight during health. If, however, an increased amount of proteids and nonnitrogenous foods are supplied, not a loss but even a deposit of proteids may take place during fever.

H. Hayashi,[17] in Tokio, tested the chemical reactions of tetanus-toxin prepared according to the method of Brieger and Boer. On account of its chemical reactions he concludes that tetanus toxin is probably not an albumin nor globulin, but a primary albumose.

D. Scherbatscheff,[18] of Moscow, while working in Schmiedeberg's laboratory, compared the toxicity of ethyl bromide ($C_2H_5Br.$) and ethylene bromide ($C_2H_4Br._2$). He was led to this research by the occurrence of fatal cases of poisoning which resulted from the administration of ethylene bromide, accidentally substituted for ethyl bromide. Unlike ethyl bromide, ethelene bromide does not produce narcosis in warm-blooded animals. It produces nausea and vomiting, turbidity of the cornea, and death from collapse usually some hours after its administration. The respirations are hurried and superficial. The blood pressure is greatly diminished. On pathological examination hepatization of the lungs and hyperemia of the other internal organs is found. Death probably results from local irritation of the lungs plus paralysis of the heart. That these symptoms are due to liberated hydrobromic acid cannot be maintained, since the alkalinity of the blood is not diminished.

W. Butkewitsk,[19] in Zurich, described a proteolytic ferment occurring in the plants lupinus and ricinus. This ferment acts weakly in .1% alkali solution or in .2% hydrochloric acid solution, but very energetically in .1% hydrocyanic acid, and even much more powerfully in 1% solution of the same. The products of this digestion were albumose and peptone, the amido acids, leucin and tyrosin and xanthin bases.

A. A. Noyes [20] of the Institute of Technology in Boston does not find the same beneficial action of hydrocyanic acid towards inorganic catalytic agents. He showed that the activity of such catalytic agents as colloidal platinum is arrested by very minute doses of hydrocyanic acids and other strong poisons.

D. Laurow,[21] in Königsberg, showed that antipyrin is excreted in good part as oxyantipyrin-glycuronate by the urine. In short, antipyrin first undergoes oxidation in the body, then combines with glycuronic acid, as do a large number of other bodies, such as camphor and phénols.

Laborde,[22] in Paris, finds a decrease in the excretion of phosphorus in tuberculous guinea pigs during the administration of lecithin. He also

[12] Arch. f. Exp. Path. u. Pharm., 1901, Bd. xlvii, H. 1 u. 2.
[13] Loc. cit., Bd. xlvii.
[14] Loc. cit., Bd. xlvii.
[15] Loc. cit., 1901, Bd. xlv, p. 11.
[16] Loc. cit., Bd. xlvii.
[17] Arch. f. Exp. Path. u. Pharm., 1901, Bd. xlvii, H. 1 u. 2.
[18] Loc. cit., 1901, Bd. xlvii, H. 1 u. 2.
[19] Zeitschr. f. Physiol. Chem., Bd. xxxii.
[20] Report of American Chemical Society, 1901.
[21] Zeitschr. f. Physiol. Chem., Bd. xxxii, S. III, p. 120.
[22] Comptes Rendu de l'Acad. des Science, 1901.

states that lecithin produces amelioration in the tuberculosis of human subjects.

D. Kurajeff [23] of St. Petersburg isolated a protamin from the spermatozoa of accipensei stellatus which differs slightly in composition from that obtained from the spermatozoa of the salmon and sturgeon.

M. Krüger and J. Schmidt,[24] in Breslau, agree with Albanese that caffein and theobromin increase the quantity of some of the purin bases in the urine after their administration. They find no increase in uric acid, but find that at least 47% of the theobromin administered reappears as xanthin or purin bases in the urine.

Ivar Bang,[25] in Upsala, found that guanylic acid decreases the coagubility of the blood even after the injection of small doses. Guanylic acid produces restlessness, hurried respiration, and finally narcosis with almost no response to external stimuli. The urine contains .78% sugar, but no acetone nor oxybutyric acid. The blood pressure is decreased almost 100%. Nucleo proteids produce symptoms much resembling those just described.

Jacque Loeb,[26] in Chicago, studied the influences affecting artificial parthenogenesis of sea-urchin's eggs. He believes that the development of the ovum can be brought about without impregnation by spermatozoa if it be placed in a solution containing a certain definite quantity of the ions of some of the alkali metals and earths. The author thinks that the salts in the body act in their dissociated condition and therefore the action varies with the active ions.

P. A. Levene,[27] in New York, analyzed the nucleic acid in tubercle bacilli cultivated under different conditions. He found considerable variation in its composition and in the quantity found in different tubercle bacteria.

Otto Cohnhein [28] found that the products of digestion, albumoses and peptons are not, as was formerly thought, converted back to native albumin, but are converted into crystalline substances. He believes that this change is brought about through the action of a ferment which he calls erypsin.

Koranyi [29] recently examined the urine and blood with a view of determining its molecular concentration under different conditions of health and disease. This was done first by Rossman some 20 years ago. The method used is the common method used to determine molecular weight of substances according to the lowering of their freezing point. He advocated that this method could be used clinically to determine the functional activity of a kidney. The freezing point method does not give us exactly the same data as the specific gravity. The reason is that the freezing point is effected by the number of molecules regardless of the nature of the substance, while the specific gravity is very differently affected by the same quantity of different substances.

Kiss [30] disputes many of Koranyi's assumptions, which are, however, refuted by the latter.

Kummel, after having tried this method clinically, attaches a certain value to it for determining the efficiency of a kidney before removing the other.

Bier's [31] cocainization of the spinal cord has been extensively tried in Europe during the past year. Some advocate its use, others discourage it. All authors who have used this method report severe untoward effect occurring in many cases. These consist in nausea, vomiting, delirium, hallucinations and collapse.

The mortality from cocainization of the cord certainly does not compare favorably with etherization. Besides the danger from the cocain this method possesses the objection of leaving the patient completely conscious during an operation. This certainly adds greatly to the shock of the operation.

[23] Zeitschr. f. Physiol Chem. Strassb., 1901. xxxii, 197-200.
[24] Zeitschr. f. Physiol Chem., Bd. xxxii, p. 104-110.
[25] Zeitschr. f Physiol. Chem., Bd. xlii.
[26] American Journal Physiology, 1901.
[27] Proceedings American Physiological Society, December, 1900.
[28] Zeitschr. f. Physiol. Chem., Bd. xxxiii
[29] Zeitschr. f. klin. Med. Bd. xxxiii; Ibid., Berl. klin. Woch., 1901, Bd. xlviii.
[30] Berl. klin. Woch., Bd. xlvii.
[31] Centrbl. f. d. Med. Wissensch. No. 49; Arch. f. klin Chir., Bd. lxiv; Centrbl. f. d. Grenzgeb d. Med. u. Chir., Bd. iv; Centrbl. f. d. Grenzgeb. d. Med. u. Chir., Bd. iv. No. 13, p. 556 Faisans; Centrbl. f. Chir., 1901, No. 45, p. 1083, Tedeprade, A.; Centrbl. f. Grenzgeb. d. Med. u. Chir., Bd. iv, No. 19, p. 751 Tuffier; Centrbl. f. d. Grenzgeb. d. Med. u. Chir., Bd. iv, No. 19, p. 752 (Tuffier) Th.

## Reports of Societies.

### MEDICAL SOCIETY OF THE STATE OF NEW YORK.

Ninety-Sixth Annual Meeting held in Albany, N. Y., Jan. 28, 29 and 30, 1902, Henry L. Elsner, M.D., of Syracuse, President.

(Concluded from No. 7, p. 177.)

FIRST DAY.

THE CIVILIZED INDIAN: HIS PHYSICAL CHARACTERISTICS AND SOME OF HIS DISEASES.

Dr. A. D. Lake of Gowanda presented in this paper the results of observation of the Iroquois Indians, about 1,800 of whom occupy the Cattaraugus reservation. He first described their perfect physique when in the savage state, and sharply contrasted it with their present sensitiveness to changes of temperature, their inability to do hard labor and their liability to disease. Many of them do not reach the age of puberty, particularly the women, and all are very susceptible to tuberculosis. Pneumonia is very fatal among them, and if they weather the attack they are prone to succumb later to tuberculosis. A very interesting observation was regarding their present apparent immunity to syphilis, though there were abundant opportunities for the spread of venereal infection, and there were evidences of the former ravages of syphilis. Another way in which civilization had left its mark on the health of these Indians was in the increase of the diseases peculiar to women.

SYMPOSIUM ON PARESIS; ETIOLOGY.

DR. ARTHUR W. HURD of Buffalo opened the symposium with a paper on the etiology. He carefully analyzed statistics from various sources, and showed that syphilis was ten times more frequent in paresis than in other forms of insanity, and that in places and among persons in whom syphilis is rare paresis is also rare. It was probable that the increased mental strain of modern life explained the fact that paresis was on the increase. Traumatism and mental strain were, perhaps, in a small percentage of cases, the chief etiological factors.

EARLY DIAGNOSIS.

DR. FRANCIS X. DERCUM of Philadelphia read this paper. He pointed out the distinguishing signs and symptoms between paresis in the neurasthenoid stage and neurasthenia. He said that the symptoms of the neurasthenic were almost wholly subjective, the patient delighted in recounting them, and was prompt to seek medical advice. The paretic, on the other hand, rarely came to the physician of his own accord, but was brought by his relatives or friends, and then he allowed them to describe his symptoms and supposed variations from the normal. Moreover, the neurasthenic was usually worse in the morning, and best at the close of the day, while the paretic often became somnolent toward night, and exhibited then peculiarities of speech, mentality and conduct which were not noticeable in the morning. The most characteristic objective symptom in the paretic was his manner, as shown by very slight changes in expression and gesture, indicative of his not being in close touch with his surroundings.

COMPARATIVE FREQUENCY.

DR. CHARLES G. WAGNER of Binghamton took up this part of the subject. He said that while paresis had been recognized about 80 years, according to Dr. Bell, of the McLean Asylum, he had not observed it in this country before 1840, though familiar with it abroad. During the last half of the nineteenth century 18,843 insane persons had been admitted to the Utica State Hospital, of whom 865, or 4.5%, were cases of paresis. Of the 49,787 persons in all of the State hospitals, 3,307, or 6.6%, were paretics. According to the records of the Manhattan State Hospital the average duration of the disease was a little less than 16 months. In the same hospital there was a great preponderance of native Americans affected with paresis, though more than two-thirds of the inmates were of foreign birth. It was fair to assume that paresis constitutes nearly 9 % of all cases of insanity, and that it occurs chiefly between the ages of 20 and 60.

TREATMENT OF PARESIS; ITS LIMITATIONS AND EXPECTATIONS.

DR. EDWARD COWLES of Boston, Mass., presented the closing paper. He said that the limitations of treatment must be evident from the fact that we have no rational basis for our therapeutic efforts. Tonics and hydrotherapy were useful; the diet should be generous and alcohol should be interdicted. According to the modern conception, paresis was probably a grave nutritional disorder of the nature of a toxemia.

SECOND DAY.

THE PRIZE ESSAY.

The committee on prize essay awarded the prize to DR. LUCIEN HOWE of Buffalo, the author of the essay entitled "A Study of the Connective Tissue of the Orbit by a New Method."

RINGWORM; A NOTE ON ITS TREATMENT.

DR. GEORGE THOMAS JACKSON of New York presented this very brief paper. He said that sulphur, iodine, salicylic acid or mercury, in ointment or alone, would readily cure ringworm of the nonhairy parts of the body. Cases of ringworm of the scalp were, however, by no means so amenable to treatment, and ringworm of the beard, though somewhat better in this respect, often resisted the most approved methods of treatment for 6 months or more. An ointment of 1 dr. of crystalline iodine to 1 oz. of goose grease he had found a most effective remedy for ringworm. It sould be applied twice a day until there is a little swelling of the patches, and then once a day until cured. The first applications were apt to be slightly painful for a few minutes. No epilation was necessary. It was important that care be taken to obtain the genuine goose grease. It might occasionally be necessary to make use, instead, of an ointment composed of ½ dr. of croton oil to 1 oz. of sulphur ointment.

DR. H. C. BAUM of Syracuse said that he had heard of this treatment for ringworm, and from an experience with it extending over several years he could confirm what had been said in the paper concerning its efficiency.

A CASE OF EPILEPSY WITH POSSIBLE MEDICO-LEGAL COMPLICATIONS.

DR. FREDERICK SEFTON of Auburn reported this case. The patient had developed after having been very roughly handled by a lot of college boys, who were initiating him into a secret society. After the ceremony he was taken to his home unconscious, but he was soon apparently himself again, and nothing wrong was noticed for some months. He then became irritable and morose, and suddenly one evening shot at his sister. He was followed for some distance and was found in collapse. That night's doings ever remained a blank in his memory. He finally became a ship's purser, and has since continued to fill this position and has not had any more convulsions. The case was reported to show how easy it would have been, in the event of his having killed his sister, for testimony to be secured regarding his responsibility for his acts. This could hardly occur under a different mode

of procedure by which medical expert testimony partook less of an *ex parte* character.

Dr. William Browning of Brooklyn said that when fright was the real cause of epilepsy the disease almost invariably made itself known within a few hours or days; moreover, in these cases of psychic epilepsy the patient would rarely do violence to others except when interfered with.

THE CHANGES OF THE LEUCOCYTES IN DISEASE AS AN AID TO DIAGNOSIS AND PROGNOSIS.

Dr. Thomas R. Brown of Baltimore presented this paper. He said that as a physiological leucocytosis occurred during digestion, the leucocyte count should never be made on blood obtained during digestion, but when the person was fasting. Leucocytosis in typhoid pointed to some complication, quite probably a perforation. A high percentage of myelocites in diphtheria was considered by some authorities as a very bad sign. The absence of leucocytosis in an uncomplicated tuberculosis served to differentiate it from certain other diseases, while its presence indicated a secondary infection. It was known now that a marked leucocytosis was sometimes present after the ingestion of large doses of the coal-tar products, and there was some reason for believing that by this method it might be possible in the future to detect the presence of secret drug habits. In no other surgical disease was the leucocyte count probably of so much aid to the surgeon as in appendicitis, and it might be the only means, in some cases, of diagnosticating the fulminating form.

AN UNUSUAL CASE OF ABSCESS OF THE LIVER.

Dr. Edgar A. Vanderveer of Albany reported this case. The patient was a soldier who had contracted dysentery in the Philippines, at a time when others in his command were sick in the same way. He stated that one-fourth of these men developed abscess of the liver. The patient continued to be troubled with dysentery, and long after the first attack found his way to the Albany County Hospital. There abscess of the liver was suspected from the fever and the physical signs, and puncture brought away 3½ pints of a chocolate-colored pus. The rib was resected and 1,000 cc. more of this pus was evacuated. No distinct micro-organisms could be found in this pus. The man improved after the operation was performed, but subsequently had a very severe attack of dysentery.

GUNSHOT WOUNDS OF THE LIVER WITH REPORT OF A CASE.

Dr. E. W. Mulligan of Rochester reported the case of a young Italian man who shot himself in the liver, the revolver being held almost in contact with the abdomen. He was operated upon 6½ hours later, and the wound of entrance found to be clean. The wound of exit, however, was large, ragged and was bleeding freely. The hemorrhage was checked by packing in a large quantity of gauze. The patient was out of the hospital in about a month.

COMPLETE HERNIA OF THE BLADDER.

Dr. John B. Harvie of Troy reported a case of complete hernia of the bladder, complicating a strangulated hernia for which resection of the bowel was required.

Dr. R. H. M. Dawbarn of New York was disposed to be skeptical regarding the entire bladder having become prolapsed, not only because of the comparative immobility of the prostatic portion, but because in a somewhat similar case, occurring in his hospital service, he had at first supposed that the whole organ was prolapsed, because of the size of the sac, but by rectal examination and careful exploration it was found that what was thought to be the bladder was a large diverticulum.

PRESIDENT'S ADDRESS: THE VALUE TO THE PHYSICIAN OF MODERN METHODS OF DIAGNOSIS.

Dr. Henry L. Elsner of Syracuse delivered this address.

A NEW SYMPTOM IN THE DIAGNOSIS OF DYSTOCIA DUE TO A SHORT CORD.

Dr. Samuel M. Brickner of New York was the author of this paper. He reported two cases in which the new symptom was present, that is, urination at the close of each pain during the second stage. The rationale was that as the head recedes markedly, and with a jerk, with the cessation of each pain, the pressure which is usually continuous on the urethra and bladder during the second stage, is relaxed, and consequently the urine is free to escape. Ten inches was the shortest umbilical cord that would ordinarily allow of delivery without some complication, such as rupture of the cord. It should be noted that there was not a desire to pass urine, but simply that the urine escaped by reflex action.

SYMPOSIUM ON DISEASES OF THE PANCREAS: PHYSIOLOGY.

Prof. R. H. Chittenden of New Haven, Conn., opened the symposium with a paper on the physiology of pancreatic diseases. He said that the secretion of the pancreatic juice was undoubtedly controlled by true secretory fibres, and that the latter were contained in both the vagus and the sympathetic. Experiments on pancreatic diabetes indicated that certain specialized cells in the pancreas probably elaborated an internal secretion, which exerted an influence on the metabolism of the body. The blood of an animal from whom the pancreas had been removed did not exhibit any toxicity, and did not cause diabetes if injected into another animal. There was reason to believe that some forms of so-called pancreatic diabetes were the result of a physiological disturbance of the interrelation of several allied glands or structures. In common with physiological chemists generally, Professor Chittenden was disposed to look with favor upon the auto-intoxication theory of diabetes.

DIAGNOSIS OF DISEASES OF THE PANCREAS.

DR. W. S. THAYER of Baltimore took up this part of the subject. He said that acute pancreatitis was apt to occur in corpulent persons in middle life. It was ushered in with agonizing epigastric pain and rigidity and tenderness of the abdomen, accelerated pulse; sometimes by cyanosis, and by rapidly increasing prostration. Collapse and death often occurred in four or five days. Sometimes the early symptoms were similar to those of gallstone colic. There might be an increase of fat in the stools, while interference with the digestion of albuminoids was suggestive of pancreatic disease. It had been asserted that the presence of a fat-splitting ferment could be detected in the urine. If this sign should prove of practical utility it would certainly be a valuable addition to our means of diagnosing pancreatitis. The largest tumors of the pancreas were proliferating glandular cystomata. The smaller retention cysts were not sufficiently large to be detected by palpation. Cysts of the pancreas were to be differentiated from cysts of the kidney, hydatid cysts of the liver and spleen, retroperitoneal sarcomata, and large abdominal aneurisms. Malignant disease of the pancreas was usually secondary, and the growth was rarely large enough to allow of detection by palpation.

SURGERY OF THE PANCREAS.

DR. ROSWELL PARK of Buffalo said that the usual routes for reaching the pancreas were: (1) Through the gastrohepatic omentum above the stomach; (2) through the gastrocolic omentum below the stomach; (3) from the loin behind the peritoneum, and (4) through the liver by the use of the thermocautery. In acute traumatisms the indications were to stop the bleeding, prevent the escape of the juice, disinfect the cavity and repair the injury. The pancreas was ordinarily attacked in front through the gastrocolic omentum, and in most cases posterior drainage would be required. There was some mysterious connection between pancreatic disease and hemorrhage, and the tendency to bleeding was enhanced by coexistence of jaundice. The treatment of acute pancreatitis was practically that of peritonitis of the upper abdominal cavity, and consisted, for the most part, in the prompt establishment of free drainage. If the pancreas were necrotic, the necrosed portion should be removed. It was most important in cases of pancreatic disease requiring surgical intervention to operate early.

PATHOLOGY.

DR. GEORGE BLUMER of Albany said that it was now known that, in many cases of diabetes, the pancreas appeared normal except for a hyaline degeneration of the islands of Langerhans. Pancreatitis had been produced experimentally by the introduction of irritants into the duct. Attempts to produce fat necrosis by means of bacteria or their products had almost invariably been unsuccessful, and it was now believed that the true cause of fat necrosis was the presence of the fat-splitting ferment, steapsin. Any pancreatic lesion which allowed of the escape of this ferment might cause fat necrosis.

CLINICAL INDICATIONS FOR SURGICAL INTERFERENCE IN ACUTE PANCREATITIS.

DR. JOSEPH C. BLOODGOOD of Baltimore read this paper. He said that most authorities agreed that in the first stage, before abscess formation, operative interference was contra-indicated. The occurrence of abscess should be recognized early, if possible, and operation at once undertaken, for the number of successes was proportional to the promptness with which incision and drainage were resorted to. Unfortunately the symptoms were neither urgent nor characteristic, and operation had often been done under the belief that the case was one of intestinal obstruction. The author had collected and studied 96 cases of acute pancreatitis, and concluded that it was possible for recovery from acute pancreatitis to take place without operation. In 23 out of 39 cases of pancreatic abscess the symptoms had been acute, and had been those of ordinary acute pancreatitis. Six out of 24 operative cases recovered, while in 21 cases of acute hemorrhagic pancreatitis death occurred without operation.

THE TRAUMATISMS OF PREGNANCY.

DR. DENSLOW LEWIS of Chicago presented in this paper an account of some wonderful injuries to pregnant women as well as some remarkable recoveries from the same. In one case a wooden spit, 12 inches long, had remained in the uterus for 2 years; in others, glass rods, laminaria tents and various other foreign bodies had found their way into the abdominal cavity in connection with attempts to induce abortion. One woman thrust a knitting needle and another a hairpin through the navel in a desperate effort to bring on an abortion. Both mothers recovered. Cases were described in which women had inflicted terrible injuries upon themselves in an effort to perform upon themselves a Cesarean section.

TENDON TRANSPLANTATION IN THE TREATMENT OF PARALYTIC DEFORMITIES.

DR. ARTHUR W. ELTING of Albany presented in this paper a résumé of the work already done in this comparatively new field. He said that tendon transplantation was specially adapted to the following conditions: (1) Traumatic loss of muscles and tendons; (2) spinal, infantile paralysis; (3) spastic paralysis, Little's disease and hemiplegia, and (4) congenital deformities, especially club foot. Of course this operation should not be attempted so long as there was evidence of spontaneous improvement. The simplest method of transplantation was done by dividing the tendon of a healthy muscle and suturing to the tendon of the paralyzed muscle, preferably by the method of suture described by Dr. Goldthwait.

PNEUMOGALACTOCELE OF THE BREAST WITH AN UNIDENTIFIED ORGANISM.

DR. J. MILTON MABBOTT of New York reported this case, occurring in a primipara, into whose breasts a saline infusion had been made immediately after delivery because of a sudden collapse under chloroform. A suppurative mastitis developed on the left side and was treated by incision. At the end of the third week the right breast was found to be the seat of a tumor, measuring 4 by 2 inches, containing gas and a milky fluid. The gas was withdrawn for examination, but the quantity was not sufficient for an analysis. The gas did not reaccumulate, though according to all who saw the case this gas had originally been generated within the tumor. The creamy fluid contents were examined bacteriologically, and by animal inoculations, so long as the material was available. A micro-organism was discovered, and while it could not be identified it was apparently unimportant and nonpathogenic. The galactocele was quickly cured by incision, irrigation and packing.

A SIMPLE METHOD FOR DETERMINING THE PERCENTAGE OF MILK IN HOME MODIFICATIONS.

DR. ROWLAND G. FREEMAN of New York described in this paper a method which, without algebraic formulæ, would enable the physician to readily calculate the desired modifications of milk. Before making any calculations, one should decide upon the formula to be used, and then note the number of feedings, the quantity for each feeding, and the proportion between the fats and proteids. Having done this, a cream should be chosen having this same proportion, in order to facilitate the calculation. Ordinary gravity cream contained roughly 16% of fat. Two parts of gravity cream and one part of milk, containing 4% of fat, yield a cream containing 12% of fat. Taking, for example, the formula: Fat 3, sugar 6, proteids 1, the proportion between the proteids and fats is seen to be 1 to 3, and therefore a 12% cream is used, and the required quantity of water added. Dr. Freeman does away with the usual standard solution of sugar, and instead calculates the quantity of sugar needed for the 24 hours' supply, and orders this quantity put up in packages by the druggist.

PUERPERAL HEMORRHAGE.

DR. GEORGE SEYMOUR of Utica discussed in this paper both ante-partum and post-partum hemorrhage. Among the causes of the former were mentioned excessive sexual intercourse, criminal or accidental abortions, ectopic pregnancy, hematomata, and placenta previa. Speaking of the treatment of placenta previa, Dr. Seymour said that as the child was commonly lost in these cases by the performance of podalic version, it had been recently advised to treat placenta previa by Cæsarean section. He thought this an admirable suggestion if it could be shown that it was as safe for the mother as podalic version, for then there would be a good chance of saving the child also.

THIRD DAY.

A UNIQUE CASE OF DOUBLE DACRYO-ADENITIS.

DR. D. H. WIESNER of New York reported this case. Although the usual treatment advised was hot fomentations, the author made use of continuous applications of ice cloths, and the case made a prompt recovery without suppuration of the glands.

THE TREATMENT OF PNEUMONIA.

DR. REYNOLD W. WILCOX of New York presented a brief paper on the antiseptic treatment of pneumonia. He said that many seemed to lose sight of the fact that, while salicylic acid is an antiseptic, the salicylates are not. His own belief was that we now possessed in the creosote treatment, or some allied method, a means of effectually combating the toxemia, and of reducing the mortality from pneumonia in private practice to only 3 or 4%.

OBESITY OF ADOLESCENCE.

DR. HEINRICH STERN of New York read this paper. He divided this form of obesity into two varieties, one disappearing at the approach of maturity—the transitory or specific variety—and the other continuing after the person had reached full development—the metabolic form. The metabolic was more frequent in boys and the transitory in girls. The transitory obesity of adolescence was caused by certain anomalies occurring at puberty only, as well as at the menopause or after castration in both sexes. The catabolic disorders were caused by faulty thyroid or parathyroid activity. Neither form of juvenile obesity should be treated unless decidedly excessive or associated with complications. In the advanced cases of metabolic obesity the treatment should be mainly dietetic. Thyroid medication and physical culture were capable of doing much good in the transitory obesity of adolescence.

OBSERVATIONS ON BROKEN NECKS.

DR. REGINALD H. SAYRE of New York presented a communication on this subject, illustrated by a series of photographs from cases of fracture of the cervical vertebræ. Attention was directed to the fact that when the fracture involves the three upper vertebræ the head is often held in the position of torticollis. In some cases there was an abnormal straightness of the back of the neck. Referring to the treatment, Dr. Sayre said that he had found it necessary to make use of supporting dressings or apparatus for a much longer time than was generally supposed to be necessary. The retentive dressing which he preferred was made of plaster-of-Paris, and at first combined a helmet with a jacket.

NOMINATIONS TO THE STATE BOARD OF MEDICAL EXAMINERS.

Dr. A. Walter Suiter of Herkimer and Dr. George R. Fowler of Brooklyn were nominated to the vacancies for the current year, with Dr. James Spencer of Watertown and Dr. Henry A. Fairbairn of Brooklyn as alternates.

OFFICERS ELECTED.

President, Dr. Henry R. Hopkins of Buffalo; Vice-President, Dr. William A. Moore of Binghamton; Secretary, Dr. F. C. Curtis of Albany; Treasurer, Dr. O. D. Ball of Albany.

## Recent Literature.

*Surgical Experiences in South Africa, 1899-1900.* Being Mainly a Clinical Study of the Nature and Effects of Injuries Produced by Bullets of Small Calibre. By GEORGE HENRY MAKINS, F.R.C.S. Octavo; 493 pages, 25 plates and 96 other illustrations. Philadelphia: P. Blakiston's Son & Co. 1901.

This book is another contribution to our rapidly increasing knowledge of the effects of modern small calibre rifles, and for which recent warfare in Cuba, China and South Africa have furnished long-sought opportunities.

The writer, during his nine months of active service on the fighting line in "Field," "Stationary" and "Base" hospitals in Cape Colony, Natal, Orange Free State and the Transvaal, has indeed had military experience which should enable him to write intelligently on this subject. He has written a valuable and at the same time interesting book.

The introductory chapter contains a résumé of his service; when and how his time was spent; a description of his outfit, the physical conditions under which he worked as regards climate, water supply, etc.; means of transportation, ambulance service and hospitals.

Next are described modern military rifles and their projectiles. Then the character of the resulting wounds is discussed, also results in general. Following this, special injuries are considered in the following order: Blood vessels; bones of the limbs; joints; head and neck, vertebral column and spinal cord; peripheral nerves; chest; abdomen, including the external genitals and urethra. The concluding chapter deals with the character and effect of shell wounds.

The arrangement adopted has been to describe the special injury under consideration; state its manner of production, its special characteristics, the process of repair and clinical symptoms, the complications and sequelæ, prognosis and treatment. These descriptions are made more striking and graphic by the citation of actual cases and the abundant well-chosen illustrations. These illustrative cases are often quite instructive, while the plates and cuts corroborate very effectively the statements of the writer.

The success in the abdominal surgery of civil practice has led military surgeons to hope for equal results. The observations and conclusions of Mr. Makins are important contributions to this subject and attract especial attention.

The book is concisely written. It is a summary of the latest experiences in military surgery written by a careful observer from data acquired by actual experience. It is not a compilation of the observations of others. It apparantly presents facts, not theories. By those interested in military surgery it will be read with attention. A comparison of it with Stevenson's[1] "Wounds in War" (Edit. 1898), written before the recent campaigns, and necessarily more or less theoretical (since its data were collected mainly from experimental work with small calibre arms), shows how preconceived ideas correspond with actual experience, and is an interesting as well as very instructive task.

*A Textbook of Obstetrics.* By BARTON COOK HIRST, M.D., Professor of Obstetrics in the University of Pennsylvania. Third edition, revised and enlarged. Royal octavo; 873 pages, with 704 illustrations, many of them in colors. Philadelphia and London: W. B. Saunders & Co. 1901.

The appearance of the third edition of Hirst's textbook shows the popularity which it has enjoyed since its first appearance in 1898. It has probably been the most widely read and best selling book on obstetrics published in America in recent years. The book has not been materially changed from its original form, but it has been somewhat improved by the insertion of new matter and by over fifty new illustrations without largely increasing the size of the volume. It is interesting to note the author's position with respect to certain forms of obstetric treatment which have been under discussion more or less during the last few years. For example: The author says it is a moot question whether a torn cervix should always be immediately repaired, but his opinion is that in general practice the attempt had better not be made.

With respect to the prevention of puerperal sepsis, limitation of the number of vaginal examinations is advised, but nothing is said about the use of rubber gloves, a custom fast gaining adherents, and one which we hope to see universally adopted. Nothing is said with respect to the advisability of ante- and post-partum douches in labor.

The author still advises the use of five per cent carbolized vaseline as a lubricant for the examining hand. He lays due stress upon the practice of abdominal palpation in the conduct of labor, and at the same time he advises the avoidance of frequent vaginal examinations, emphasizing the

[1] Surgeon-Colonel British Army Medical Staff; Professor Military Surgery, Army Medical School, Netley.

fact that but two or three examinations need be made during the whole course of labor. He would curette and disinfect the uterus thoroughly in all puerperal sepsis. He has abandoned the use of antistreptococcus serum. He says there cannot be any doubt as to the necessity of hysterectomy in some cases of septicemia.

Nothing is said in relation to the treatment of placenta previa by Cæsarean section; possibly the author does not consider this proposition worthy of serious consideration. With respect to Cæsarean section, he says the most favorable time of its performance is about two weeks before term. There would seem to be no good reason for thus anticipating the time for delivery, and we believe it has been fully demonstrated that section at term is perfectly feasible and satisfactory and that the extra two weeks in utero is a valuable aid to the child.

Aside from a few minor points of criticism, such as the above, we heartily commend the book as one of the best on obstetrics in the English language.

*Electricity in Medicine and Surgery, including the X-ray.* By William Harvey King, M.D., with a section on Electrophysiology, by W. Y. Cowl, M.D., and a section on the Bottini Operation by Albert Freudenberg, M.D. Pp. 501, with 8 plates and 118 illustrations; 8vo. New York: Boericke & Runyon Co. 1901.

Within the last few years the use of electrical currents for the diagnosis and treatment of disease has become so varied that the older treatises, based almost wholly upon the uses of electricity in diseases of the nervous system, have become quite inadequate. The Röntgen ray, the galvanocautery and the electric light have already established themselves as necessities in the armamentarium of the surgeon, the specialist and even the general practitioner. The modern textbook on electricity and electrotherapeutics must, therefore, deal with all the various applications of the electric current, which is the aim of the present volume. The opening chapter on electrophysics is somewhat unequal in merit. The account of static electricity is clear and concise, but the discussion of the galvanic and faradic currents is less satisfactory. The section on therapeutics is quite complete, although somewhat optimistic. The dosage in applications of galvanism to the spine, as given by the writer, seems larger than the average patient can stand. In many cases he advises currents of 20 to 25 milliamperes with large electrodes. His measurements must be made with an inaccurate galvanometer, for few patients can endure over 10 milliamperes, and many even less. The work is marred by many typographical errors.

*The Diagnosis of Nervous and Mental Diseases.* By Howell T. Pershing, M.Sc., M.D. Pp. 223, with 29 illustrations; 8vo. Philadelphia: P. Blakiston's Son & Co. 1901.

In this little manual the writer has tried to condense the whole scheme of examination into the first 60 pages, and has met with fair success in his aim. The examination of the motor functions might have been expanded to advantage, and the paragraphs on the examination of the mental function are quite inadequate. It is to be regretted that the writer holds so strongly to the old distinction between organic and functional disease as of fundamental importance, and dwells at such length upon the importance of the symptoms which differentiate them. Over 100 pages are taken up by diagnostic tables, which the beginner will find useful. Insufficient weight is laid upon disturbances of sensation in them. The final section on the diagnosis of mental disturbances is less satisfactory, especially as the writer has followed an obsolete classification of mental diseases. Nevertheless, the book will prove of service to the student.

*A Manual of the Practice of Medicine.* By George Roe Lockwood, M.D., Professor of Practice in the Woman's Medical College of the New York Infirmary. Second edition, revised and enlarged. Octavo volume of 847 pages, with 79 illustrations and 20 full-page plates. Philadelphia and London: W. B. Saunders & Co. 1901.

This work presents the essential facts and principles of the practice of medicine in a concise and available form. The book has been subjected to a thorough revision. Many portions have been rewritten and a number of new subjects have been introduced. Among the new sections may be mentioned Bubonic Plague, Gastroptosis, Gastric Analysis and Reichmann's Disease. The subject of Malaria has been entirely rewritten. The section on Diseases of the Digestive System has also been largely rewritten.

This book is admittedly based on Osler's classification of disease, as presented in his "Practice of Medicine." This detracts in a measure from the originality of the work as a whole, which may, however, be regarded as a merit rather than a defect. The descriptions of disease are succinct and at times too brief to be of value. This is particularly true of the section on Diseases of the Nervous System. In this section also it would aid the student if the special diseases were prefaced by a general introduction on the elements of neurological diagnosis and modern theories. Without this, much of what follows will remain an enigma to the average student and so-called general practitioner. The book is admirably printed, profusely and exceedingly well illustrated, but in its published form is as bulky a volume as many of its more comprehensive companions.

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The Philadelphia Board of Health has decided to supply milk dealers, who serve milk to houses in which smallpox exists, with quart and pint tin cans, distinguished by a yellow ring. The quarantine officer at each house will receive the can from the milkman, and empty its contents into a pitcher belonging to the quarantined family.—*Medical Record.*

THE BOSTON
# Medical and Surgical Journal.

THURSDAY, FEBRUARY 20, 1902

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283 WASHINGTON STREET, BOSTON, MASS

## THE CONTROL OF VENEREAL DISEASE.

As described in detail in our issue of last week New York City is making a determined effort to meet the problem of venereal disease and prostitution in a practical way. The so-called Committee of Fifteen, appointed for that purpose, has recently put into book form the results of its laborious investigations on the extent and results of venereal disease. The title of this volume is: "The Social Evil, with Special Reference to the Conditions Existing in the City of New York." It deals with the facts in a perfectly candid and unsentimental manner, and makes many suggestions which appeal to the practical man, as capable of establishing at least the beginnings of reform. So far as we know there has never been a time in America when the unpleasant facts of prostitution have been so freely and openly discussed as just now in New York. Under the thinly veiled pseudonym of the "Social Evil," venereal disease and the consequences to which it inevitably leads have been made the subject of campaign speeches and newspaper articles to a degree calculated to bring home to the most indifferent certain definite phases of vice. The awakening of the popular conscience has undoubtedly had a most salutary effect, and we may look upon this recently published book, to which allusion has been made above, as the expression of this public opinion. The committee which has had the matter primarily in charge has apparently not fallen into the error of framing an impossible scheme of reform. It frankly admits the evil, and the necessity under existing conditions for its continuance in some form; the plan outlined, therefore, is not so much directed against the present existence of prostitution, as against the conditions which have rendered it inviting and inevitable.

State or municipal regulation of prostitution is regarded as an inadequate remedy even for the physical aspects of the evil. Chief reliance, the report thinks, is to be placed upon a definite policy, which is immediately capable of practical demonstration. It is suggested that overcrowding of tenement houses be prevented; that more elevated amusements be offered the poorer classes; that the material conditions of wage-earners, especially young women, be improved, and that hospital facilities for the treatment of venereal disease be increased. Segregation is not advised, for obvious and apparently sufficient reasons. An important recommendation provides that prostitution shall no longer be regarded as a crime.

All of these suggestions commend themselves to the unprejudiced observer and student of social conditions, particularly because they seem immediately feasible and calculated to lessen a growing vice. We are, however, inclined to agree with our contemporary, *American Medicine*, when it says that these measures are at best but "Reform by Rosewater." What, after all, is most needed, is to grapple with syphilis and gonorrhea themselves, as diseases which demand expert study and prevention by the means used in other branches of medical practice. Why not pass laws, it is suggested, similar to those in force for other infectious diseases, which are a far slighter menace to the public health. According to this view venereal disease should be reported to the properly constituted medical board, with the same punctiliousness that smallpox or diphtheria are reported, and the victims of the disease watched with the same scrupulous care. Some such plan as this, with the lock-hospital which should be its accompaniment, must go hand in hand with the educational reforms, upon which the New York Committee lays special stress. The problem is proverbially a difficult one, probably the most difficult of all which concern medicine in its relation to society, but just on this account it must be handled with vigor, both on its medical and social side. New York's experience, whatever it may prove to be, should serve as a useful lesson to our growing communities, which all have the same problem in varying degrees to solve.

## THE CASE OF DR. PFEIFFER.

THE case of Dr. Immanuel Pfeiffer, now suffering with smallpox at his residence in Bedford, Mass., is one of more than ordinary interest in consequence of the peculiar circumstances under which the disease, in this instance, was contracted.

Dr. Pfeiffer, a native of Denmark, came to Boston a few years ago to practise medicine. He had previously practised at New Bedford, Pittsfield and North Adams in this State, and while at North Adams had achieved considerable notori-

ety by claiming to have abstained from food for a period of several weeks, after the manner of Dr. Tanner, the Italian Succi, and others. Soon after coming to Boston he appeared at a hearing at the State House, as a vigorous opponent of the law requiring the registration of physicians.

Early during the present epidemic of smallpox, and while vaccination was being conducted in Boston and the neighboring cities, he asserted himself as an opponent of vaccination. So great was this opposition on the part of Dr. Pfeiffer and others, together with their asserted disbelief in the protective power of vaccination, as to lead to a challenge from the chairman of the Board of Health of Boston, stating that any unvaccinated person who desired to visit either of the smallpox hospitals of Boston should have the privilege of doing so. No unvaccinated person accepted the offer, and subsequently Dr. Pfeiffer, upon his own urgent request, was allowed to visit the hospital at Gallup's Island, on Thursday, Jan. 23, and to see some of the severe cases of smallpox which had been sent there for care and treatment.

Dr. Pfeiffer, however, had been vaccinated, as he admitted, about 60 years ago. While in the hospital he had an opportunity to come into pretty close contact with those who were sick, and to breathe the more or less infected air of the wards. Due precautions were taken while he was there and at the time of his departure, to prevent any infection from being carried away in his clothes.

On his return to the city, the daily papers published a statement of his foolhardy experiment, with criticisms upon the freedom with which he had voluntarily mingled with crowds of people, attended a public meeting, etc. On Jan. 28 he appeared at a hearing before the Committee on Public Health, at the State House, as a petitioner for the abolition of compulsory vaccination, denouncing in a most impassioned manner the State laws upon this subject, boldly asserting his contempt for vaccination, and intimating that anyone like himself, who had neglected vaccination for 60 years, might expose himself to the disease with impunity. While speaking before this committee he appeared as a man of vigorous, robust constitution, in excellent health, nearly 6 feet in height, and weighing not far from 200 lbs. He was apparently considerably younger than the age which he admitted.

At an adjourned hearing which was held on Feb. 4, 12 days after his exposure at Gallup's Island, Dr. Pfeiffer was not present, notwithstanding his apparent deep interest in the subject.

The incubation period of smallpox varies within quite narrow limits, and may be stated as from 10 to 16 days, but the majority of cases are taken ill in from 12 to 14 days after the date of exposure.

Early during the week ending Feb. 8, active search for Dr. Pfeiffer was made, and although he was traced from one part of the city to another, he was not found until Saturday, Feb. 8, at his country residence at Bedford, where he was found to be seriously ill with smallpox.

The condition of this man, who had not been vaccinated for 60 years and had been exposed for not more than a single hour to the direct infection of smallpox, may very properly be compared with that of the well-vaccinated physicians, nurses and other attendants who had been exposed to the same infection throughout the winter, without taking the disease in a single instance.

The experiment has no special scientific value, other than to add to accumulated testimony relating to the contagious character of smallpox, the protective power of vaccination and revaccination, the danger of their neglect, and the confirmation of the incubatory period, the date and hour of exposure being known.

The utter want of common sense by which the experimenter becomes the victim of his own folly is none the less apparent.

## MEDICAL NOTES.

The Medical Director of the Louisiana Purchase Exposition.— The important post of medical director of the St. Louis World's Fair has been filled by the appointment of Dr. Leonidas H. Laidley.

Death of One of the Twins.— One of the twins operated upon recently by Doyen of Paris has succumbed to tuberculosis. The other is said to be progressing favorably.

### BOSTON AND NEW ENGLAND.

Acute Infectious Diseases in Boston.— For the week ending at noon, Feb. 19, 1902, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: Diphtheria 46, scarlatina 20, measles 176, typhoid fever 6, smallpox 27.

Boston Mortality Statistics.— The total number of deaths reported to the Board of Health for the week ending Feb. 15 was 232, against 243 the corresponding week last year, showing a decrease of 11 deaths, and making the death-rate for the week 21.1. Of this number 120 were males and 112 were females; 224 were white and 8 colored; 149 were born in the United States, 82 in foreign countries, and 1 unknown; 61 were of American parentage, 150 of foreign parentage,

and 21 unknown. The number of cases and deaths from infectious diseases reported last week is as follows: Diphtheria, 61 cases and 5 deaths; scarlatina, 19 cases and 3 deaths; typhoid fever, 7 cases and 4 deaths; measles, 115 cases and 5 deaths; tuberculosis, 17 cases and 40 deaths; smallpox, 38 cases and 6 deaths. The deaths from pneumonia were 24, whooping cough 2, heart disease 27, bronchitis 18, and marasmus 1. There were 9 deaths from violent causes. The number of children who died under 1 year was 40; the number under 5 years 60. The number of persons who died over 60 years of age was 52. The deaths in public institutions were 70.

THE BOSTON CITY HOSPITAL ALUMNI ASSOCIATION.— The Annual Meeting of the Boston City Hospital Alumni Association was held at the Hotel Lenox Feb. 13, 1902. Ninety-three men were present. At the business meeting which was held just before the dinner, officers were elected for 1902 and 1903 as follows: President, Dr. Henry R. Stedman; Vice-President, Dr. John W. Spooner; Secretary, Dr. William H. Robey, Jr.; Treasurer, Dr. William H. Prescott; Member of Executive Committee for 5 years, Dr. Frank L. Day of Providence. The most important business was the change in the Constitution and By-Laws making members of the past and present visiting staff, not alumni, eligible for associate membership. Dr. William E. Boardman, the president, acted as toastmaster and introduced the following speakers: Mr. Conrad J. Rueter, Secretary of the Board of Trustees; Mr. B. S. Ladd of the Massachusetts Bar; Dr. John T. Bottomley; Dr. J. Bapst Blake, "The Boston City Hospital Clinical Club"; Dr. John G. Blake. Dr. Paul Thorndike sang a humorous medical song, the words by Dr. Bapst Blake.

BOSTON SOCIETY OF MEDICAL SCIENCES.— At a meeting of this society, held in Boston, Feb. 18, the report of the Cancer Commission of the Harvard Medical School was given. After introductory remarks by Dr. J. C. Warren, the following papers relating to cancer, largely illustrated by lantern slides, were read: Dr. E. E. Tyzzer, "Coccidium Infection of the Rabbit's Liver"; Dr. Charles J. White, "Molluscum Contagiosum"; Dr. Oscar Richardson, "Culture Experiments with Malignant Tumors"; Dr. J. D. Weis, "Four Pathogenic Torulæ"; Dr. E. H. Nichols, "Blastomycetes as a Cause of Cancer"; Dr. R. B. Greenough, "Cell-inclusions in Cancer and Non-Cancerous Tissue."

A CASE OF SMALLPOX IN WEYMOUTH, MASS.— A case of smallpox is reported from Weymouth, Mass., in the person of a priest of the local Catholic church.

NEW YORK.

PRESIDENT'S ADDRESS OF MEDICAL SOCIETY OF GREATER CITY OF NEW YORK.— At a meeting of the Medical Association of the Greater City of New York, held Feb. 10, Dr. Andrew H. Smith, the president-elect, delivered his inaugural address. It was mainly devoted to the subject of Specific Medication, but in his introductory remarks he made the suggestion (which was received with great favor) that the practice of collective investigation of disease might profitably be engrafted upon the other work of the society. What he proposed was no very formal plan, but simply that two or three topics should be placed under consideration, upon which the members would be invited to accumulate observations as opportunity offered, and to send them to the secretary. When a sufficient body of observed facts had been secured, they could be made the subject of a report. At the present time, so far as he was aware, he said, there was no other society in New York engaged in work of this kind, and he thought the great city, with the millions of its five boroughs, in all of which the association had so many able representatives, offered a most inviting and fruitful field for such investigations.

MORTALITY REPORTS.— The reports of the Health Department show that the mortality in the city during the month of January represented an annual death-rate of 20.08, against 18.96 in December and 22.38 in January, 1901. Among the diseases in which the mortality increased were the following: The weekly average of deaths from diphtheria and croup increased from 48 in December to 50 in January; the weekly average of deaths from scarlet fever, from 13.25 to 25.75; from measles, 23 to 24.5; from whooping cough, 7 to 8.75; from smallpox, 2.25 to 9.75; from pneumonia, 161.25 to 202; from bronchitis, 46 to 65.5; from diseases of the urinary system, 117.75 to 124.25, and from influenza, 6 to 7.25. Among the diseases which showed a decline were the following: The weekly average of deaths from typhoid fever decreased from 17 to 11.5; from phthisis, 140.5 to 137, and from cancer, 49.75 to 41.5.

GERMAN HOSPITAL AND DISPENSARY.— The annual meeting of the German Hospital and Dispensary was held on Feb. 10. The reports showed that by the erection of an additional building, the capacity of the hospital had been increased to 216 beds. Of 3,398 patients treated during the year, 2,695 were nonpaying. In the dispensary 21,504 patients were treated free of charge. Recently $100,000 has been contributed by four persons subscribing $25,000 each in memory of deceased relatives. It was announced that Dr.

Florian King had been appointed on the surgical staff of the hospital, in place of Dr. Otto Kiliani.

A Suit for Malpractice Against Dr. Thos. H. Manley.— In Part IX of the New York Supreme Court, before Judge McLean, an action was brought by Selina Schneider against Dr. Manley for alleged malpractice in the unnecessary removal of a joint of the thumb. After a two days' trial, the jury, after a five minutes' deliberation, brought in a unanimous verdict for the defendant. The most unfortunate feature of the affair was the fact, as brought out in the evidence, that the prosecution was instituted on the advice of a brother practitioner.

Additional Free Vaccination Stations.— In view of the present prevalence of smallpox the president of the Board of Health has had opened additional stations for free vaccination in all the boroughs of the city. Dr. Brannan, president of the Board of Trustees of Bellevue and allied hospitals, has issued an order that all patients received at the various hospitals under the control of the board should be vaccinated on admission, except in cases where the condition of the patient was such as to render vaccination injudicious.

Objections to Smallpox Hospital Overruled.— On Feb. 8, Vice-Chancellor Emery of New Jersey refused to grant an injunction restraining the East Orange authorities from maintaining a smallpox hospital in South Clinton Street in that place. Certain residents objected to the presence of the institution, but the health department secured the affidavits of a number of physicians, who expressed the opinion that it was not dangerous to the neighborhood.

Stony Wold Sanatorium.— The first annual meeting of the Stony Wold Sanatorium for working women suffering from incipient tuberculosis was held at the residence of Dr. George F. Shrady on Jan. 22. The treasurer's report showed that $50,000 had been received during the year, and it was announced that in the spring, work would be begun upon the building on the site purchased for the sanatorium at Lake Kushaqua in the Adirondacks.

The Exclusion of Tuberculosis.— At a meeting of the New York Academy of Medicine held Feb. 6, resolutions introduced at a previous meeting by Dr. S. A. Knopf were adopted deploring the action of the U. S. Treasury Department declaring pulmonary tuberculosis a "dangerous contagious disease," and debarring consumptive aliens, rich and poor, from entering the country. The last two of the resolutions are as follows: *Resolved*, That the academy considers the exclusion of nonpauper tuberculous immigrants and consumptive aliens visiting our shores unwise, inhumane, and contrary to the dictates of justice; be it further *Resolved*, That while the academy is convinced of the communicability of tuberculosis, and urges all possible precautions against the spread of the disease from sputum and tuberculous food substances, the academy is opposed to all measures by which needless hardship is imposed upon the consumptive individual, his family or his physician.

New Land for Woman's Hospital.— The Woman's Hospital, which some time ago sold its present site, the block between Park and Lexington Avenues, and 49th and 50th Streets, to the New York Central Railroad for $400,000, has just purchased, for about half that sum, a plot of land in Cathedral Heights, running from 109th to 110th Streets for the erection of its new buildings.

## RECORD OF MORTALITY

For the Week ending Saturday, Feb. 8, 1902.

| Cities. | Population * Estimated, 1902. | Reported deaths in each. | Deaths under five years. | Percentage of deaths from | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | Infectious diseases. | Acute lung diseases. | Diphtheria and croup. | Typhoid fever. | Diarrheal diseases. |
| New York. . | 3,665,352 | 1,519 | 537 | 23.30 | 17.90 | 3.62 | .33 | 2.16 |
| Chicago . . | 1,852,828 | — | — | — | — | — | — | — |
| Philadelphia. | 1,349,624 | 581 | 146 | 23.39 | 19.78 | 2.58 | 2.24 | .69 |
| St. Louis . . | 603,717 | — | — | — | — | — | — | — |
| Baltimore. . | 525,330 | 187 | 60 | 14.44 | 19.79 | .53 | .53 | 3.74 |
| Cleveland. . | 411,826 | — | — | — | — | — | — | — |
| Buffalo . . . | 375,742 | — | — | — | — | — | — | — |
| Pittsburg . . | 341,401 | 140 | 43 | 20.70 | 22.13 | 2.14 | 7.14 | 2.86 |
| Cincinnati . | 332,032 | — | — | — | — | — | — | — |
| Milwaukee . | 304,975 | — | — | — | — | — | — | — |
| Washington . | 289,537 | — | — | — | — | — | — | — |
| Providence . | 185,870 | 81 | 26 | 13.57 | 22.20 | — | — | 1.23 |
| Boston . . . | 588,756 | 199 | 58 | 27.50 | 15.00 | 3.00 | 1.50 | 1.50 |
| Worcester. . | 127,337 | 38 | 19 | 10.52 | 15.78 | 2.63 | — | — |
| Fall River. . | 111,872 | 32 | 23 | 18.72 | 31.20 | 9.36 | — | 3.12 |
| Lowell . . . | 99,574 | 35 | 15 | 22.85 | 8.57 | 17.14 | — | — |
| Cambridge . | 96,334 | 29 | 11 | 20.68 | 13.79 | — | — | — |
| Lynn. . . . | 71,144 | 26 | 2 | 5.00 | 15.00 | — | — | — |
| Lawrence . . | 67,275 | 19 | 5 | 15.78 | 15.78 | — | — | — |
| Springfield . | 66,854 | 24 | 7 | 29.16 | 5.26 | 5.26 | — | — |
| Somerville . | 65,882 | 24 | 5 | 20.83 | 20.83 | — | — | 8.33 |
| New Bedford. | 65,574 | 24 | 5 | 12.50 | 12.50 | — | — | — |
| Holyoke . . | 48,065 | 17 | 7 | 23.52 | 17.64 | 5.88 | — | — |
| Brockton . . | 43,208 | 11 | 1 | — | — | — | — | — |
| Haverhill . . | 40,392 | 3 | — | 33.33 | — | — | — | — |
| Salem . . . | 36,567 | 10 | 3 | 20.00 | — | — | — | — |
| Newton. . . | 36,336 | 6 | 1 | — | — | — | — | — |
| Malden . . . | 35,390 | 9 | 1 | — | 22.22 | — | — | — |
| Chelsea. . . | 35,264 | — | — | — | — | — | — | — |
| Fitchburg. . | 33,848 | 11 | 2 | 9.09 | 27.27 | — | — | — |
| Taunton . . | 32,759 | 11 | 1 | 36.36 | — | 9.09 | 9.09 | — |
| Everett. . . | 27,114 | 5 | — | 40.00 | — | — | 20.00 | — |
| North Adams | 26,583 | 3 | 1 | — | 66.67 | — | — | — |
| Gloucester . | 26,121 | 8 | 3 | 12.50 | 12.50 | — | — | — |
| Quincy . . . | 25,307 | 6 | 1 | — | 50.00 | — | — | — |
| Waltham . . | 24,612 | 7 | — | 14.30 | 28.60 | — | — | — |
| Pittsfield . . | 22,311 | 4 | 1 | 25.00 | 50.00 | — | — | — |
| Brookline. . | 21,679 | 4 | 1 | — | — | — | — | — |
| Chicopee . . | 20,399 | 10 | 5 | 20.00 | 30.00 | 10.00 | — | — |
| Medford . . | 20,014 | 6 | 1 | 16.67 | — | — | — | — |
| Newburyport | 14,478 | 8 | 3 | 12.50 | — | — | — | — |
| Melrose . . | 13,384 | 2 | — | — | — | — | — | — |

* The populations of the cities outside of Massachusetts were estimated on the basis of the rate of growth from 1890 to 1900. Those of the Massachusetts cities were estimated upon the rate of growth from 1895 to 1900, since the State had an intermediate census in 1895. The populations of Gloucester, Marlborough and Newburyport were allowed to stand as in 1900, they having suffered a slight decrease during the five-year period.

Deaths reported 3,129: under five years of age, 1,000; principal infectious diseases (smallpox, measles, scarlet fever,

cerebrospinal meningitis, diphtheria and croup, diarrheal diseases, whooping cough, erysipelas, fevers and consumption 682, acute lung diseases 565, consumption 326, scarlet fever 42, erysipelas 8, typhoid fever 34, whooping cough 11, cerebrospinal meningitis 14, smallpox 37, measles 44, diarrheal diseases 55.

From whooping cough, New York 6, Philadelphia 2, Boston 2, Fall River 1. From cerebrospinal meningitis, New York 7, Baltimore 1, Providence 1, Worcester 2, Lynn, Lawrence and Somerville 1 each. From scarlet fever, New York 31, Philadelphia 5, Pittsburg 1, Boston 2, Worcester, Somerville and Newburyport 1 each. From erysipelas, New York 6, Philadelphia 1, Boston 1. From smallpox, New York 10, Philadelphia 20, Boston 7.

Beginning with January, 1902, the term "great towns" as employed in the Registrar General's Weekly Return of births and deaths includes the seventy-five municipalities of England and Wales which have a population of more than 50,000 in each.

In the seventy-six great towns of England and Wales, with an estimated population of 14,800,427, for the week ending Jan. 25, the death-rate was 17.7. Deaths reported 5,048; acute diseases of the respiratory organs (London) 357, whooping cough 112, diphtheria 100, measles 115, smallpox 38, scarlet fever 64.

The death-rate ranged from 6.2 in Walthamston to 30.3 in York; London 18.0, West Ham 17.2, Croydon 15.5, Brighton 17.2, Portsmouth 16.5, Southampton 16.9, Bristol 17.8, Birmingham 18.2, Leicester 20.0, Nottingham 17.2, Birkenhead 15.3, Liverpool 23.6, Manchester 20.7, Salford 20.5, Bradford 17.8, Leeds 18.4, Sheffield 17.7, Hull 17.6, Newcastle-on-Tyne 20.5, Cardiff 17.6.

## METEOROLOGICAL RECORD

For the week ending Feb. 8, in Boston, according to observations furnished by Sergeant J. W. Smith of the United States Signal Corps:

| Date | Barometer | Thermometer. | | | Relative humidity. | | | Direction of wind. | | Velocity of wind. | | We'th'r * | | Rainfall in inches. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Daily mean. | Daily mean. | Maximum. | Minimum. | 8.00 A.M. | 8.00 P.M. | Daily mean. | 8.00 A.M. | 8.00 P.M. | 8.00 A.M. | 8.00 P.M. | 8.00 A.M. | 8.00 P.M. | |
| S....2 | 29.74 | 40 | 48 | 31 | 100 | 83 | 92 | N E | S W | 12 | 24 | R. | O. | .82 |
| M..3 | 29.46 | 26 | 31 | 20 | 55 | 54 | 54 | W | W | 40 | 24 | F. | C. | .04 |
| T...4 | 29.77 | 22 | 28 | 15 | 65 | 94 | 80 | S W | W | 14 | 12 | C. | N. | T. |
| W..5 | 29.98 | 18 | 23 | 12 | 64 | 55 | 60 | W | N W | 8 | 14 | F. | C. | .01 |
| T...6 | 30.04 | 20 | 29 | 12 | 62 | 60 | 61 | W | N W | 15 | 9 | C. | C. | |
| F...7 | 29.75 | 26 | 36 | 16 | 57 | 49 | 53 | W | W | 15 | 20 | C. | C. | |
| S....8 | 29.36 | 20 | 24 | 17 | 62 | 78 | 70 | W | W | 18 | 21 | C. | N. | T. |
| ☞ | 29.73 | | 31 | 18 | | | 67 | | | | | | | .87 |

*O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow. † Indicates trace of rainfall.
☞ Mean for week.

## OFFICIAL LIST OF THE CHANGES OF STATION AND DUTIES OF COMMISSIONED AND NON-COMMISSIONED OFFICERS OF THE U. S. MARINE HOSPITAL SERVICE FOR THE SEVEN DAYS ENDING FEB. 6, 1902.

KALLOCH, P. C., surgeon. Granted leave of absence for 14 days from Feb. 5. Feb. 4, 1902.

KINYOUN, S. J., surgeon. Department approval of June 28, 1901, granting Surgeon Kinyoun leave of absence for 4 months, amended so that said leave shall be for 1 month and 21 days. Feb. 4, 1902.

THOMAS, A. R., passed assistant surgeon. To proceed to London, Eng., for special temporary duty. Jan. 30, 1902.

CLARK, TALIAFERRO, assistant surgeon. Granted leave of absence on account of sickness, for 14 days from Jan. 16. Feb. 4, 1902.

BULLARD, J. T., acting assistant surgeon. Granted leave of absence for 25 days from Feb. 1. Feb. 4, 1902.

GOLDSBOROUGH, B. W., acting assistant surgeon. Granted leave of absence for 2 days. Jan. 28, 1902.

WALKER, R. T., acting assistant surgeon. Granted leave of absence for 4 days from Feb. 18. Feb. 5, 1902.

MAGUIRE, E. S., hospital steward. Granted leave of absence for 30 days from Feb. 5. Feb. 4, 1902.

## CHANGES IN THE MEDICAL CORPS OF THE NAVY FOR THE WEEK ENDING FEB. 8, 1902.

F. M. FURLONG, assistant surgeon. Ordered to the Naval Hospital, Norfolk, Va., instead of to the "Topeka."

W. H. ULSH, assistant surgeon. Detached from the "Annapolis" and ordered to the Naval Hospital, Mare Island, Cal., for treatment.

J. R. WAGGENER, medical inspector. Detached from the "Constellation" and to duty at the Marine Recruiting Rendezvous, Boston, Mass.

J. F. URIE, surgeon. Detached from the Marine Recruiting Rendezvous, Boston, Mass., and ordered to the Naval Dispensary, Washington, D. C.

L. W. SPRATLING, surgeon. Ordered to duty at the Naval Hospital, Portsmouth, N. H.

S. G. EVANS, passed assistant surgeon. Detached from duty at the Naval Hospital, Portsmouth, N. H., and ordered to the Pensacola Navy Yard.

F. J. B. CORDEIRO, surgeon. Detached from the "Pensacola Navy Yard, and ordered to the "Constellation."

C. M. OMAN, assistant surgeon. Ordered to duty at the Naval Hospital, New York.

## SOCIETY NOTICES.

SUFFOLK DISTRICT MEDICAL SOCIETY. SECTION FOR OBSTETRICS AND DISEASES OF WOMEN.— The next meeting of the section will be held in Sprague Hall, Medical Library, 8 The Fenway, Wednesday, Feb. 26, 1902, at 8.15 P.M. Dr. W. H. Conant will read a paper on "The Modern Operation for Radical Cure of Umbilical Hernia," and Dr. E. W. Cushing will present a paper on "The Latest Cancer Nostrum."

E. S. BOLAND, M.D., Chairman,
W. H. GRANT, M.D., Secretary,
419 Boylston Street.

THE AMERICAN LARYNGOLOGICAL, RHINOLOGICAL AND OTOLOGICAL SOCIETY.— The eighth annual meeting of the American Laryngological, Rhinological and Otological Society will be held in the city of Washington, D. C., June 2, 3 and 4, 1902.

THE PHILADELPHIA NEUROLOGICAL SOCIETY.— A stated meeting of the Philadelphia Neurological Society will be held on Tuesday, Feb. 25, 1902, at 8.15 P.M. Dr. Adolf Meyer, Director of the Pathological Institute for the New York State Hospitals, will, by invitation, deliver an address entitled "Conditions for Psychiatric Research." Members of the profession are cordially invited to attend.

After the address a reception will be tendered Dr. Meyer at the University Club.

AUGUSTUS A. ESHNER, 224 South Sixteenth Street.

## RECENT DEATHS.

DR. HENRY BALSER of New York, a graduate of the Medical Department of the University of the City of New York in 1866, died on Feb. 14, at the age of 62.

DR. EDWIN W. PYLE, a prominent physician of Jersey City, N. J., died on Feb. 8 from pneumonia. He was born in Unionville, Pa., in 1849, and was a graduate of Bellevue Hospital Medical College. For several years past he had been on the visiting staff of the New York Eye and Ear Infirmary.

## BOOKS AND PAMPHLETS RECEIVED.

La Grippe. By Matthew J. Leland, A.M., M.D., Ph.D. New York: J. H. Vail & Co. 1901.

Leçons sur les Maladies du Système Nerveux (Année 1897-1898) par F. Raymond. Fourth and Fifth Series, 1900 and 1901. Paris: Octave Doin, Editeur.

Twenty-third Annual Report of the State Board of Charity of Massachusetts, January, 1902. Boston: Wright & Potter Printing Co., State Printers. 1902.

Short Talks with Young Mothers on the Management of Infants and Young Children. By Charles Gilmore Kerley, M.D. Illustrated. New York and London: G. P. Putnam's Sons. 1901.

Lectures on Chemical Pathology in its Relation to Practical Medicine, delivered at the University and Bellevue Medical School, New York City. By C. A. Herter, M.D. Philadelphia: Lea Brothers & Co. 1901.

A Manual of Clinical Diagnosis by Means of Microscopical and Chemical Methods for Students, Hospital Physicians and Practitioners. By Charles E. Simon, M.D. Fourth edition, revised. Illustrated. Philadelphia and New York: Lea Brothers & Co. 1902.

# Original Articles.

## FIVE MAINE "MURDERS."

BY ADDISON S. THAYER, M.D., PORTLAND, ME.

In dealing with insane persons who have committed homicide, the experience of the State of Maine has been peculiar. The same theory which exists elsewhere among civilized people — that insane persons who commit acts of extreme violence are to be held responsible to a less degree than persons of sound mind — exists also in Maine. It exists, but it does not prevail.

There is no apparent reason why courts and juries in Maine should especially suspect the use of insanity as a subterfuge — a cloak for crime. It is true that in two recent instances in Maine a criminal has feigned insanity. In one of these two instances an expert was found who testified that in his opinion the criminal was insane. The overwhelming weight of expert evidence, however, indicated that this prisoner was shamming; and an arrant shammer he proved to be. The second prisoner who feigned insanity was promptly detected. Neither of these two criminals was charged with homicide.

Persistent inquiry has failed to bring knowledge of a single instance in which the verdict "not guilty by reason of insanity" has been rendered in Maine in a case of homicide.

On the other hand, in this State, within the last 25 years, there have been at least five cases of homicide, and probably several more than five, for the defense of which the plea of insanity has been adduced. In all of these five cases the prisoner has been found guilty of murder. All of these five convicts have shown unmistakable evidence of insanity. Two of them, before death, which occurred within a few years of conviction, became so palpably insane that nobody questioned it. The three others are in the State prison today, and are still insane.

The visiting physician of the State prison, Dr. Addison R. Smith, states that in addition to these three convicts there are now in the prison, under sentence for murder, five others, of whom one is probably insane and four are unquestionably insane.

During the recital of a few facts concerning five of these cases, attention is invited to the following points: Behavior which would suggest, even to people unaccustomed to the study of mental disease, the presence of insanity. The unanimity of the opinions of the experts, and the unanimity with which their opinions were disregarded. Particularly, the illumination which these cases throw upon "the only proper legal criterion," the right-and-wrong test for insanity, a test which every observing asylum-nurse knows to be fallacious, and which would brand as criminals two-thirds of the inmates of asylums for the insane.

There can be little liability to error concerning the only proper legal criterion as it exists at present in Maine. It has been restated within the past year in a decision of the Supreme Court in the case of State *vs.* Bradford Knight. The language of the rescript, rendered by Judge Whitehouse, is as follows: "When the insanity of the accused is pleaded in defense, the test of his responsibility for crime, afforded by his capacity to understand the nature and quality of the act he was doing and his mental power to distinguish between right and wrong with respect to that particular act at the time he committed it, is the only proper legal criterion."

Case I. On the afternoon of May 11, 1878, Jason P. Scribner, at his home, three miles from the State House, in Augusta, seized a shovel and pounded the heads of the three youngest of his own children — five, three and two years of age. One of the children died immediately, the baby died in a few hours, and the other child eventually recovered. Scribner at the time was 34 years old. One of his brothers had died insane at the hospital in Augusta, and there had been other instances of insanity among his relatives. For five years Scribner had been brooding over his own troubles, some of which were imaginary, but the first of which was only too real. While in a partially drunken condition he had accidentally turned a kettle of boiling water over one of his children, causing its death. Not long afterwards he gave up the use of alcohol altogether, and still later he rose for prayers in a religious meeting. But he believed that the people in the church did not treat him well, and, in fact, that everybody, as he expressed it, was picking upon him. He thought his brother's wife made fun of him, and with his brother he was not on speaking terms. He hated especially to see people going towards the meeting-house. When he thought of the Lord or the Savior, a sort of madness would sieze him. At 2 o'clock one morning he sprang out of bed, rushed into the room where his father lay dying, and attempted to strike his father with a cudgel, being restrained by his brother and sisters. At another time he ran out into the darkness screaming "Murder! Murder! The devils are after me!" At various times he threatened to kill all the members of his family, and to burn not only the house where he lived, but the whole city of Augusta.

A few days before the homicide, his wife applied to Judge True to have her husband taken care of. His wife stated that while ugly with her, he was always kind to the children. On the morning of the homicide he held and rocked the baby and seemed especially affectionate. After he had pounded the heads of his children with the shovel, he went out into a field and cut his own throat, partially severing the windpipe.

On the following day he was rational, and stated that he came to himself in the field and found his throat bloody, but could remember nothing of what had happened before, except that he and his wife had quarreled on the way home from the cemetery. "Oh, God!" he exclaimed, in his cell at the jail, "what shall I do? Why did I do it? God help me!"

At the trial of Scribner before Judge Libby, Dr. Harlow, superintendent of the insane hospital at Augusta, testified that Scribner was insane, and not responsible for his act. The verdict of the jury was murder in the first degree.

Scribner remained in the State prison at Thomaston from February, 1880, to May, 1884. During the whole of that time he was manifestly insane, and at intervals was noisy and violent. At the recommendation of a commission appointed to examine into his mental state he was removed to the insane hospital at Augusta, arriving in a delirious and critical condition, and surviving only eleven days after the removal.

Case II. On the 5th of September, 1884, Thomas J. Libby, of Prout's Neck, shot and killed Lydia Snow at the City Hotel, Portland.

Libby was 44 years old. For nine years he had been keeper of a small summer hotel, the West Point House. He had used alcohol at times to excess, especially dur-

ing the preceding summer, but for a fortnight before the homicide he had taken little liquor, and for 24 hours practically none.

On the day before the shooting Libby came to Portland and transacted business, but acted queerly. He went into three barber shops and in each of them he had a shampoo, because his head felt bad. He asked the same question of the same person four times in succession. He was heard talking to himself as he walked along the street. Libby afterwards consistently affirmed that he lost conciousness of his own acts early on that afternoon, and had remembrance of only one unimportant event previous to a period on the following day, when he found himself in jail, talking with his counsel. Evidence showed that at 7 o'clock in the evening he came with Lydia Snow to the stable where he had left his horse, and drove with her to a place in South Portland where he was well known, and where his appearance in her company would be likely to excite comment. He left the Snow woman and his team at this place, and went to a lodge room, where he had expected to take a degree as a Knight of Pythias. His behavior was so unnatural that his friends advised him to postpone the taking of the degree. He drove back to Portland with the woman and took a room with her at the City Hotel.

The testimony of one of the employees of the hotel was substantially as follows: "At 2 o'clock in the morning I was called to the room and was asked by Libby to bring some liquor. This was refused, and water brought, which Libby drank, appearing very pleasant. After this I passed the room several times, and heard the occupants talking and laughing. At 8 o'clock in the morning I was called there again. The woman came to the door and said, 'I want you to take that revolver away from the man.' I peered around the edge of the door, and saw Libby lying on the bed, with his arms above his head, and a pistol in his right hand. Libby cocked the revolver and pointed it at me, mumbling something which I did not wait to understand, but hastily closed the door and stood listening in the corridor. Then I heard two shots quickly fired, a screech, a third shot, a pause, and a fourth shot. I ran to the office and telephoned to the police. The door of the room was found to be fastened from the inside."

The woman, lifeless, two bullets having passed through her head, was lying near the door. Libby was on the floor near the bed, with a bullet hole above and behind his ear. The policemen lifted him, and with their assistance he walked to a hack. On the way to the station the officers endeavored to get him to talk. He tried to answer, but they could not understand what he said. He made a loud, mournful noise, as though suffering. Dr. Charles D. Smith, who saw Libby soon after his arrival at the police station, searched for evidence that Libby had been drinking, and concluded that he had not.

The defense in the Libby case offered what seemed at the time the most plausible explanation for an apparently motiveless deed — delirium tremens. As the sequel showed, it is highly probable that the act of shooting was one of those strange freaks which characterize the early stage of the well-defined disease which ended Libby's life — paretic dementia. Libby served seven years in the State prison, and then was transferred to the insane hospital at Augusta, where he lived a little more than a year.

An extract from the closing argument in the Libby case, delivered by Attorney-general Orville Baker, is not without historical interest, in view of the sequel. The attorney-general referred to the plea of insanity as the old familiar defense, when there is no other possible refuge. If the absurd claim were made that the President was shot by someone other than Guiteau, no jury would listen. There was nothing for it but to try to make the jury believe that Guiteau was insane. And when a murderer knows that the person he assaulted was a harmless woman, and the plea of self-defense would be futile, he pleads insanity. "Does he, or his counsel, claim that he is insane *now*? 'Where is the motive?' says the counsel for the defense. Let the prisoner at the bar call up the cold body of Lydia Snow, and let her spectral light rise before you on that stand, and she will tell you the motive for that act. He shoots her, and the motive slumbers in the grave."

The verdict in the Libby case was murder in the *second* degree. So far as may be judged from experience in Maine, verdicts are more likely to be mitigated by delirium tremens than by paranoia. A paranoiac, as a rule the helpless victim of disease, is held to deserve severer punishment than a delirious inebriate, the creature of his own previous volition.

CASE III. On the morning of Dec. 7, 1895, Alfred Hurd of Biddeford killed his father with a hatchet.

Former schoolmates of Alfred Hurd stated that as a boy he was odd, cranky, inclined to be silent and solitary, and that he appeared to be "perpetually thinking." He attended a business college in Portland and was employed as a telegrapher in several different railway stations. It is said that he was an indifferent operator — never expert. Two years before the homicide he lost his position at Somerville on account of his peculiar actions. It was stated that he would sometimes refuse to receive dispatches. About this time he was disappointed in a love affair. He spent a good deal of time in reading books, especially the Bible and Fowler's Phrenology. He made no effort to get another position, but remained at home, doing no work at all. On the morning of the homicide he went to the room where his father was sleeping, struck his father on the head with a hatchet, and then cut his father's throat with a razor. Then he washed the blood from his hands, and went to notify the coroner and the police that a murder had been committed. He conducted the city marshal to the bed where his father's body was lying. Later in the day he said to the officer, "I committed that murder. I stood there looking at father as he lay asleep, and the thought came into my head to kill the man who had talked about sending me away if I didn't find work. That is the last I remember until after the thing was done. Now the jury must decide whether I am guilty. I know that if they find me so, I shall be sent to Thomaston for life."

At the trial of Hurd, Dr. B. T. Sanborn, who had had him under observation at the insane hospital for five months, testified that Hurd was in the early stage of dementia, of a degenerative and progressive type. Under the ruling of Judge Emery, the jury found Hurd guilty of murder in the first degree.

On the 17th of December, 1901, the writer saw and examined Alfred Hurd, in the insane department of the State prison at Thomaston. When the subject of phrenology was touched upon, Hurd showed a gleam of interest, although little comprehension. He is thoroughly demented; and his dementia has been steadily progressive during the five years in which he has been a convict.

CASE IV. Bradford P. Knight, at the time when he killed Mamie Small, Feb. 13, 1899, was 45 years old. His mother, during a considerable part of her life, had recurrent attacks of insanity. His uncle died insane at the hospital in Augusta. One of his sisters was treated for two years at the same hospital during an acute attack of insanity, and is now demented. Another sister and also a brother died insane. He himself, as a boy, was odd, shy, and oppressed by a sense of inferiority and a fear of impending want. At the age of 20 he had what was probably a mild attack of melancholia. At the age of 35 he suffered from sunstroke, followed by mental depression. He became sleepless, could not work, spent much time in weeping, felt that God's spirit had left him, and that his soul was lost. He wandered away from home, and was committed as an insane person to the hospital at Augusta.

After leaving the asylum, for most of the time he was able to work, but was periodically depressed. He feared that he might kill his children; several times he had strong impulses to do it; and he told his wife that perhaps it would be better if he returned to the

asylum. He made several half-hearted attempts at suicide. He imagined that people were down on him, and watching him and laughing at him. His relations with his wife's sister, Mamie Small, were intimate to the extent of criminal intimacy. For a time he believed her to be the only real friend that he had; but when she left him, he interpreted her desertion as a part of the general conspiracy to get him out of the way, by claiming falsely that he was insane, and sending him back again to the asylum. And so he killed her.

After Knight was arrested and taken to the jail at Augusta, he refused food because he said it was poisoned. On account of this and other peculiar conduct, he was transferred to the insane hospital for observation. While there he paced the floor, talked to himself, and at times was so violent as to require restraint with sheets. On one occasion he explained to an attendant that he was swearing "against that clique down there." He secreted a door-knob for the purpose of making a sling-shot with which to kill the superintendent. He admitted that this was his intention, and stated some time afterwards that it would have been right to kill a superintendent who suppressed his letters and tried to turn his family against him. As for remorse for the killing of Mamie Small, he said that he felt none whatever; that Mamie herself had forgiven him and frequently appeared to him at night, as happy and smiling as ever. But there was one occurrence which had taken place 10 years before, which kept him in perpetual torment; the Lord had appeared to him at a religious meeting and had commanded him to go home to his house and pray; instead of doing so he went into his woodshed and prayed there. From that time he was doomed to eternal torment in hell.

After remaining for seven months at the insane hospital, Knight was tried at Augusta before Judge Emery, in October, 1899. A few days prior to the arraignment, the county attorney of Kennebec, George W. Heselton, Esq., who had expressed great contempt for the notion that Bradford Knight was not responsible by reason of insanity, summoned to Augusta three experts in insanity — Dr. Edward Cowles, superintendent of the McLean Hospital, Dr. H. M. Quinby, superintendent of the Worcester Insane Hospital, and Dr. George F. Jelly, chairman of the Massachusetts State Board of Insanity. These experts were requested to examine and report upon Bradford Knight, without consulting anyone except the county attorney. They spent five hours in examining Knight, and several hours more in conferring and in preparing a report. At the trial, the evidence of these experts was demanded by counsel for the defense, Hon. Herbert M. Heath, on the ground that this evidence was paid for by the State and belonged to the people. The prosecution, however, presented no expert testimony at all. For the defense, Dr. Sanborn, superintendent of the Maine Insane Hospital, and Dr. C. P. Bancroft, superintendent of the New Hampshire Insane Hospital, testified positively to the fact that Knight was suffering from chronic delusional insanity of the melancholic type, tending toward dementia.

"The jury," in the words of one of the ablest professional men in New England, "returned the only verdict possible under Judge Emery's very explicit charge, 'guilty of murder in the first degree.'"

Twelve days afterwards, by order of Judge Emery, Knight was sent back to the insane hospital. The sheriff did not dare to keep him at the jail.

After the exceptions of Knight's counsel had been overruled by the full bench, sentence was passed, and Knight was committed to the State prison, where he was seen by the writer on Dec. 19, 1901. No astuteness is needed now to take the measure of this man's feeble mind. When religion was touched upon, Knight broke down completely, cried in a childish way, and told the story of how he had disobeyed the Lord by praying in the woodshed. For most of the time he is able to paint broom handles; but at intervals he is noisy and violent.

Case V. George H. Brainerd, who shot five men at the telephone exchange in Portland on the 25th of last April, inherited a tendency to insanity. His father suffered from at least two attacks of acute melancholia. Of his father's family, a sister was extremely peculiar, a brother was subject to periods of great mental depression, and another brother, during the last 10 years of his life, was a pronounced case of melancholia. The mental instability in these five members of the family seems to have been transmitted from the father's mother, who was mildly insane.

Brainerd's delusion that he was the victim of a conspiracy, now centering in certain fellow employees, now widening to include the Spanish people, the followers of the Roman Catholic faith, the New England Telephone corporation, or the whole world, but always, with strange subtlety, directed against himself, his mother, and his sister's family — this systematized, ever-present, overpowering delusion, always the most important fact in his life, allowing him at times comparative peace and enjoyment, at other times drawing closer and closer in its insidious, insistent, resistless approach, until escape appears impossible and madness his appointed part — first fastened upon George Brainerd's life while he was at work in South America in 1887. The story of Brainerd's illness there, his confinement in a hospital, the accumulating evidence of a conspiracy, and the means by which, for a time, he succeeded in eluding the conspirators, is circumstantial, consistent and convincing — as the story of an insane delusion. Years went by, and his work for the New England Telephone Co., as foreman in the construction of large switchboards, became increasingly complicated. In the promotion of men younger than he, whose technical training had been broader than his own, but whose knowledge of detail had been learned from him, he found renewed evidence of relentless pursuit. A year before the homicide, foreseeing his approaching doom, he wrote out a statement concerning this conspiracy. He gave the names of certain of the conspirators — five of his fellow workmen, no one of the five being of the number whom he afterwards shot. He stated that his object in writing this was to enable his mother and sister to use it afterwards as evidence, thereby to secure damages from the telephone company, who should be held responsible for what was about to happen to him.

A few days prior to the homicide, Brainerd consulted a firm of lawyers in Boston, Bartlett & Anderson, as to measures of legal defense against this conspiracy. To four nonmedical witnesses who testified at the trial, Brainerd had confided at various times his belief that he was in immediate, personal peril, and that he heard warning voices, inaudible to others. On the day of the homicide he overheard people saying, "The time has come; they will do him tonight." While in the insane hospital at Augusta awaiting trial, Brainerd made an attack upon a supposed conspirator. The delusion still is, and will remain, a part of himself.

Eight medical experts examined Brainerd, five at the request of the state and three at the request of the defense. All agreed in the opinion that Brainerd was insane, and that his homicidal acts were the consistent product of his insanity. The verdict of the jury was murder in the first degree.

The voice of the people, formulating opinions concerning these five cases, is perhaps interesting as a study in human nature, although a trifle too vacillating to be accepted as the voice of God. The day following the Scribner homicide it is estimated that more than 1,000 people from the little city of Augusta went out over the Brook Road toward Sidney, to visit the scene of the tragedy. Almost everybody's first exclamation after hearing of the homicidal acts of Scribner, Hurd and Brainerd, was substantially this: "He must have been crazy." Presently people began to say, "What an ugly fellow he must have been!" The assassination of President McKinley shortly

before the trial of Brainerd, called out the remark, "I suppose the lawyers and doctors will try to make out that Brainerd is insane." When the insanity of Brainerd was demonstrated in court, and many people who heard the testimony were convinced, there was not a little unfavorable criticism of county officers, because they had subjected the people to large and unnecessary expense. Perhaps the majority of those who had followed the case evinced surprise at the verdict. Acquiescence, however, was speedy and cheerful. "After all," people said, "the State prison is the best place for a man like him."

The sexual immorality in the lives of Brainerd, Knight and Libby did not, as a rule, appear to impress people as evidence of defective inhibition and, to a certain degree, a sign of mental weakness; on the contrary, it aroused prejudice; and it is perhaps not unnatural that many good people should allow their brain cells to receive no further commotion from such reports than may be caused by the shock to their moral sense.

The unnatural nature of the acts of Scribner and Hurd — the killing of their nearest relatives — also gave an inward curve to the judgment of many people. A crime so hideous and inhuman, they reasoned, can meet no punishment sufficiently severe.

As Dr. Barr, of Elwyn, has remarked, "Brutality on the one hand and sentimentality on the other have obscured the truth."

Judge Emery's ruling in the Knight case, vigorous and sharply defined as it is, setting in bald relief the ancient and rock-ribbed criterion of the law, may be destined — nay, even intended — to illumine in order that it may destroy. The abolishment of Sunday blue laws, for example, might best be accomplished by the object lesson of a period of rigid enforcement. There is, however, this difference between Sunday blue laws and the right-and-wrong test, that the underlying principle of the blue laws is worthy of praise, while the criterion by which responsibility for homicide is now determined in Maine is inherently incorrect.

A neat illustration of the fallacy of this legal criterion is afforded by an English case, to which Mr. Justice Hawkins has referred. In this case, a man named Smith was killed by a man named Ware, both being inmates of an insane asylum. Ware admitted that he had killed Smith; and he showed that he knew that his act was wrong, by extracting a promise that he should not be punished in case he gave up the iron bar with which he killed Smith. "No man in his senses would suppose," says Mr. Justice Hawkins, "that any jury would find Ware responsible."

If we could only have in Maine a case as plain as this,— if the county attorney of Kennebec would insist upon trying in court the next homicide which occurs in the insane hospital at Augusta, the sickening cruelty of the only proper legal criterion might become as evident to the courts as it has been for a long time to observers of the insane. The State of Maine, in employing experts, spends money generously for the purposes of ascertaining the truth and protecting the insane. Under present rulings this expenditure is useful to a limited degree in diffusing a knowledge of insanity; as regards the attainment of any other end, it seems to be both wasteful and futile.

In a conflict between science and law, the law must ultimately yield. This the Maine courts foresee, and one may be pardoned for reading between the lines of the rescript of Judge Whitehouse the regret of a warm-hearted man, that in spite of the plain teachings of modern observation, the Maine courts cannot yet deviate from the old criterion.

To the lay mind it seems strange that our courts, accustomed as they are to remind witnesses of a radical difference between fact and opinion, should in this matter assume for themselves the predetermination of fact.

For example, one would not expect a judge to rule as follows: "For the purposes of the law this case may be regarded as Asiatic cholera, if the jury so find. It is not a case of typhoid fever. There is no such disease as typhoid fever. Whatever the doctors have said concerning such a medical disease, the law does not recognize its existence." And yet, this is a not unfair reduction to the absurd, of the present rulings of Maine courts in relation to mental disease. No jurist, perhaps, has pointed this out so clearly as Judge Somerville, formerly of Alabama, now of New York, at one time president of the New York Medico-Legal Society. Judge Somerville's conclusions are the fruit of singularly complete and painstaking research, following upon years of service as asylum trustee and lunacy commissioner.

In the case of Parsons *vs.* State, in 1886, Judge Somerville said: "The question of the probable existence of mental disease, and the effect on the mind and conduct of the patient, is a question of fact to be proved by evidence. It is equally obvious that courts cannot upon any sound principle undertake to say what are the invariable or infallible tests of such disease. In the present state of the law, we are confronted with this practical difficulty, that the courts in effect charge the juries as matters of law that no such mental disease exists — that there can be, as a matter of scientific fact, no cerebral defect, congenital or acquired, which destroys the patient's power of self-control, his liberty of will and action — provided only he retains a mental consciousness of right and wrong."

For 30 years the courts of New Hampshire have ruled that tests of mental disease are matters of fact. Whether the defendant had a mental disease, and whether his act was the product of such disease, are questions of fact for the jury.

In Massachusetts, so long ago as 1844, the ruling of the courts was broadened by Chief Justice Shaw, to include mental disease by whose overwhelming violence intellectual power is for the time obliterated.

Not radically different from Massachusetts rulings are the decisions in Michigan, Indiana, Kentucky, Delaware, Alabama, Arkansas and Montana. In the Scottish courts this is now held to be a question, not of knowledge, but of soundness of mind. As was pointed out in 1874 by Lord Justice Moncrieff, a knowledge that an act is wrong may stimulate an insane man to do the act simply because it is forbidden.

A study of present conditions in Maine appears to justify the following conclusions:

That insanity has never been a cloak for homicide.

That within the last 25 years there have been at least five cases of homicide, and probably others, in which the doer of the act has been insane before and after he did it, and in which there is at least a high degree of probability that the act itself was the product of his insanity.

That these men have all been convicted of murder.

That the convictions are to be attributed in part to the explicit, lucid, archaic and rigorous rulings of the Maine courts.

That the practical working in Maine of the "only proper legal criterion" is to concede irresponsibility only to idiots and to maniacs.

That a realization of these facts on the part of the courts, the prosecuting officers and the public, together with increasingly accurate knowledge of the nature of mental disease, must inevitably lead to verdicts which are at the same time more just, more scientific and more humane.

## THE SIGNIFICANCE, PATHOLOGICAL AND CLINICAL, OF ABDOMINAL PAIN.[1]

BY MAURICE H. RICHARDSON, M.D., BOSTON.

[Concluded from No. 8, p. 192.]

The chief significance of abdominal pain in the second group is the earliest possible recognition of lesions which demand immediate surgical intervention. The pain in every lesion mentioned —and in fact in many that have not been specifically named—is such as to demand the earliest possible exploration. Not a single lesion presents even a fair chance of spontaneous recovery. Immediate exploration must be the decision if, from a careful history of the onset of the pain and intelligent observation of its severity, extent, and possible urgency, the observer rightly interprets the significance of the pain.

Judged by the frequency of the lesions comprised in this group, no more important subject in connection with abdominal surgery can be imagined. The success of intervention is in direct proportion to its promptness. In gastric ulcer, for instance, the mortality after operations performed in the first 12 hours is in markedly favorable contrast with that of the operations of the later hours — so in the perforations of typhoid ulcers, and, in fact, in all rapid and overwhelming extravasations. The surgeon who waits until his diagnosis is made certain by the appearance of unmistakable signs of general peritonitis will wait in vain for the successful issue. He should realize the importance of the initial pain. With the confirmatory signs of rigidity and tenderness, explorations made at once will show, in marked contrast with the deplorable results thus far attained, a splendid percentage of recoveries.

Pain in localized infectious processes of different viscera—processes which pursue a comparatively slow course, and in which the infection is confined to the viscus, or to its contiguous peritoneum—is usually slow of onset and moderate in severity. The pain is continuous and gradually increasing. When the process reaches the peritoneum, to the pain of the original lesion is added that of a local peritonitis. A clinical distinction is not always possible between these localized infections and infections of the general peritoneal cavity. Most general infections are indirectly dependent upon the local ones, as already remarked. In some of these infections there may be no pain whatever until the peritoneum is reached. In a large proportion of the cases of acute appendicitis, for example, the ulceration, engorgement and beginning necrosis of the appendix may cause, and in fact usually do cause, no pain whatever. The patient may be apparently in perfect health until the appendix wall gives way, and the appendix pours its own contents, often followed by that of the cecum, into the abdominal cavity.

At this moment of perforation the patient is for the first time seized with the excruciating pain described in previous paragraphs. The importance of this fact in connection with appendicitis is very great. The conception of appendicitis in the minds of many is that the disease is always, from the very beginning of its internal changes, a painful one; that in many, if not in most, of the severe attacks, the initial symptoms are intra-appendicular. The chief question asked in such a case, as I have observed hundreds of times, is whether I think the appendix perforated. The fact is, that in almost every case of acute appendicitis the initial pain is caused by an extravasation of microorganisms either through a gross perforation of the appendix or by gradual universal transudation. It is doubtless true in chronic appendicitis that the grumbling indefinite pains, irregularly colicky, of moderate severity, are dependent upon changes in the interior layers of the appendix with painful paroxysms of the appendix itself. Many of these minor changes in the appendix give rise to no pain or other symptoms. The moment, however, this slow and unnoticed disease reaches the peritoneum, then pain invariably arises.

In ulcer of the stomach no pain or other symptom may exist. The sudden pain of perforation in such a case may cause the greatest doubt as to its source; so in ulceration of the duodenum and intestine, and in many other unsuspected lesions, which result, through perforation, in the sudden and widespread peritonitis of the second group.

[1] Read before the Obstetrical Society of Boston, Nov. 19, 1901.

In the infections confined to the gall bladder the symptoms are usually more definitely localized than in the other diseases of this group already considered. The pain in cholecystitis is caused at first by overdistention of the gall bladder from closure of the cystic duct, which, in turn, is caused by infection and swelling of the mucous membrane. This early pain is spasmodic in character, from the paroxysmal efforts of the gall bladder to empty itself. The later pain of a necrotic and ruptured gall bladder caused by the rapid flooding of the right upper quadrant, extending sometimes to the whole abdomen, is excruciating and continuous.

Infections of the Fallopian tubes so closely resemble those of the appendix that the analogy is almost perfect. The tube, however, differs from the appendix in that it never becomes necrotic; moreover, in the advanced stages of extreme dilatation, it is but rarely perforated. Sometimes, however, fluids confined to the lumen of the tube by closure of its uterine and its fimbriated extremities overcome the obstruction at the peritoneal end, and escape suddenly into the pelvis. Such a course simulates clinically the escape of fluids from an obstructed and inflamed appendix through a perforation in its walls. No accurate discrimination can be made between an appendicitis and a right-sided salpingitis by the kind of pain and the manner of its onset. Even when all the facts are considered, the differential diagnosis will be impossible.

In simple intestinal obstruction the onset of pain is usually sudden; sometimes it begins like the giving way of an attachment or of an adhesion. It is paroxysmal,—usually mild and infrequent in the beginning, violent and oft-repeated as the obstruction becomes more and more complete. The suddenness of the pain will depend upon the suddenness and the completeness of the obstruction. When, for instance, a band or a kink or a foreign body only partly obstructs the fecal stream, the paroxysms are mild and the pain comparatively slight. When the obstruction becomes complete, however, the pain is excessive, the spasms longer and more frequent.

The secondary symptoms upon which the diagnosis of acute intestinal obstruction without necrosis must rest are distention, vomiting, spasmodically contracted coils visible through the abdominal walls, absence of fever. Careful inquiry will bring out some reasonable theory as to the probable cause. Previous attacks of localized peritonitis and abdominal operations will suggest a band or a kink; the history of a tumor will suggest pressure and faulty position of a coil; emaciation in middle life, malignant disease; ascites, tubercular stricture.

Even in the simple mechanical obstructions without necrosis of the whole coil, fecal extravasation may take place, when, for instance, a band cuts through the intestines, or small areas become necrotic under pressure, or when the bowel is so excessively distended that it bursts. In such cases the intermittent spasmodic pain becomes the overwhelming agony of a general peritonitis.

Pedicle torsions in cases of ovarian tumor, movable kidney or wandering spleen are always accompanied by pain. It is of the severest character, usually of sudden onset, sometimes continuous, sometimes paroxysmal. The commonest torsion is that of the ovarian tumor pedicle. In many cases, as already mentioned, the obstruction to venous return results in an extravasation of blood into the tumor. If the capacity of the tumor is great, the chief symptoms may be those of hemorrhage which, following sudden pain in ovarian tumor, makes the diagnosis clear. If there is no extravasation of blood, the tumor is nevertheless tense, tender, and painful from serous exudations. Hemorrhage into the cavity of an ovarian tumor sufficient to cause symptoms is, however, not the rule, although the cyst contents are commonly more or less tinged with blood. In torsion of the wandering spleen, movable kidney and other solid tumors with long pedicles, hemorrhage never results. The pain in torsions is caused probably by the sudden interference with the circulation and beginning necrosis. In many cases of ovarian torsion the pain is in the beginning slight; as the twist increases, it becomes more severe. Though the final turn which completely cuts off the circulation causes the first attack of severe pain, yet the history will show slight attacks, similar, but less severe. The diagnosis of tumors with twisted pedicles must always depend upon other signs than pain. A history of tumor, a sudden enlargement and marked tenderness in that tumor, preceded or accompanied by pain, are sufficient to establish the diagnosis. Cases arise, however, in which no exact diagnosis can be made. Even when nothing abnormal has been suspected, the presence of a tender tumor in the lower abdomen, with a history of sudden pain, is sufficient evidence for a correct diagnosis of ovarian torsion. The diagnosis is not always so easy, however, for other lesions may be found when sudden abdominal pain leads to the discovery of a tender tumor. In several instances I have strongly suspected an ovarian torsion, and have, on exploration, found a salpingitis, an inflamed fibroid, a suppurating cyst, an extra-uterine pregnancy, or even an acute dilatation of the stomach.

Abdominal pain, neither preceded nor accompanied by other symptoms, sometimes has a suddenness of onset, a local severity, and a constitutional effect sufficient apparently to justify intervention. Yet exploration under these circumstances will sometimes reveal no abdominal lesion whatever. It is not uncommon, especially in children, to find acute abdominal pain with muscular rigidity dependent upon a pneumonia or a pleurisy. The cause of abdominal pain in such conditions is a matter of conjecture. It has been suggested that the pain is reflex, through the abdominal branches of the intercostal nerves. The respiration should be noted, the lungs should be examined, as a routine procedure, in all cases of

abdominal pain, and especially in children. I have seen four or five cases of acute pneumonia in children diagnosticated as appendicitis from the abdominal pain and the secondary rigidity dependent upon the pain alone. In one instance the appendix was removed on the strength of my diagnosis — which was appendicitis. The child had pneumonia; later an empyema, which was successfully operated upon.

Abdominal pain is occasionally present in other acute diseases, attended by high pulse and high temperature. Simple abdominal neuralgias, simple and painful functional disturbances of the intestine, occurring while the patient is suffering from the constitutional effects of diseases elsewhere, always raise the suspicion of some acute intra-abdominal lesion. I have seen, for example, symptoms strongly suggesting pancreatitis due entirely to a multiple septic pulmonary infarction. Painful abdominal symptoms occurring in the course of zymotic or other constitutional diseases must be scanned with especial care lest the patient succumb to the weight of the original disease with that of a useless exploration superadded. So in fractures of the femur one occasionally sees acute abdominal symptoms preceded by pain, the lesion being usually fat embolism, and infarction.

The most important zymotic disease to be ruled out when acute abdominal pain is present is typhoid fever. The occasional sudden onset of typhoid fever marked by abdominal pain and tenderness makes it of the greatest importance that the surgeon be on his guard, especially in communities where typhoid fever is prevalent. It is only in the early days of typhoid fever that the mistake is likely to be made. Sudden abdominal pain occurring in the second or third week of a well-recognized typhoid suggests at once the perforation of a typhoid ulcer and demands exploration. The pain of the initial attack of an atypical typhoid may suggest an appendicitis.[2]

An elevated temperature, a high pulse, an area of tenderness in the right iliac fossa, with rigidity, with the tumor of enlarged and infected lymphatics in the ileocecal mesentery, make in some cases of typhoid the diagnosis of appendicitis more than probable. The pain, however, is rarely an agony. In itself it is seldom so severe as to demand exploration under the mistaken diagnosis of appendicitis. Only those surgeons who operate in all cases of appendicitis "as soon as the diagnosis is made," will be likely to operate in the initial pain of an atypical typhoid.

Abdominal pain, whether functional and nervous, whether dependent upon lesions remote from the abdomen, is rarely accompanied by rigidity unless accompanied by peritonitis. Pain, even if severe, in an abdomen which permits the deepest palpation, can seldom be dependent upon a peritoneal infection, or at least upon an infection of serious moment. In infections of the peritoneum from extravasations, pain, even in the very beginning, is accompanied by abdominal rigidity. It may be laid down as an almost invariable rule that absence of rigidity means absence of infection. So in the early days of typhoid, pain is unaccompanied by rigidity, and deep palpation is usually possible. Rigidity is absent or doubtful; tenderness slight and difficult to localize. Tumor is always obscure. Careful inquiry in such a case will often show, preceding the pain, a history of malaise, headache, nose-bleed, or some deviation from the normal.

Space will not permit even the briefest allusion to many other lesions in the abdomen which cause pain. The scope of this paper includes the discussion of only those manifestations and accompaniments of pain which demand surgical treatment, or which, on the other hand, suggest caution and bid the surgeon to refrain from operating. Particular emphasis must be given those functional disturbances in which pain leads the too zealous operator to useless or worse than useless exploration.

Functional pain is of frequent occurrence, and often severe. The distinction between pain that is apparently functional, and pain that is dependent upon organic lesions, may be difficult, or even impossible. Too often pain is attributed to functional disturbances when it is really caused by organic disease. On the other hand, simple functional pain may be regarded as owing to serious organic lesions. The difficulties of differentiation may be great. The most experienced are often deceived, especially in the study of organs like the stomach, which are frequently affected both by functional and by organic disease; so, too, the discrimination between a neuralgia and an obstructive colic, especially when the pain is at or near organs frequently the seat of both — between a gastralgia and a biliary colic, an acute right-sided oöphoritis or salpingitis and an appendicular or intestinal colic. The discrimination is always important, for we may be omitting a necessary operation or performing an unnecessary one.

The commoner of simple functional disturbances are gastralgia, nephralgia, oöphoralgia, simple intestinal colic from gas.

Pain caused by simple mechanical obstruction — though after relief of that obstruction no perceptible lesion exists — can hardly be included in the functional pains under discussion. Gastralgia is often intensely painful. Though the word *gastralgia* is in its meaning limited to a purely functional pain of the stomach, yet doubtless gastric pain, precisely similar to a functional gastralgia, may be due to organic disease.

I have never been able to place much reliance upon the symptom *gastric pain*, in making a differential diagnosis between such organic lesions as ulcer and cancer, for example, or in distinguishing between organic and functional causes for that pain. The diagnosis rests always upon other evidence. Pain relieved by taking food, for example, is said to be the pain of ulcer; a similar pain, aggravated by food, the pain of cancer. In my experience gastric pain and distress

[2] See page 29 Boston Medical and Surgical Journal Jan. 9, 1902.

are often instantly relieved by taking food or drink. Such a pain is usually functional. On the other hand, a pain which is aggravated by food is usually that of malignant disease, though it may be simple indigestion.

One must be cautious in estimating the value of pain as evidence of disease, especially in emergency surgery. He must not — I mean to say — underestimate it. In acute emergencies he may call a perforation and spreading peritonitis an intense gastralgia; in chronic diseases a gastric or cancerous ulcer the functional pain of chronic dyspepsia. The error of undervaluing pain in gastric surgery leads to costly delays: the error of overvaluing it, to occasional unnecessary explorations. In the surgery of the right upper quadrant and of the epigastrium, the weight given pain should be great, for in many, if not in most, of the lesions of this region of the abdomen, pain, of one sort or another, is a constant, a distressing and a significant symptom. In connection with other evidence the pain will, in the majority of cases, lead directly to the lesion. Pain, however, without other significant signs, must, when situated in the upper abdomen, be scanned with the greatest care. And yet persistent and severe pain alone, in the absence of other signs, may require exploration. Pain in the kidneys suggesting stone so strongly as to justify operation is by no means infrequent. I have operated upon several cases in which the history was almost unmistakable, and in which nothing abnormal was found. Even with abundant detritus in the urine, and a prolonged history of severe paroxysmal renal pain, I found the kidney in one patient absolutely free from calculus. Renal colic must therefore be most carefully studied before an organic origin can be safely admitted. The only positive evidence is an unmistakable x-ray demonstration. In doubtful x-ray views, one is as likely to find the kidney free from stone as not.

Persistent, unbearable nephralgias are so frequently relieved by exploration and division of the renal capsule that operation for simple pain is often as beneficial as nephrotomy for calculus. The error to be avoided in connection with renal pain is fruitless exploration before serious disabilities have arisen.

Functional renal pain must not be confounded with the pain of appendicitis. The initial perforation of an appendix situated high up may strongly suggest a right renal colic. I have, however, never met with serious confusion in this respect. The tenderness, rigidity, vomiting, and constitutional effects of perforation have always made the diagnosis clear. The physician should not persist in the diagnosis of renal colic when the signs of a beginning peritonitis are present.

The chronic pains so frequently observed in the ovarian region are of great importance. Acute sudden pain in the right lower abdomen, with rigidity and tenderness and constitutional disturbance, may mean, in women, acute appendicitis, extra-uterine pregnancy, hematosalpinx, or salpingitis. Such pain, with such accompanying symptoms, always justifies, and, indeed, should always demand, immediate intervention (in the absence of distinct contra-indications). Chronic and persistent pain in this region may mean organic lesions of ovary, tube, appendix or intestine. Discrimination between organic lesions of these organs and simple functional disturbance is extremely important. This discrimination must rest largely upon the pain, its character, its mode of onset, its persistence, and its mode of cessation. Correct interpretation of the pain, however, is often impossible. It is in many cases real and dependent upon organic disease. The diagnosis will rest upon the history and the location of the pain, the possible causes given by the history.

Without physical evidence of the lesion the diagnosis is often in doubt. Usually exploration is indicated by pain alone, after this symptom has been borne as long as it can be borne. An incision in the right linea semilunaris gives access to appendix, tube and intestine, and the lesion found can be remedied.

As a rule, functional pain makes little impression of gravity upon either physician or patient. It lasts over long periods of time. Exploration is finally resolved upon because the patient is out of patience with it. Sometimes the cause is found and removed — more often nothing is accomplished beyond a demonstration of its functional origin.

Functional pains of the abdomen are by no means infrequent. They include the intermittent, the spasmodic, and the distressing pains of gastric and duodenal disease, the gastralgias, the intestinal colics dependent upon various functional disturbances of digestion, ovarian neuralgias, neuralgias of the sensory nerves of the abdomen, hysteria and the like. Analogous to these sometimes terrific pains are those of the passing of renal and biliary stones. Although the pain in these lesions is paroxysmal, it is not neuralgic in the sense that there is no definite cause for it. Like the pain of intestinal obstruction, that of the passing of a renal or a biliary stone is severe in the extreme. No abdominal pain can compare with it. The ordinary doses of opium or its derivatives have no effect whatever. In many cases complete anesthesia must be resorted to. It is important to recognize, therefore, the functional pain of the abdomen already described and the obstructive pains of hepatic and renal colic; the former, in order that no unnecessary exploration may be made; the latter, in order that the surgeon may be guided to operations for relief at a time most favorable for intervention.

There is a well-marked and characteristic variety of abdominal pain which every experienced observer will have seen in neurasthenic women, or, for that matter, in neurasthenic men. No form of abdominal pain not dependent upon acute and grave disease is of greater importance, for this persistent, annoying, and apparently unbearable symptom, though not classed as urgent or even as serious, leads probably to more useless, not

to say harmful, operations than any other single symptom. The patients are as a rule women, and invariably neurasthenic. Ten years ago a one-sided pain, running into, toward or from the region of the ovary, led almost invariably to the removal of that ovary. After convalescence from this operation, the pain would appear perhaps in the other ovary, which would be removed for the same reason that the first was. After convalescence and temporary benefit from the second operation, the pain would appear perhaps in the right upper quadrant, and be referred to a movable kidney. Fixation of the kidney would be followed by indefinite and obscure pain along the course of the colon, or, more probably, by recurrence of previous pains, which the patient, after heroic measures, would be less able to endure than in the beginning. Her last state would be worse than her first.

When the patient — usually a woman of vivid imagination, perhaps well nourished, rosy cheeked, and apparently in perfect physical condition — complains of abdominal pain, appearing first in one place and then in another, disappearing temporarily under one method of treatment, and reappearing under another, the surgeon who is especially inclined to the appendix will regard a right-sided pain as appendicitis; the gynecologist, perhaps, as a right ovarian affection; he who is interested in movable kidney, as a right movable kidney. The neurologist will look upon the case as one of neurasthenia, the pain as a manifestation of that extraordinary condition. The disappearance of pain which almost always follows the appendectomy, the ovariotomy, the nephrorrhaphy, the nerve-treatment, is a brilliant tribute to the diagnosis and to the treatment. Unfortunately, however, the pain soon returns and perhaps in a severer form.

A word of warning should be written against the too ready use of the knife in these cases, especially in connection with the removal of normal ovaries. The removal of an appendix — even if it is a normal one — sacrifices no useful organ; it may in the future be regarded even as a wise prophylactic measure. The fixation of a movable kidney, if it does no good, can hardly do harm. The removal of an organ like the healthy ovary, the influence of which upon the whole physical and mental makeup can hardly be overestimated, cannot but do harm. Radical operative measures in the neurasthenic should be considered with the greatest care, and especially normal ovariotomy for obscure abdominal pain. The surgeon may be less conservative in operations which, if they do no good, are likely to do no harm.

No case comes more frequently to the notice of the abdominal surgeon than that of the neurasthenic woman, with her terrible and unbearable pain. The symptom-complex, the history, the physical examination, all make conspicuous the diagnosis of neurasthenia. He who yields to the temptation to operate on one ovary will observe a temporary benefit — the pain will disappear, only to return, however, at some other point in the abdomen.

He who removes the appendix will have a similar experience, and so he who fixes a movable kidney. The cause of this pain is a general one. The pain itself is but one of the numerous manifestations of neurasthenia. Such cases should be referred to the neurologist. When the neurologist has exhausted his resources, he may then refer the patient to the surgeon.

The truth of these statements will, I think, be admitted by everyone who has operated upon similar cases. The temporary benefit after the removal of an ovary is in many patients the result of suggestion; in many just as much benefit would follow a simple incision through the skin. One must be extremely careful in giving the proper weight to abdominal pain in neurasthenics, man or woman. The success of no operation should be confidently predicted.

I have already referred to the pain of a renal and biliary colic. This pain is of the greatest severity, and usually indicates clearly the cause. At times, however, the local symptoms attending these colics will be such as to suggest a peritoneal infection. Indeed, the peritoneum is sometimes infected by extravasations above the stone. There is usually, however, no rigidity. If there is tenderness, it is after the passage of the stone, and results from injury to the mucous lining of the duct, and, in biliary colic, from overdistention of the gall bladder. The confirmatory signs of renal stones or of gallstones must be found in the history of the patient, and in examinations of the urine and of the stools. From the pain itself little can be judged, except from its direction, the pain caused by a gallstone usually extending into the back or into the shoulder blade, that of a renal stone into the groin, right testicle, or right lower extremity, in which latter case the testicle is usually retracted. Attacks of renal and biliary colic can be rarely mistaken. It is only the unusual varieties that suggest other lesions; varieties in which perhaps the passage of the stone is slow, the pain of moderate severity, attended perhaps by rigidity, tenderness, and possibly fever.

In the consideration of abdominal pain, the patient himself must be taken into consideration — whether he is neurasthenic, imaginative or phlegmatic; whether his pain is quickly forgotten; whether he sleeps without opium, or whether the pain is relieved by very small doses of morphia or by a placebo. The severity of the pain can be estimated somewhat by the severity of the accompanying symptoms and signs. These have already been commented upon.

Simple pain, without perceptible or perhaps imaginable cause — a pure neuralgia — either really exists or is the product of imagination. I visited almost daily during the last years of his life an aged physician who had held his hand upon his right iliac fossa most of the time since 1851. He was convinced by the ever-present pain that the bowel would burst unless he supported it by firm pressure of the hand. He was a

calm, reasonable, unimaginative man. At the autopsy nothing abnormal could be detected. Unless pain of this kind be attributed to neurasthenia or to imagination it must be a simple neuralgia. Such a history would today undoubtedly lead to exploration and removal of the appendix, whether apparently diseased or not.

In some cases, especially when there is habitual constipation and flatulence, it seems reasonable to conclude that pain may be the result of an overdistention of the colon, especially the cecum, with gas. During operations in the right iliac fossa I have observed the cecum tightly distended, even after apparent thorough preparatory emptying by cathartics and enemas.

If it is thought advisable to use morphia or its derivatives, a reasonable idea of the severity of the pain can be gained, as already stated. In some cases the severity of the pain may be tested by distracting the patient's attention. A patient who is writhing about the bed, with loud cries, and who immediately quiets down and answers questions until her attention is again attracted to her symptoms, who falls asleep during her paroxysms, is probably one who exaggerates her symptoms.

The importance of gauging the patient's ability to bear pain is great. The attending physician, who has known the patient perhaps for years, is the best judge of the real amount of suffering. The consultant, who sees the patient for the first time, and then perhaps for only a few minutes, may be entirely deceived. A fair estimate of the value of pain can always be gained by the accompanying and confirming signs of abdominal lesions. Rigidity of the abdomen cannot be simulated beyond detection. Moreover, such rigidity cannot possibly be lessened by effort on the part of the patient. Exquisite tenderness cannot easily be feigned, or, if it is feigned, it can easily be detected by diverting the patient's attention. Fever and rise of pulse do not, of course, admit of malingering or of exaggeration — so, too, the signs of faintness. Acute pain alone is never a sufficient indication for exploring the abdomen. There must be at the same time signs confirmatory of its grave significance. Indeed, it would never be possible for the surgeon to see the patient early enough to operate before the existence of some such confirmatory signs. The violent pain of an intestinal perforation is so quickly followed by rigidity, tenderness, nausea, vomiting, and other symptoms of shock, that no surgeon could possibly get to the bedside before they appear. Pain may, therefore, be said never to be alone a sufficient indication for exploration even though the time of its onset would be the most favorable time for intervention. Its value is chiefly as a guide to the seat of the lesion and to the general characteristics of the lesion. Extensive experience with the lesions causing abdominal pain will emphasize more and more the importance of this symptom.

The treatment of abdominal pain has already been considered in the foregoing paragraphs. In connection with acute abdominal lesions the treatment of pain is the radical treatment of those lesions. The only real significance of pain, as I have already stated many times, is in guiding the surgeon to some lesion the surgical relief of which will be successful in proportion to the promptness with which it is afforded. The great lesson to be learned is that surgical intervention, to be of any avail, must be prompt. If that relief could be given the moment pain first calls for it, there would be no more brilliant chapter in the history of abdominal surgery than that of acute abdominal emergencies. At the present time there is no more deplorable chapter. The greater the experience of the surgeon, the greater his dread of acute abdominal symptoms. It is in this field almost exclusively that his disasters lie. He knows when he is called that his efforts are more than likely to be unsuccessful, and no one knows better than he when his introduction into a community is likely to be followed by failure. Were it not for the occasional successes, even in the face of unfavorable symptoms, he could have no heart whatever in this branch of surgery.

The surgical treatment of pain, therefore, is the surgical treatment of abdominal emergencies. The value of time has been preached for years. Unfortunately, it is still necessary to reiterate its great importance. When patients are seized with sudden unbearable pain, the first thought of the physician — long before the appearance of other symptoms — should be surgical intervention. The surgeon should be on the alert when such pain occurs — ready with his instruments to take advantage of the first confirmatory sign of disaster.

### CONCLUSIONS.

When a patient has been siezed with sudden severe abdominal pain —

(1) The pain should not be masked by opiates before the surgeon has an opportunity to see the case.

(2) The previous history, accompanying symptoms, and physical signs must be carefully considered.

(3) Careful examination of the thorax and abdomen in all cases of pain should never be omitted.

(4) When hemorrhage is suspected, the abdomen should always be explored. If the patient is in collapse and the pulse apparently too weak to allow the patient to undergo exploration, preliminary infusion of salt solution should be made into the veins or under the skin.

(5) When the pain is excruciating and the abdomen shows signs of infection, exploration should be made at the earliest possible moment.

(6) The seat of the initial pain, as described by the patient and his friends, is a good guide to the incision, when, from other symptoms, the surgeon is in doubt.

(7) The history and signs other than pain must be relied upon for exact or reasonably positive diagnosis.

(8) When some of the rarer abdominal lesions are suspected, exploration should nevertheless be made. Such an exploration may be useless, but if resorted to as a routine procedure in all cases, the greatest possible number of lives would be saved.

(9) When there is the least question, the genuineness of the pain should be tested as thoroughly as possible.

(10) The pain of an atypical typhoid, of a pleurisy, of a pneumonia, must be guarded against. When typhoid is prevalent in a community the greatest care must be taken lest the surgeon be misled by the pain of such a case.

(11) The observer must be on his guard lest he confuse the pain of simple functional disturbances with that of organic disease; he must rely upon the accessory signs of the organic lesion.

(12) When in grave doubt as to the significance of pain and other symptoms, the benefit of the doubt should be given the patient by surgical exploration.

(13) Finally, when no exploration is regarded as justifiable, pain should be controlled by morphia, by hypnotics, or, if necessary, by general anesthesia. With very few exceptions, however, — chiefly cases of renal and biliary colic — the pain that demands general anesthesia demands operation.

## SOME POINTS OF VALUE IN THE DIAGNOSIS OF DISEASE OF THE ABDOMINAL ORGANS.[1]

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I WISH to bring to the notice of the society a few points that have been of value to me in the diagnosis of various obscure conditions met with in the abdomen.

In acute disease within the abdomen exact diagnosis of the pathological condition is often of the utmost importance to the life of the patient. Upon our decision is determined whether we may temporize, treating the prominent symptoms only, or whether the condition is such that surgical interference alone can save the life of the patient.

Many cases lie on the borderland between medicine and surgery, ready on the change of a single symptom to be transferred to one department or the other.

In acute diseases of the abdomen we have a very different problem to consider from that which confronts us in chronic diseases. The question is not whether by operation we can make our patient more comfortable, or whether we can prolong a life of moderate usefulness by a severe operation, but whether our patient will die if we do not advise operation.

As someone has written recently, there is a time in every case of appendicitis when operation would save the life of the patient. This saying is still more true in all cases of intestinal obstruction, due to twists of the intestines or bands of inflammatory tissue which have caused an obstruction of the bowel. What we have to consider is whether it is probable, and in rare cases we may be justified in saying whether it is possible, that such conditions exist in the patient under observation.

The more cases I see the more am I convinced that in doubtful cases an exploratory laparotomy should be performed. I have too often seen death follow an operation which has been too long delayed in cases where early and prompt interference would undoubtedly have saved the patient.

The wide experience in laparotomy during recent years in our hospitals demonstrates that in a few cases the operation has been performed without avail, in that no surgical disease has been found. In some of these cases, probably in most, careful consideration, even after the operation, does not demonstrate clearly how the error could have been eliminated without the operation. To offset the few cases in which an unnecessary operation has been performed, we could all report cases in which an operation too long delayed, or a post-mortem examination, showed the presence of a condition that might have been cured by early interference.

As an illustration I may cite a paper that I published, upon "Abscess of the Liver," in 1899.[2] A report was made upon 17 cases of abscess of the liver. In 10 the abscess was the direct result of an appendicitis which had not been recognized. I give one case as a type.

Man, age 21; three years before entrance to the hospital he had acute appendicitis in a neighboring city. According to his statement there was a tumor in the right iliac region, with severe abdominal pain. For two weeks before he entered the hospital his appetite had been poor and there had been some headache. Four days before he entered he had severe pain in the right iliac fossa, which caused him to stoop forward when standing. Nausea and vomiting followed the pain, and in a few days several chills. Expression anxious, mind clear; general abdominal tenderness, most marked in the right iliac region; spleen not enlarged; leucocytes 8,000; no plasmodium.

In this especial case the history of malaise suggested typhoid: he had worked in a region where malaria was common, therefore the chance of typhoid and malaria made us ignore the bright mental condition and the positive evidence of localized tenderness in the right iliac region. Numerous chills soon followed, with marked leucocytosis, slight jaundice and enlargement of the liver. Death followed in three weeks, and post-mortem examination showed appendicitis, with a small mass of pus, occlusion of the portal vein by purulent phlebitis, multiple abscesses of the liver.

Our chance of saving his life was lost when we did not recognize the importance of the early attack of pain in the right iliac region. Operating at the end of the first week in the hospital, when

[1] Read before the Clinical Section of the Suffolk District Medical Society Jan. 15, 1901.

[2] St. Paul Medical Journal, June, 1899.

the leucocytes were 23,000 and he had had several chills, might have saved his life.

Further, in many cases an exploratory incision may help the patient, though we find some malignant disease which makes operation impossible or inadvisable; by our examination we learn for a certainty that in operation only can we hope to find help for our patient, and so may lay out for the sufferer the wisest plan to allay pain by the judicious use of morphin or some other opium derivative.

As in recent years a certain amount of success has followed the various operations for malignant disease, we may feel more and more justified in giving an opinion in favor of an exploratory incision.

I have always remembered with regret two cases that were admitted to the hospital as habitués of the opium habit. Both complained of abdominal pain. One was an old soldier who had taken opium previously for a painful stump, though for several years he had taken no opium; the other was a very healthy looking young girl. Both struggled hard to stop the opium, adding to their pain the dreadful longing for the drug. In each case an autopsy within a few months showed cancer of the stomach. In such cases an exploratory laparotomy is certainly not useless, though such a procedure was not considered at the time that these cases were under my observation (1883).

Taking up now various signs and symptoms:

*Pain.*— No symptom is less reliable than the history of pain. First, the susceptibility of the individual to pain is most varied. One individual gives up entirely to pain that is probably not more severe than the pain in another individual who considers it as of no importance.

Since writing this paper I was called to see a young woman of 32 years, who was the cook of one of my patients. I saw her on Thursday afternoon. On the previous Tuesday she had not felt well, and in the evening she walked from the Back Bay to Huntington Avenue to consult a doctor. She did her work on Wednesday. All Wednesday night she vomited and had a good deal of abdominal pain. She cooked the breakfast on Thursday, then went to bed. When I saw her she said she had but little pain. Temperature, 101°; pulse, 120; spasm, tenderness and dulness in the right iliac region. She wished to wait for her own doctor, as she did not favor my diagnosis of acute appendicitis, with the advice for immediate operation. An operation Thursday night showed a gangrenous appendix with perforation. Fortunately she recovered.

The pain of a "Crise gastrique" may undoubtedly be far more severe than the pain of an intensely acute peritonitis. In fact, is is my experience that a sense of distress and discomfort in the abdomen, occurring in a patient previously healthy, is of far graver import than sudden acute pain without the other important symptoms which I shall speak of. Further, the situation of the pain is of very little value in locating the seat of the offending lesion. In appendicitis, for instance, the seat of the pain is usually at the umbilicus, or higher, at the epigastrium. I have myself had for a period of two years many attacks of appendicitis, and I was invariably warned of the approach of an attack by a moderately severe colic, with its apparent maximum force at the epigastrium. This pain rarely prevented my attending to my professional duties until vomiting and local tenderness forced quiet in bed.

We realize still more the slight dependence to be placed upon the history of pain when we consider that in hospital practice, at all events, many patients are so benumbed by the severity of their disease, that they certainly do not speak of pain as a prominent factor if it is present. In many cases of severe abdominal lesion the absence of pain seems to me comparable to the absence of pain after severe burns, the result of shock, and so noticeable when we think of the really excruciating pain which follows some slight burn of the hand.

Of course, an acute attack of pain must always receive our most careful attention, as it is usually our first sign in perforation and allied conditions, but pain may not be a symptom of serious import. Further, what is of the greatest importance, the absence of pain, or, rather, perhaps, the absence of any expression of pain, must not be considered as of much value in the elimination of acute abdominal disease.

Nausea and vomiting are of the greatest importance, and are symptoms which should invariably be carefully considered in the history of any abdominal case. It is rare, very rare, to find any acute disturbance of the peritoneum, whether from inflammation or mechanical violence or from twist, without the occurrence of vomiting. On the other hand, these symptoms are not so common in colic or abdominal pain from other sources. In the latter class of cases the vomiting depends upon the severity of the pain, and not upon any local disturbance, *per se*.

Another point of value in the history, as suggestive of some abdominal disease, is the occurrence of constipation, obstinate in character, in a patient who has not previously suffered from sluggish action of the bowels. Two years ago I had under my care a boy of 12 years. He had never been very rugged, and for several years had suffered much from constipation. The bowels never moved except when strong cathartics were given, and he had apparently no power to aid evacuation by abdominal pressure. Dec. 17, at night, he complained of abdominal pain, and vomited. On the 18th he went to school. On the 20th he was not at school and appeared rather indolent. He had some abdominal pain, but no tenderness, and a cathartic was given by his mother. On Dec. 21 much abdominal pain, no dejection, was restless, constantly tossing about the bed. Examination showed a tumor, soft in character, in the lower part of the abdomen, which simulated a full bladder. Catheter showed that the bladder was empty; the question arose as to whether the

tumor was a hernia, intussusception or some intra-abdominal tumor, kidney being considered. Operation showed that the obstruction was due to a large cystic kidney, which had become jammed down into the pelvic, causing acute obstruction. It is probable that the enlarged kidney had for years been responsible for the chronic constipation, as after removal of the kidney the boy made a rapid recovery and has not suffered from constipation since the operation.

A subsequent review of the case disclosed a history of a sudden attack of bloody urine two years before. This was undoubtedly due to some acute obstruction in the ureter from twist or other mechanical cause.

Two other cases have been under my care: one an old lady who had suffered from "intestinal gout" and finally had complete obstruction. Operation showed a carcinoma of the large intestine. The other a man of middle age, who had a cancer in the lower part of the large intestine.

Though the careful history of a patient is of course of importance, the physical signs are far more valuable in enabling us to arrive at a correct diagnosis, and I will briefly review a few of the conditions that we may diagnose by inspection, palpation, auscultation and percussion.

The general appearance of a patient suffering from acute abdominal disease may be of much importance. The bright mental condition is of much value in distinction to the hebetude seen in many febrile conditions; the pinched and anxious facies; the absence of, or the limited excussion of, diaphragmatic respiration; while the patients usually lie very still in bed, and in many instances, though not always, bend the knees to relieve any extra-abdominal pressure from contraction of the muscles.

By "inspection" we search carefully for any irregularity suggestive of abdominal tumor. The pulsation of the normal aorta is, of course, often seen from the epigastrium to about the level of the umbilicus, but a pulsation transmitted to the abdominal wall at or below the umbilicus is always suspicious. A woman once presented herself in the Out-Patient Department who had great enlargement of the abdomen, with marked pulsation at and below the umbilicus. The lower half of the abdomen was flat and a percussion wave suggested free fluid. Further, she gave a history that water had been withdrawn, and she had been told that she had abdominal dropsy. Largely on the ground of the pulsation the diagnosis was made of a tumor resting upon the aorta. I had not seen then, nor have I seen since, a case of ascites, in which pulsation was transmitted through the fluid to the abdominal wall. Though the case was obscure, laparotomy was performed, and a large cyst of the broad ligament was removed.

A similar pulsation is not unusual in the upper part of the abdomen dependent upon a tumor resting on the aorta, but in these cases the greatest care must be exercised not to consider the normal pulsation of the aorta as of pathological significance.

In the diagnosis of intestinal obstruction we should always look for peristaltic contraction of the bowel, which may be plainly seen by the movement of the abdominal wall. When present it is a sign of much importance.

It is usually not difficult to make the diagnosis of excessive fat in the abdominal wall, but mistakes are made, as occasionally laparotomy is performed before the surgeon discovers that the tumor is subcutaneous, and that the condition, though perhaps pathological, is not remediable by the knife. One very simple method of diagnosis makes such a mistake practically impossible, namely, that a mass that may be taken up between the two hands is subcutaneous and not within the abdominal cavity. Furthermore, when all the subcutaneous tissue is taken up between the two hands, we at once see that there can be no tumor in the abdominal cavity. This method has often been of much assistance to me, especially in the differential diagnosis of a moderate amount of ascitic fluid.

Tenderness must be sharply distinguished from pain, and is of paramount importance in the diagnosis of any and all acute inflammatory processes in the abdominal cavity. Tenderness is as important to the surgeon in arriving at the diagnosis, as pain is to the patient in inducing him to call the doctor. When spasm, distinct and sharply localized, is added to tenderness, the surgeon must have strong reasons to the contrary to justify him in deciding that there is no acute local inflammatory process.

In many a case of appendicitis the evidence of tenderness and spasm at McBurney's point clinches the diagnosis, though the general condition of the patient may be good and the initial pain of the attack has passed. We must always remember that in one place in the epigastrium, just below the xiphoid cartilage, there is always tenderness, or, rather, perhaps, a specialized disagreeable sense of discomfort. Spasm is of even greater importance than tenderness, as it is just as evident in a patient semiconscious or delirious as in one whose mental condition is bright. It is the final and most important sign looked for by the surgeon in a doubtful case after his patient has been fully etherized. Spasm is as evident under full etherization as in the conscious patient. Spasm is the reflex, not the voluntary contraction, of the overlying muscle to prevent contact of the examining fingers with the tender parts lying beneath the hand.

In all cases of colic and abdominal pain the absence of localized spasm and tenderness are most reassuring that the trouble is not dependent upon any inflammatory process. In children especially it is the first sign to look for: in the absence of tenderness, deep pressure may often be made if the patient's attention be distracted.

In children it is always my custom to ask the mother or nurse to press fairly hard in various parts of the abdomen, and especially over the appendix, to determine whether there is tenderness. This may give pretty accurate information in case

the child is at all alarmed at the presence of the doctor, and therefore inclined to cry at any manipulation.

In palpation of the abdomen we should always remember that hard masses of feces may closely simulate tumors of serious import; further, that such masses are often retained in the intestines, though the patient may have had many small, loose dejections.

It is not always easy to make the differential diagnosis between small pleural effusions and enlargement of the liver, or some inflammatory process between the liver and the diaphragm, subdiaphragmatic abscess. There is one simple method of diagnosis in such conditions that is of much value. Determine accurately by percussion the upper line of dulness on the chest wall, then let the patient take a full inspiration and hold the breath. Continue a light regular percussion while the patient inhales, and note carefully whether there is a change in the percussion note during the full inspiration. If the dulness is due to fluid in the pleural sac there will be but little change in the upper area of dulness, whereas, if the mass be beneath the diaphragm, good pulmonary resonance will be found at the point previously dull, as the expanded lung will extend downward over the subdiaphragmatic mass. This method can usually demonstrate the existence of an enlarged liver, or the rare and always obscure condition of acute suppuration between the liver and the diaphragm. I do not think that this method of examination is in common use, yet it is a sign of much value.

The last sign to which I wish to call your attention is to my mind of the greatest importance in the diagnosis of intestinal obstruction; in fact, I have written this short résumé of data as to the diagnosis of abdominal diseases chiefly to bring up this method of diagnosis for discussion, namely, the importance of an empty rectum as suggestive of intestinal obstruction when there has been no movement of the bowels for several days. Of course the value of this sign is much increased if, as is usually the case, cathartics and enemata have been given previously without satisfactory results.

My attention was first called to this sign many years ago. I was called to see a man about 40 years old, who had abdominal pain and had had no movement of the bowels for three days. He had taken several doses of cathartic medicine and numerous enemata without avail. No vomiting, no fever, no abdominal tenderness or spasm, no rise of the pulse. Digital examination was made on the ground that the trouble might be due to feces impacted in the rectum, but no feces were found, and the finger had a trace of blood on it when withdrawn. I did not then recognize the importance of this sign. Two days later the man was operated upon and a complete obstruction of the bowel was found dependent upon a volvulus.

Since then I have invariably made a rectal examination in cases that suggested obstruction of the bowel, and feel that an empty rectum is of great importance in the diagnosis of this condition. The finding of blood is of great importance in corroborating the suspicion caused by the discovery that the rectum is free from feces. In consultation I often find that no rectal examination has been made. I have talked with a good many surgeons as to my opinion of this sign in diagnosis, and have not found that others attach the importance to this method of diagnosis that I believe its value demands.

Examination of the blood may give us most important evidence, and should not be omitted when opportunity offers for such a test. In acute inflammatory diseases with exudation, leucocytosis is almost invariable. Exceptions occur, but not often; for instance, in severe acute septicemia leucocytosis may be wanting, in a class of cases in which rise in temperature may not be found. Cases of this variety are from the pulse, and the general symptoms evidently very ill, so that the absence of leucocytosis cannot lead to error if we only remember that in such cases leucocytosis may not exist. Aside from these cases, in rare exceptional cases, leucocytosis may not be present. Fortunately, the blood count is of much value in the differential diagnosis of two diseases whose symptomatology may be similar in the early stages, namely, typhoid fever and appendicitis. In the former disease, in uncomplicated cases, the leucocytes are diminished in number, usually under 7,000, and not rarely under 6,000 (according to Dr. R. C. Cabot's analysis of cases, two-thirds of the cases under 7,000). In the latter case leucocytosis is the rule. It is certainly a most important rule that in a case of doubt leucocytosis should make us very suspicious as to the existence of a simple uncomplicated typhoid fever.

Of course, the Widal reaction is of much importance if it is found, and the Widal reaction may be present very early in the course of typhoid fever.

Again, the blood count is of much value in the elimination of malaria when chills of doubtful etiology are present; in malaria or in typhoid fever the leucocytes are below the normal in number. The malarial organisms, if present, determine the diagnosis.

## Clinical Department.

### ACUTE PERFORATION OF A MALIGNANT ULCER OF THE PYLORUS RESEMBLING A CASE OF ACUTE APPENDICITIS.[1]

BY E. A. CODMAN, M.D., BOSTON.

*Surgeon to Out-Patients, Massachusetts General Hospital, and Assistant in Clinical and Operative Surgery, Harvard Medical School.*

ON Christmas evening, Dec. 25, 1901, I was called to the hospital to operate on a case of probable acute appendicitis.

The patient was a strongly built man of 51. He was evidently in great pain, and his look was

[1] Read before the Clinical Section of the Suffolk District Medical Society, Jan. 15, 1902.

that characteristic of some severe abdominal lesion. His temperature was 104°, and his pulse rapid but of fair quality. He gave the following history: Has always had good health. For one week has not been feeling very well, but has been at work. Yesterday afternoon at about 3 o'clock was taken with sudden pain, at first in the lower part of abdomen and not localized at any point. He began belching much wind and vomited severely and repeatedly. Abdomen became tender, and pain became localized just above umbilicus. Vomiting and pain continued through the night, and he has been getting worse all day. Bowels moved two days ago and daily before that. Have not moved since.

Physical examination showed the following points. The heart and lungs were negative. The whole abdomen was very tender and rigid, but the right half more so than the left, and the upper half more so than the lower half. There were two points which were especially sensitive: one in the region of the gall bladder, the other at the usual situation of the appendix. That in the region of the gall bladder was the greater. So great was the rigidity that it was impossible to feel any cake. Rectal examination was negative. There was no jaundice. The white count was 38,000.

I decided to operate for the acute epigastric peritonitis, and could make no better diagnosis than that it probably was not appendicitis. I expected to find a perforated gastric ulcer or an acute gall bladder.

Under ether a deep indefinite mass could be felt in the region of the pylorus. I made a vertical incision immediately over this. On opening the peritoneum there was a free flow of thin pus. A culture taken from this showed in 12 or 14 hours diplococci and several chains of streptococci. The appearance inside the wound was exactly like that seen on opening into the inflammatory area about an acute appendix — injected and adherent coils with scattered flakes of fibrin. There were many little flakes of fibrin on the omentum and no definite adhesion walling off the abscess. Though the mass was high I began to feel that it was an appendix after all, for I have twice found the appendix adherent to the gall bladder. I therefore pulled up the caput coli, and was rather surprised to find the appendix normal, except for its involvement in the slight general peritonitic process.

On separating the light adhesions in the upper end of the wound about the mass, the region bounded by the liver and stomach and transverse colon was exposed, with the pylorus and first part of the duodenum forming its floor. These structures bulged into the wound and formed the tumor which had been palpable. As the tumor was more or less covered with fibrin and the structures about it edematous, I could not make out whether it was a tumor of the pylorus itself or whether the pylorus and duodenum were raised by a mass underneath them. On top of the tumor was a diphtheritic looking spot about the size of a thumbnail. This spot gave a sensation very like fluctuation. There was no hardness suggestive of malignant disease, nor did the history or looks of the patient suggest it; the gall bladder was normal. I then felt that it must be a deep abscess, probably pancreatic. A finger in the foramen of Winslow partially settled the question, for I could take the pylorus — about the size of a small mandarin — between it and my thumb. Even then the tumor, though movable, seemed connected with the head of the pancreas. It was not hard and there was nothing to contradict its being a perforated ulcer backed by inflammatory tissue. Whether it was this condition or whether it was a cancer of the pylorus it seemed certain that at any rate there was pyloric obstruction. I did not know whether to simply drain the region or to do gastro-enterostomy. Excision was evidently too much. If it were perforation from ulcer, drainage from the stomach might favor healing and avoid the formation of a fistula; if it were obstruction from malignant disease, the same operation would be indicated. By entering the lesser peritoneal cavity through the transverse mesocolon I could explore the pancreas in case the suppuration started in that organ. Simple drainage, though it might be temporarily safer, would not relieve the condition.

I therefore flushed out the region between the transverse colon and the liver very carefully, pulled out my walling-off gauze, and turning the transverse colon up, went through the mesocolon and did a lateral anastomosis between the posterior gastric wall and the first part of the jejunum. There was no fluid in the lesser peritoneal cavity. The small bowels seemed fairly free from peritonitis and were not distended. The lower portion of the wound was closed and two wicks left in, one to the opening of the foramen of Winslow and the other to the diphtheritic patch of fibrin on the pylorus. The whole operation took between one hour and one hour and a half and the patient left the table in fair condition.

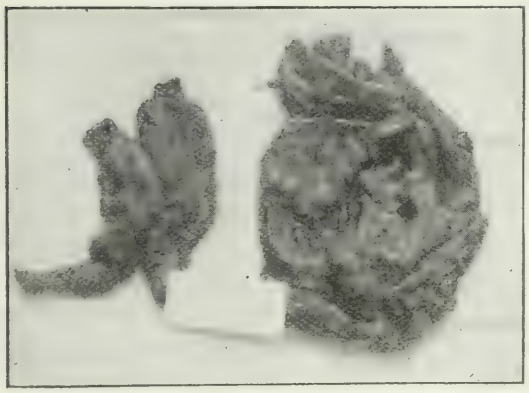
For the next three days he was tolerably comfortable, slept fairly well, his bowels moved well and he retained his nutrient enemata. The abdominal condition improved except for the spreading of the infection in the wound, necessitating removal of the stitches. Tenderness and rigidity were progressively less; there was no vomiting and little pain. From the time of the operation, however, the temperature and pulse remained up and the condition of the patient suggested general systemic poisoning. He grew weaker, became quietly delirious, then apathetic, and died at the end of the fourth day.

Examination through the wound showed that the conditions there were not greatly different from those last seen at the operation. There was no fluid in the greater or lesser peritoneal cavity unless in the pelvis, which was not examined. There were no collections of pus and the anastomosis was intact; the adjacent peritoneal surfaces were in good condition. There was a coating of fibrin about the wicks and the tumor.

The diphtheritic patch was still present on the pylorus. The pyloric end of the stomach and the first two parts of the duodenum were removed, and a perforation found in the centre of the suspected patch which just admitted an ordinary probe and was concealed by the fibrin surrounding it.

As far as I am aware it is most unusual to find perforation into the peritoneal cavity in the early course of gastric cancer. Since the operation in this case I have been told by Dr. W. A. Putnam of Cambridge that the patient had consulted him two weeks before for slight abdominal pain, which was easily relieved by counter irritation. Except for this he had made no complaint of anything.

In the consideration of acute epigastric peritonitis I have never seen the question of acute perforation from gastric cancer, which was previously unknown, mentioned. Osler quotes Brunton, saying that of 507 cases of gastric cancer at autopsy, 17 showed perforation. Ellis,[2] in 1857, reports 2 cases which were not unlike the above.



This photograph shows the pylorus opened on one side. The whole interior, with exception of a small part of the normal mucous membrane, is occupied by an ulcerated carcinoma. In several places on the surface of the ulcer there are thin areas which show gray necrotic bases. Through one of these the probe finds a way to the peritoneal surface in the diphtheritic patch. The excised anastomosis is also shown.

## BRONCHOPNEUMONIA IN EPIDEMIC FORM.

BY WILLIAM WATSON MCKIBBEN, M.D., WORCESTER, MASS.

*Ex-House Surgeon Free Hospital for Women, Brookline, Mass.; Ex-House Physician and Surgeon, Worcester City Hospital.*

AT 11 P.M. Friday, Dec. 27, I was called to see Margaret D., a child of three years, having what the parents and friends regarded as whooping cough. On entering a small room, in which the air was extremely foul, five children were seen huddled together in two beds. The coverlets were soiled with excreta, and the ceiling was wet from leakage of rain through the roof. All five children were coughing, but attention was first directed to Margaret.

The mother gave a history of cervical abscess at three months; this was incised at Memorial Hospital, where the ultimate prognosis for life was regarded as poor. Since then the child had been frail and anemic, but had no cough till two weeks ago: however, it was not until two days ago that the cough assumed a serious aspect. At this time the other children also began coughing, but this in no way resembled pertussis.

Examination of Margaret showed skin cold and moist. Temperature 103° F.; pulse 180, weak and irregular, respiration 70, accompanied by expiratory moans. Alae-nasi dilated. Lips cyanosed, cough frequent, with facies expressive of pain. At the bases of both sides of back were areas of dulness with bronchial breathing. Auscultation gave fine and coarse moist râles over the whole front and back, more marked in certain areas. The other four children presented much the same signs, only to a less degree. May D., aged 17 months, showed bilateral consolidation between scapulæ and vertebræ. Margaret died at 8 o'clock Saturday morning. John, aged two months, developed Cheyne-Stokes respiration toward evening, and died at midnight.

Sunday morning the neighborhood was thoroughly aroused, and demanded immediate removal of the three remaining children, but the hospital authorities, under advice of the Board of Health, refused admission. The laryngologist could find nothing pathological in the throats, nor was there any evidence of stenosis of the larynx, but to satisfy the Board of Health cultures were taken for laryngeal diphtheria. These cultures proved negative. Annie D., age 17 months, remained comatose Saturday and Sunday. She and the other twin had been having copious watery discharges from the bowels for three days. Sunday a Widal test for typhoid fever proved negative; the urine was a fever urine, containing urates and a trace of albumin, but no casts or renal cells. At the same time sputum was obtained from the three living children, and carefully stained for tubercle bacilli, but none were found; pneumococci and pus organisms were discovered in abundance. Monday the three patients were sent to the hospital, where they entered upon a rapid convalescence.

In the cases of bronchopneumonia at the Babies' Hospital, in which tubercle bacilli were found, Holt also discovered pneumococci. He regards this of special interest, as it explains what is frequently remarked clinically, that in cases of tuberculous bronchopneumonia the symptoms cannot be distinguished from the simple form. Osler, to prove its infectious nature, cites examples of the epidemic form of pneumonia depending on a specific micro-organism.

One day last February two brothers and a sister, suffering from lobarpneumonia, were admitted to the Worcester City Hospital. This, with a small infection on the Boston Floating Hospital

[2] Extracts from the Boston Society for Medical Improvement, vol iii, p. 116, and vol. iv, p. 109.

in the summer of 1899, when I was superintendent and resident physician, represents my personal experience with epidemic pneumonia, but I have learned from physicians of several such epidemics here in Worcester during the past ten years.

## Reports of Societies.

### SUFFOLK DISTRICT MEDICAL SOCIETY. SECTION FOR CLINICAL MEDICINE, PATHOLOGY AND HYGIENE.

HENRY F. HEWES, M.D., SECRETARY.

Regular meeting, Jan. 15, 1902. Dr. G. C. Smith in the chair.

Dr. Henry Jackson read a paper on

SOME POINTS OF VALUE IN THE DIAGNOSIS OF DISEASE OF THE ABDOMINAL ORGANS.[1]

Dr. J. C. Munro: In pursuit of Dr. Jackson's paper as to the advisability of the early recognition of symptoms in acute abdominal affections, I have roughly analyzed the last consecutive 150 laparotomes that I have had while on duty at the City Hospital. I have purposely not included any cases seen in private practice.

At the hospital we are apt to have late and hopeless cases for three reasons at least: The patients of the class that seek aid there are not likely to summon a physician, in many instances, until too late. A very small class of physicians will not send their cases until they become hopeless, and another small class are averse to surgical interference under almost any circumstances. These classes do not, however, account for all of our late cases. Of the 150 cases, 47 were operations for various lesions (fibroids, cancer, etc.), in which the question of acute inflammation did not enter. Of these there was no death referable to operation or to failure in the time of operation, barring, of course, the great question of earlier interference in malignant growths, which does not concern us here.

Of the acute abdominal affections where a timely operation would or might have influenced the result I will report the exceptional types first. Of the following there was was one case each: Penetrating wounds of the vagina and rectum (criminal), where the patient concealed the condition for 10 days; gunshot wound of the abdomen and lung; sloughing gumma of the liver; general sepsis with abdominal symptoms. All died except the gumma, but no criticism as to the failure of early recognition of symptoms can be made.

In the next group there is reason to believe that more careful watching or more accurate diagnosis in the early stages would have made a marked difference in the results. In this group are: Intussusception of 4 days' duration in a baby, the bowel being gangrenous; gastric ulcer that had been perforated 48 hours; general gonorrheal peritonitis that had been going on for days, and a volvulus with gangrene of unknown duration. All but the last 2 died, but they were rescued only by most desperate measures. There were 2 cases of obstruction by bands: 1 recognized early, recovered; the other, sent to us in a moribund condition, died. Of 3 colostomies, 1 with obstruction of 1 day recovered; 1 obstructed 7 days recovered, but only after several days of anxiety, and a third, with obstruction of many days, died. Six cases of typhoid were opened, 3 for exploration and 3 for perforation. They were all desperately ill and died sooner or later. Five cases of extra-uterine pregnancy are in the list. Two of these, septic before operation, died, but 1 of them might have lived had I not failed in diagnosis myself. The 3 recoveries were seen early. Four cases of acute purulent salpingitis were sent to us with histories of days and weeks of acute symptoms. One with an acute general peritonitis in addition, died. Three abscesses of the liver from portal phlebitis were opened with ultimate fatal result, but here there can be no criticism unless we take issue with the advisability of allowing a patient to have several attacks of acute appendicitis before submitting to operation, and then only after several days of acute inflammation.

When we come to the commoner lesions of the gall bladder and the appendix we see the need of early recognition of acute symptoms most plainly. Of 7 gall bladder operations 3 died, each one being acutely and generally septic. Each one had had months or years of repeated, relapsing suffering, and in each a timely operation should have been successful. Of 65 cases of appendicitis in the list, 24 were operated upon in the so-called early stage, a fair proportion being typical interval cases. Of the 24, 3 died — a large mortality at first sight. One of these (reported elsewhere), that died a month or more after operation from a subphrenic abscess, should be ascribed to the operation, and full responsibility is assumed, although the patient had been bedridden for weeks and weeks with recurrent attacks of acute inflammation before operation was allowed by the medical attendant. The second death was due to hemorrhage from a gastric ulcer during convalescence; and the third case, in which the appendix had been removed, was probably not a case of appendicitis at all, but of some fulminating toxin poisoning, as autopsy failed to show any cause of death. Against these 24 early cases are 41 acute cases, the acute symptoms lasting from 36 hours (the shortest) to days and weeks. There were 6 deaths—also a large mortality until we analyze the histories. Two were moribund at entrance (1 also having a general peritonitis), 2 had general peritonitis, 1 had a volvulus with gangrene in addition to and caused by the appendicitis, and 1 died probably from embolism (a very rare experience). The mortality in these late cases, however, does not tell the whole story. Fecal fistula, portal phlebitis, sepsis, hernia, and prolonged convalescence all make the appeal for early

[1] See page 225 of the Journal.

recognition and transfer to the hospital most urgent.

To briefly recapitulate: Out of 150 laparotomies, 60 were done later than they should have been done if ideal conditions were possible, and undoubtedly lives and much suffering could have been saved. And if from this list of 150 we subtract the so-called nonacute cases, 47 all told, we are confronted with the fact that approximately 60% of our acute cases, as they reach our accident rooms, have been delayed too long, by days or even weeks, before being given into surgical care.

DR. HARRINGTON: As Dr. Jackson has said, two of the very important symptoms which we ought to pay attention to — especially in the early cases, because in the late cases, when the symptoms get bad, nobody makes a question but what an operation should be done — are muscular rigidity without great distention and the non-passage of fecal matter or gas from the rectum. I think, in any case, after 24 hours of effort to open the bowels, efforts which you are satisfied with yourself as being thorough, if you do not get gas or fecal matter, especially the former, one should not hesitate much longer, even if other grave symptoms are wanting. Frequently you get cases of obstruction in which the other evidences are wanting in the early stages. If you get an obstruction very low down in the intestinal canal the patient may go on a long time quite comfortably without vomiting and be able to take a good deal of food, because the intestines, by distending, may take care of food and gas for a long period. Of course the converse is true; if you have an obstruction very high up in the intestinal tract, you may get fecal movements and gas, with a complete obstruction. In these last cases vomiting comes early and is marked, while distention is more gradual and less in amount. The most desperate case I ever saw and one in which I did not think there was any chance at all of recovery, a case of apparently complete obstruction of the bowels, in which the hands were cyanosed, face pinched, abdomen tremendously distended and the pulse hardly perceptible, a woman with a large fibroid which had caused the obstruction, recovered. I was greatly surprised the next day to find her alive. I saw the case in consultation and refused to operate, but recommended a high injection. The doctor gave it, and the woman passed enormous quantities of fecal matter and gas and was about her work again in a short time. I never saw a more unexpected recovery. That leads me to another point, and that is this: there is a condition of the bowels in which you get all the symptoms of complete obstruction, and that is in idiopathic dilatation of the colon. There may be complete obstruction due to the distention of the sigmoid flexure and sagging or twisting of the intestine, but a rectal tube sometimes may be made to enter and relieve the distended gut of its contents.

DR. J. T. BOTTOMLEY: Having had but a comparatively limited experience in abdominal surgery, I feel my inability to discuss this paper worthily. I would like, however, to mention one or two little points which have been of some use to me in arriving at a diagnosis. What I shall say will be rather a supplement to than a discussion of Dr. Jackson's paper.

I remember being much impressed some years ago by a brilliant diagnosis of Dr. Munro's. Without going into details, his diagnosis of an acute appendicitis as the cause of an existing purulent infection of the liver was made on his demonstrating tenderness in the appendix region by *deep* pressure where moderate pressure failed to bring out the sign.

Two cases which I have recently seen, and which I shall relate briefly, illustrate the importance of making this deep pressure, when possible, in abdominal examinations.

A car conductor, age 30, gave a history of a sudden attack of hiccoughs 7 years before; this was followed by well-marked epigastric pain and several severe intestinal hemorrhages within 24 hours. Since that time he had been well until his present attack, with the exception of a more or less constant "weak feeling" in the epigastric region. His present illness began 2 days before I saw him, with pain and distress in the epigastrium; his doctor found him without fever, with a normal pulse and with marked epigastric tenderness; the pain ceased after 24 hours, but the tenderness and distress continued; 36 hours after the beginning of the attack he had a sudden and very severe chill lasting 30 minutes. I saw him 4 hours later. His temperance was 101°; his pulse 110–120. His abdomen was moderately tender in the epigastric region over an area half as large as the palm of one's hand. What pain and distress he had were located there. A careful examination of the rest of the abdomen disclosed tenderness in the appendix region, but only on deep pressure. Rectal examination was negative. He was sent to the hospital with a diagnosis of appendicitis which was not at first accepted. Two days later a deep-lying, chronically inflamed appendix with beginning gangrene was removed. He has been very well since that time; even the "weak feeling" in the epigastrium has disappeared.

A woman, age 28, for a number of years had had attacks of epigastric pain, abdominal tenderness and vomiting every three or four months She had seen several physicians and one surgeon; a diagnosis of gastric ulcer had been made. In her last attack a physician, whom she had not previously employed, found that pressure in the left iliac region caused her to complain of pain in the appendix region. This called his attention to that point, and upon deep palpation there he found a tender point and thought he could feel an enlarged appendix. I saw the case with him, and thought there was sufficient ground for operation and removed a very chronically inflamed appendix, which ran upwards and inwards and was very adherent to the surrounding tissues. This happened 20 months ago, and the woman has since had none of her "gastric" attacks.

This second case not only brings out the importance of deep pressure in an examination, but calls attention to a sign which I have noticed several times, namely, that in some cases of appendicitis pressure in the left iliac region causes the patient to complain of pain or tenderness referred to the appendix region.

One other point to which I would like to call attention is the fact that the signs obtained by percussion of the abdomen — particularly those indicating dulness — are not reliable. I have seen reliable, competent men percuss out an area or areas of abdominal dulness only to find upon operation nothing corresponding in the cavity.

I have twice operated on children with typical symptoms of intussusception even to the sausage-shaped tumor which I thought I could feel in the left iliac region, and have found apparently a normal state of affairs in the abdominal cavity. Both children recovered; but one does not enjoy such experiences.

Dr. E. A. Codman: If I should judge from my own experience I could not rely on the value of the points spoken of by Dr. Jackson and by Dr. Harrington in regard to the absence of feces in the rectum or the occurrence of a good result from enema in obstruction cases. In the only 2 cases in which I can recall delaying operation for several hours after seeing a case of obstruction of the bowels, I was led to do so largely by the fact that in both cases I obtained a copious result from a high enema. Both cases were obstruction of the small bowel and both were fatal. One might perhaps have been saved by an earlier operation.

In regard to the point Dr. Bottomley has spoken of in percussion of doubtful abdominal cases where there is a question of free fluid, I recall 2 cases in which I was deceived by a large amount of fluid contents in the ascending and descending colon. The dulness in the flanks caused by this led me to think that a collection of fluid existed in the peritoneal cavity. Operation in one case and autopsy in the other showed the error. I have since noticed this condition in post-operative peritonitis cases in which there was partial obstruction or paralysis of the bowel. You can readily find the same flatness in the flanks in a patient who has just had a large high enema. As an example of difficult abdominal diagnosis I should like to report the following case of

ACUTE PERFORATION OF A MALIGNANT ULCER OF THE PYLORUS, RESEMBLING A CASE OF ACUTE APPENDICITIS.[2]

Dr. F. B. Lund: I would like to confirm very strongly what Dr. Folsom has said, that if you wait for all the classical symptoms, you make mistakes. It is not always the same symptom which is left out. I have seen cases where the belly was full of pus without muscular spasm, though muscular spasm is important as an early symptom of acute peritoneal inflammations. In 1 or 2 cases I have accounted for it in that the pus started in the pelvis in some retroperitoneal position and worked up under the omentum so that the surface of the peritoneum was not involved. In those cases where the thing starts deep you get tenderness on deep palpation, and you are not prevented from deep palpation, as ordinarily, by the presence of muscular spasm. I think the point of greatest tenderness and greatest spasm is of great importance in pointing out the starting point of the trouble. In 95% of the cases it is in the appendix, but where the spasm and tenderness are greatest in the epigastrium it is wiser to incise over the epigastrium. I have been thus led to make the incision in the right place in 2 cases of gastric ulcer and 2 of pancreatitis where the spasm was greatest in the epigastrium and the trouble located there. In another case I came upon hemorrhage in ruptured spleen. The symptoms of intra-abdominal hemorrhage are so nearly those of acute peritonitis that you cannot always make the diagnosis between acute peritonitis and abdominal hemorrhage from rupture of an important viscus or vessel.

Another cause of muscular spasm which may lead to mistake in diagnosis of abdominal trouble is a dry pleurisy low down close to the diaphragm. I shall never forget a case seen when a student, where two or three eminent surgeons advised operation for appendicitis. The surgeon did not operate, and the case was given to the student for a clinical case. By that time 2 or 3 days elapsed and the student found the chest full of fluid, which the surgeon tapped, to his own great delight and the corresponding discomfiture of the other gentlemen. I also saw a case of general pneumococcus septicemia, one night at the City Hospital, where I was called to operate for a peritonitis. There was muscular spasm over the abdomen and a little fluid in both chests and fluid in the pericardium. I did not operate and the patient died. Through the influence of these 2 cases I subsequently lost a case which ought to have been operated. This was a case of appendicitis in which the appendix ran upward and outward under the liver. There was acute abdominal tenderness and spasm, and at the same time there was a pleuritis, and a friction rub could be heard. By laying too much stress on this pleuritis and deciding that the spasm was due to it I did not operate early, and 2 days later, when the patient was operated, a gangrenous appendix was found up under the liver. Whether I could have got that appendix by deep palpation I do not know. In case of doubt I think it is generally safer to operate. I have regretted not operating in a number of cases of acute abdominal lesions, and never have regretted opening the abdomen yet. I have done it twice for suspected rupture of the intestine without finding anything. Those patients both got well.

With regard to the emptiness of the rectum in intestinal obstruction, where the obstruction is high up, they certainly may have copious movements from the bowel below the obstruction.

[2] See page 228 of the Journal.

Last spring I was called to see a boy who had had intestinal obstruction 4 days. His belly was distended and everywhere tender. While I was preparing to operate he had 2 enormous movements with passage of gas, but we proceeded with the operation and found an absolute obstruction of the intestine by a band, so that there was a necrotic ring round the small intestine, high up. The boy made an excellent recovery. The movements had emptied the bowel below the obstruction.

A rare but very valuable early symptom of intestinal obstruction is localized distention of a coil of intestine. You rarely see the case early enough to see that sign. Of course, where the intestine is obstructed the distention begins immediately above the obstruction. Last August, in the hospital, we had a case of intestinal obstruction from a band. The child began to have pain at 7 A.M. At 10 o'clock localized distention of a coil of intestine was noted. Attempts to move the bowel with enemata were unsuccessful, and at 7 o'clock in the evening I operated and found a complete obstruction of the intestine by a band. There was no necrosis of the intestine, and it was very easy to divide the band and relieve the child. It was a very satisfactory case. If you can get a case early that sign of localized distention is certainly very valuable.

I do think that we all need to have impressed upon us the importance of continuous abdominal pain, especially unaccompanied by tenderness; if not relieved very soon by medical treatment a surgeon ought to see the case. There is no doubt a great many lives would be saved if that rule were carried out.

DR. MUNRO: Dr. Larrabee told me of this case 2 months ago, and a short time after that I was sent for to operate on an elderly gentleman who complained of acute abdominal pain and tenderness, due to a herpes zoster.

Dr. Folsom's remarks on the atypical signs I think ought to be borne in mind. I can recall a number of cases of acute purulent general peritonitis where there was no elevation of pulse or temperature, no distention, no spasm, no tenderness and no rigidity. The patients were sick and the operations were done on the character of the facies alone.

As to the question of percussion of the abdomen, I am personally very skeptical. For years I have been watching very closely most careful percussion by our best diagnosticians in that line, and I have very rarely seen the condition illustrated in the opened abdomen which was found outside by the percussion. I have seen free fluid very carefully percussed by our best diagnosticians when it was absent, and I have seen exactly the contrary. To me it plays the least important rôle in making the diagnosis of abdominal diseases. When a condition can be accurately percussed within the abdomen it can be told by palpation or other methods.

Dr. Lund spoke of pleurisy. I was in hopes he would go a little further and speak of lobar pneumonias with abdominal symptoms. I have been asked to operate for appendicitis a number of times, and once for a cholecystitis, but refused on the ground that the condition was lobar pneumonia with abdominal symptoms, and in each case a delay of 24 to 48 hours cleared up the diagnosis. The pneumonias have usually been central and difficult of detection. There have been spasm, pain, tenderness, etc., but something — I cannot say what — that is not quite characteristic of acute appendicitis has made me suspicious that we were dealing, not with appendicitis, but with pneumonia.

DR. H. F. HEWES: Dr. Lund states that the presence of severe and continuous pain in the abdomen is an indication for calling in a surgeon. This is true only when certain causes for the pain have been ruled out. Pain of the character mentioned is not infrequently our only early or emphatic symptom of an appendicitis or perforation or of some condition needing surgical interference. It is also, however, a not infrequent associate of such conditions as ulcer of the stomach, of dilated stomach with stasis of contents, or in cases of gastro-enteritis. I have seen severe continuous pain from ulcer, lasting 24 hours. Two cases of dilated stomach were operated upon by the surgeons during my term at the hospital. I agree that early diagnosis and often early operation are of the greatest importance in these abdominal cases, and that a surgeon should be called in every case where there is reasonable doubt, or where we are convinced that operation will benefit the case. But there are other means of diagnosis besides laparotomy, and these should be thoroughly employed before this is resorted to.

DR. SMITH: I should like to call attention to a class of cases not mentioned tonight, that is, cases of gastro-enteric catarrh, unaccompanied frequently with fever, but extreme tenderness over the whole abdomen, beginning particularly in the epigastrium and spreading quite rapidly until the entire abdomen is involved, with marked rigidity of the abdominal walls everywhere, and the pain of such an intense character as to require hypodermics of ½ gr. of morphia. In this connection we never should lose sight of the fact that we ought to have constipation in all these cases, and it is almost universal that we get it whether the trouble is surgical or medical; we get the constipation by virtue of the pain and the morphia, and it is unfortunate that we have to give morphia, because we are masking our symptoms by it. I think constipation is perhaps the least reliable of the abdominal symptoms. The rigidity in these cases is also very unreliable. Recently I have seen a few such cases, and during the last 6 months I can recall 2, 1 which Dr. Richardson saw with me and made the diagnosis of probable appendicitis, not because there was more marked tenderness in the region of the appendix than elsewhere, but on the ground which Dr. Lund and others have suggested tonight, that in a large percentage of the cases of appendicitis we have no really positive signs. The following day I asked Dr. Shattuck

to see it, and he thought the diagnosis was between gastro-enteritis and an appendicitis, but that it was impossible to make a diagnosis on the negative symptoms. But neither of these gentlemen advised exploratory operation, and this tenderness with pain persisted even longer than the case Dr. Hewes reports — about 96 hours, with obstinate vomiting all the time. There was no fecal vomiting, no movements of the bowels notwithstanding early small doses of calomel and early doses of salines. At the end of 96 hours a diarrhea began which immediately caused subsidence of all the symptoms, and the patient made a very excellent recovery in a few days, and had there not been a history of more or less dissipation in the way of eating, and in a young man whom some of us knew, we might have felt a little more uneasy about this case without operation. I speak of this case as equivalent to 2 or 3 others which I have seen during the past year, and which proved to be a gastro-enteritis with all the symptoms which are usually attributed to an appendicitis.

## Recent Literature.

*A Textbook of the Practice of Medicine.* By Dr. Herman Eichhorst, Professor of Special Pathology and Therapeutics and Director of the Medical Clinic in the University of Zurich. Translated and edited by Augustus A. Eshner, M.D., Professor of Clinical Medicine in the Philadelphia Polyclinic. Two octavo volumes of over 600 pages each; over 150 illustrations. Philadelphia and London: W. B. Saunders & Co. 1901.

The book before us, in two volumes of convenient size, is the outcome of various requests made the author to write a condensed textbook of medicine. It represents, therefore, essentially an epitome of the writer's more extensive work on "Special Pathology and Therapeutics." The translation has been carefully done by Dr. Augustus A. Eshner of Philadelphia, who has added such explanatory notes as he deemed necessary to the German text. The book in its final form is more comprehensive than most of its class, in that it includes a discussion of skin and venereal diseases, and certain neuroses of the sexual organs in men. With so wide a scope, it necessarily follows that the treatment of individual subjects is reduced often to extremely limited details. The illustrations are numerous and for the most part sufficiently good. This cannot, however, be said of many of the cuts of lesions of the spinal cord. The cord lends itself so easily to adequate diagrammatic representation of many of the diseases to which it is subject, that the crude and indistinct cuts so largely used in the book have small excuse. Following the German method, the translator has seen fit to make large use of capitals and italics in the text, a plan which has the advantage of calling attention to the more important points in a given subject, and the disadvantage of breaking up the symmetry of the page in a way unpleasant to the eye of the reader. We are inclined to think that no material benefit even to the hurried reader is gained by this arrangement. The book is admirably printed and well bound. With the weight of authority which the writer's name gives to the book, and the general smoothness of the translation, we have no doubt that it will meet with a cordial reception in America as it has in Germany.

*The Microscope and its Revelations.* By the late William B. Carpenter, C.B., M.D., LL.D., F.R.S. Eighth edition, in which the first seven and the twenty-third chapters have been entirely rewritten, and the text throughout reconstructed, enlarged and revised by the Rev. W. H. Dallinger, D.Sc., D.C.L., LL.D., F.R.S., etc., with 22 plates and nearly 900 wood engravings. Philadelphia: P. Blakiston's Son & Co. 1901.

Ten years have elapsed since the publication of the seventh edition of this noteworthy book on the microscope. The progress of knowledge in this decade has demanded fewer changes than were necessary in the revision of the seventh edition, nevertheless, the text has been carefully rewritten by Dr. Dallinger, with the assistance of collaborators in special fields. The volume in its new form is a bulky one of 1181 pages. It contains a vast amount of information regarding the microscope as a scientific instrument and the theory of its mechanism, with ample and excellent illustrations throughout. In fact, we suspect that everything known about the microscope, including its historical development, is contained in the pages of this really monumental work. In addition to this a large portion of the volume is given over to a consideration of the lower forms of animal life and their microscopic appearances. It is not necessary to enter into details of this well-known book, nor is it possible in the limits set for this notice. It suffices to say that it is encyclopedic in character, and that this later edition certainly sustains and increases the reputation it has long enjoyed. The work of the publishers is praiseworthy, particularly in relation to the illustrations, a number of which are reproductions by the heliotype process. Where colors are necessary they have been freely used, for the most part with excellent success. The book is to be warmly and especially recommended to all those who use the microscope, for it is certainly true that many microscopists are pitifully ignorant of the principles even, upon which their instruments are constructed.

*Experimentelle und Kritische Beiträge zur Händedisinfectionsfrage.* von Dr. Richard Schaeffer. Zwölf Tabellen und 4 Abbildungen auf 2 Tafeln. Berlin: Verlag von S. Karger. 1902.

This monograph of 110 pages relating to a much discussed and at the same time very important subject describes some careful laboratory work and

investigations of the writer. In connection with the work of Krönig, Hægler, and especially that of Paul and Sarwey, it is of considerable interest.

After a discussion of what is really meant by the term "absolutely sterile," and a review of the sources of error in the work of earlier investigators, Dr. Schaeffer describes in detail his work with the "hot water-alcohol" method of skin disinfection and tabulates his results. He then discusses the Mikulicz sublimate, schleich, lysol, lysoform, chinosol and other methods.

In summarizing his conclusions he states that the "hot water-alcohol" method, when sufficiently carefully followed, will so effectively sterilize the hands that there will be no more danger of wound infection resulting from this source than there is from the air, also that this is sufficient for practical purposes. In a way, the results strengthen the growing opinion that complete sterilization of the hands is an ideal condition not yet attained.

*Diseases of the Intestines.* By I. BOAS, Specialist for Gastro-Intestinal Diseases, in Berlin. Authorized translation from the first German edition, with special additions by SEYMOUR BASCH, M.D., New York City. Forty-seven illustrations. New York: D. Appleton & Company. 1901.

This is a good book and well translated. It presents the subject in a concise, practical and accessible form. Nothnagel's work has made subsequent books on intestinal diseases imitations, at least to a considerable extent, but Dr. Boas has introduced in his volume much that he has learned in his practice and, furthermore, has included recent literature. He brings the anatomy and physiology of the intestines into close relation with the diseases of this portion of the alimentary tract and thus adds much to the value of the knowledge presented. Theory and practice are combined.

The chapter on the dietetic treatment of intestinal disorders is straight to the point, and those on intestinal catarrh and constipation meet our expectations.

German views on appendicitis show the advance America has made in one branch of medicine, and at the same time the slowness with which our ideas are accepted abroad. The translator redeems this part of the book by a clear account of American opinions.

*Short Talks with Young Mothers on the Management of Infants and Young Children.*— By CHARLES GILMORE KERLEY, M.D., Lecturer on Diseases of Children, New York Polyclinic Medical School and Hospital; Assistant Attending Physician, Babies' Hospital, New York; Physician of the Out-Patient Department, Babies' Hospital, New York; Member of the American Pediatric Society. New York and London: G. P. Putnam's Sons. 1901.

This little book is, on the whole, superior to most of its class. It is well printed on good paper. The arrangement of subjects, however, is poor. It is full of arbitrary statements on points which are certainly open to discussion. We feel that the author would have difficulty in sustaining some of his statements before a jury of his peers. All pediatrists would certainly not agree with him that "skimmed milk should never be given to an infant," that "a wet nurse should be decided upon only when all other means of nourishment fail," and that cream "should not be poured off or the milk siphoned from under it." We fear that although these arbitrary statements on points open to discussion may make the book most useful for the author to give to his own patients, they may also prevent other physicians from recommending it. The exercise basket and exercise pen recommended by the author are ingenious and meet a long-felt want. We know of no book of this sort which gives such sensible directions as to when to send for the doctor. Most of them tend to encourage the mother to try home treatment and to put off calling the physician. The advice to "send for the doctor when there are any indications of illness in the child which the mother does not understand," is certainly admirable.

*Anatomy, Descriptive and Surgical.* By HENRY GRAY, F.R.S., Lecturer on Anatomy at St. George's Hospital, London. Thoroughly revised American from the 15th English edition. In one imperial octavo volume of 1,246 pages, with 780 illustrations. Philadelphia and New York: Lea Brothers & Co. 1901.

This textbook of anatomy clearly maintains its place of popularity among the increasing number of rivals for favor. In spite of numerous changes and additions the volume retains essentially the bulk it has had for many years—a highly desirable attribute, in consideration of the use to which it is ordinarily put. In this latest American edition particular attention has been given to the portion on general anatomy and embryology. The section on embryology has been placed at the end of the book, instead of in its more natural and logical position, at the beginning. It is to be hoped that the editors may ultimately change this arrangement of the subject matter. The increasing importance attached to embryology in general textbooks of descriptive anatomy is a gratifying sign of the recognition of the close and hitherto too often neglected association of these closely correlated branches of science. The descriptive anatomy of the nervous system is an improvement over previous editions. We still note, however, the use of Fervier's misleading charts of cerebral localization, the various cortical areas being represented by small, sharply circumscribed circles over the brain surface. The present tendency is away from such sharp localization, and the student is apt to derive a false impression from these too diagrammatic figures. The illustrations have, in general, been improved and increased in number, and the book is sure of a continued popularity both among medical students and those who have passed beyond the student stage.

*Outlines of Physiology.* By Edward Groves Jones, M.D., Lecturer on Physical Diagnosis in the Atlanta College of Physicians and Surgeons, and Professor of Physiology in the Dental Department of the same. Pp. 400, with 107 illustrations; 12mo. Philadelphia: P. Blakiston's Son & Co. 1901.

This small book, 400 pages, 12mo, has been to the reviewer interesting reading. The author acknowledges in his preface that brevity has been his "prime consideration," and yet the style is not that of a "quiz compend" nor has it pretentions of a larger work. The book is good of its kind, in fact, one of the best of the multitudinous small physiologies on the market. The introduction is clear; the space given to the physiology of muscle is too small, smooth muscle being hardly mentioned. The physiology of the heart is bad, no good explanation being given for the cause of the cardiac contraction, and what is given is poor and weak. A little more space might be given to the consideration of the coagulation of the blood, but one cannot expect to find a whole library in a small work of this kind. The chapters on digestion and respiration are simple and neatly expressed, while that on the nervous system can set an example for clearness and orderly sequence to many a larger work.

The letter press is clean and the binding of the ordinary description. As for the illustrations, they are all old familiar figures to us, having been culled from nearly every physiology written in the English language. Acknowledgment is always given, but they would have been vastly improved had they been withdrawn.

*Phototherapy.* By Prof. Niels R. Finsen, Copenhagen. Translated from the German edition and with an appendix on The Light Treatment of Lupus. By James H. Sequeira, M.D. (Lond.), M.R.C.P. London: Edward Arnold. 1901.

This small volume of 79 pages contains three papers on the following subjects: (1) The Chemical Rays of Light and Smallpox; (2) Light as a Stimulant; (3) The Treatment of Lupus Vulgaris by Concentrated Chemical Rays. A short appendix by Dr. Sequeira is added to the last of these articles. This book presents the salient features regarding the action of light and the scientific reasons for its use as a therapeutic measure. Particularly important at the present time are the suggestions regarding the treatment of smallpox by the exclusion of the violet and ultraviolet rays of the spectrum. The book should be in the hands of all those who are attempting to treat the disease by the empirical and somewhat crude methods generally in vogue. The papers on the Stimulating Effects of Light and on Lupus are of much more than passing interest. The whole subject of the therapeutic effect of light has not received in this country the attention it deserves. It is to be hoped the volume may do something toward stimulating this lagging interest.

THE BOSTON

# Medical and Surgical Journal.

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## THE ETIOLOGY OF CANCER.

The annual report of the Cancer Commission of the Harvard Medical School was given last week at a meeting of the Boston Society of Medical Sciences. A number of important papers were read by the various investigators who are engaged, under the Croft fund, in the study of cancer etiology. The present situation of this research is interesting from many points of view. The work accomplished in this community during the past two years has been wholly negative in its results, in the sense that an increasing doubt has been thrown upon the parasitic origin of the disease, as urged by certain foreign investigators, and upon the pathological significance of so-called cell inclusions. At this meeting, to which reference has been made, a long series of admirably conducted experiments was narrated by the various writers, all of which went to show that our search for a cause of cancer has not been furthered and is not likely to be by a continued prosecution of research along this line. So far as we are aware no other group of men employed in this work has been so unanimously positive in its disbelief in the significance of the disputed histological findings. It is not for us to say whether this attitude is justified or not, but we hope and have no reason to doubt, that the results of the study which have led to this point of view will be so forcibly placed before the public mind that future work may be directed into more profitable channels. It is an unfortunate scientific necessity that demands not only the rigid investigation of assertions, often made on imperfect evidence, but also the absolute demonstration of the falsity of those assertions. The parasitic theory is an attractive one, but if it is false and inadequate the sooner it is laid to rest the better for the ultimate solution of the problem. If, on the contrary, it still has supporters whose opinion must be con-

sidered, its denunciation, without conclusive evidence, is a fatal scientific blunder. So far as an unprejudiced observer may judge in so technical a matter, it appears certain that this theory of the parasitic origin of cancer has lost ground steadily during the past year, and is likely to give place, in the near future, to investigations of a wholly different character.

AT a meeting of the Pathological Section of the Liverpool Medical Institution held the latter part of last month, the subject under discussion was cancer. Mr. H. G. Plimmer and Mr. H. J. Stiles were guests of the society on that occasion, and contributed to the interest of the evening by an animated disagreement as to the true cause of the disease. Mr. Plimmer, whose name is associated with the much disputed bodies found in cells, was urgent in the reiteration of his belief that these bodies were the cause, advancing in support of his contention that they were constantly present in cancer and not in other diseases, that they were apparently of highly organized structure, and that they might be cultivated outside the body. Mr. Stiles, on the other hand, and with him Dr. Nichols of Boston, and his colleagues would be in substantial agreement, saw no justification for these assumptions on Mr. Plimmer's part, and reduced the cell-inclusions to various stages of unessential nuclear modifications. Whatever may be the truth or falsity of these adverse opinions, it is clear that no fundamental criterion has yet been offered on either side, and that the old difficulty of the burden of proof stands in the way of a satisfactory settlement of the question on these lines. Plimmer and his followers say, you have not disproved our proposition to our satisfaction; until you do we shall regard what we have found as a true and sufficient cause. Nichols, Stiles and the growing school of skeptics assert that Plimmer has never proved his point, that these bodies have anything to do with cancer — and here the matter at present rests. The difficulty evidently must be met by going deeper in search of a cause which will unify and explain the present contradictory findings. At this same meeting in Liverpool, it is of interest to note that Plimmer and Stiles were agreed that the microtome and the microscope had exhausted their possibilities, and that further work must be prosecuted along experimental lines. What these lines are to be some far-seeing mind must discover. In the meantime it is a source of congratulation that a vast amount of preliminary work has been done which need never be repeated. If we may venture a prophecy in such a matter we are disposed to think that the physiological chemist and the student of pathological metabolism will have a voice in the final solution of the mystery.

## ANIMAL EXPERIMENTATION.

WE are sorry to record the fact that within a few days the subject of vivisection will again be brought before public notice in a legislative hearing. We may anticipate the usual arguments, the same personal attacks and the inevitable clouding of the main issue by the introduction of unessential details. The opponents of the proposed legislation, at least, know what to expect, and we have no doubt their arguments will be heard with the same respect and deference which has on several previous occasions led to the defeat of the passage of restrictive laws.

It is, however, altogether unwise to neglect any legitimate means of bringing before the public the facts of the matter at issue, as understood by leading citizens, both lay and professional. This has been done this year for the first time by Prof. H. C. Ernst of the Harvard Medical School. Dr. Ernst has collected and had printed in book form the statements of various remonstrants, called out at the legislative hearings in the spring of 1901. It is an admirable series of opinions from persons of such diverse interests as President Eliot of Harvard University, Bishop Lawrence of Massachusetts, and twenty-eight others, representing most varied departments of intellectual work. Many of the statements are brief, but in all instances, cogent expressions of opinion; some of them are careful arguments with a review of facts, among which Dr. H. P. Bowditch's and Dr. W. T. Porter's addresses, and Dr. H. C. Ernst's summing up for the remonstrants stand out as models of close reasoning.

It is stated in the introduction to the book that its publication was determined upon in response to the request on the part of friends of research for an authoritative document on the question of animal experimentation. The publication, as it has finally appeared, is not a shorthand report of what was said at the hearings, but a more carefully compiled expression of opinion of those who spoke and of others who for various reasons did not speak or were unable to be present. It represents, therefore, the matured judgment of thirty men and women standing high in the social and intellectual life of the community, and as such demands a widespread recognition. The public at large is sure to take a just view of this as of other questions, about which it can have almost no first-hand knowledge, if all the arguments are fairly and candidly presented. It is to accomplish this end that the volume before us has been prepared, and we strongly urge our readers to further a cause which means much to the medical profession by procuring the book for themselves, and spreading the fact that it exists among the uninformed and wavering.

## TWO BAD METHODS OF FIGHTING THE ANTIVACCINATION CRAZE.

Under the above caption there has recently appeared on the editorial pages of one of our contemporaries a statement which is likely to mislead. In this comment reference is made in the following words to a man whom we suppose to be Dr. Immanuel Pfeiffer of Boston: "In an eastern state another 'unvaccinated' crank was permitted by the board of health to go among the smallpox patients, and then without disinfection to mix with crowds, and to wave his infected handkerchief in public meeting 'in the faces of his friends,' etc."

It is true that this man was allowed by the Board of Health to go among smallpox patients. It is not true that he was permitted without disinfection to mix with crowds, to wave his handkerchief, etc. It appears to us, therefore, a distinct reflection and a wholly unmerited one on this Board of Health that any such statement should be published in a medical journal. A definite statement of the entire occurrence appeared in our editorial pages on Feb. 20, under the title "The Case of Dr. Pfeiffer." So far as we have been able to learn no evil result whatever to others has followed his visit to the smallpox hospital, due, no doubt, in a measure, to the careful precautions taken before he was allowed to return to the city and to mingle with people. As an object lesson the case has proved of the very greatest value.

## A NEW MEDICO-MILITARY JOURNAL.

We spoke at considerable length of this journal, then about to be published, in our issue of Aug. 22, 1901. The comments then made cover our views of the desirability of such a journal, and need not be repeated. It is unique in character, does not intrench upon other established journals, and should be successful in filling a distinct place, owing to the lack of a similar publication in English. We could wish, however, for a better application of the printer's art than the numbers hitherto published show.

## MEDICAL NOTES.

Gregory Testimonial Banquet.—The date of the testimonial banquet to Dr. Gregory has been set for Thursday evening, April 17. A committee of invitations has been appointed which is certainly unique, in that it is composed of one member of every class taught by Dr. Gregory, 50 in all.

Support of Famine Children in India.—It is said that American missionaries are responsible for the support and industrial training of 16,000 famine children in western India.

### BOSTON AND NEW ENGLAND.

Acute Infectious Diseases in Boston.—For the week ending at noon, Feb. 26, 1902, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: Diphtheria 47, scarlatina 22, measles 160, typhoid fever 8, smallpox 29.

Compulsory Vaccination in Rhode Island.—A compulsory vaccination act was passed in both houses of the General Assembly of Rhode Island on Feb. 19. The act provides that every child shall be vaccinated before the age of 2 years, under penalty of $5.00 for every year during such neglect; that, if a board of health deems it necessary, it may enforce the vaccination of all inhabitants at public expense. Refusal entails a fine of $5.00. Inmates of hotels, manufacturing establishments, hospitals, asylums and correctional institutions may be vaccinated if the board of health so orders. A certificate from two physicians that a person is an unfit subject exempts. Revaccination may be ordered.

A Bill to Permit Autopsies at Insane Hospitals.—The Committee on Public Charitable Institutions gave a hearing Feb. 24 to Dr. Arthur H. Harrington, superintendent of the Danvers Insane Hospital, for an amendment to the law of such a character as to permit autopsies in State insane hospitals. Dr. Thomas Dwight, Dr. J. Collins Warren and Dr. Frederick C. Shattuck appeared as remonstrants; Dr. Arthur H. Harrington and Dr. Owen Copp, executive officer of the State Board of Insanity, spoke in favor of the bill.

Opening of Relief Station.—The new Relief Station in Haymarket Square was opened for work last week. A number of persons requiring immediate attention were treated the first day.

### NEW YORK.

Bill to Abolish Local Boards of Managers of Insane Hospitals.—In defiance of the most enlightened public opinion, and notwithstanding the opposition of a considerable number of members who are of his own party, Governor Odell has succeeded in rushing through the legislature the bill introduced at his instigation, to abolish the local boards of managers of the state hospitals for the insane, and concentrate their powers practically in his own hands. This is regarded by the better class of citizens as a distinct step backwards, as it is felt that by transferring the powers of the local boards to the State Commission in Lunacy, consisting of only three members, a much less faithful, constant and efficient supervision of the hospitals will be secured. By the provisions of the bill the care of the 23,000 insane patients, and an annual expenditure of at least $5,000,000 are so placed as to be made capable

of an active force in partisan politics; so that such power as is given in it might, in the hands of an unscrupulous governor, whose object might be to build up a political or personal machine, not only be dangerous to the people of the State in general, but disastrous to the unfortunate inmates of the institutions. Among the bodies which exerted their influence to defeat the bill were the State Board of Charities, the State Charities Aid Society, and the Charity Organization Society, and a formal protest against its passage was sent by Bishop Potter and a number of other of the most prominent clergymen of various denominations. In the latter it was said of the bill: "It will centralize all administration, which experience and philosophy unite to declare should be in a democracy as far as possible localized; it will deprive the State of the voluntary, spontaneous service of a considerable number of men and women of large experience and philanthropic character; it will tend to lessen public interest in the charitable work of the State, which ought to be increased rather than lessened; and it will build up a service in the hospitals which will be liable to change with every change of political administration. In our opinion, there are no corresponding advantages to counterbalance these evils. The authority now possessed by the central body, the Lunacy Commission, is entirely adequate to prevent local extravagance."

ANNUAL REPORT OF STATE COMMISSIONER OF HEALTH.—The annual report of Dr. Daniel Lewis, state commissioner of health, was submitted to the legislature on Feb. 24. In it considerable attention is devoted to the prevalence of smallpox in the State during the year. In the maritime district, which includes New York City, there were 1,982 cases with 426 deaths. In the other districts of the State the mortality was much smaller, for with a total of 1,100 cases there were only 19 deaths. At the end of the year smallpox existed in 16 localities. The chief source of concern to the department is stated to be the prevalence of the disease at Binghamton and Watertown and in lumber camps in the vicinity of Tupper Lake in the Adirondacks, a region subject to exposure to the Province of Ontario, Canada, where smallpox is widespread. The opinion is expressed that the commissioner should be empowered by law to require vaccination in any and every locality where perfect protection against smallpox requires it. Among the other recommendations made in the report is one that money should be provided for the chemical examination of food and drugs, of malt and other liquors, the assured purity of these various articles of common use being of such great importance to the people of the State. It is believed that $2,500 per annum would suffice for the prosecution of the required investigations.

OVERCROWDING OF STATE HOSPITALS FOR THE INSANE.—In the ninth annual report of the State Charities Aid Association, transmitted on Feb. 19 to the State Commission in Lunacy, it is stated that on Oct. 1, 1901, the number of patients in the State Hospitals for the Insane and in private asylums in New York State was 24,354, an increase of 576 over the previous year. Of this number only 967 were in private institutions, and the serious overcrowding of the State hospitals is deplored; but it is hoped that the congested condition will cease when the new buildings now in course of erection shall have been completed. At the same time it is predicted that in October, 1903, the State hospitals will contain 600 patients in excess of their certified capacity. In 1905 the condition will be even more serious, because in addition to the 1,400 additional patients, at the present rate of increase, there will be 1,100 patients unhoused by the expiration in that year of the State's lease of the hospital property in Flatbush, Brooklyn. Consequently, the State in the next four years must provide for the accommodation of an increase of 3,100 patients. As a way out of the difficulty the association recommends that for the examination of the alleged insane and for the treatment of incipient and acute cases there should be established in cities of the first and second class, small reception or psychopathic hospitals, with dispensary and out-patient departments.

THE BERTILLON SYSTEM EXEMPLIFIED.—An interesting exemplification of the value of the Bertillon system has just been shown in New York. An Englishman by the name of Burslem was recently convicted of grand larceny. The record and measurements of a criminal of the same name had been sent from England, but the prisoner pleaded for clemency on the ground that it was a case of mistaken identity. Judge Foster, in the Court of General Sessions, where he was tried, stated that clemency would be extended to him if he could show that he was not the criminal with the record in foreign cities, and accordingly suspended sentence until an examination of his person had been made. The examination was held in the Tombs on Feb. 20, and it was then found that the man bore all the distinctive marks the description of which had been received from the English police authorities. The identification was all the more positive in this case from the fact that Burslem had had one of his legs amputated below the knee. While serving as a drummer boy in the British army his foot and leg had been crushed by the wheels of a cannon in the war against the Zulus, and on ac-

count of this he was granted a pension by the Government.

Investigation of a New Serum Treatment for Tuberculosis.— The Board of Health of Newark, N. J., has been sufficiently impressed with the importance of a new serum treatment for tuberculosis, with which Dr. Herman C. H. Herold, the president of the board, claims to have had encouraging results, to pay the expense of future experiments. It has also provided a room for the purpose in the City Hospital, and offered the use of the laboratory of the health department.

A Jewish Hospital in Brooklyn.— Under the auspices of the Jewish Hospital Society, which carries on a dispensary on Johnson Avenue, a public meeting was held on Feb. 16 in the interest of a movement to build a Jewish hospital in the borough of Brooklyn. It is stated that pledges for $25,000 of the $100,000 which it is estimated the new institution will cost, have been received.

A Bequest to the New York Training School for Nurses.— By the will of the late Mrs. William H. Osborn the building on East 25th Street, which for some time past has been occupied as a nurses' home, is left to the New York Training School for Nurses, connected with Bellevue Hospital.

## Correspondence.

### "AN ARMY CONTRACT (?) SURGEON."

War Department, Surgeon-General's Office,
Washington, Feb. 18, 1902.

Mr. Editor: In your issue of Feb. 13, 1902, under the caption "An Army Contract (?) Surgeon," appears an extract from the testimony, in a civil case of one "Dr." J. S. Hamilton, which is unique. The relevancy of the man and his testimony to the title of your article is, however, not apparent, for nothing in his statement would indicate that he had ever been a contract surgeon in the Army. A careful search of the records of the War Department fails to disclose the fact that J. S. Hamilton had at any time been on the rolls of the army, and the presumption is that his testimony as to his service is of the same value as his knowledge of anatomy. Were this all, nothing need be said — but the caption of your article is a reflection upon a valuable and devoted body of public servants, the roster of which, from the early days of the republic, embraces some of the most distinguished names in our profession.

Very respectfully,
John Van R. Hoff,
*Lieutenant-Colonel, Deputy Surgeon-General, U. S. Army.*

[The contribution referred to in the above communication from Colonel Hoff was sent to us by an old and valued contributor as a sworn copy of the records of the court. The title, to which, on more careful consideration, we agree that exception may perhaps be taken, notwithstanding the presence of the note of interrogation, was part of the copy received. To avoid any possible misconception it might have been expressed differently. We should very much regret even the suspicion of casting any unmerited reflection upon a valuable and devoted body of public servants. —Ed.]

### METEOROLOGICAL RECORD

For the week ending Feb. 15, in Boston, according to observations furnished by Sergeant J. W. Smith of the United States Signal Corps:

| Date | Barometer. | Thermometer. | | | Relative humidity. | | | Direction of wind. | | Velocity of wind. | | We'th'r * | | Rainfall in inches. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Daily mean. | Daily mean. | Maximum. | Minimum. | 8.00 A.M. | 8.00 P.M. | Daily mean. | 8.00 A.M. | 8.00 P.M. | 8.00 A.M. | 8.00 P.M. | 8.00 A.M. | 8.00 P.M. | |
| S....9 | 29.43 | 30 | 39 | 22 | 63 | 64 | 64 | W | W | 15 | 15 | O. | C. | T. |
| M..10 | 29.63 | 29 | 38 | 20 | 64 | 55 | 60 | W | W | 15 | 15 | C. | C. | |
| T..11 | 29.78 | 21 | 28 | 14 | 76 | 59 | 68 | W | W | 10 | 10 | C. | C. | |
| W.12 | 29.80 | 22 | 27 | 16 | 66 | 75 | 70 | W | N | 12 | 5 | O. | C. | |
| T..13 | 29.82 | 26 | 33 | 20 | 79 | 87 | 83 | N | N W | 8 | 14 | O. | N. | T. |
| F..14 | 30.02 | 31 | 39 | 23 | 73 | 47 | 60 | N W | N W | 20 | 10 | C. | C. | .01 |
| S...15 | 30.14 | 31 | 38 | 24 | 68 | 42 | 55 | W | N | 6 | 8 | C. | C. | |
| ☞ | 29.80 | | 35 | 20 | | | 66 | | | | | | | .01 |

*O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow. †Indicates trace of rainfall.
☞ Mean for week.

### RECORD OF MORTALITY

For the Week ending Saturday, Feb. 15, 1902.

| Cities. | Population * Estimated, 1902. | Reported deaths in each. | Deaths under five years. | Percentage of deaths from | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | Infectious diseases. | Acute lung diseases. | Diphtheria and croup. | Typhoid fever. | Diarrheal diseases. |
| New York | 3,665,352 | 1,507 | 503 | 24.35 | 17.05 | 3.18 | .53 | 1.99 |
| Chicago | 1,852,828 | — | — | — | — | — | — | — |
| Philadelphia | 1,349,624 | 602 | 179 | 24.57 | 16.60 | 3.48 | 4.64 | .50 |
| St. Louis | 603,717 | — | — | — | — | — | — | — |
| Baltimore | 525,330 | 232 | 69 | 12.50 | 17.24 | — | — | — |
| Cleveland | 411,826 | — | — | — | — | — | — | — |
| Buffalo | 375,742 | — | — | — | — | — | — | — |
| Pittsburg | 341,401 | 134 | 50 | 19.40 | 24.61 | — | — | — |
| Cincinnati | 332,032 | — | — | — | — | — | — | — |
| Milwaukee | 304.975 | — | — | — | — | — | — | — |
| Washington | 289,537 | — | — | — | — | — | — | — |
| Providence | 186,870 | 78 | 29 | 11.52 | 29.44 | 3.84 | — | — |
| Boston | 588,736 | 232 | 60 | 29.74 | 18.10 | 2.15 | 1.72 | .43 |
| Worcester | 127.337 | 44 | 11 | 13.63 | 9.08 | 2.27 | — | 2.27 |
| Fall River | 111.872 | 49 | 17 | 18.36 | 30.60 | 2.04 | — | 8.16 |
| Lowell | 99,574 | 40 | 18 | 12.50 | 30.00 | 5.00 | — | — |
| Cambridge | 96,334 | 34 | 10 | 19.52 | 19.52 | 5.88 | — | — |
| Lynn | 71,144 | 25 | 8 | 16.00 | — | — | — | — |
| Lawrence | 67,275 | 26 | 14 | 34.65 | 11.55 | — | — | 7.70 |
| Springfield | 66,854 | 9 | — | 22.22 | — | — | 11.11 | — |
| Somerville | 65,882 | 18 | 3 | 11.10 | 22.20 | — | — | — |
| New Bedford | 65,574 | 26 | 5 | 19.25 | 19.25 | 3.85 | 3.85 | — |
| Holyoke | 48,065 | 18 | 5 | 22.20 | 11.10 | — | — | 11.10 |
| Brockton | 43,208 | 18 | 1 | 22.20 | — | — | — | — |
| Haverhill | 40,392 | 12 | 2 | — | 25.00 | — | — | — |
| Salem | 36,567 | 7 | 3 | 14.30 | 14.30 | — | — | — |
| Newton | 36,336 | 15 | 4 | 13.33 | 33.33 | 6.66 | — | — |
| Malden | 35,390 | 18 | 5 | 38.88 | 5.55 | — | — | — |
| Chelsea | 35,264 | 4 | — | — | — | — | — | — |
| Fitchburg | 33,848 | 8 | 6 | 12.50 | 37.50 | 12.50 | — | — |
| Taunton | 32,759 | 7 | — | 14.30 | — | — | — | — |
| Everett | 27,114 | 13 | 5 | 15.40 | — | 7.70 | — | — |
| North Adams | 26,583 | 12 | 3 | 16.67 | — | 8.33 | — | — |
| Gloucester | 26,121 | 2 | — | — | — | — | — | — |
| Quincy | 25,307 | 13 | 4 | 23.10 | 23.10 | — | — | — |
| Waltham | 24,612 | 10 | 3 | 10.00 | 20.00 | — | — | — |
| Pittsfield | 22,311 | 3 | — | 66.67 | — | — | — | — |
| Brookline | 21,679 | 8 | 2 | 12.50 | 25.00 | — | — | — |
| Chicopee | 20,390 | 6 | 1 | 16.67 | 16.67 | — | — | — |
| Medford | 20,014 | — | — | — | — | — | — | — |
| Newburyport | 14,478 | — | — | — | — | — | — | — |
| Melrose | 13,384 | 2 | — | — | 50.00 | — | — | — |

* The populations of the cities outside of Massachusetts were estimated on the basis of the rate of growth from 1890 to 1900. Those of the Massachusetts cities were estimated upon the rate of growth from 1895 to 1900, since the State had an intermediate census in 1895. The populations of Gloucester, Marlborough and Newburyport were allowed to stand as in 1900, they having suffered a slight decrease during the five-year period.

Deaths reported 3,281; under five years of age, 1,030; principal infectious diseases (smallpox, measles, scarlet fever,

cerebrospinal meningitis, diphtheria and croup, diarrheal diseases, whooping cough, erysipelas, fevers and consumption 742, acute lung diseases 576, consumption 361, scarlet fever 60, erysipelas 13, typhoid fever 50, whooping cough 20, cerebrospinal meningitis 13, smallpox 37, measles 41, diarrheal diseases 49.

From whooping cough, New York 11, Philadelphia 3, Providence 1, Boston 2, Lawrence 2, Weymouth 1. From cerebrospinal meningitis, New York 8, Baltimore 1, Worcester 1, Lynn 2, Brookline 1. From scarlet fever, New York 43, Philadelphia 4, Baltimore 2, Pittsburg 7, Boston 3, Malden 1. From erysipelas, New York 6, Philadelphia 2, Baltimore 1, Boston 3, Cambridge 1. From smallpox, New York 14, Philadelphia 14, Providence 1, Boston 6, Cambridge 1, Malden 1.

Beginning with January, 1902, the term "great towns" as employed in the Registrar General's Weekly Return of births and deaths includes the seventy-five municipalities of England and Wales which have a population of more than 50,000 in each.

In the seventy-six great towns of England and Wales, with an estimated population of 14,862,003, for the week ending Feb. 1, the death-rate was 17.9. Deaths reported 5,115; acute diseases of the respiratory organs (London) 375, whooping cough 101, diphtheria 85, measles 85, smallpox 43, scarlet fever 60.

The death-rate ranged from 7.2 in York to 30.3 in Great Yarmouth; London 18.8, West Ham 13.3, Croydon 17.4, Brighton 16.7, Portsmouth 19.8, Southampton 14.5, Bristol 13.6, Birmingham 21.3, Leicester 17.8, Nottingham 18.4, Birkenhead 10.2, Liverpool 20.6, Manchester 19.6, Salford 16.6, Bradford 13.5, Leeds 17.4, Sheffield 18.5, Hull 14.8, Newcastle-on-Tyne 20.7, Cardiff 21.3.

## CHANGES IN THE MEDICAL CORPS OF THE NAVY FOR THE WEEK ENDING FEB. 15, 1902.

L. W. SPRATLING, surgeon. Order to the Naval Hospital, Portsmouth, N. H., revoked; ordered to continue on waiting orders.

E. V. ARMSTRONG, passed assistant surgeon. Detached from recruiting duty, Feb. 17, and ordered to the "Olympia."

J. E. PAGE, passed assistant surgeon. Ordered to Seattle, Washington, March 1, for temporary recruiting duty.

P. M. RIXEY, rear admiral. Commissioned surgeon-general of the Navy and chief of the Bureau of Medicine and Surgery, with the rank of rear admiral, from Feb. 10, 1902.

## OFFICIAL LIST OF THE CHANGES OF STATION AND DUTIES OF COMMISSIONED AND NON-COMMISSIONED OFFICERS OF THE U. S. MARINE HOSPITAL SERVICE FOR THE SEVEN DAYS ENDING FEB. 13, 1902.

BLUE, RUPERT, passed assistant surgeon. To proceed to Des Moines, Iowa, for special temporary duty. Feb. 10, 1902.

SPRAGUE, E. K., passed assistant surgeon. To assume command of the service at Detroit, Mich., relieving Surgeon J. J. Kinyoun. Feb. 13, 1902.

THOMAS, A. R., passed assistant surgeon. To proceed to Liverpool, Eng., for special temporary duty. Feb. 7, 1902.

SWEETING, C. B., acting assistant surgeon. Bureau letter of Jan. 16, 1902, granting Acting Assistant Surgeon Sweeting leave of absence for 5 days from Jan. 23, 1902, amended so that said leave shall be effective from Feb. 16. Feb. 10, 1902.

BROWN, F. L., pharmacist, Granted leave of absence for 10 days from Feb. 10. Feb. 7, 1902.

FOR SEVEN DAYS ENDING FEB. 20, 1902.

KINYOUN, J. J., surgeon. Granted leave of absence for 2 months and 3 days from Feb. 16. Feb. 14, 1902.

ROSENAU, M. J., passed assistant surgeon. Detailed to represent the service at meeting of the New York Academy of Medicine to be held at New York, N. Y., Feb. 20. Feb. 17, 1902.

SPRAGUE, E. K., passed assistant surgeon. To proceed to Port Huron, Mich., for special temporary duty. Feb. 17, 1902.

DECKER, C. E., assistant surgeon. Granted extension of leave of absence for 15 days from Feb. 15, on account of sickness. Feb. 19, 1902.

MONCURE, J. A., acting assistant surgeon. Granted leave of absence for 30 days from Feb. 15. Feb. 18, 1902.

HARRIS, B. Y., acting assistant surgeon. Granted leave of absence for 15 days from Feb. 15. Feb. 19, 1902.

HODGSON, S. H., acting assistant surgeon. Granted leave of absence for 30 days from March 1. Feb. 19, 1902.

HUNTER, W. R., acting assistant surgeon. Granted leave of absence for 2 weeks from Feb. 1. Feb. 14, 1902.

PECK, F. H., senior pharmacist. Relieved from duty at St. Louis, Mo., and directed to proceed to Evansville, Ind., and report to medical officer in command for duty and assignment to quarters. Feb. 20, 1902.

STEPHENSON, C. W., junior pharmacist. Upon being relieved from duty at Evansville, Ind., to proceed to St. Louis, Mo., and report to medical officer in command for duty and assignment to quarters. Feb. 20, 1902.

RESIGNATION.

Surgeon J. J. KINYOUN resigned to take effect April 19, 1902.

## SOCIETY NOTICES.

BOSTON SOCIETY FOR MEDICAL IMPROVEMENT.—A regular meeting of the society will be held at Sprague Hall, Medical Library Building, on Monday, March 3, 1902, at 8.15 P.M.

Subject: Smallpox. "The Pathological Anatomy of Smallpox, with Demonstrations and Lantern Slides," by Professor Councilman, Dr. G. B. Magrath and Dr. W. R. Brinckerhoff; "Clinical Observations of Smallpox," by Drs. I. R. Bancroft, P. Carson and S. F. Cox, physicians in charge of the city smallpox hospitals.

ARTHUR K. STONE, M.D., Secretary,
543 Boylston Street.

SUFFOLK DISTRICT MEDICAL SOCIETY. SURGICAL SECTION.—The next meeting of the section will be held at the Medical Library Building, 8 The Fenway, on Wednesday, March 5, at 8.15 P.M.

Papers: Dr. C. L. Gibson of New York, "The Creation of a Valvular Fistula (1) for the Treatment of Chronic Colic (2) as an adjuvant in operating on the stomach"; Dr. J. B. Blake, "Operations on Varicose Veins"; Dr. F. B. Lund, "Ileo-psoas Bursitis in Relation to Diseases of the Hip Joint; its Treatment by Incision and Drainage, with Report of Cases."

F. S. WATSON, M.D., Chairman,
F. B. LUND, M.D., Secretary,
529 Beacon Street.

## RECENT DEATHS.

JOSEPH WINSLOW WINSLOW, M.D., M.M.S.S., of Easthampton, died in Enfield Feb. 24, 1902, aged 81 years.

DR. LEVI COOPER LANE is dead at his home in San Francisco at the age of 69. He was founder of the Cooper Medical College and the Lane Hospital.

DR. LOUIS LEWIS of Philadelphia, editor of "The Medical World," "The Medical Council," and "The Medical Times and Register," died on Feb. 19 in St. Vincent's Hospital, New York, where he had undergone an operation. Dr. Lewis was born in England 63 years ago and was a graduate of the Royal College of Surgeons and of the University of London.

## BOOKS AND PAMPHLETS RECEIVED.

University of Pennsylvania. Contributions from the William Pepper Laboratory of Clinical Medicine. Reprints. No. 2. Philadelphia. 1901.

The Pathology and Bacteriology of Uretero-Intestinal Anastomosis. By F. Robert Zeit, M.D., Chicago. Illustrated. Reprint. 1901.

Effect of Direct, Alternating, Tesla Currents and X-rays on Bacteria. By F. Robert Zeit, M.D., Chicago. Illustrated. Reprint. 1901.

Epilepsy, Responsibility and the Czolgosz Case. Was the Assassin Sane or Insane? By J. Sanderson Christison, M.D. Reprint. 1902.

The Operative Cure of Procidentia Uteri. By Charles P. Noble, M.D., of Philadelphia, Surgeon-in-Chief of Kensington Hospital for Women, Philadelphia. Reprint. 1902.

The Ultimate Results of Operation for Cancer of the Uterus. By Charles P. Noble, M.D., of Philadelphia, Surgeon-in-Chief, Kensington Hospital for Women, Philadelphia. Reprint. 1901.

Transactions of the American Orthopedic Association. Fifteenth Session, held at Niagara Falls, June 11, 12 and 13, 1901. Vol. XIV. Published by the Association, Philadelphia. 1901.

A Guide to the Microscopic Examination of the Eye. By Prof. R. Greeff. Translated from the second German edition by Hugh Walker, M.A., M.B., C.M. Philadelphia: P. Blakiston's Son & Co. 1902.

# Original Articles.

## A CASE OF SEVERE AND THREATENING HEMATURIA FROM MOVABLE KIDNEY, WITH A DISCUSSION OF THE CAUSATION OF THIS CONDITION.[1]

BY ARTHUR T. CABOT, A.M., M.D., BOSTON,

*Surgeon to the Massachusetts General Hospital.*

It is not uncommon to see blood in the urine as a result of mobility of the kidney, but this blood is usually present in microscopical amount, rarely in such quantity as to give the urine a characteristic color.

A case in which the loss of blood from this cause reaches proportions to induce serious anemia is a great rarity, and it is on this account that the following case is reported:

Miss H., a spare woman of 43, was seen by the writer on April 6, 1901, in consultation with Dr. G. C. Howard. The patient remembered that in the past few years she had at times when tired noticed a dull pain in the abdomen. This was felt, she thinks, rather to the left of the median line. She had also during this period on several occasions seen a little blood in the urine. This condition was not persistent. The urine would be colored at one urination and the next time would be again clear. In December, 1900, she had hematuria lasting for two days. The urine during this attack was deeply colored, but did not contain clots. The urine was then clear to her observation until March 18, 1901, when the hematuria began again with considerable violence. The urine at first was bright red, but after the first few days became dark purple, almost black. It now also began to contain clots.

The patient was put in bed, and ergot and other hemostatics were administered, but the hemorrhage continued in unabating amount. An examination of the urine on April 6, 1901, showed a specific gravity of 1,012 and an alkaline reaction, between $\frac{1}{8}$ and $\frac{1}{4}$% of albumin and a large sediment of normal blood, mucus and pus. At no time during this attack was there evidence of inflammation or much irritation in the bladder. The urine was passed about once in four hours in the day and about three times at night. The only discomfort experienced was during the passage of clots. Beside these local symptoms there had been a decided loss of appetite and the power to take food, while the strength had been steadily failing.

When I saw the patient on April 8 she was extremely pale and waxy in appearance, with a rapid, feeble pulse. She was propped up in a half-sitting position in bed. A bimanual examination of the pelvis was negative. The bladder was carefully searched with a steel instrument, and between this searcher in the bladder and the finger in the vagina the posterior and lateral bladder walls were closely examined without the detection of any projecting vesical growth or, indeed, of any thickening of the bladder wall. This very thorough exploration caused no increase of the hemorrhage, nor did it change the urine by any brighter appearance of blood. The abdomen was thin, with no great rigidity of the wall, and at once the right kidney was felt, somewhat enlarged and in an abnormally low position. The lower pole of the organ reached to just above the brim of the pelvis and the upper pole was still covered by the edge of the liver and the ribs. The kidney was not very sensitive to pressure, although firm handling caused slight discomfort. It was not possible with moderate force to push the kidney up into place, and a persistent effort to accomplish this was not thought advisable lest some venous thrombus should be dislodged by such maneuvre.

In the absence of evidence pointing to any other explanation of the hematuria, it was believed to be due to the extreme congestion of the right kidney, caused by its downward displacement. It was further recognized that the patient's position in bed, half sitting and bending forward, favored the downward displacement and so tended to aggravate the congestion. It was further felt that the patient's extremely reduced condition was unfavorable for operation.

It was decided, for these reasons, to lower the patient's shoulders and to raise her hips so that the downward drag of the kidney should cease. If this measure failed, it was felt that an operation would have to be done as a final resort, in spite of the unpropitious condition of the patient. On the other hand, it was felt that if this change of position worked favorably and the loss of blood was stopped, that then the operation for fixation of the kidney could be done after the strength had been regained.

The patient was now laid flat upon the mattress and the foot of the bed was considerably raised. Dr. Howard subsequently wrote me that for thirty-six hours after I saw her there seemed to be rather more blood in the urine than before. At the end of forty-eight hours it showed a sensible diminution of blood, and a few hours later was wholly free from any red color. A considerable quantity of what appeared to be broken-down tissue had been noticed in the urine just before the hemorrhage ceased, and for two days thereafter the urine contained this fleshy material and much mucus. (Unfortunately, this material was accidentally thrown away without any microscopical examination. It seems probable, however, that it was decolorized blood clot mixed with mucus that had accumulated in the renal pelvis and escaped when the free flow through the ureter was re-established.) The urine then became quite clear with acid reaction. Specific gravity, 1,016, and a slight trace of albumin. Three days later Dr. Howard allowed the bed to be lowered to a horizontal position for about four hours. On the following morning the blood had reappeared in the urine. From this time the position with raised feet and lowered head was maintained until early in May, when the patient, becoming very tired of the position, was allowed to sit bolstered up in bed for twenty minutes each day. The blood became at once noticeable in the urine, though in far less amount than before. From the time the bleeding ceased the patient began to rapidly gain strength and the appetite and digestion became satisfactory.

Finally, the patient became convinced that an operation for fixation of the kidney was necessary to enable her to get up with safety.

May 20, 1901, I saw her again at the Lawrence Hospital, which she entered for the operation. Under ether the kidney could be plainly felt projecting from beneath the ribs and reaching down to the level of the umbilicus. It was very much smaller than at my former examination, being now little, if at all, larger than normal, and it could now be pushed quite easily into its proper position. An incision was made down along the outer edge of the quadratus lumborum muscle, exposing the kidney. The fat capsule was ample in size and scantily filled with fat. In it the kidney moved up and down freely. The surface of the kidney was of a milky color, owing to a very considerable thickening of the capsule proper. No further abnormality could be discovered. The thickened capsule was split along the convexity and slightly separated from the kidney. Its edges were then sewn tightly to the transversalis fascia with continuous stitches of

[1] Read before the Clinical Meeting of the Massachusetts General Hospital Feb. 14, 1902.

chromicized catgut. The upper ends of these stitches were fixed in the fascia on the lower edge of the twelfth rib. The muscular layers were brought together with interrupted catgut stitches and the skin tightly closed with silkworm gut. Convalescence was uneventful. In a letter received from this patient on Feb. 4, 1902, she says: "I have not had any appearance of blood in the urine since the operation. I do not have any pain in the kidneys," but "have a dragging in the one that was operated on when I lie on my left side."

The condition in this case admits of no doubt. The position of the kidney at the first examination, the cessation of the hemorrhage after a favorable change of position, the renewed tendency to hemorrhage whenever a faulty position was resumed, and the final entire relief when the kidney was securely fastened in correct position, force one to believe that this was indeed a case of serious interference with the renal circulation due to the downward displacement of the kidney.

Many of the shorter treatises on this subject are wholly silent as to the occurrence of serious congestion from this cause, and even the more extensive monographs on the subject of movable kidney make very brief mention of the possibility of congestion being due to the interference with the vessels. Furthermore, when they mention it, they attribute this congestion to a twisting of the vessels; but the present writer has yet to see the report of such a case in which it is made clear that any real twisting occurred.

The fact is, that little is known of the mechanism by which the circulation is obstructed in cases of movable kidney. It is a condition which does not lead to death, and during life the exact nature of the obstruction cannot be accurately studied. It is probable that it rarely depends upon real torsion of the vessels. Rotation of the kidney is an extremely infrequent condition. I have seen it but once, and that in a case where an attempt had already been made to fix the kidney. The lower pole of the kidney had been fixed and the torsion was caused by the falling downwards and forwards of the upper pole. In the vast majority of cases of movable kidney, the displacement is simply a slipping downward of the whole organ. When the downward drag begins to be really felt, it appears natural that it should produce more obstructive effect on the thin-walled vein, with its comparatively sluggish current, than on the thicker artery, with its vigorous flow. The anatomical arrangement, too, of the vessels in the right kidney is especially favorable to the production of congestion when the kidney slips downward, for on that side the vein is short, while the artery is long, coming from the aorta on the other side of the spine. Owing to this shortness of the vein, it feels the pull of the kidney, as it moves downward, before the longer artery does and in greater degree. Thus the return of the venous blood is interfered with before the arterial supply is materially affected, and the conditions are most favorable to a condition of active congestion. It would be interesting, in this connection, to have reports of any cases of pronounced congestion of the left kidney due to displacement. In the only case that the writer can recall of a left kidney that was noticeably enlarged in consequence of displacement, it was believed that this enlargement was due rather to an intermittent hydronephrosis than to any especial congestion of the organ, and that belief was borne out by the immediate relief afforded by massage and replacement of the kidney in its proper position. In that case there was no appearance of blood in the urine to support the theory of any congestion.

Examination of literature on the subject confirms the impression that hemorrhage from this cause is a very rare condition. Rovsing[2] reports a case of hemorrhage in a woman which appeared after lifting a heavy tub. Colon bacilli were found in the urine, and it was shown by examination that the bleeding was from the right ureter. The kidney was enlarged, rigid and attached closely to the liver. The liver also showed a furrow which was believed to be due to tight lacing. Rovsing considered the bleeding in this case due to venous stasis by torsion of the pedicle in a misplaced kidney. The operation effected a cure.

In a rather hasty review of the literature on the subject, this is the only case which I have been able to find where the description of the condition is exact enough to convince one that it is really a hemorrhage due to a misplacement. The various textbooks on medicine and surgery are silent in regard to the occurrence of this condition. Morris, in his recent very complete consideration of the diseases of the kidney, mentions casually that the blood shows itself very rarely in this condition, but makes no allusion to the possibility of so serious a congestion as is illustrated in the case just reported.

I have met with a number of cases of swollen and tender kidney in which the downward drag of the organ was the evident cause of the swelling. It is always difficult in such cases to accurately determine how far the swelling is due to congestion and how far it depends on an intermittent or temporary hydronephrosis caused by a kinking of the ureter. But the more I have seen these cases, the more clear I have been that congestion plays a large part in the production of the swelling.

It is plain that a kidney with short vessels would be quick to feel the effect of a downward pull, and in a kidney lying unusually high, it is conceivable that this pull might produce considerable obstruction to circulation before the organ came down low enough to be regarded as a movable kidney. Cases of hematuria are occasionally reported in which no cause can be discovered, and in which cutting down upon the kidney and splitting the capsule effects a cure. I have seen one or two such cases. May not some of them be instances of congestion from the downward drag which has not been recognized, but which has been corrected by the adhesions following the incision into the kidney?

[2] See British Medical Journal, Nov. 19, 1898.

This matter needs further study, and, unfortunately, the cases are too rare to allow any one observer to have the opportunity to make an extensive study of them. It behoves, then, those seeing such cases to report them fully.

## REPORT OF TWO CASES OPERATED ON FOR DEFORMITY OF THE NOSE.[1]

BY J. PAYSON CLARK, M.D., BOSTON.

The first case which I shall report is interesting, more perhaps as a curiosity than because it illustrates any particular class of cases. The patient, Mr. P., was referred to me last April by Dr. F. W. Thompson of Fitchburg for the correction of a nasal deformity. He was an electric car conductor, 31 years of age. The deformity

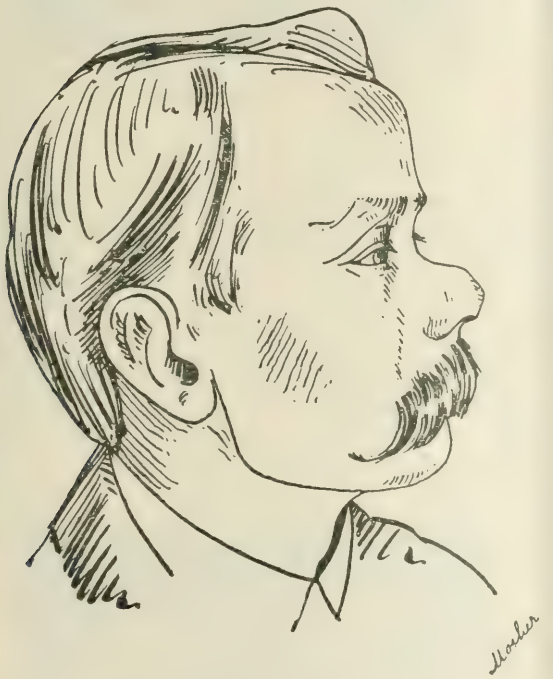


Fig. 1.—Case I (before operation).

followed an injury caused by a fall on the nose when he was a boy. The appearance of his nose was such as to be very noticeable. This condition was especially trying to him, as his occupation made it necessary for him to be seen by a great many people every day, and exposed him to the insulting remarks of thoughtless boys. This sketch (Fig. 1) gives a very correct idea of his appearance before the operation. It was drawn by Dr. H. P. Mosher (to whom I here desire to express my thanks) from a photograph taken by him at the time, but which, owing to the darkness of the day, did not come out satisfactorily. The plaster cast also shows the shape and appearance of the nose. On examination this appearance was found to be due to an overgrowth forward of the triangular cartilage of the septum, drawing up the tip of the nose and giving an irregular knob-like appearance to the organ. This appearance was accentuated by rather a low bridge, and the irregularity was increased by a bending of the redundant cartilage on itself to the right. Internally the septum was deviated to the left, but not enough to be obstructive.

The operation was a comparatively simple one. The patient was etherized and placed sitting up in a chair. The nasal vestibule was thoroughly washed with Seiler's solution. The nasal mucous membrane in the left nostril close to the septum and below the deformity was cut through with a small bistoury, and, by means of a blunt dissector introduced through this opening, the skin was freed over the prominent portion of the nose. Then a pair of slightly curved scissors were introduced and the redundant cartilage removed piecemeal until the shape of the nose seemed about as it should be. A gauze wick was placed in the



Fig. 2.—Case I (after operation).

left nostril and a gauze pad with cardboard and adhesive plaster over the nose to hold everything in good position. There was a certain amount of swelling which gradually disappeared. The gauze wick and external support were removed on the second day and the patient made an uneventful recovery. As you can see by the plaster cast and photograph, taken, one over a month and the latter several months after the operation, the opening of the nostrils is now on a horizontal plane and the general appearance of the nose is not remarkable in any way (Fig. 2).

My second case shows some of the difficulties which one may encounter in attempting to correct old displacements or fractures of the nasal bones. The patient, Miss A., aged 25, came to the Massachusetts General Hospital last September in Dr. Mixter's service. Knowing that I was interested in such cases he kindly referred her to me. The history is briefly as follows: Two years ago she fell from her bicycle, cutting her

[1] Read before the Surgical Section of the Suffolk District Medical Society, Dec. 4, 1901.

nose badly and dislocating it to the left. The wound was dressed, but apparently nothing was done to replace the nose in its proper position. A year ago she fell down an embankment, striking on her face and, she thinks, bending the nose more to the left.

When I saw her the nose presented the appearance which is shown very well in the photographs and in the cast of the nose. Besides a marked angular lateral displacement there was also, in profile, a rather sharp angle between the bony and cartilaginous portions of the nose, in other words, an exaggerated Roman nose. Internally the right nostril was much narrowed, so that breathing through it was impeded. The object of the operation was to straighten these angles as much as possible and to bring the nose into the median line. To accomplish these objects I proposed to perform the Goodale operation for exaggerated Roman nose, which I have used successfully in another case.[2]

The patient was etherized and placed in the sitting posture. A pair of stout narrow-bladed curved scissors were introduced into the left nostril and the point of one blade pushed through the cartilaginous septum close to its anterior border and about $2\frac{1}{2}$ cm. from the tip of the nose. The cartilaginous and osseous septum was then cut through, following the outline of the deformity and close to its articulation, with the nasal bones to a point just under the articulation of the nasal bones with the frontal. With a pair of straight scissors a small piece of the septum under the angular portion of the nose was cut off so as to leave the anterior border of the septum straight. Next, a short-bladed saw was introduced into the left nostril and the left nasal bone sawed through as nearly as possible at and parallel with its suture with the nasal process of the superior maxilla. This was done until the saw could just be felt under the skin. The same process was gone through on the right side. Here, however, it was found that the bone, probably as a result of the two injuries, was four or five times as thick as that of the left side and very hard. This made the process of sawing through much more difficult. By pressing on the sides of the nasal bones I was now able to break their slight remaining attachments to the superior maxillæ. The nasal bones were attached only to the frontal. Now, using the padded handle of a tongue depressor as a pleximeter to prevent bruising the skin, I gave a quick light blow over the nasal bones. Nothing resulted. I repeated this procedure three or four times, slightly increasing the force of the blow, until I heard a crack. To my disappointment I found that the left nasal bone had fractured about a cm. below the nasofrontal suture, and the lower portion of it had thus become separated from the right nasal bone, which was still, apparently, firmly united to the frontal. The failure of this step of the operation was no doubt due to the extreme thickness of the right nasal bone, although it is possible that I did not cut through the septum sufficiently far up and that the portion of the osseous septum thus left intact prevented the nasal bones coming away from the frontal as they should have. If this was so it goes to emphasize the importance of making sure, if possible, that the septum is cut through as high up as the articulation with the frontal bone. In spite of this failure, however, it was found that the nasal bones could now be slid down inside the nasal processes of the superior maxillæ, getting rid almost entirely of the anteroposterior angular prominence and bringing the nose practically into the median line. The operation was hurried somewhat on account of the poor condition of the patient's pulse almost from the start and the shallow character of the respiration. The support which I applied to the nose is a very simple one, and in my experience much superior to any form of splint. It was applied as follows: A strip of adhesive plaster about an inch wide was attached from under the right ear over the right cheek, and then exerting a certain amount of traction over a pad of gauze suitably placed on the nose, the strip of plaster ending on the left cheek just under the left eye. Then another strip of plaster was applied exactly over the first, but exerting a little more traction and carried way around



FIG. 3.—Plaster casts of Case II (before and after operation).



FIG. 4.—Plaster casts of Case II (after and before operation).

[2] An Operation for Exaggerated Roman Nose. Boston Medical and Surgical Journal, May 30, 1901.

the face and under the left ear. It is surprising how much pressure may be obtained in this way. This support and traction was kept up for nearly two weeks, except when removed for observation. Then, owing to the appearance of the skin under the pad, which had been slightly bruised during the operation, it was deemed best to leave it off. Owing to the result of the constant steady traction the position of the nose was now very good, there being almost no anteroposterior angle, and on a front view the nose appearing almost in the median line. As a result of this enforced premature removal of the support the nose is not quite as good as when it was removed, although the improvement over the previous condition is marked. Another result of the operation is that breathing through the right nostril is now free (Figs. 3 and 4).

The points to be emphasized in this case are: The extreme thickness of the right nasal bone, the failure of the nasal bones to separate from the frontal at the suture, and the inability, owing to the condition of the skin, to keep on support as long as seemed desirable.

## CONTRIBUTION TO THE STUDY OF SPINAL FRACTURE WITH SPECIAL REFERENCE TO THE QUESTION OF OPERATIVE INTERFERENCE.[1]

BY. G. L. WALTON, M.D., BOSTON.

Spinal operation has proved comparatively free from the drawbacks and dangers attending intracranial surgery. This fact, together with the serious, painful and usually fatal nature of the lesion under consideration, renders the question pertinent whether it is not wise to make early operation the common custom, in the hope, at least, of relieving pain and of improving the course of the average case.

Certain symptoms have been deemed sufficient to show that the cord is irrevocably crushed, namely, relaxed paralysis with anesthesia, loss of reflexes, with loss of control of bladder and rectum, but cases have been reported in which considerable restoration of function has followed such symptoms. It is only through their persistence that complete crush is established. If we wait to determine this point valuable time may be lost, as secondary degenerations of the cord appear shortly, and early operation in all doubtful cases will not only accomplish all that late operation will do for these cases, but it will be performed to better advantage before reparative processes with adhesions and callus have appeared.

The tables of Thorburn, based on clinical rather than on anatomical or experimental considerations, have stood the test of practical application. If the nerve roots are involved, the anesthesia will reach the level of the lesion. A case in Dr. Conant's service (operated on by Dr. Balch) was anesthetic to the groin on the right (lumbar distribution), but on the left the sacral distribution only was involved. After operation the level of anesthesia on the right was lowered to the sacral distribution on account of relief of pressure from the nerve roots. Speedy relief of pain and some improvement in motion followed operation. The former alone would justify operative interference.

In a case seen with Drs. Hinsdale and Washburn the classical symptoms of complete crush were present, together with fracture of all four extremities, of the sternum, the clavicle and the nose. Removal of the first three dorsal arches by Dr. Cabot was followed by considerable return of sensation and motion, the former almost completely restored, the latter steadily improving, up to the time of publication.

Symptoms resembling fracture may result from distortion in the cervical region with replacement. This lesion generally produces more or less persistent symptoms in the arms due to nerve root injury.

The local signs of spinal fracture are often insufficient to establish the diagnosis. If irregularities appear, especially if accompanied by infiltration of overlying tissues, tenderness on pressure, and local pain becoming extreme when the patient is rolled, such signs are valuable aids.

Irregularities without symptoms of paralysis are not necessarily of import. Such irregularities are common in health, particularly prominence of one or more lower dorsal vertebræ on bending slightly forward. Such prominence may be mistaken for fracture in a patient suffering from strain of the back with its accompanying pain. Various curves were shown illustrating more or less marked irregularities in normal backs.

The fatality of fracture without operation is about 80%. This fatality is claimed to have been reduced by operation to 50%, but these statistics are not trustworthy on account of failure to report unsuccessful cases. In 34 collected cases avoiding this error the fatality was 70%.

The operation is not especially dangerous; it does not leave the vertebral column materially weakened. Even though future statistics may show that the fatality is not materially lowered by operation, removal of pain and improvement in symptoms would justify an operation of so little seriousness compared to the gravity of the condition for which it is attempted.

Moribund condition, high and rapidly rising temperature, and extreme displacement of vertebræ are contra-indications to operation.

### CONCLUSIONS.

(1) There are no symptoms which establish (otherwise than through their persistence) irremediable crush of the cord.

(2) While total relaxed paralysis, anesthesia of abrupt demarcation, total loss of reflexes, retention, priapism and tympanitis, if persistent, point to complete and incurable transverse lesion, the onset of such symptoms does not preclude a certain degree at least of restoration of function.

[1] Read before the Boston Society for Psychiatry and Neurology Nov. 21, 1901; New York Neurological Society, Oct. 1, 1901.

(3) The prognosis without operation is grave.

(4) While the results of operation are not brilliant, they are sufficiently encouraging to warrant us in making the practice more general.

(5) In most cases it will be wise to operate within a few days of the injury; but a delay of some hours is advisable, partly on account of shock and partly to eliminate the diagnosis of simple distortion.

(6) We have no infallible guide to the extent of the lesion. The operation, at the worst, does not materially endanger life nor affect unfavorably the course of the case, and may, at least, reveal the lesion and lessen the pain; it may sometimes save a patient from death or from helpless invalidism of the most distressing character. Instead of selecting the occasional case for operation, we should rather select the occasional case in which it is contra-indicated (the patient with great displacement of vertebræ, the patient with high and rising temperature, the patient plainly moribund, the patient still under profound shock).

(7) The dura should be opened freely; it need not be sutured; drainage is not necessary.

## ADENOCARCINOMA OF LIVER: PERFORATION OF STOMACH; DEATH; AUTOPSY.

BY CHARLES S. WALKER, M.D., CONCORD, N.H.,

*Second Assistant Physician at New Hampshire State Hospital; Fellow of the New Hampshire Medical Society.*

G. W. M., age 64, male, was admitted to the New Hampshire State Hospital Aug. 4, 1900, with a history as follows: Had earned his living up to within six months of his admittance to the hospital, as a shoemaker. Had not shown any mental disturbance until July 29 of that year. He imagined that people were doing various things to him, and he threatened to retaliate. He had not been noisy or very troublesome, but the people with whom he lived were much exercised, and afraid some injury might befall them. Hallucinations of sight was one characteristic symptom. Physically the patient was in poor health, and mentally confused,

After admittance he gained considerably in weight; appeared cheerful, and was not confused. In the late fall became very much worse. He became confused at the supper table one evening, twisted his hands and acted foolishly. Was put to bed, and in a few moments was found unconscious. When the physician arrived was with difficulty aroused, and at once dropped off to sleep. His muscles were somewhat spastic, but he could move them. Inco-ordination was evident in all his limbs. Vomited several times; face was flushed and highly congested. Took a small amount of nourishment, and in two days began to improve. Tells stories that are improbable, also events that happened weeks before as though they had just occurred. Complains of pain about the heart. Recovered from this attack and is in a semi-demented condition; continues to gain in flesh and is able to care for his person.

Mr. M. worked around the kitchen during the greater part of the past spring and summer, except during an occasional bad spell similar in every detail as that above given, which were epileptic in character, as the patient was suffering with structural brain disease. He did not realize the gravity of his condition.

Aug. 19, 1901, patient arose about 6.30 A.M., and was at once taken with a severe pain in the epigastric region, and vomited. Thinking that something had been eaten, and that the pain was gastralgic in character, a small dose of brandy and tincture opii min. X was given with no benefit. The pain and vomiting continued; the pain was excruciating. The patient lay doubled up in bed; nothing gave relief. Soon the vomitus became dark — coffee colored in appearance. Suspicions were aroused that possibly a vessel had ruptured in the stomach walls. A greater or lesser amount was vomited at intervals during the day. Temperature 97.8°, pulse 84. A rectal injection was given with good results, as patient had suffered with obstinate constipation for some time.

It was impossible to allow any pressure on the abdominal walls because of the extreme tenderness. The abdominal muscles were rigid and board-like in character. During the afternoon he became more comfortable, lying on the right side. At intervals he was devoid of pain, especially when lying quiet. Took no nourishment during the day. Strychnin sulphate, $\frac{1}{60}$ gr., was given, also hypodermic injections of morphin, $\frac{1}{4}$ gr., and strychnin, $\frac{1}{30}$ gr., to ease the pain every few hours. Tannic acid powders in 5-gr. doses were given every three hours in order to control as far as possible the existing hemorrhage. During the night he had two bad attacks of pain but no vomiting; was conscious during the entire day and night. Although he slept some, he was easily aroused.

Aug. 20 temperature was 96.6°, pulse 78. Took a little nourishment — the whites of two eggs with a few drops of lemon juice — every three hours, which was fairly well retained. The vomitus had none of the previous color, but the abdominal tenderness continued to increase and a general peritonitis was present. A cold perspiration bathed the body. Although the patient was in a somewhat comatose condition during the day, yet he could be easily aroused up to the evening of above date.

The patient died at 3 A.M. on Wednesday, about forty hours from the first onset of symptoms.

Autopsy showed many interesting features, performed thirteen hours after death. The exciting cause of death was found to be a perforation on the posterior wall of the stomach, about two inches above the pylorus, that readily admitted the tip of the little finger, and included the wall of a small artery. A general septic peritonitis had arisen, the intestines being in a highly inflamed condition, as well as the entire peritoneum. The blood vessels in the stomach walls were con-

gested, while the walls were thinner than normal. The lymphatic glands were enlarged and the intestines were distended with gas. Right kidney was slightly contracted, capsule somewhat adherent, congested, and cortex normal; weight 4 oz. Left kidney contracted, capsule adherent, cyst at lower end and somewhat congested; cortex thinner than normal; weight 2½ oz. The tail of the pancreas consisted of a thick fibrous mass, attached to the spleen, which was doubled on itself to a considerable degree. The mass was hard and dense. On section was firm to the knife and showed but little vascularity. The liver weighed 2 lb. 10 oz., with but little normal liver tissue. This was also thickly studded with fibrous nodules ranging in size from the diameter of the tip of the little finger to an inch or more. They seemed to be in close relationship with the vessels.

Sections of the above were sent to Dr. H. N. Kingsford of Hanover, N. H., for diagnosis. He reported as follows: "Post-mortem changes had set in before specimens were received. Spongy, smooth, hard nodules varying in size from a pea to that of a large marble were scattered throughout the substance of the liver. The surface of the liver is light brown, capsule torn. On a portion of the capsule appear numerous small black spots. Microscopical examination shows these nodules to be composed of epithelial cells, growing in all directions, with more or less fibrous tissue separating the masses of cells; very few liver cells are found. Very few mitotic figures are seen. The pancreas appears about normal. The stomach shows the edge of a chronic ulcer. There is no evidence of epithelial proliferation in the stomach wall. The spleen shows chronic passive congestion with obliterative endarteritis. Diagnosis is papillary adenocarcinoma of the liver, probably originating from the bile ducts. The patient had been constipated at times, due no doubt to this disturbing element in the liver. As far as the chronic ulcer of the stomach is concerned he had never complained of any disturbance in that organ. There were adhesions at base of right lung and the left was adhered to the chest wall so that it was impossible to break up the adhesions without tearing the lung apart. The heart showed thin muscle walls and both anti- and post-mortem clots in both right and left auricles and ventricles, with calcareous degeneration of aortic and mitral valves. The brain was not examined, as permission had only been obtained to make a satisfactory diagnosis of the cause of death."

It was interesting to observe that while the immediate cause of death was due to perforation and its accompanying results, there existed many other conditions that would ultimately have terminated the life of the patient.

Deaths from Live Wires.— It is reported that during the recent severe storm in Philadelphia, owing to carelessness in cutting off the electric current, five men and many horses were electrocuted by fallen wires.

## Clinical Department.

### EPIDEMIC PNEUMONIA AT WEST TOWNSEND, MASS.

BY R. S. ELY, M.D., WEST TOWNSEND, MASS.

West Townsend is a Massachusetts village of about two hundred inhabitants, situated about ten miles from Groton, and the series of cases of pneumonia, with a very high mortality, which I briefly report may have an added interest on account of the cases of the same disease occurring about the same time at the Groton School, which have attracted wide attention, and on account of the proximity of Groton to West Townsend.

Between Dec. 1, 1901, and Feb. 1, 1902, there have been ten cases of pneumonia in adults in West Townsend, eight of which proved fatal. There were also four cases in children, all of which are either well now, or on the road to recovery. Of the ten cases in adults, eight occurred in my own practice, with six deaths and two recoveries. I judge the other two cases, which I did not see, were similar to mine, from the reports of their attending physicians.

In the above-mentioned cases the disease assumed two types, one a typhoid pneumonia, the other an influenzal, or double, pneumonia. Of the eight that died, four were distinctly typhoid in character. Almost from the onset there was a dry, brown tongue, stupor, low muttering delirium and great prostration.

In the second class, the disease commenced in some as a simple influenza, accompanied by headache, backache, fever and extreme restlessness, the pneumonic symptoms not appearing for a few days; in others there was consolidation in one lung within forty-eight hours, the inflammation remaining confined to this lung for from four to five days to a week, then the other lung became affected, the patient wearing out in from ten to fifteen days. Most of the cases were ushered in by slight chilliness, a temperature of from 100½° to 102½°, and very obstinate vomiting. This latter feature was very marked in the cases classed as typhoidal.

Four of these cases were seen in consultation by Dr. Hartwell of Ayer, one by Dr. Stimson of Fitchburg, and another by Dr. L. G. Chandler of Townsend.

Case I. Arthur F., age 35, a hard-working man, of exemplary habits. Had felt poorly for several days. When first seen had a temperature of 102°+; was extremely restless; worried constantly about his inability to work. In from two to three days he was delirious nearly all the time, and kept picking at the bedclothes and tried often to get out of bed; tongue dry and brown; there was but slight consolidation, the upper part of the right lung in front and the lower posterior portion of left being affected. This patient died on the seventh day.

Case II. Andrew F., age 22, a section hand on the Greenville branch, B. & M. R. R. Taken sick Jan. 23, after exposure to cold and wetting

his feet the day previously. I first saw him Jan. 24. Lower lobe right lung was consolidated; respiration 60, and more at time; face cyanotic; temperature 103½°; pulse 130. Next day respiration was slower (35 to 40); less fever and slower pulse. He raised characteristic sputa. This patient apparently was gaining, when one night he got out of bed, his attendant being away for a few minutes, but fell back heavily, drew up the bedclothes, and was dead. Duration of sickness, five and one-half days.

CASE III. Mrs. S., age 65, widow. Taken with slight chilliness; temperature 102½°; pulse 120. Dry, brown tongue, delirium, marked stupor, deepening as the disease advanced. There was solidification of the lower lobe of the right lung. There was almost no pain, but slight cough and little expectoration. Death on eleventh day.

CASE IV. James M., station agent Greenville Branch, B. & M. R. R., age 41, a man of excellent habits. Initial symptoms were decidedly grippy; headache, severe backache and moderately high fever. Pneumonia involvement of left lung found on the third day; cleared nicely a few days later. He was better for one day, then the pulse became accelerated, and the fever increased. The other lung was involved. This patient was sick in all fourteen days, the last three of which he was apparently gaining. The fever was diminishing, and there was improvement in pulse and respiration. He had better nights and expressed a desire for something to eat. On the fourteenth day towards night the patient became delirious, heart's action became rapidly worse and death ensued a few hours later.

CASE V. Robert K., Nova Scotian, age 45, a strictly temperate, hard working cooper; this case was almost exactly like the preceding one, excepting that the right lung was first involved; the left lung was affected at the end of first week. He died after a sickness of fifteen days.

CASE VI. Mrs. B., widow, age 61. At onset slight chilliness, moderately high fever, excessive vomiting, the latter lasted from sixteen to twenty-four hours. Middle portion of right lung solid; almost no cough; no expectoration; dry, brown tongue; clear headed until a few days before death. No pain in this case, simply a feeling of weariness. Death on the thirteenth day.

In the treatment of these cases the remedies used were calomel purges, quinin, quite freely at the start, and as the disease advanced, strychnia in doses of $\frac{1}{30}$ gr. every three or four hours, in some cases subcutaneously; towards the last whiskey and milk regularly, also a free use of oxygen gas in some of the cases.

The two patients who recovered were both women of about sixty years of age. There was consolidation in the lower lobe of the right lung. In one there was a temperature of 105° within a day or two, stupor and involuntary evacuation of bowels and bladder; gradual improvement; and out of danger in ten days. The other had profuse vomiting, but gradually improved after the third day. Convalescence in about ten days.

There were four well-marked cases of pneumonia in children: One case occurred in a house where a patient died of the same disease (Case II of my report); the second patient, a sixteen months' baby, was taken sick Feb. 1, the former dying Jan. 25. The woman described in Case VI lived within a short distance of this house and called there while Case II was sick, about Jan. 22 or 23. She was taken sick Jan. 29. This house was quite close to the railway station, where the patient described in Case IV was employed; his work, in looking after freight cars and in helping to load them, frequently called him within a few rods of the house. In one other instance there were two sick in the same house, that is, the station agent (Case IV) and his mother-in-law (Case III), the latter coming down a little in advance of the agent.

As far as grouping of cases is concerned, there were five sick at one time, namely, Cases III, IV, V, VI, and a six-year-old girl, whose case is not included in my report. There were also three children sick at the same time, two on opposite sides of the same street, but about one-fourth mile from the station; the third case was on the same street as the station, but at least one-fourth mile from it. The fourteen cases in this village were all within one-half mile of each other, or nearly so.

We have recently had several cases of la grippe but no more pneumonia complications. They were freely purged and cinchonized at the start. In from three to seven days all were convalescent, no complications having arisen.

## Medical Progress.

### REPORT ON OBSTETRICS.

BY FRANK A. HIGGINS, M.D., BOSTON.

#### PUERPERAL ECLAMPSIA.

THE *Lancet*,[1] in an editorial on "Puerperal Eclampsia," says that among the most important of the problems in obstetric medicine that awaits solution is the causation of eclampsia and the best method of dealing with this disease when it occurs. These questions have been fully discussed by the Germans at Giessen and at the London Obstetrical Society without doing much to elucidate our knowledge of the condition.

The theory that eclampsia is due to a toxic state of the mother's blood is the one that holds the field at the present day, although we are ignorant of the nature of the toxin and of the manner in which it produces its effects. The French School teaches that the liver is the organ primarily at fault, and that the essential condition is one of hepatotoxemia, while the German teaching is that affection of the kidneys in the primary condition, and that the pathological changes in other

[1] Vol. ii, p. 1206, 1901.

organs, play but a secondary part, to be regarded as the result of the action of the poisons and not as the cause of their presence in the body. The existence of the toxemia of pregnancy upon which so much stress is laid by many writers as the *fons et origo* of the majority of disorders of pregnancy is hardly as yet placed upon a firm scientific basis. There are many blanks in our knowledge between such a toxemia and some of the diseases which it is supposed to produce. We are at present in considerable danger of basing our treatment of eclampsia upon a theory which further investigation may show to be far from the truth, although the toxic theory no doubt furnishes a good working hypothesis.

The occurrence of convulsions during labor is a complication of so alarming a character and so grave a nature that there is danger of our bestowing too much attention upon the convulsions and too little upon the very important pre-eclamptic condition, the condition of the patient preceding the onset of the convulsions. We are inclined to think that if a correct knowledge of the causation of eclampsia is ever to be arrived at, attention must be mainly directed to the pre-eclamptic stages of the disease. Further investigations must be devoted to careful observation of all departures from the normal in the health of pregnant women. Then only will it be possible to practise preventive medicine in the case of the pregnant woman and the fetus in utero. The opportunities for scientific study of the various problems connected with pregnancy are at the present day almost *nil;* the length of time such patients remain in lying-in hospitals before their confinement is too short for any prolonged observations to be made, and work of this nature is impossible in private practice. It is an encouraging sign to see that a bed is to be endowed and set apart for the study of the diseases of pregnancy in the Royal Maternity Hospital at Edinburgh. We can imagine no more worthy object for philanthropy than the endowment of such beds in some of our large hospitals, where the diseases of pregnancy and of the unborn child could be investigated with all the advantages of modern science. It is by research in this direction that we are most likely to gain a true knowledge of the problems of eclampsia and of the best means of preventing this dangerous complication of pregnancy.

### ECLAMPSIA.

Dr. Heizfeld[2] says that out of 81 post-mortem examinations in eclamptics 22% of the cases showed a bilateral compression of the ureters. He says that in primiperæ who give evidence of eclampsia during the period of cervical dilation, ureteral compression is exceedingly common. He believes that eclampsia is the expression of an intoxication due to the circulation in the maternal blood of toxins developed from her own and the fetal catabolism. This theory, which to his mind is equally tenable with that of uremic poisoning, points the way to prophylactic measures.

[2] Centrbl. f. Gynäk., Oct. 5, 1901, p. 1111; New York Medical Journal, Dec. 7, 1901, p. 1073.

### PUERPERAL GANGRENE.

A case of puerperal gangrene of the foot is reported by Wormser.[3] A prepatellar bursitis had developed three weeks before labor, with pus and considerable fever present. In this condition the patient, 34 years old and in her sixth pregnancy, was brought to the hospital with two fistulous openings in knee. She was delivered on the same day, and examined but once internally under the precautions of a sterile rubber glove. Bronchitis and diarrhea then set in. Three days after delivery a large foul-smelling clot was removed from the uterus, followed by intra-uterine irrigation. The prepatellar abscess was incised and evacuated, quickly healing. The temperature again began to rise and more putrid clots were removed. The uterus was curetted. On the twelfth day after delivery gangrene began on the left foot, which became more marked on the following day. Death occurred 2½ days later, no time being left for the line of demarcation to set in. The autopsy confirmed the clinical diagnosis of general septicemia due to streptococci, as ascertained by the chill, fever, pulse, articular involvement and the bacteriological findings in the lochia. The post-mortem diagnosis of gangrene was based upon thrombosis of various venus radicles in the affected area, there being no involvement of the arterial system; in addition there was found a separation of the symphysis. The author unfortunately omitted to examine the pus in the prepatellar abscess, and can therefore not state with certainty whether the streptococci found in the endometrium, which were responsible for the general infection, originally came from the prepatellar abscess. The patient stated emphatically that she had not been examined outside, and she was once examined during her labor, and that with the aid of a sterile glove. The author states that the gangrene can take place in one of three ways: either by interruption of the venous and articular circulation, or by both. The latter is the most common, and was present in the first case the author reports; rarer, however, is the pure arterial involvement, and, the rarest of all, the exclusive participation of the venous system, as was present in this case.

### THE FETAL HEART.

Interesting clinical observations on the fetal heart beat were made on a favorable case by the Italian obstetrician, Rivolta.[4] His patient, at the fifth month of gestation, with placenta previa, was hastily delivered of an apneic and exanimate fetus. The fetal thorax was opened immediately and the pericardial sac freely exposed. A curious discovery was then made which, if it be found to represent a normal state of affairs, would revolutionize in part our knowledge of the fetal circulation. It has generally been believed that, with

[3] Philadelphia Medical Journal, 1901, ii, 729.
[4] Loc. cit., 1901, ii, 1011.

the exception of the two characteristic fetal conditions of patent foramen ovale and the guiding Eustachian valve, the fetal heart behaves, when in action, precisely as does the adult heart, that is, as pertains to its method of contraction. Until compelled to leave the fetus to attend to the after-treatment of the mother, Professor Rivolta was privileged for about the space of eight minutes to observe the pulsations of the exposed fetal heart, and was surprised to note that the contractions of the four heart cavities were not as in the adult. The rate of pulsation, when first noted, was 24 beats per minute, and at the end of the observation this had fallen to 17 beats per minute. The order of rotation was as follows: Beginning with the pause, the right auricle contracted first, being immediately followed by the left auricle, the wave of contraction in both cavities moving from above downward; a brief pause followed and then, the auricles still being in systole, occurred the contraction of the right ventricle, and immediately afterwards that of the left ventricle. The cardiac impulse began with the ventricular systole and reached its maximum at the height of the systole, that is, when the ventricle was empty. The heart was practically bloodless during the time of the observation; hence it is probable that the production of the impulse did not arise from the amount of blood in the ventricular cavity, but was purely muscular in origin, a contraction of the fibres of the ventricular walls. Notwithstanding this absence of blood, the heart showed the same impulse, the same rotation on its longitudinal and transverse axes, and the same rising of the apex and descent of the conus arteriosus and base of the aorta, as if there were the usual full-blood stream in the cardiac cavities. It is unfortunate that the condition of the mother prevented a close observation of the fetal heart until complete cessation of its action. Aside from the interest attached to an actual observation of a pulsating heart for a comparatively protracted period, the unusual sequence of events, unusual as far as our knowledge goes, is most suggestive. We have been informed by eminent embryologists that but little is known concerning the action of the fetal heart other than the points already mentioned, and that it has always been believed that the contraction of the cavities followed the rule in the mature heart. The observation of Professor Rivolta will doubtless stimulate other obstetricians to a closer observation of this matter. It may be that many of the prematurely discharged fetuses of five and one-half to six months, apparently giving no signs of vitality, would reveal for short periods after birth cardiac contractions which would well reward the time given to the examination of their thoraces.

### CORRECTION OF OCCIPITOPOSTERIOR POSITIONS.

Dickinson[5] says a simple method, always worthy of trial and often successful, is the seizure of the ear and the exertion of pressure or traction to turn the head. The manœuvre is available whenever the ear is within reach. Two fingers are pushed in beneath the pubic arch and the ear caught between their tips. The middle finger being longer than the index, would be better placed against the back of the ear if the reach is a long one or the patient stout or sensitive. The index finger, however, with its greater strength, has more pushing power when its tip lies behind the ear. But whether one finger or the other goes to the mastoid side of the ear is not material nor does it matter whether palmar or dorsal aspect of the finger is applied to the head. Palm towards pubes gives the longer reach. The cartilage of the concha furnishes a resisting projection on which pressure is exerted, or the flap of the ear gives a handle to pull upon. During a pain that rotation which has been gained is held and progress is resumed after the passing of the pain. It is his practice to overcorrect except when the head is on the pelvic floor, or when descent is rapid. That is, if the head is engaged, or midway in the pelvis in a right posterior position, it is turned to left anterior, provided no undue resistance suggests excessive torsion of the neck. Then one expects the untwisting of the trunk to draw the head back to the right anterior. It goes without saying that flexion must be maintained or faulty flexion corrected, and also that the chin must not be swung around beyond the shoulder. In attempting the swing through the half-circle, that shoulder which is above the pubes must give assurance to the operator that the trunk is swinging with the head. The lateroprone position across the bed sometimes proves advantageous.

The anterior ear offers a better purchase for rotation of the occiput forward than any other simple method, whenever it is within reach.

### INTERSTITIAL PREGNANCY.

R. H. Pierson[6] reports a case of interstitial pregnancy as illustrating a type of ectopic gestation seldom recognized, which may under favorable circumstances progress to full term and terminate in a practically normal labor. The gestation originally occurred in that portion of the tube within the thickness of the uterine wall — the interstitial portion. As the ovum matured it forced open the uterine end of the tube, and abortion, after repeated attempts on the part of the patient, occurred through the uterus. To diagnosticate the condition prior to abortion and exploration is difficult or impossible. In this case digital exploration after the abortion showed the placenta attached in the left cornu and continuing through a ring about one-half inch in diameter in the side of the uterus, into a cavity outside the uterus. This opening in the uterus corresponded to the location of the uterine end of the Fallopian tube. Its margin was a distinct ring which felt firmer than the rest of the uterine wall. The cavity in the tube was about two and one-fourth inches in length and was filled with placenta tissue. If the placenta forceps had been used and the uterine placenta simply twisted off, the tubal portion

[5] American Medicine, Sept. 7, 1901, p. 361.

[6] New York Medical Journal, Dec. 7, 1901, p. 1047.

would probably have remained to become a septic focus, and only a post-mortem or subsequent exploration have revealed the true condition.

The author says there are two questions of interest in the consideration of this case: What was the relation of the uterus to the tubal cavity while the fetus was in the uterus? And what would have been the result if the pregnancy had not been interrupted? From the condition of the tubal orifice, its distensibility, and the fact that the tubal cavity held so much placental tissue, he believes that when the uterus was distended by the presence of the fetus, the ring was much larger than when first observed, so that the cavity was practically included in that of the uterus. As gestation progressed and the uterus enlarged it is possible that, by the time the pregnancy was completed, the relations would have been nearly those found in the normally pregnant uterus, and the labor at full term would have occurred and a satisfactory result have taken place without interference of any kind.

### INFILTRATION OF URINE IN LABOR.

A case of rupture of the bladder followed by urinary infiltration is reported by Horn.[7] The patient, 31 years old, in her fourth labor, which was long, was delivered by forceps, and apparently suffered from some injury to the bladder, as the urine was mixed with blood. On the fourth day the patient was in a very bad condition, pulse very weak, there were evidences of septic infection, the lochia contained urine, and a diagnosis of septic infiltration of urine about the bladder was made, with an unfavorable prognosis.

The patient died on the sixth day. There was an opening found between the uterus and the bladder, and infiltration of urine throughout the pelvis. The opening was partially closed by the contraction of the uterus, but allowed leakage into the surrounding tissues. Incision washing out and drainage might have been of use if the rupture had been recognized early.

### ABDOMINAL INJURY IN PREGNANCY.

A case showing unusual tolerance to severe injury and operation in pregnancy is reported by Gloninger. The patient, about five months pregnant, received a bullet wound through the stomach, transverse colon, and lower lobe of the liver, the bullet passing into the left innominate bone. The perforating wounds were sutured, the abdomen was drained and the patient made an excellent recovery. About four months after the receipt of injury she was delivered of a healthy female child. By the promptness and skill of the operator the lives of both mother and child were undoubtedly saved.

### CASES AT THE UNIVERSITY OF PENNSYLVANIA MATERNITY.

Remington[8] reports a number of the more interesting operations and cases occurring in six months. One was a large ovarian cyst simulating pregnancy, for which abdominal section was performed. Another was for a pyosalpinx, supposedly an extra-uterine pregnancy, in which it was believed that the patient had been infected in a self-induced abortion. A case of loose symphysis pubis becoming manifest several times through several pregnancies is recorded. In the fifth month of the patient's second pregnancy she began to have pain in the region of the symphysis, which was made worse on walking. She limped, and the left leg seemed to be shorter than the right. When walking, sitting or lying down she needed support. Nine days after delivery she was up and walked without limping. During the third pregnancy she developed the same symptoms at about the same time, and after delivery there was no trouble. During the fourth pregnancy pain and a limping gait developed at about the fourth month, and during her fifth and last pregnancy the same symptoms developed at the third month. Then for the first time she felt the bones at the symphysis move. She was up and around on the seventh day. For the first time in the puerperium she suffered pain at the symphysis and had a limping gait. Vaginal examination in the erect posture showed that the left pubic bone moved up and down about one inch at each step. She was treated with rest, binder and sandbags. One month later she was up, with a little pain noticed in the morning over the left sacro-iliac joint. She walks without inconvenience, but there is slight motion noticed at the symphysis on walking.

### THE PREVENTION OF ASPHYXIA IN DELAY OF THE AFTER-COMING HEAD.

A recent revival of some of the methods of the prevention of asphyxia in delay of birth of the after-coming head by the introduction of a tube or catheter into the child's mouth, has led Dr. Blacker, in the *Lancet*,[9] to publish an historical note on this subject. He quotes from earlier writers, and gives the credit of originating this method of preventing fetal asphyxia to Benjamin Pugh. In conclusion he says that hardly any of the writers of modern textbooks on obstetric medicine refer to Pugh's method of overcoming the danger from asphyxia when the birth of the after-coming head is delayed, and in this omission they no doubt exercise a wise discretion. The passage of a catheter or special tube into the child's mouth when the head is lying high up in the pelvic cavity is only likely to lead to a waste of valuable time, while if the head is sufficiently low down in the pelvis to admit air reaching the mouth, if the perineum be retracted, its immediate extraction should be a matter of little difficulty.

The instances recorded by various observers show that in cases of extreme emergency it is possible to keep a child alive by the use of one or the other of the methods described for a considerable length of time. At the present day, however, when our means of delivering the after-

[7] Muench. Med. Woch., July 30, 1901, p. 1243.
[8] University of Pennsylvania Medical Bulletin, July, 1902, p. 154.
[9] Vol. ii, 1901, p. 1033.

coming head, either by combined shoulder and jaw traction, or, better still, by the application of forceps, are so certain it becomes a question whether it is not better practice to extract the head at once, even at the risk of a bad tear of the perineum, rather than to attempt to initiate the act of respiration while the head is still within the vagina. The warning of Barnes should not be forgotten. Speaking of Pugh's device he says: "I must warn you not to trust to these or similar plans, lest the golden opportunity be irretrievably lost. The real problem is to get the head out of the pelvis," and to this advice one may safely add the qualification, "*as rapidly as possible.*"

### UMBILICAL INFECTION.

Infection at, or soon after, birth is fast becoming recognized as a frequent cause of infantile mortality. Porak and Durante[10] report in full four cases of general septicemia, the point of entrance in all cases being the umbilicus. The local, umbilical symptoms are suppuration, gangrene, erysipelas, hemorrhage, etc., often hardly enough to attract attention. The infection may enter along the umbilical vessels or along the embryonic tissue of the cord. In the former case, there are no local symptoms. General septicemia follows. The liver is most often affected, the lung coming next in frequency. In the liver, degeneration occurs, with jaundice. Secondarily, dyspepsia may also occur. Two other cases with jaundice are described.[11] The worse the local symptoms, the less dangerous, as a rule, is the infection. But these cases show how careful the physician must be in his work upon the umbilical cord.

### PHTHISIS IN PREGNANCY AND LABOR.

Kaminer[12] gives a table of 50 cases showing the influence of labor and pregnancy on phthisis. He does not believe that pregnancy should be terminated to prevent the subsequent existence of a person who would probably become tuberculous. He refers to 15 cases under his observation in which labor was artificially interrupted, and two cases in which it occurred spontaneously. In 12% of these cases death occurred; in 30% there was a marked increase in the severity of the disease; and in 70% there was no change noticeable. In no case was there any suggestion of a real cure. This is strongly against Maragliano's belief that pregnancy should be artificially interrupted for the benefit of the patient. Kaminer believes that it does not aid the patient, that it is much more likely to make the patient's condition worse, and at any rate, any little aid given by this method is only through the loss of the child. In many instances he believes that one is justified in interrupting the pregnancy, but that this is practically never one's definite duty, and at any rate a decision cannot be reached by following a general law, but only by observing each case. The most important point is to prevent conception in phthisical subjects.

[10] Arch. de Méd. des enfants, June, 1901.
[11] Philadelphia Medical Journal, ii, 899.
[12] Deutsch. Med. Woch., Aug. 29, 1901; Philadelphia Medical Journal, February, 1901, p. 1121.

### THE QUESTION OF OVARIAN PREGNANCY.

Webster[13] reviews briefly the subject of ovarian pregnancy. He cites from his monograph published in 1895, on ectopic pregnancy, in which he says that after a study of records of alleged ovarian gestation, there was no proof that a pregnancy had ever started in a graafian follide, and that it seemed to him that such an occurrence was improbable, though he did not commit himself to the statement that it was impossible. He mentions the case of Van Tussenbroek, demonstrated at the Third International Congress of Gynecology at Amsterdam in 1899. He says this exhibition served to confirm the belief of those members of the congress who had always recognized the possibility of the occurrence of ovarian gestation, and dispelled the doubts of others who had always been skeptical. There are several conditions which closely simulate ovarian pregnancy. Pregnancy in an accessory tube may easily be mistaken for ovarian pregnancy, if the ovary of the same side becomes closely adherent to the pregnant tube and a normal tube is found independent of the gestation sac. Also if the ovary was very small or absent, and the gestation sac lay behind the normal tube; or when the pregnancy takes place in an accessory fimbriated extremity, or in a diverticulum of the tube. A mistake is easily made in the case of a gestation which begins on the ovarian fimbria. In a similar manner a pregnancy growing at any part of the fimbriated end of the tube may so involve the ovary, that it may be regarded as the original seat of the pregnancy. He gives Dr. Van Tussenbroek the greatest credit for the thoroughness with which she has investigated her specimen, and while her work was of value, yet he is not yet convinced. He admits that section through the ovary demonstrates very closely that the pregnancy was undoubtedly situated in the organ, and that while the gestation may be readily conceded to be topographically ovarian, it is a matter of some doubt whether the ovum was at first implanted in true ovarian tissue. He says that Van Tussenbroek's claim that an ovum was fertilized in its follide is a pure assumption and in no sense proved; that undoubtedly the microscopic appearances have strongly suggested this view to her, but these same appearances are capable of other interpretations.

He remarks that the investigations of Berry Hart and himself have made evident the unreliability of all published accounts of the primarily abdominal variety of ectopic gestation.

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A CENTENARIAN.—Mrs. Celeste Long, née Broussard, said to have been the oldest woman in Louisiana, died in New Orleans recently at the reputed age of 104 years. Her mother was one of the refugees who came with Evangeline to Louisiana in 1769.

[13] American Medicine, 1901, ii, 993.

# Reports of Societies.

## BOSTON SOCIETY OF PSYCHIATRY AND NEUROLOGY.

J. W. COURTNEY, M.D., SECRETARY.

Regular meeting, Nov. 21, 1901, Dr. P. C. Knapp in the chair.

Dr. G. L. Walton read a paper entitled

A CONTRIBUTION TO THE STUDY OF SPINAL FRACTURE WITH SPECIAL REFERENCE TO THE QUESTION OF OPERATIVE INTERFERENCE.[1]

Dr. C. B. Porter: I am thoroughly in sympathy with the writer in what he has recommended, but up to the present time I have not had much experience in spinal surgery, and I prefer to listen. I will merely remark that I regard interference as important in most cases.

Dr. M. H. Richardson: From the anatomical standpoint the feasibility of rapid exposure of the spinal cord is conspicuous. I think operation can be done in an extremely short period of time so that the shock is not great, although in cutting through the great muscles of the back there is always a good deal of hemorrhage. The chief point that interests me, the crucial point in fact, is the question of indication, as to the advisability of operation, and this question cannot be settled until we have had a very large experience. I have seen a number of broken necks from diving and from falls. One of these Dr. Porter operated upon in my service. Another was a woman injured some years ago at Keith's Theatre. Another I operated upon. A number were not operated upon. My experience in broken necks is that whether operated upon or not they have been invariably fatal, although the operation has been very feasible, and no complications have arisen due to the operation. Surgery gets the credit of the death but does not deserve it. It is not like tentative operations in injuries of the skull. I have seen several dreadful consequences of operation in cerebral surgery, such as tremendous hernias of the brain and things of that kind, in patients doing fairly well before the operation was undertaken. In spinal surgery I do not see that anything of that sort could happen. This belongs to the category of questions difficult of settlement owing to small experience. This group of fatal operations in broken neck does not prove, however, that if we can apply the remedy to a large number of cases we should not occasionally have a brilliant recovery. In broken neck it cannot be denied anatomically that there may be a sufficient temporary pressure upon the cord, so much smaller is it than the brain, to lead to its disorganization. The same thing is true lower down. I suppose that we ought in these cases to follow a definite rule. We know what happens in these cases if we do not operate; we have had hundreds of years of observations. We do not know what will happen if we apply skilfully and quickly remedies for relief of pressure. I should be in favor of more frequently resorting to operation. They are desperate cases; we know what happens if these patients are not operated on — everything to gain, very little to lose.

After all, we must be guided (in the question of hemorrhage that may absorb or temporary pressure) in these cases by the neurologist, and I am glad, although I may have opinions of my own, to operate when the specialist says operate and not to operate when he says not to operate. I am afraid that the outlook is not very bright.

One word about the technique. It seems to me a very feasible operation, the only danger being in damaging the cord with the rongeur forceps. If the laminæ can be easily exposed, and one can be cut through with instruments that will not press down upon the cord, any number of laminæ may then be removed very rapidly indeed.

Dr. J. J. Putnam: From the practical point of view I am inclined to agree with what Dr. Walton has said, as to the advisability of operating; but when it comes to justifying this procedure by explaining its action, we are still largely at sea. When improvement takes place after operation, or even complete recovery, as occasionally happens, we are very ready to credit the surgeon with the result, whereas, in fact, a very considerable degree of improvement often occurs without operation. It would be well if we should discuss even theoretically some of the actual conditions in which a difference is made by operation. Of course, if fragments of bone are actually pressing on the cord it would be desirable to remove them, but even besides that I imagine there are a number of conditions which are susceptible of being talked about with some intelligence. I should think it was quite possible that drainage might occur better and that the tendency to edema would be less after operation, partly in consequence of the free bleeding and partly from the general opportunity for the escape of fluids surrounding the injured parts. I have always supposed, on the other hand, that the danger of extension of inflammatory tendencies would be greater after operation, especially in the first stage, and for that reason it would be better to wait; but in these days, when operation is so carefully guarded, I dare say even the reverse is true. At any rate the matter is still in a good deal of obscurity.

Dr. H. L. Burrell: I have been very much interested in Dr. Walton's paper, and I have gained a great deal of knowledge from it. In my own mind I have divided these cases into three different classes, and the division is made in reference to the condition of the cord: (1) Those cases where the cord is irremediably damaged; (2) those where the cord is pressed upon, and by an operation one can relieve pressure; (3) where pressure from some cause has taken place and has let up. Until we can be assured by methods of diagnosis what the condition is in an individual case, it seems to me it is our duty to do an opera-

[1] See page 247 of the Journal.

tion on practically all cases except those where there is an obvious irremediable damage to the cord,— where, for example, it has been cut in twain,— and there, of course, it would be perfectly absurd to operate. By the by, may I inquire who published the case of suture of the cord?

DR. G. L. WALTON: That was reported at the American Medical Association.

DR. BURRELL: I heard in New York that the case was said to be really improving.

So far as the diagnosis of these injuries is concerned, until more light is given me I shall certainly continue to operate on practically every case.

In regard to the technique, I have found that the heavy muscles of the back can be readily separated from the laminæ if one simply controls the hemorrhage by the pressure of gauze packing and does not attempt to use hemostatic forceps. In the removal of the spinous processes and laminæ I have used various forms of rongeur forceps, and have found that the best are Dr. Munro's forceps; they simplify the operation; they render it facile, enabling one to remove the laminæ quickly and readily with but little fear of injuring the deeper structures.

In regard to drainage, I was surprised that drainage was used. I can see the reason that Dr. Putnam has given for its use, but, personally, I have never drained an operation wound for fracture of the spine.

DR. J. J. PUTNAM: I did not, when I used the term "drainage," mean putting in a drainage wick; I meant that opening the dura might allow a better escape of fluid into the tissues.

DR. S. J. MIXTER: Before speaking of a case that has already been reported I want to say I most thoroughly believe in drainage in these cases. I believe that the dura should never be sewed up. I also believe that in many cases it is better to leave in a small wick, which may be removed in the course of two or three days. The only objection to that is the very slight danger of sepsis which has never occurred in the cases I have seen. It seems to me it offers a better chance for repair to take place after we relieve all pressure, and with the laceration that takes place in the wound through the skin clear down to the cord itself we have the possibility of hemorrhage and blood clot in spite of coaptation of the deep parts of the wound, and therefore I believe a small wick does more good than harm, and I always use it. I say always — I have used it in every case I have operated upon (four or five). I have operated on two broken necks and two or three broken backs.

A successful case was one where there was complete loss of sensation and motion, and that has made a good recovery, the only thing now being a slight toe drop and wrist drop on one side. The case was as unpromising when I saw it as almost any case not in *articulo mortis* could be. Of course we see these cases of severe injury (temp. 104° to 105° F.), which are evidently fatal, and that brings me to another point, which I think has not been touched upon sufficiently, and that is the question of when to operate on these cases; that is to my mind, the very first moment possible. The cases I have seen that have not been operated upon have been generally those seen after two, three, four or five days, with the very high temperatures you get in so many of these cases of broken neck. One case with broken neck I operated upon, although a fatal case, seemed to me to be encouraging as far as it went. The patient had, when I saw him, been injured several days. He had had a high temperature, 104°; looked very badly, was jaundiced for some reason I do not know what, and was certainly in wretched condition. I operated. In that case I felt there was pressure on the cord, and there was a certain amount of laceration of the cord which could be distinctly seen. The bone was driven into the cord, and one could see the crushed fibres torn across. Much to my surprise the man improved and lived, I think, a month or two following the operation.

As to the question of the cases getting well without operation — it seems to me that is something we cannot determine in any given case. We know that many cases of fracture of the spine have been reported where operation has been done months and years afterward and the patients recovered. How much greater the chance of recovery if the cases are operated on early! Therefore, I should say, by all means operate on every case.

DR. J. C. MUNRO: Since my discussion of a paper on "Fractures and Dislocations of the Spine" at the last meeting of the American Surgical Association, my opinions have not changed, and I will, therefore, repeat essentially what I said then. I shall emphasize the radical or operative rather than the conservative or nonoperative treatment because, up to the present time, the advocates of the latter policy have not conclusively shown that better results are to be expected than where there has been surgical interference. I would not have you conclude from this that all traumatic cases should be subjected to operation; there are contra-indications, not only in the local conditions, but in the various general conditions, that militate against any operation, but these contra-indications should be weighed and judged by the surgeon, and not by the specialist, whether neurological or medical, and upon the surgeon should be placed the final responsibility of operating. We must start at the very outset in fracture-dislocation of the spine with this general equation, that all such injuries are perhaps the most serious as regards restoration of function with which we have to deal, and that the outlook, both as regards function and life, is bad under any form of treatment. It is a common argument and one not easily answered,— but the argument is none the less fallacious,— that recovery after operation would have taken place equally well without operation. As a matter of fact, there are very few surgical conditions that will not at times recover spontaneously. A strong

counter-argument is the not inconsiderable number of recorded cases treated conservatively for weeks or months without gain, that have steadily and surely improved after operation; not always *propter hoc*, perhaps, but with every clinical evidence that the operation has proved the turning point. The risk of the operation, *per se*, may be disregarded, provided the initial shock of the accident has subsided. The number of my own cases, 21 in all, may be too small from which to draw definite conclusions on some mooted points, but it is plenty large enough to answer one question with regard to the operation, the question of shock. I can recall only one patient in whom there was a temporary anxiety as to his condition. In spite of all the brilliant neurological work that has been done within the last few years, it is not yet possible to absolutely state the exact amount or nature of the damage done to the cord.

Dr. J. J. Thomas: Of course we know that there are certain classes of cases of injury to the neck and spine in which operation is distinctly indicated,— those cases where we are pretty certain that pieces of bone are driven in by a missile, as a bullet, for instance,— but aside from these cases, the majority are those of which Dr. Walton has been speaking more especially, where it is difficult to make the distinction Dr. Burrell has clearly brought out, as to whether there is complete crush of the cord or a partial injury of it. It seems to me our efforts as neurologists should be directed towards determining what symptoms or combination of symptoms show a complete and total destruction of the cord, and see if we can find what the indications for or against operation are. I think Dr. Walton will agree that that is a desirable thing to attain. In the individual case, as brought before us, it is often extremely difficult to say whether that individual case belongs in one class or another. My own feeling is that in most cases where it is supposed that a total crush of the cord has existed, and operation has resulted in recovery of the patient, the facts are that the examination of the patient was not complete, that all the functions of the cord were not examined, so that when the report is made that there is complete abolition of the functions of the cord it was because of an incomplete examination. In most cases where all functions of the cord are destroyed we can be, after careful examination, *very sure* that the cord is totally destroyed. That may not be always true if we speak of the condition of the patient immediately after the accident; but certainly, if Dr. Walton is right in his belief that immediate operation is not necessary, that a matter of several hours makes little difference in result, then we are justified in waiting, say, six, twelve, or even forty-eight, hours. I myself should wish to wait, if the patient's condition warranted it, to see if there was a change in the symptoms noted at the time of first examination. Of course the presence of symptoms absent before would prove that the cord was not completely crushed. And then comes in the question of treatment; and as one of those who do not believe in indiscriminate operation on all cases, let me say distinctly that when I advise against operation I do not mean by that wait and do nothing, but to make every effort to fix the fractured spine so that further damage shall not be done; and here we have a practical difficulty in the surgeon's field to decide, whether it is possible to fix the spine. In many cases, if there is fracture of the bodies running forward and downward, or backward and downward, it would be almost impossible to apply any apparatus or extension to hold the spine in place. If the risk of moving the patient by persons, perhaps careless or ignorant of moving patients, is great enough, so that in this manner a partial lesion is likely to be converted into a total one, then that risk should be removed by operation. I think, however, that in the great majority of cases of partial lesion, with care it ought to be possible for the surgeon, by means of orthopedic methods of some sort, to hold the spine so that danger of this kind would not occur. If these methods are adopted and prove insufficient, the operation could still be done perhaps twenty-four hours later. The sweating Dr. Walton referred to, in the one or two cases where I have seen it present, was, I think, rather an irritative phenomenon than a paralytic one.

Dr. John C. Munro: As to the question of irremediable damage to the cord, I do not believe it can be answered yet. There are cases reported by excellent neurologists as irremediable damage of the cord which have recovered.

As to drainage, I believe it is better to let out the serum from the muscular tissues for 24 to 48 hours, and I have used Dr. Burrell's rubberdam drain. That lets out the excess of hemorrhage that is apt to occur in change of position and the excess of serum. It does not drain the dura permanently; the wound closes at once.

Dr. Thomas speaks of making complete examinations. They must be incomplete in these emergency cases. There are certain cases of neurological lesions that are examined by neurologists who can take plenty of time. I think Dr. Thomas will recall one where some months were taken for most careful examination by two excellent neurologists, and yet under those circumstances one man, I believe, located the lesion outside the dura, the other inside the dura. It seems to me in these emergency cases you cannot expect anything more accurate, and that you must go on general surgical principles.

Dr. W. N. Bullard: I have studied these cases with much interest for several years, and when I first began the study of them I was inclined to advise operation in nearly all cases of fracture of the spine. I am growing slightly more conservative, but at the same time I believe on the whole that it is better to operate in practically all cases where there is no contra-indication, either surgical or otherwise. I looked over a few of my cases this afternoon to see the results obtained. These cases are all cases that have been seen by me at the City Hospital, the records of whi

have made personally, 37 in number. Of these 18 were operated and 17 not, and the deaths in the two classes of cases were exactly the same, 10 in each. Of course from statistics like these one can tell very little, because in certain of the cases not operated the condition was such that the patient was likely to die shortly under any conditions, and, in fact, of those cases not operated on I advised against operation in eight; in the other cases I gave no advice, as far as I know. These cases were operated upon by different surgeons and at different times, I think all since 1893. Of the cases operated upon, two were cases which we should not now probably operate upon, done in the early days of laminectomies, and died on the table. Out of the 18 cases operated, pressure was noted in four. It seems to me that while we can make certain distinctions in regard to the severity of the injury, we cannot go so far as to be certain when our cord is severed. The opportunity for examination is in many cases wanting. We have not the time, nor would it be for the patient's interest, to make such an examination. The cases should generally be operated upon as soon as possible, taking into consideration the condition of the patient. I should not operate in shock unless I thought there was necessity for it. Wait until shock is over and then operate immediately.

Dr. Morton Prince: I would like to ask Dr. Walton, before making a few remarks, whether, in this case which he reported, at the operation they found signs of pressure on the cord at the time?

Dr. Walton: It was a little difficult to say with certainty. The arches were depressed and impacted, and it was difficult to determine with certainty whether they were really pressing on the cord or not.

Dr. Prince: I think one of the most important contributions of Dr. Walton's paper is the fact he has brought out, that with every symptom of total destruction of the cord, such destruction could not have been present. That fact alone must make us recast many of our ideas, and think twice in deciding upon cases.

Dr. Mixter: I have seen several cords exposed where you could not see anything definite in the way of a lesion, and yet there was absolutely no return of function.

Dr. Prince: That is the point I want to bring out.

There are two cases in the hospital now to which I would like to refer, not with the idea of reporting them, but simply to bring out a point — two cases operated on, and I am responsible for the operation in each case: one in the service of Dr. E. H. Nichols, the other in the service of Dr. George Monks. I think the results are as favorable as any cases I have seen. Dr. Nichols' case is a fracture of the cervical vertebræ, paralysis of all four extremities, with loss of control of the bladder. It was a partial lesion, as shown by the fact that sensation was not impaired. That patient has shown extraordinary improvement in the past six weeks. Shortly after operation he regained control of his bladder, and now he can move his arms to a certain extent.

The other case is a dorsolumbar fracture. That case has remarkably improved as far as the legs are concerned. He has not regained control of the bladder, but the area of anesthesia has cleared up considerably, the anesthesia being due to the cord lesion. I want to point out that in both those cases the same condition, I think I am right in saying, was present; no pressure upon the cord could be detected.

Dr. Strong and I have undertaken to make a new study of all the cases that have occurred in the City Hospital from the beginning, with the idea of comparing the results in the operative cases with the others, and to compare them in a more careful way than is usually done in statistics — to compare not only the final results, but to take the favorable cases in each series and compare each with each, and not the severe of one with the light of the other, etc. The work has not been completed.

Dr. Bullard: I stated that out of 18 operations for laminectomy there had been 10 deaths. Out of three cases of laminectomy, pressure was relieved, according to my notes taken at the time, in four, and there is reason to believe that that is not always noted in hospital reports unless there is a marked bone pressure sufficiently evident to make an impression on the recorder.

Dr. H. C. Baldwin: At the time Dr. Mixter reported a successful case of operation for fracture of the cervical vertebræ, I looked up the statistics at the Massachusetts General Hospital for fracture of the cervical vertebræ. Since 1870 there have been 37 cases of fracture of the cervical vertebræ. Four cases were operated on. The case which Dr. Mixter reported was the only case of the 37 in which death did not occur within a few hours or a few days. I did not see Dr. Mixter's case before the operation, but saw it very soon after the operation. The condition of the patient at the present time would lead one to think that there was a hemorrhage into the cord at the time of the accident. The patient has partial paralysis of one arm and a spastic condition of the leg with toe drop on the same side, with complete loss of sensation for heat and cold and loss of sensation for pain on the opposite leg and on half the body. I have been very much interested in following these cases of fracture of the vertebræ. It is, of course, impossible to tell to what extent the cord has been damaged before operation. In most cases where operation has been done, nothing abnormal can be seen in the appearance of the cord, the injury being done to the anterior portion of the cord or consisting of a hemorrhage into the cord. In two cases under my observation, marked improvement has followed operation; in other cases which I have followed and where there has been no improvement, the operation has not seemed to me to have increased the discomfort of the patient in any way or reduced his strength.

Dr. E. W. Taylor: Apparently the question is, as to where the burden of proof lies. The neurologists, or some of us, think the burden of proof lies with those who advise operation, that they must prove in a reasonably scientific fashion that improvement does take place after operation for such injuries. It seems to me that is the point of view to take, and I should like to put myself with the minority this evening on the conservative side, that operation is indicated in but very few of these cases. In certain ones it is indicated, as Dr. Thomas, among others, pointed out in his excellent paper a year ago, but in most of the cases the proof is not yet forthcoming that anything substantial is accomplished by operation.

I should disagree with Dr. Munro in his statement that this is not a medical problem. It seems to me decidedly a medical and not a surgical problem at the outset. It matters relatively little how far the bones are fractured provided the cord is not injured. If the cord is injured the case becomes at once a subject for accurate diagnosis.

One thing which has not been taken up at all tonight is the question of what actually happens; that is what we want to know, and there it seems to me is our chief aid. Dr. Prince has suggested this in arriving at conclusions as to the future.

We have heard a good deal about pressure, but no definite statement has been made as to what is meant by pressure. I presume what is meant is the pressure of bone on the cord. That once exerted naturally injures the cord very seriously, and I doubt very much whether the continuance of that pressure leads to any exacerbation of symptoms or the relief of pressure to removal of the symptoms to any great degree. We have no satisfactory evidence as yet showing that nerve fibres once injured recover, therefore if once injured the mere removal of bone, even if it be a spicule of bone sticking into the cord, would have small effect on the relief of the condition. Dr. Walton has said that the operation lessens pain, makes the patient more comfortable. He has not said why that is so. I cannot see why an operation should lessen the pain; on the contrary, it is adding what must be considered a serious surgical procedure to a condition already sufficiently pitiable. It is further wrong to say that such a surgical operation is trivial. No surgical operation in which there is a large loss of blood, in which bone is chipped off, in which the patient is already in a more or less debilitated condition from the effects of the original accident, can be regarded as trivial.

Dr. Walton has spoken of repair. He has not said what he means, and just what can be meant by repair of the spinal cord after these accidents I do not understand. I presume he does not mean the actual repair of the nerve substance, but what else is there to repair in such cases? He speaks also of the desirability of the removal of adhesions. It seems to me that the operation is likely to increase the possibility of adhesions, particularly if the dura be opened. I fail to see how the operation in the majority of cases benefits the patient in any possible way in which he would not be benefited without it.

Dr. Putnam has mentioned cases in which very distinct improvement after apparent transverse lesion has followed without operation. I have more than one such case in mind in which marked restoration of function took place.

Neither can I see the desirability of an early operation. Just what is accomplished by operating on the cord immediately after the accident is not clear. What happens as a rule, and I shall show in a moment four specimens taken more or less at random, is a crushed cord with a good deal of central hemorrhage in the gray or white matter, very rarely extradural hemorrhage, very rarely intradural hemorrhage, but usually either complete crush of the cord or hemorrhage into the cord, conditions which are by no possibility reachable surgically; therefore the scientific position to take is that which Dr. Thomas has expressed, namely, to wait in order to make as careful an examination as possible. We cannot always make an absolutely perfect examination, as Dr. Munro says, but we can at least make the attempt. If we are to adopt the plan advocated by certain surgeons of operating on all cases as a routine matter, we are certainly not going to arrive at any very great knowledge of these cases.

Dr. Munro: No one has advocated that.

Dr. Taylor: May I read a recent statement of a distinguished surgeon of a neighboring city? "I believe the surgeon should perform laminectomy in every case, if the condition of the patient is such as to justify any operation, regarding the operation in the first instance as an exploratory one." That attitude seems to me to be neither progressive, scientific nor desirable in this class of cases.

I wish now to show several specimens illustrating lesions of bone and cord; this specimen was from a young boy who was thrown over backwards and fractured the lower cervical vertebræ. The laminæ were broken but did not impinge to any extent on the cord, but the interesting point from the pathological point of view is the fact that the bodies are injured, as is usually the case.

This second specimen shows beautifully a hemorrhage in the centre of the cord, without marked injury to its external surface.

These are illustrative cases of what usually happens; what is very noticeable is the fact that there is no hemorrhage extradural or intradural where the surgeon can reach it. I should like to ask how often they find any clot which is removable, and how often they find anything except the fractured bone which justifies the operation?

Here is the trapeze case of which Dr. Mixter and Dr. Richardson have spoken, showing a crush of the cord. Operation was done, but the cord was completely disintegrated with no hemorrhage extradural.

Another case shows complete crush of the cord. Again the cord appeared perfectly normal to the

operating surgeon. In both cases death followed very shortly after the operation.

I pass about pictures from Dr. Thomas' paper, which may add somewhat, as also the specimens, to the interest of the discussion.

DR. COURTNEY: I agree *in toto* with the remarks of Dr. Thomas and Dr. Taylor. Furthermore, I am convinced that it is erroneous to hold that this operation is in itself devoid of danger, particularly in the case of cervical fractures. In such, to begin with, the patient is limited to diaphragmatic breathing, and this restricted respiratory power is at once further encroached upon when he is turned over on his abdomen and etherized. The situation is, therefore, a serious one before the operation is even begun, and I can hardly believe that the latter can fairly be said to be devoid of danger under this combination of circumstances. To the remarks of some of the speakers who have said that the stand taken by the detractors from the operation is a purely theoretical one, I can only reply that all available statistical evidence demonstrates that the main yield thus far from the operation under consideration is a highly valuable collection of pathologic specimens. The "facts" which Dr. Taylor has passed about in the dish are fairly tangible, to say the least, and in the face of such mute but eloquent testimony, the term "theoretical" seems to me somewhat out of place.

DR. MUNRO: Has Dr. Courtney seen any ill results after this operation?

DR. COURTNEY: Inasmuch as two cases at least have died on the table at the hospital, it would seem that death was materially hastened by the operation.

DR. MUNRO: I think a surgeon is a little more capable of judging of the severity of an operation than a neurologist. I think you are mistaken.

DR. KNAPP: Like Dr. Bullard and Dr. Prince I have also gone over some of the City Hospital statistics, looking up rather hastily all the cases of fracture that have been indexed: 155 were not operated upon, of these 105 died and 40 were discharged relieved; 21 were operated on, of these 15 died and 4 were discharged relieved. In the nonoperated cases there were 67% of deaths; in the operated cases 71% of deaths; 26% of the cases were relieved in the nonoperated cases, 19% in the operated.

In my own personal experience I recall several cases of fractured spine, not operated upon, who later came to out-patient clinics and were able to go about on crutches or otherwise, yet definite symptoms were present pointing to an affection of the spinal cord. I have not yet seen any of the operated cases of fractured spine going about with persistent symptoms, although I have known of several that have been investigated pathologically.

Dr. Munro talks a great deal about there being no danger in the operation. The operation itself is apparently a mere bagatelle. [Dr. Munro: Slight danger.] I recall a man, apparently in good condition except for a very obstinate amputation neuralgia, upon whom Dr. Burrell did laminectomy, and he died upon the table or a few hours after the operation. I do not know what he died of, because the danger from the laminectomy was so slight that he could not have died from that. I have had the feeling that in other cases we might say of laminectomy, as H. C. Wood said of trephining for brain tumor: "It affords a speedy autopsy in cases that might otherwise have escaped from observation."

There are several points of some importance, it seems to me, in the way of diagnosis. In the first place, can we make the diagnosis of a complete crush of the cord? I would agree with Dr. Walton and the others who have spoken that we cannot be absolutely sure in our diagnosis of complete crush of the cord, nevertheless, if we have the whole train of symptoms which Kocher has laid down, the probabilities of a complete crush are very great, and, it seems to me, where those symptoms occur it is well to be upon our guard against advising in favor of any indiscriminate laminectomy.

There is another class of cases which Dr. Walton has not spoken of — the cases where we are quite sure that there is not a complete crush of the cord, but where there is partial preservation of function in parts below the injury. I can recall one case which Dr. Thomas has reported in his series. I believe Dr. Courtney looked at me with considerable surprise and curiosity when I advised an operation. It was a case of fracture of the vertebræ following a fall. The man had a decided paresis of the lower limbs, but motion was still preserved. He could lift both legs a little. Sensation was also preserved. He could still feel a moderate touch below the seat of the injury. The functions of the bladder were also preserved in part. The reflexes were retained. I was led to suggest a laminectomy. Dr. Monks operated. We found what is rather an unusual condition, an extradural hemorrhage which was removed; the dura was then opened, and if I remember correctly we did not find anything more until the next day at the autopsy. Then we found, in addition, a transverse softening of the cord just above the level of the hemorrhage and involving the cord really pretty completely, although microscopically there were a few fibres retained.

There are certain symptoms in these cases where we are certain there is not a complete crush, yet when we are reasonably certain that the cord has been so far damaged that operation is inadvisable. One is the presence of the Brown-Sequard symptom-complex. Another, in the majority of cases, in spite of Dr. Thomas' case which he reported to the American Neurological Association last summer, is the presence of loss of pain and temperature sense with retention of tactile sensibility. In one of Dr. Munro's cases, which did not come to autopsy, although the operation did no good — he operated against my advice — there was a definite paraplegia, the tactile sensibility was retained, but the sensibility to pain and temperature was completely lost up

to about the level of the breasts. It was a case of fracture and the operation did absolutely no good.

Dr. Taylor is perfectly right in asking what are the surgeons going to do by laminectomy. The answer, of course, is that they relieve pressure. What is the pressure? Pressure may come from meningeal hemorrhage. That, in all the recorded cases at the City Hospital and in the experience of pretty much all observers, is a condition so exceedingly rare that it may practically be thrown out of the question, and it is doubtful whether a meningeal hemorrhage, especially if extradural, is likely to exert sufficient pressure upon the cord to be of any particular consequence, there being so much opportunity for the hemorrhage to extend up and down without producing direct pressure. With a fracture of the vertebræ the bones may press upon the spinal cord. They do at times. It is theoretically possible that that pressure may be so gently exerted as to come gradually down upon the cord, and thus shut off the functions of the cord below the level of the pressure. That is theoretically possible, but it is a considerable stretch of the imagination to suppose that that occurs in the ordinary case of fracture of the spine. We know by experience that there are a very considerable number of cases of injury of the cord, of crush, of softening, or laceration of the cord — where there is no fracture of the vertebræ at all — where twisting or bending of the spine causes softening of the cord; and, furthermore, in the vast majority of cases of fracture the process is something like this: the broken vertebra slides over the other, the cord receives irremediable damage at once, and then the vertebra may slide back or may remain exerting pressure upon the cord, yet whether that pressure be removed or not, its removal is not of the slightest consequence; the cord has received its damage, and whether you take off the pressure after the damage has been done makes no difference whatever.

I would agree with Dr. Taylor that to suture the spinal cord which has been completely divided, and to expect restoration of function, is a triumph of hope too great for my powers. I saw in the papers this summer the death of a negro operated on by Dr. Elliot in the spring of 1890; the broken laminæ were removed and the cord was found completely divided. I saw the boy about a year after the operation. He was then kept on a sort of frame-work, with complete paralysis and anesthesia, and the scars of very extensive bed sores. It was not possible to test the knee jerks with great accuracy, but the plantar reflexes were present. Dr. Elliot did not suture the cord in this case, otherwise we might have had some marvelous results, equal to those reported from Philadelphia or Chicago.

Dr. Walton: In answer to Dr. Taylor's question regarding relief of pain, the pain is due probably to the pressure of fragments upon the nerve roots, and the removal of such pressure is effective. Speedy relief of pain and hyperesthesia sometimes follow operation, though they have persisted unchanged up to the time of operation. This relief alone justifies operation. The operation is certainly not trivial, but its dangers are *comparatively* insignificant, considering the gravity of the injury under discussion.

In no case has difficulty in etherization come under my notice. Far from its producing adhesions, operation relieves conditions which tend to produce adhesions.

The chief argument for operating early lies in the rapid degeneration of the cord — degeneration which has been demonstrated within four days of the injury. The figures gathered by Dr. Knapp and other observers are sufficiently baffling to show that we have not yet data to decide the question by statistics.

It is perhaps more accurate to speak of the cord as resuming its function than to speak of it as being repaired. I agree with Dr. Knapp that there are symptoms which render crush of the cord probable, but if we cannot decide this point with certainty, it seems to me that in the absence of definite contra-indications the patient should have the benefit of the operation.

## NEW YORK NEUROLOGICAL SOCIETY.

Stated meeting Oct. 1, 1901, Joseph Collins, M.D., president.

### CONTRIBUTION TO THE STUDY OF SPINAL FRACTURE, WITH SPECIAL REFERENCE TO THE QUESTION OF OPERATIVE INTERFERENCE.[1]

Dr. George L. Walton of Boston presented a paper on this subject.

Dr. Charles L. Dana said that his own experience had led him to believe that the operation is practically safe, and that the spinal column itself is not injured by the operation. He had not had any fatal results in his operative cases, about half a dozen in all, and two of them were cases of injury in the cervical region. It was a matter of astonishment to him that such long and severe operations could be done upon these patients without sacrifice of life. He must confess, however, that the ultimate results of these operations had not been satisfactory according to his observation. He had seen some improvement in motion and in the bladder symptoms in these cases, but that had been about all, and it was quite possible that such improvement would have occurred without operation. If by clinical observation one could be sure that the cord was crushed one should not recommend operation. This could often be done. If there was a line of anesthesia coinciding with the line of paralysis, and this coexisted with the absence of knee jerks, he would feel almost positive that the spinal cord had been cut across, although there were certain exceptional cases affecting the cervical region which did not seem to follow this rule. It seemed to him that the operation performed by Lloyd, and which the speaker had seen employed

[1] See page 247 of the Journal.

by Abbé, was the quickest, safest and most effective. The author had done a service in bringing up this subject and urging a more persistent effort to relieve this distressing class of cases. The general opinion among surgeons was that this was a class of cases which holds out but little hope of benefit from operation.

DR. EDWARD D. FISHER said that he had had a number of cases of fracture of the spine under his observation, and in the main he would agree with the reader of the paper, that an operation is advisable. He would do this because death rarely occurs as the direct result of the operation. Where there had been a fatal termination he felt that the same result would have occurred if there had been no operation. In two cases that had been under his observation in which cocain had been used the operation had been done as well as under general anesthesia. In one of the cases the injury had followed a dive in shallow water, and in the other from an acrobat diving off the shoulders of another acrobat. The lesions had been about the same in each case, and because of the situation of the lesion they had been afraid to administer a general anesthetic. When the cord was touched there was a sensation of pain, but no localization, and the operation was conducted without any more shock than with general anesthesia. He agreed with the reader of the paper that it was almost impossible to make an accurate diagnosis between cases in which the cord had been partially or completely crushed. He did not believe that a lesion through the cervical region, with an absolute loss of reflexes, positively indicated that there had been a complete destruction of that region. Sometimes on cutting down and exposing the cord one observed very little change in the appearance of the cord until the dura had been cut. Even then there might be very little change because of a hemorrhage in the substance of the cord. The distribution of the sensation in almost all of these cases was irregular, so that the classical picture was rarely observed. In many cases where there had been absolute loss of reflexes there had been partial recovery — indeed, in his experience it had been the rule to see only partial recovery.

DR. GRAEME M. HAMMOND did not think it was always possible for the neurologist to say that the symptoms presented were positively indicative of complete destruction of the cord. In one case coming under his observation, in which a young man had fractured his fourth cervical vertebra by diving in shallow water, there had been evidence of complete injury to the cord. He had been operated upon a year or two afterward, but it was needless to say there had been no resultant improvement. In another case in which there had been an incomplete injury to the cord, and in which operation had been resorted to shortly afterward, there had been complete recovery and the man had returned to his occupation of wrestler. Within a few days he had seen a very interesting case. It had been first reported four years ago. Several bales had struck him on the back, and almost immediately he had presented the symptoms of tabes, pure and simple. He had had no reflexes and almost complete anesthesia, with the Romberg symptom. He had been operated upon twelve weeks after the injury, and had made a complete recovery, with a return of reflexes. He had seen this man within a few days, now twelve years after the injury, and he had then presented absolutely no symptoms of injury to the cord. Such cases naturally led one to be rather optimistic in regard to the mild cases. The fact that there was spinal deformity meant nothing, for in Pott's disease of the spine there was often very marked deformity without any spinal cord symptoms. If the symptoms presented in a given case pointed to the total transverse lesion of the cord, there was nothing to be done but operate, and even this gave a forlorn prognosis. In the milder cases the operation should be undertaken as soon as possible, as here the prognosis was much better. He would operate in any case, no matter how hopeless it seemed, because nothing else could be done, and the patient was no worse off than before. In the milder cases it was our duty to operate.

DR. B. SACHS said that the question arising regarding operative interference in these cases was similar to the question of surgical interference in Pott's disease or in cases of tumor. The answer to this question must depend very largley upon the stage. He could not agree with Dr. Hammond, that operation should be done because, to say the least, the person would be no worse. It was still the fashion to delay surgical interference until everything else had been tried, whereas, if surgical interference was to do any good it should be practised at once. In cases of fracture of the spine, therefore, whether complete or incomplete, operative interference at the earliest stage could do no harm and might be productive of a great deal of good. The differential diagnosis between complete and incomplete crush was difficult. When the crush was complete the reflexes were almost invariably absent, whereas, if there was more or less maintenance of conduction through the cord, the reflexes were apt to be impaired or exaggerated, according to the site of the lesion. The dissociation of sensation was, in his opinion, an exceedingly valuable symptom, as it pointed out the rather moderate involvement of the cord. He was inclined to think that it was often a root symptom and not an indication of absolute involvement of the cord itself.

DR. J. ARTHUR BOOTH said that his experience had been limited, but he had not seen any great benefit from operation, although it should be said that operative interference had been resorted to at a late stage. It seemed rational to treat fractures of the vertebræ on the same general surgical principles as fractures in other parts of the body. In two of his cases the complete paraplegia existing prior to operation had remained unaffected, though there had been some diminution of anesthesia and improvement in the condition of the bladder.

Dr. Joseph Fraenkel referred to a case at the Montefiore Hospital of fracture of the spine. The patient had been admitted a year and a half after the accident, and had been walking around since the injury. Although the operation had been done late it was worthy of note that three years and a half after the injury the autopsy showed that the cord had not been entirely destroyed. About six years ago he had presented to this society a paper on the differential diagnosis between complete and partial destruction of the cord. In four cases in which the reflexes had been lost the autopsy had shown complete destruction in only one of the cases. That shock alone was sufficient to destroy the reflexes was an old physiological dogma. He wished to insist that it was important to note the condition of the deep and superficial reflexes, because for the maintenance of the deep reflexes it was necessary that the cord be intact, whereas this was not requisite for the superficial reflexes. The plantar reflex was the one that was not destroyed.

Dr. George E. Brewer said that there was a greater inclination in Boston than in New York to operate upon these cases. He had personally passed through various stages of opinion regarding operating. At first he had been influenced by those around him in Boston. The general rule had been, when there was paralysis below the point of injury and involvement of the sphincters, to do an exploratory operation. He could not recall a single one of these cases that had been benefited by the operation, though he felt that they had all been examples of complete crush of the cord. In New York City the surgeons had been perhaps a little too conservative. Injury in these cases is either a crushing one, or there is a hemorrhage within or without the cord; hence the outlook for operation was not good. The cases of hematomyelia recover without operation; cases of severe crushing injury, even with operation, do not. This seemed to be the prevailing view here at the present time. Possibly some of the early successes were in cases of unrecognized hematomyelia in which, of course, recovery would have taken place entirely independently of the operation. Last winter he had seen a girl with injury of the last lumbar vertebra. There was a sensory paralysis and complete loss of control of the bladder and rectum. Dr. Hammond had examined the case, and believing that there was no transverse lesion, had urged operation. The speaker had performed laminectomy, and had found only a small spicule of the bone. The patient had recovered from the operation, and at the end of six weeks had regained control of the bladder and rectum. When seen two or three months after operation she had almost completely recovered. Had it not have been for the advice of Dr. Hammond he would have looked upon this case as an improper one for operation. It had been his practice to introduce in these cases a very small rubber drain.

Dr. A. C. Brush of Brooklyn said that he had seen a number of these cases. In the past six months he had had several x-ray photographs made, and they had been so variously interpreted by those who had seen them that they had ceased to have any value. A case was mentioned in which great improvement had followed the removal of a spicule of bone in a man brought into the King's County Hospital after a fall. A diagnosis had been made of fracture of the arch. An immediate operation had been done, and the arch found to be broken down, but this was not pressing upon the cord, but a fragment of the tenth dorsal vertebra. This case had impressed him with the value of operative interference as a means of diagnosis.

Dr. Joseph Collins said that he had only seen a few cases of fracture of the spine, and these at a remote date from the injury. The future of spinal surgery for broken back, he affirmed, lay entirely in the hands of the neurologists — in other words, upon the diagnosis. This had been clearly brought out in the cases cited by some of the speakers this evening.

Dr. Walton, in closing, said that the statement made by Dr. Dana regarding the symptomatology of complete crush of the cord seemed to impeach the observations of a number of trustworthy observers. Regarding late operations he would say that if the pressure had been removed there was no use in operating, and if the pressure had existed for many months there was little prospect of doing any good by operating. Theoretically the late operation would be useful in cases in which symptoms arose from the formation of callus on the inside of the laminæ and their pressure on the cord, but his personal experience did not include any case of this kind. Instead of picking out an occasional case for operation, he would advise picking out an occasional case in which an operation should not be done — in other words, a case which was in great shock and practically moribund.

## Recent Literature.

*American Edition of Nothnagel's Encyclopedia.* Typhoid and Typhus Fevers. By Dr. H. Curschmann, Professor of Medicine, Leipzig. Edited, with additions, by William Osler, M.D., Professor of the Principles and Practice of Medicine, Johns Hopkins University. Authorized translation from the German, under the Editorial Supervision of Alfred Stengel, M.D., Professor of Clinical Medicine, University of Pennsylvania. Octavo of 646 pages, illustrated, including a number of temperature charts and two full-page colored plates. Philadelphia and London: W. B. Saunders & Co. 1901.

To the practitioner, the investigator or the student seeking the most trustworthy knowledge and opinion of today in regard to the two important diseases of which this volume treats, it offers the same guarantee for confidence and desirabil-

ity which a note endorsed and guaranteed by four of the foremost "captains of industry" would offer to the financial investor. We recommend the book with the same emphasis as such a note would be recommended; fortunately, the book is not so inaccessible as the note. It is, however, rare to have the guarantee for one book of four such names as those of Professors Nothnagel, Curschmann, Osler and Stengel. In addition, excellent work has been done upon many chapters by most competent subordinates thoroughly acquainted with the latest contributions to these subjects here at home as well as abroad.

Of course typhoid fever is, as it deserves to be, the dominant subject, occupying 472 of the 646 pages of the volume. With the great general hygienic advance of the last fifty years typhus fever has rapidly declined in relative importance to typhoid fever as a disease factor affecting the human race; moreover, there never has been a time when typhoid fever has been more carefully or more successfully studied — whether as to etiology, pathology, diagnosis, prophylaxis or treatment — than within the last fifteen or twenty years.

This first volume of the American Edition of Nothnagel's Encyclopedia has the merits of the original German, but has much not contained in the original and is in every respect thoroughly up to date. We again heartily recommend it.

*The Pocket Gray or Anatomist's Vade-Mecum.* By the late EDWARD COTTERELL, F.R.C.S. Fifth edition, revised and edited by C. H. FAGGE, M.B., M.S. (Lond), F.R.C.S., Senior Demonstrator of Anatomy, Guy's Hospital. Twentieth thousand. New York: William Wood & Co. 1901.

Into this small book of 269 pages, including a full index, is compressed a large number of the facts of descriptive human anatomy. Its title describes its function, and that it fulfils this function is shown by the fact that this edition represents the twentieth thousand. It is a book deserving of no special praise or criticism. It is certainly useful as a ready means of reference, and for this purpose it was, no doubt, compiled. The bones are not alluded to in the text, an omission which might be made good by a very few added pages. The publishers have done their work sufficiently well; the type is clear, though, of necessity, small.

*Rough Notes on Remedies.* By WM. MURRAY, M.D., F.R.C.P. (Lond.). Fourth edition. London: H. K. Lewis; Philadelphia: P. Blakiston's Son & Co. 1901.

This is a small book of 176 pages. It contains notes on the uses of five of the common drugs in special diseases. It is interesting, but unscientific, and did not the writer qualify his earlier statements in later chapters, would call for sharp criticism. There are other chapters on Our Mistakes, Specific Disease and Rothbury as a Health Resort. The work presents little that is of real value.

THE BOSTON
# Medical and Surgical Journal.

THURSDAY, MARCH 6, 1902

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## ANATOMICAL VERSUS PATHOLOGICAL RESEARCH.

IT is always a matter of regret when, through the expansion of medical knowledge, misunderstandings arise within the professional ranks. Inasmuch as the profession at large has so many duties to perform in defending the community and itself from the encroachments of the ignorant, the uninformed and the malicious, it is the more to be deplored that internal disagreement should ever be added to its responsibilities. When such a situation presents itself, the attitude of those concerned must be reasonable, conciliatory and dignified, if the best traditions of the profession are to be preserved. There must be a clear recognition of the fact that in such matters a compromise should be reached by a perfectly clear and just presentation of all the elements entering into the question at issue.

It is our purpose in what follows to bring before our readers a matter which for several years has been exciting an increasing discussion among certain members of the profession, and which has finally attained an importance demanding wider recognition. We refer to the conflict of opinion growing out of the use of bodies for anatomical purposes on the one hand, and for pathological purposes and research into the nature and manifestations of disease on the other. It is claimed by those whose interests lie chiefly in the line of anatomical study and teaching that their work is being seriously interfered with by the increasing practice of performing autopsies on bodies before they are delivered for anatomical dissection. It is claimed by the pathologists and the great mass of clinicians that post-mortem examinations are not only essential as a routine practice in a well-organized hospital, but that, were such examinations checked by arbitrary authority, medical practice, medical teaching and research into the

nature of disease would be directly threatened. This is a bald statement of the present situation; it has been brought definitely before the public in this State by a petition recently presented to a legislative committee by Dr. A. H. Harrington of the Danvers Insane Hospital, praying for legal right to perform autopsies before relinquishing bodies for purposes of anatomical dissection. This is but one of many less clearly expressed protests. In many hospitals throughout the State physicians are claiming the right to study their cases, not only during life, but also to arrive at what further knowledge an autopsy may reveal. Shall this latter natural desire be suppressed by law is the question before the medical profession, and it is a question in which the profession has a very vital interest. It is to be understood that in the consideration of this whole matter one should never lose sight of the ultimate aim toward which our efforts, whether as anatomists or clinicians, are directed, and that is, the final best welfare of mankind at large. Any personal considerations must be subordinated to this end. Our purpose in what has gone before and in what we are about to say is to impress this fact, to the exclusion of any minor considerations.

The tendencies of the past few years which have led up to this state of affairs are easy to trace. Anatomical research has had its day of trial, as everyone at all familiar with the history of medicine knows, and has come out triumphant by gradually overcoming the instinctive popular prejudice against the dissection of the human body. This has rendered possible systematic anatomical teaching, and has laid the foundation for a graded medical curriculum. It has, therefore, been of inestimable value in the upbuilding of medical education. Other interests have, however, come into prominence within relatively few years, notable among which is the determination to study disease not only in its clinical manifestations, but also from the broader point of view of its anatomical basis and more subtle causative factors. This is pathology in its wide sense, to the development of which has been given the best energies of the ablest men in the profession for many years. The general result we know; practical medicine is emerging from its empiricism into a condition of relative scientific certitude. It is not for a moment to be supposed that this beneficent tendency can be checked either by restrictive legislation or public opinion. Laws operative against popular prejudice lose their force when directed against progress in other directions.

It is well, therefore, to state in as judicial a spirit as possible the arguments which the two points of view present. First, on the anatomical side: It is claimed, with much reason, that a body from which the viscera have been removed is less valuable for anatomical purposes than one upon which no such operation has been done. It is also urged that the difficulty of properly preserving a body in which the great vessels have been severed is increased. Further, the growing importance of visceral anatomy is insisted upon in undergraduate instruction. All of these points are well taken and should be given due weight. It must forthwith be admitted that eviscerated bodies are of less value than intact ones for purposes of dissection; it should, however, not be forgotten that they are still of very great value for the major part of the work a student is called upon to do. The preservation, also, of eviscerated bodies is no doubt more difficult, but by no means impossible. The viscera are notoriously in a highly unnatural state in a body long dead, and certainly do not give the student a luminous idea of the conditions existing during life. The central nervous system is worthless, and the other organs are of doubtful value. The topographical anatomy of the viscera may certainly be well studied at the autopsy table, before secondary changes of moment have set in. Dissections of the lower animals are also instructive in this connection, reinforced by the use of models and diagrams. This applies far more to normal than to morbid anatomy. We are convinced, therefore, that the student's knowledge would not seriously suffer, whose work is largely limited to the dissection of eviscerated human bodies. We are quite ready to admit, on the other hand, that the anatomist's demand for unautopsied bodies is a natural one, and one that should be met, within limits, by his colleagues, upon whom he is dependent for his material.

When we turn to the other aspect of the question, as represented by pathologists and clinicians, we find that they also have rights which demand immediate recognition. First: Physicians connected with public and private institutions are becoming students of medical problems and not mere custodians of the sick; asylums are everywhere giving place to hospitals, and with the growth of the hospital idea the thorough study of disease goes hand in hand. The State is paying salaries to skilled men who are devoting themselves to pathological study, and these men as well as the clinicians are claiming a right which every enlightened physician or layman must respect, when they ask the privilege of studying, and studying completely their cases. This interest which has been slowly evolved, is the crowning consummation of modern methods of medical thought and teaching. It is an enthusiasm which should not, and we believe cannot, now be sup-

pressed. If it runs counter to other claims, those claims must be considered from the point of view of the future and not of the past.

Secondly: Apart from the broad claims of the hospitals as such, autopsies must be performed on all cases of scientific interest for the benefit of pathological teaching and research, and so indirectly for the benefit of the community at large. The student, also, be he undergraduate or physician, must have an opportunity to see such examinations. What cases are to be included in this category can only be determined by those who have made a study of them during life, certainly not by legal enactment. The law, as at present constructed, reads that certain bodies must be delivered to medical schools for anatomical study, with the assumption that autopsies shall not have been performed. If the strict interpretation of this law be adhered to, with the consequent denial of the right of choice in individual cases, the situation becomes intolerable, and strikes at the very root of medical progress.

Thirdly: A body upon which an autopsy has been performed is still of positive value for purposes of dissection; a body unautopsied is naturally wholly lost to the student of morbid anatomy, and is a serious loss to the clinician. If the greatest good of the greatest number is a principle of value, it surely has its application here.

How are these rival claims to be satisfied? It is a matter which ultimately concerns the whole profession and which the whole profession may be called upon to decide. Legislation or compromise appear to be the alternatives. If legislation be sought, if an attempt to enforce existing laws be made, opposition is inevitable, and with that opposition will come an altogether undesirable notoriety. Furthermore, if such an attempt be made, there must be no discrimination. The active municipal hospital must be treated in precisely the same way as the outlying almshouse or hospital for the insane. If the law have any application, its application is universal and not local; it is the natural duty of the favored physicians of the large cities to protect the interests of their colleagues in other fields of work. We are stating a simple fact when we say that the popular conscience is being aroused to the injustice of a mandatory law so interpreted as to prevent autopsies in certain cases. Which way the pendulum of opinion will swing if the matter be given a wide and fair hearing is sufficiently evident. It is perfectly clear that a great body of intelligent physicians, when it knows the full implication of the existing law, cannot be forced into a position which it feels contrary to the best interests of medical progress. A friendly compromise is the natural outcome. This we look forward to with confidence; anatomical research and pathological investigation need not conflict, but it must be understood that the decision as to the use to which dead bodies are to be put must come from those who have knowledge of the diseases from which they suffered during life, and not from arbitrary legislative authority. Any other solution is neither to be expected nor desired.

## THE SURGICAL TREATMENT OF AFFECTIONS OF THE PANCREAS.

RECENT events have excited so much renewal of interest in diseases of the pancreas that the symposium of the New York State Medical Association on this subject has more than a local interest.

Whatever may be the eventual outcome, there is but little question, at present, that surgery alone can be expected to afford relief to the more severe affections. The contribution of Dr. Roswell Park,[1] therefore, is especially timely and deserves a wide distribution. The methods of operating are stated by him with sufficient clearness and thoroughness, although the conditions to be operated upon evidently are debatable. The value of the dictum "when in doubt, operate" depends altogether upon the doubter, and it can easily be admitted that so experienced a surgeon as Dr. Park would be justified in undertaking an operation which should be regarded as unwarranted if performed by a tyro.

The importance of a thorough exploration of the region of the pancreas in severe injuries of the upper abdomen, especially from penetrating wounds, is sufficiently obvious and is not likely to be neglected. The negative results of exploration are not to be too confidently depended upon, since the situation of the organ and its relation to surrounding parts are such that slight injuries may be overlooked or disregarded.

Experience, however, shows that apparently slight injuries to the pancreas may be followed by the most disastrous consequences. Temporary drainage does not add materially to the risks and may be the means of securing the best possible effect from surgical treatment.

When acute pancreatitis or omental bursitis results from injury or from other causes, there can be no question of the propriety of surgical treatment. Although recovery from acute pancreatitis may take place without operation, the course in such cases is relatively mild, and there are usually no urgent symptoms seeming to demand surgical interference. The grave manifestations call for treatment by the surgeon whatever may be known or unknown as to their causation.

[1] American Medicine, 1902, iii, 260.

No more striking illustration of the truth of the latter statement can be offered than the noteworthy communication of Dr. J. W. Mayo,[2] which shows that success may follow the surgical treatment of necrotic pancreatitis and disseminated fat necrosis — critical as was the condition at the time of the operation.

We can but express our satisfaction with Dr. Park's article as a whole, and have no doubt it will warmly be welcomed by the surgeon and lead to more active interference in possible or probable disease of the pancreas than has hitherto been undertaken. Not the least benefit to be derived from the repetition of such operations will be the acquisition of greater accuracy in diagnosis and prognosis, which, when attained, will permit the elimination of the unnecessary from the necessary efforts by removing the doubt from the mind of the operator.

## FRACTURES OF THE SPINE.

In another part of this issue we publish at considerable length a discussion recently held in Boston and another in New York regarding the advisability of operation in cases of fracture of the spine. One point, at least, this discussion brings out, and that is that a decided difference of opinion exists as to the indications and results of operative measures. In general it may be said that the surgeons are arrayed on one side and the physicians on the other, as too often happens in these days of somewhat strenuous surgery, and possibly hyperconservative medicine. Were the difference of opinion sharply confined to these two classes of practitioners, a judicial mind might fairly form a sufficiently accurate rule of conduct, but, unfortunately for any such easy solution, the instigator of these discussions is a physician who does not agree with his brother physicians, but joins hands with his surgical friends. We are, therefore, plunged into a new maze of difficulties, from which escape through argument seems well-nigh impossible. It is evident that cases must be studied more carefully and in greater number, both before and after operation, or before and after death, if such be the outcome, if anything beyond the expression of personal points of view is to be attained. In the meantime we should welcome discussion which may in any way stimulate a wider interest and a wider knowledge of this increasingly important subject. We need to know more accurately what is likely to happen to the cord, under varying conditions of trauma, and as far as possible what does actually happen. Post-mortem study should be our resource.

[2] Journal American Medical Association, January 11, 1902.

## MEDICAL NOTES.

An American Hospital in Paris.— Mr. Edward Tuck, of New York, who spends a considerable portion of his time in Paris, is to defray the entire expense of erecting and equipping a free American hospital in the latter city, and, in addition, will donate a sufficient fund for its maintenance. Ground has already been purchased for it in the Passy Quarter, and it is to be called the Franklin Hospital. Dr. Magnin will be the medical director of the institution, and all the physicians and nurses connected with it will be Americans. Plans are being drawn by a Boston architect.

Resignation of Dr. S. Weir Mitchell from Philadelphia Orthopedic Hospital.— It is reported that Dr. S. Weir Mitchell, who has been for thirty years associated with the Philadelphia Orthopedic Hospital and Infirmary for Nervous Diseases, has resigned. His son, Dr. John K. Mitchell, was elected to the vacancy on the staff of physicians.

Professor Ernst von Bergmann a Privy Councillor.— It is reported that the Emperor of Germany has conferred the title of "Privy Councillor" on Professor von Bergmann, an honor said to have been previously granted to but two physicians.

### BOSTON AND NEW ENGLAND.

Acute Infectious Diseases in Boston.— For the week ending at noon, Mar. 5, 1902, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: Diphtheria 47, scarlatina 24, measles 272, typhoid fever 4, smallpox 27.

Annual Report of the Butler Hospital, Providence.— According to the annual report of the Butler Hospital at Providence, R. I., there were in the hospital Jan. 1, 171 patients — 90 women, and 81 men. There have been admitted during the year 38 women and 31 men. The whole number of patients under treatment during the year was, therefore, 240. The maximum number under treatment at any one time was 178; the minimum number was 166, and the average number for the year was nearly 173. Dr. G. Alden Blumer, the superintendent of the hospital, sounds a warning note regarding overeating as well as overdrinking in the causation of mental disorders late in life. He insists upon the increasing importance of arteriosclerotic conditions.

Defeat of Anti-vaccination Bills.— All the anti-vaccination bills recently before committee of the legislature have been reported adversely. The Committee on Public Health has reported to the House the so-called Durgin vaccination bill, providing that "any child who pre-

sents a certificate, signed by a registered physician designated by the parent or guardian, that the physician has, at the time of giving the certificate, personally examined the child, and that he is of the opinion that the physical condition of the child is such that its health will be endangered by vaccination, shall not, while such condition continues, be subject" to the penalties for refusing to be vaccinated.

THE NEW YORK HARVARD MEDICAL SOCIETY. — At the annual meeting of the society, the following officers were elected: President, Wm. B. Coley, M.D.; Vice-President, Myron P. Denton, M.D.; Secretary, J. Hilton Waterman, M.D.; Treasurer, Joseph A. Kenefick, M.D.

A CENTENARIAN.— Mrs. Mary Martin, reported to be 101 years old, died at Marlboro, Mass., on Feb. 15.

NEW YORK.

INCORPORATION OF HOSPITAL OF RED CROSS SOCIETY.— At a meeting held Feb. 28 of the State Board of Charities, whose permission is required by law for the incorporation of all charitable institutions, approval was granted of the proposed incorporation of a hospital under the auspices of the Red Cross Society, which has for some time past conducted a dispensary on the upper West Side, in New York City. The president of the society, who, it is expected, will be the principal contributor to the new institution, is a strong prohibitionist, and the articles of incorporation as submitted contain a paragraph forbidding the use of alcohol in any form within its walls. It was stated, however, that at the suggestion of members of the board this restriction would be modified so that those in charge of the hospital will not be absolutely required to exclude alcohol, although having the option to do so. Permission to incorporate was also given by the Board to the Emergency Hospital of Buffalo, and the Associated Charities of Syracuse.

INSTRUCTION IN FIRST AID TO THE INJURED. — At the annual meeting of the Society for Instruction in First Aid to the Injured, held on Feb. 27, the report of the president showed that during the year instruction had been given to forty-five classes, in which there were 650 men and 256 women and girls. There were ten classes among policemen, with an attendance of 403, and three among firemen, with an attendance of fifty-nine. Instruction was given in ten public schools, and out of 313 pupils who took the examination, 301 passed successfully. There were but seven pay classes, which were instructed at the society's offices. Dr. E. L. Partridge was re-elected medical director, and among the members of the Board of Managers elected were Drs. J. H. Emerson and Charles Hitchcock.

MONEY FOR VARIOUS HOSPITALS.— On Feb. 23, $10,000, the proceeds of the German Charity Ball given in January at the Waldorf-Astoria, was distributed among various hospitals, dispensaries and other charitable institutions. Among the recipients were the German Hospital, $1,700; St. Francis Hospital, St. Mark's Hospital, and the German "Poliklinic," each $1,050, and the West Side Dispensary, $900.

PROSECUTION OF DRUGGISTS.— It is announced from Albany that the excise commissioner is to bring both civil and criminal prosecutions against druggists in the State who have been found by the inspectors of the Excise Department to sell liquor for drinking purposes under a pharmacist's license. Evidence, it is stated, has been collected by the department, against more than two hundred druggists who have violated the law.

A LARGE VERDICT.— On Feb. 26 a jury in the New York Supreme Court returned a verdict for $30,000 damages against the Metropolitan Street Railway Company, in a suit brought by Jacob Reich for his eight-year-old stepson, who in September last lost both legs as the result of being run over by one of the company's trolley cars.

BATHHOUSES PROHIBITED NEAR SEWERS.— A bill has been passed by the State Legislature prohibiting the establishment of bathhouses in the vicinity of sewers in Kings County (the Borough of Brooklyn).

MR. MORGAN'S GIFT TO HARTFORD HOSPITAL.— Mr. J. Pierpont Morgan has given $25,000 to complete the payment of a debt of $74,800 on the Hartford Hospital, at Hartford, Conn., his native city.

A CENTENARIAN.— Mrs. Jane Maxwell, who was born in the north of Ireland, and who came to America in 1862, died in Yonkers, N. Y., on Feb. 25 at the age of 102 years.

## ARMY NOTES.

PLAGUE IN MANILA.— The Board of Health of Manila is making every effort to eradicate plague from that city, and has expended a large sum of money to this end. Over 3,000 houses have been cleaned up, in which cases of plague have occurred or rats affected with the disease have been found, and their cleaning has been so thorough that in many instances the Board of Health has required their remodeling at a cost as high as two or three thousand dollars. Previous to this crusade against unsanitary houses, the Board of Health submitted a resolution to the Municipal Board, declaring that all houses in which cases of plague had occurred, or in which rats were found

affected with the disease, to be a nuisance and a menace to the public health, and obtained authority for the closure of such houses and their remodeling to the satisfaction of the sanitary authorities. So far, about 16,000 rats have been examined bacteriologically for plague, the result of which has shown that between 2 and 3% were so affected; but it is not believed that the 15,000 caught in traps represent more than a tenth of those destroyed by poison. Bounties are paid on the carcasses of rats destroyed, and prizes are also given to those presenting the greatest number of such carcasses during various periods. The use of rat poison has been encouraged in every way. Plague has been on the decline in Manila since August last, with the exception of a slight recrudescence of the disease during December, when the last case occurred. The bacteriological examination of rats at the laboratory also shows a decline in the proportion of those affected with the disease, which argues well for its control and early eradication.

Prevention of Infectious Diseases in the Army.— To prevent the introduction of infectious diseases into the army, it has been decided to disinfect, hereafter, the wearing apparel of recruits enlisted at all the larger recruiting stations immediately upon enlistment. This action is taken because of the constant outbreaks of measles and similar diseases at recruiting stations, in spite of every effort at prevention and control by the surgeons at these stations. The apparatus to be used consists of an airtight closet, provided with hooks and spreaders from which the articles of clothing may be suspended, together with an apparatus for the atomization of formaldehyde solution, similar to that used by the Chicago Board of Health, but so arranged that the spraying apparatus can be fastened directly to the standard bottles in which formaldehyde solution is supplied for army use.

Leper Colony in the Philippines.— The island of Kulion, distant from Manila about twenty hours' sail by steamer, was recently visited by the commissioner of Public Health and the sanitary engineer of the Philippines Commission, to perfect arrangements for the establishment of a leper colony thereon. The island is about twenty miles long, ten miles broad and contains many fertile valleys suitable for agricultural purposes. It is also well watered and timbered, and well adapted to stock raising. It is the intention of the commission that the colony, after its establishment, shall be self-supporting. It is expected that about six hundred lepers will be established on the island before the first of April, though the thorough carrying out of the plan as contemplated will require a number of years.

## Correspondence.

### POISONING BY FUR.

Boston, March 3, 1902.

Mr. Editor: Permit me to call the attention of your readers to the occurrence this winter of cases of eczematous dermatitis of the neck and face produced by wearing fur tippets. The type of the efflorescence is papular, distinguished by the flatness and unusual size of the individual lesions, which are both discreet and grouped in confluent areas of moderate extent. The sides of the neck and cheeks are principally affected, and the eyelids have been especially inflamed in several instances. In one or two cases, deep, follicular inflammation has followed the first stage of the dermatitis.

The tippets in the cases observed by me, both in hospital and private patients, have been made of the cheaper furs, which are colored by some dark brown dye. In some instances, the fur, when wet, has stained the skin. The affection has yielded readily to the ordinary local remedies for eczema of similar type, but not until the tippet has been laid aside.

Very truly yours,

James C. White, M.D.

### RECORD OF MORTALITY

For the Week ending Saturday, Feb. 22, 1902.

| Cities. | Population* Estimated, 1902. | Reported deaths in each. | Deaths under five years. | Percentage of deaths from | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | Infectious diseases. | Acute lung diseases. | Diphtheria and croup. | Typhoid fever. | Diarrheal diseases. |
| New York . . | 3,665,352 | 1,500 | 537 | 24.51 | 19.40 | 3.60 | .27 | 2.40 |
| Chicago . . | 1,852,828 | — | — | — | — | — | — | — |
| Philadelphia. | 1,349,624 | 568 | 155 | 20.24 | 20.06 | 1.93 | 2.24 | .17 |
| St. Louis . . | 603,717 | — | — | — | — | — | — | — |
| Baltimore . | 525,330 | 196 | 52 | 14.79 | 19.89 | .51 | 1.53 | .51 |
| Cleveland . | 411,826 | — | — | — | — | — | — | — |
| Buffalo . . | 375,742 | — | — | — | — | — | — | — |
| Pittsburg . | 341,401 | 142 | 46 | 21.70 | 32.90 | 6.30 | 1.40 | 1.40 |
| Cincinnati . | 332,032 | — | — | — | — | — | — | — |
| Milwaukee . | 304,975 | — | — | — | — | — | — | — |
| Washington . | 289,537 | — | — | — | — | — | — | — |
| Providence . | 186,870 | 65 | 8 | 26.18 | 26.18 | 1.54 | 1.54 | 3.08 |
| Boston . . . | 588,756 | 250 | 67 | 19.60 | 18.80 | 2.40 | — | .40 |
| Worcester. . | 127,337 | 44 | 12 | 15.90 | 27.60 | 2.27 | — | 2.27 |
| Fall River. . | 111,872 | — | — | — | — | — | — | — |
| Lowell . . . | 99,574 | 27 | 11 | 22.21 | 14.81 | 11.10 | — | — |
| Cambridge . | 96,334 | 33 | 11 | 18.18 | 42.12 | — | — | — |
| Lynn. . . . | 71,144 | 24 | 3 | 12.50 | 16.66 | — | — | — |
| Lawrence . . | 67,275 | 27 | 12 | 14.80 | 14.80 | 3.70 | — | — |
| Springfield . | 66,854 | 17 | 4 | 17.64 | 17.64 | — | — | — |
| Somerville . | 65,882 | 25 | 6 | 36.00 | 20.00 | — | — | — |
| New Bedford. | 65,574 | 16 | 8 | 25.00 | 25.00 | — | — | — |
| Holyoke . . | 48,065 | 10 | 5 | 40.00 | 20.00 | — | — | — |
| Brockton . . | 43,208 | 7 | 1 | 28.60 | — | — | — | — |
| Haverhill . . | 40,392 | 10 | 1 | 20.00 | 30.00 | — | — | — |
| Salem . . . | 36,567 | 15 | 2 | — | 13.33 | — | — | — |
| Newton. . . | 36,336 | 5 | — | — | — | — | — | — |
| Malden . . . | 35,390 | 9 | 3 | 11.11 | 11.11 | — | — | — |
| Chelsea. . . | 35,264 | 13 | 2 | 15.40 | 30.80 | — | — | 7.70 |
| Fitchburg. . | 33,848 | 9 | 4 | — | 22.22 | — | — | — |
| Taunton . . | 32,759 | 14 | 3 | 14.28 | — | — | — | — |
| Everett. . . | 27,114 | 8 | 3 | — | — | — | — | — |
| North Adams | 26,583 | 4 | 2 | 25.00 | — | — | — | — |
| Gloucester . | 26,121 | — | — | — | — | — | — | — |
| Quincy . . . | 25,307 | 8 | 3 | 12.50 | 12.50 | — | — | 12.50 |
| Waltham . . | 24,612 | 3 | — | — | 33.33 | — | — | — |
| Pittsfield . . | 22,311 | 3 | — | — | 33.33 | — | — | — |
| Brookline. . | 21,679 | — | — | — | — | — | — | — |
| Chicopee . . | 20,390 | 7 | 2 | 14.30 | 14.30 | — | 14.30 | — |
| Medford . . | 20,014 | 3 | 1 | — | — | — | — | — |
| Newburyport | 14,478 | 12 | 1 | 8.33 | 25.00 | — | — | — |
| Melrose . . | 13,384 | 6 | — | — | — | — | — | — |

* The populations of the cities outside of Massachusetts were estimated on the basis of the rate of growth from 1890 to 1900. Those of the Massachusetts cities were estimated upon the rate of growth from 1895 to 1900, since the State had an intermediate census in 1895. The populations of Gloucester, Marlborough and Newburyport were allowed to stand as in 1900, they having suffered a slight decrease during the five-year period.

Deaths reported 3,111; under five years of age, 970; principal infectious diseases (smallpox, measles, scarlet fever,

cerebrospinal meningitis, diphtheria and croup, diarrheal diseases, whooping cough, erysipelas, fevers and consumption 673, acute lung diseases 634, consumption 350, scarlet fever 36, erysipelas 8, typhoid fever 38, whooping cough 21, cerebrospinal meningitis 8, smallpox 27, measles 48, diarrheal diseases 47.

From whooping cough, New York 16, Philadelphia 1, Baltimore 1, Boston 2, Lawrence 1. From cerebrospinal meningitis, New York 2, Baltimore 1, Boston 1, Worcester 1, New Bedford 1, Somerville 2. From scarlet fever, New York 25, Philadelphia 1, Baltimore 1, Pittsburg 4, Boston 2, Worcester 1, North Adams 1, Newburyport 1. From erysipelas, New York 7, Lynn 1. From smallpox, New York 13, Philadelphia 10, Boston 4.

Beginning with January, 1902, the term "great towns" as employed in the Registrar General's Weekly Return of births and deaths includes the seventy-five municipalities of England and Wales which have a population of more than 50,000 in each.

In the seventy-six great towns of England and Wales, with an estimated population of 14,862,003, for the week ending Feb. 8, the death-rate was 20.6. Deaths reported 5,875; acute diseases of the respiratory organs (London) 486, whooping cough 129, diphtheria 102, measles 127, smallpox 77, scarlet fever 60.

The death-rate ranged from 8.8 in Coventry to 28.8 in Merthyr Tydfil; London 22.5, West Ham 21.4, Croydon 18.1, Brighton 15.9, Portsmouth 19.5, Southampton 13.1, Bristol 22.6, Birmingham 23.7, Leicester 20.2, Nottingham 18.0, Birkenhead 15.3, Liverpool 25.5, Manchester 25.9, Salford 16.3, Bradford 17.6, Leeds 15.3, Sheffield 19.6, Hull 17.6, Newcastle-on-Tyne 18.6, Cardiff 17.3.

## METEOROLOGICAL RECORD

For the week ending Feb. 22, in Boston, according to observations furnished by Sergeant J. W. Smith of the United States Signal Corps:

| Date | Barometer. Daily mean. | Thermometer. Daily mean. | Thermometer. Maximum. | Thermometer. Minimum. | Relative humidity. 8.00 A.M. | Relative humidity. 8.00 P.M. | Relative humidity. Daily mean. | Direction of wind. 8.00 A.M. | Direction of wind. 8.00 P.M. | Velocity of wind. 8.00 A.M. | Velocity of wind. 8.00 P.M. | We'th'r * 8.00 A.M. | We'th'r * 8.00 P.M. | Rainfall in inches. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S...16 | 30.08 | 26 | 32 | 19 | 63 | 78 | 70 | N W | S E | 8 | 7 | C. | O. | |
| M..17 | 29.58 | 32 | 34 | 30 | 94 | 100 | 97 | N E | N E | 44 | 28 | N. | N. | 1.02 |
| T..18 | 29.07 | 28 | 33 | 22 | 88 | 81 | 84 | N W | W | 10 | 20 | O. | O. | .10 |
| W.19 | 29.68 | 22 | 28 | 17 | 68 | 63 | 66 | W | N W | 19 | 20 | F. | C. | |
| T..20 | 30.16 | 30 | 42 | 19 | 58 | 58 | 58 | W | W | 15 | 12 | C. | C. | |
| F..21 | 30.11 | 30 | 36 | 24 | 80 | 100 | 90 | W | N E | 5 | 15 | F. | N. | .08 |
| S...22 | 29.82 | 28 | 32 | 25 | 100 | 88 | 94 | N E | N | 20 | 12 | N. | O. | .29 |
| ☞ | 29.79 | | 34 | 22 | | | 80 | | | | | | | 1.49 |

*O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow. †Indicates trace of rainfall. ☞ Mean for week.

## OFFICIAL LIST OF THE CHANGES OF STATION AND DUTIES OF COMMISSIONED AND NON-COMMISSIONED OFFICERS OF THE U. S. MARINE HOSPITAL SERVICE FOR THE SEVEN DAYS ENDING FEB. 27, 1902.

WILLIAMS, L. L., surgeon. Granted leave of absence for one day. Feb. 26, 1902.

PERRY, T. B., surgeon. Granted leave of absence for seven days from Feb. 12, 1902, under paragraph 181 of the regulations.

THOMAS, A. R., passed assistant surgeon. Relieved from duty at Glasgow, Scotland, and directed to proceed to London, England, for duty in the office of the U. S. Consul General. Feb. 21, 1902.

ROEHRIG, A. M., senior pharmacist. Granted leave of absence for six days from Feb. 5, 1902, under paragraph 201 of the regulations.

NEWBERN, WALTER, JR., senior pharmacist. Granted leave of absence for one day, Feb. 14, 1902, under paragraph 201 of the regulations.

SIEDENBURG, FRANK, junior pharmacist. Granted leave of absence for three days from Feb. 19, 1902, under paragraph 201 of the regulations.

## CHANGES IN THE MEDICAL CORPS OF THE NAVY FOR THE WEEK ENDING MARCH 1, 1902.

D. N. BERTOLETTE, medical inspector. Detached from the "Brooklyn" and ordered to the "New York."

C. T. HIBBETT, surgeon. Detached from the Cavite Naval Station and ordered to the "Brooklyn."

J. E. GARDNER, surgeon. Detached from the "New York" and ordered to the Naval Hospital, Cavite, P. I.

J. J. SNYDER, assistant surgeon. Ordered to Port Royal Naval Station for temporary duty with recruiting party.

B. L. WRIGHT, assistant surgeon. When discharged from treatment at Naval Hospital, New York, ordered home and granted sick leave for three months.

L. W. SPRATLING, surgeon. Ordered to Buffalo, N. Y., for duty at the Naval and Marine Recruiting Rendezvous.

H. L. LAW, surgeon, retired. Detached from duty at the Naval and Marine Recruiting Rendezvous, Buffalo, N. Y., and ordered home.

W. H. ULSH, assistant surgeon. Reported at the Naval Hospital, Mare Island, Cal.

## RECENT DEATH.

DR. JOSEPH A. BOOTH, the last surviving brother of the tragedian Edwin Booth, died in New York on Feb. 26, of cardiac disease. He was born in Baltimore, Md., and was 62 years of age. He studied medicine in New York, and practised in that city for a considerable time. Later he removed to Long Branch, N. J., where he remained until about a year ago, when he retired from practice and went back to New York to live.

## BOOKS AND PAMPHLETS RECEIVED.

Arrow Wounds. By Thomas Wilson. Illustrated. Reprint. 1901.

Simulation of Insanity. By A. W. Hoisholt, M.D., Stockton, Cal. Reprint. 1901.

Quackery. A Paper Read before the Society, March 6, 1901. By Dr. Harry Hakes, Wilkesbarre, Pa. Reprint. 1901.

The Therapeutics of Subacute and Chronic Heart Diseases. By Thomas E. Satterthwaite, M.D., of New York. Reprint. 1901.

Technique of Labor in Private Practice. By Stanley P. Warren, M.D., Obstetrician to the Maine General Hospital, Portland, Me. Reprint. 1902.

The Treatment of Chronic Nephritis by Mineral Drink-Waters and Mineral Baths. By Medicinal-Rat Prof. Dr. J. M. Groedel, in Bad-Nauheim. Reprint. 1901.

The Treatment of Consumption in Local Sanatoria. By Henry Barton Jacobs, M.D., Associate in Medicine, Johns Hopkins University, Baltimore. Reprint. 1901.

Early Diagnosis in Carcinoma. By Charles A. Powers, M.D., Denver, Col., Professor of Surgery in the University of Denver; Surgeon to St. Luke's Hospital, Denver, Col. Reprint. 1901.

Giant Sacrococcygeal Tumors. An Account of one which Pursued an Atrophic Course. By Charles A. Powers, M.D., of Denver, Colo., Professor of Surgery in the University of Denver. Illustrated. Reprint. 1901.

Colloid Cancer of the Stomach and Omentum: Diagnosis by Abdominal Paracentesis. By Stephen Smith Burt, A.M., M.D., Professor of Medicine and Physical Diagnosis, New York Post-Graduate Medical School; Attending Physician New York Post-Graduate Hospital. Illustrated. Reprint. 1901.

Tent Life and Simplicity in Therapeutics as Factors in the Treatment of Phthisis Pulmonalis. By Wm. K. Robinson, M.D., Denver, Colo., Laryngologist National Jewish Hospital for Consumptives, Denver, Colo.; Laryngologist Steele Memorial Hospital, etc., Denver, Colo. Reprint. 1901.

The Value of Age and Sex as Etiological Factors in the Differential Diagnosis of Gastric Ulcer and Carcinoma. By William Murrell, M.D., F.R.C.P., Physician to the Westminster Hospital; Lecturer on Clinical Medicine; Joint Lecturer on the Principles and Practice of Medicine and Examiner in the University of Glasgow. Reprint. 1901.

Some Cases of Cirrhosis of the Liver, with Ascites, Including one of Banti's Disease, Treated Surgically by the Establishment of a Collateral Circulation. By William Murrell, M.D., F.R.C.P., Physician to the Westminster Hospital; Joint Lecturer on Medicine and Lecturer on Clinical Medicine; Examiner in the University of Glasgow. Reprint. 1902.

# Original Articles.

## ALCOHOL IN THERAPEUTICS.

### THE VALUE OF ALCOHOL AS A THERAPEUTIC AGENT IN MEDICINE.*

BY HENRY F. HEWES, M.D., BOSTON,

*Physician to Out Patients, Massachusetts General Hospital.*

There is no drug in the pharmacopeia in regard to the therapeutic use of which there is a greater variety and divergence of opinion and practice among the medical profession generally than alcohol. To exemplify this diversity let me cite the opinion existing at the present time in regard to the action of the drug upon the heart and nervous system. In many of the leading textbooks upon therapeutics (Hare, White, Wood [A]) we find alcohol spoken of as a nerve and heart stimulant and advised for use in conditions of heart weakness, and it is the custom of a large number of practising physicians to regard the drug in this light and to use it for purposes of stimulation, more or less continuously, during the course of acute diseases in which signs of heart weakness occur. Other physicians, among them the pharmacologists who base their opinions upon the results of pharmacological research with the drug, are of the opinion that the action of alcohol upon the nervous system and heart, taken in its total effect, is always depressant in kind, and that its use for purposes of heart stimulation is, therefore, irrational.

Another instance of radical divergence is found in the opinions in regard to the food value of alcohol. It is a more or less general idea held by physicians and laymen that alcohol is an excellent food substance of equal value with the recognized fuel foods, the starches, sugars and fats. Pharmacological research, however, while indicating that alcohol, since it is oxidized in the body and to some extent spares the body tissues, or some of them, is undoubtedly a food, considered in the chemical sense of the term, indicates with equal definiteness, and with this the opinion of almost all the leading physiologists of the world is in accord ([G, H, K, M, T]), that it is not a good food from a hygienic point of view, or a food in any sense comparative in its value to the recognized food substances, since it cannot protect the body tissues in the same extent as these, and possesses poisonous properties which so affect the body, acting through the nervous system or by direct action upon the tissue cells, that it is impossible to feed the individual with it, under ordinary conditions at all events, to the extent of affording any substantial aid to nutrition without at the same time poisoning him. Thus, Van Leyden,[B] in his textbook upon dietetics, classes it not with the foods, but as an *erfrischungsmittel*, since, as he says, its drug effects bar its use as a food.

The reason for this extreme diversity of opinion lies principally in the careless attitude in which the profession has received and continues to hold the drug. Owing to the very general use of alcoholic liquors as beverages in conditions of health, there has always been, and still is, among physicians a tendency not to consider alcohol seriously as a drug whose pharmacological action has to be considered in its administration, as in the case of strychnia and digitalis and other substances used solely as drugs. As a result, practitioners have not learned the pharmacology of the drug accurately or, having learned it, have disregarded its teachings, not feeling obliged to apply the same rigid principles of rational therapeutic procedure in this case, which they are accustomed to use in their general therapeutic practice.

This careless and unscientific attitude in regard to the use of alcohol which exists more or less unconsciously in medical practice, is clearly a wrong one, and is totally unjustifiable in the present condition of medical knowledge.

A drug should be used rationally or not at all. The wide use of alcohol, its well-recognized poisonous properties, and the extensive moral and social influence which the abuse of this drug, following the acquisition of the habit of using it, exerts, all unite to make a rational use doubly imperative in the case of this drug. The pharmacology of alcohol has been thoroughly worked out by extensive experimental research, and is today as definite as that of most drugs in the pharmacopeia. It should be possible, therefore, by collecting this pharmacological knowledge and that obtained by clinical observation of its use in the treatment of disease, and the theories and practices in regard to its employment which have come down in traditional use, and considering them together in the court of judicial medicine, to thresh out the false from the true, and determine for the use of the drug as rational and intelligent an attitude and procedure as exists in the case of most active drugs in modern medicine.

Considered pharmacologically, that is as a drug pure and simple, alcohol belongs to the group of narcotics or anesthetics, substances which act as intoxicants upon the higher nerve centres of the body (Schmiedeberg,[7] Cushny [C]). The drugs with which it is most closely allied in its drug action are perhaps ether, chloroform and chloral of the same group. These substances, especially the first, produce, as alcohol in small doses or in the beginning of administration, a condition of apparent cerebral excitement which is followed, as more of the drug is taken or as its final effect is accomplished, by depression and anesthesia.

The action of alcohol upon the nerve cells, by which it produces its drug effects, is undoubtedly a poisonous one, and places the drug among the narcotic poisons (Wharton and Stille [Z]). It has been claimed by some writers that alcohol should not be classed as a poison (Atwater [S]) since it can be taken in small doses without producing demonstrable poisonous effects. These advocates urge that all substances are poisons when taken in sufficient quantity, and that the term should be ap-

* Read before the Clinical Section of the Suffolk District Medical Society, Dec. 18, 1901.

plied to such substances only as always do harm to the body, that is, are poisonous in all doses. Such a claim cannot, however, hold for pharmacological classification, or even for practical consideration of a drug. For few, if any substance known, even among the most deadly poisons, causes *demonstrable* injury in all doses and all conditions. Strychnia and arsenic may be taken with benefit in proper doses. Morphia, like alcohol, may be oxidized in the body and in increasing quantities as the subject becomes more immune to it (Faust[D]). In scientific terminology the term poison applies to any substance which, when incorporated into the blood or applied to the body surfaces in relatively small quantities, produces disturbance of any body function (Fick,[F] Abel). Under this definition alcohol is certainly a poison (Fick,[F] Schafer,[H] Tigerstadt,[K] Abel [L]). For its most characteristic drug properties its depressant or narcotic effects upon the nerve centres are present, and can be demonstrated experimentally under the use of quantities of the drug, which, when the quantities in which it is commonly used among men are taken into consideration, are comparatively small. The extent of immunity to the poisonous action varies with individuals, as with all poisons, and it can apparently become increased by the use of the drug. In medicine it certainly deserves this title of a poison, for it is one of the most common poisons with the effects of which the medical profession has to deal.

In addition to its most characteristic drug influences, its depressant or narcotic effects upon the nerve centres of the body, in accordance with which it is classed pharmacologically among the anesthetics, alcohol influences the body in a variety of ways.

Its most immediate action when introduced to the body by the mouth is its local irritant action upon the mucous membranes of the mouth and stomach. As a result of this irritation a hyperemia of the membranes occurs and a reflex excitation of nerve centres, and, through those, of certain body functions, as the circulatory, or muscular, or digestive functions may be induced. Following this, after it is incorporated into the blood by absorption from the alimentary tract, it acts directly upon the nerve centres, most immediately the higher nerve centres, and through this action upon the centres governing special functions of the body, most particularly those of circulation, motion and respiration, influences these functions. Finally, the alcohol is in great part (95%) oxidized in the body, through this oxidation plus its effect upon the nerve centres and its destructive (poisonous) action upon the protoplasm of the tissue cells, influencing the metabolism of the body.

The special purposes for which alcohol is most generally used as a therapeutic agent in medicine today are: (1) As a heart stimulant; (2) as a nerve stimulant or general tonic; (3) as a digestive stimulant; (4) as a food; (5) as a general remedial agent in acute infectious conditions.

Let us now consider these various therapeutic uses of the drug which we see advised and practiced in the medicine of the present time, and determine how far each is rational in the light of our experimental knowledge of the action of the alcohol. (By experimental knowledge we mean here knowledge gained by deduction from either pure experimental work or clinical experience, in the determining of which proper scientific methods have been followed.)

### ALCOHOL AS A STIMULANT.

The purpose for which alcohol is perhaps most frequently and generally used in medicine today is for the stimulation of the heart. It is used for this purpose for short periods in collapse from whatever cause; continuously for days during the course of acute diseases, as pneumonia and typhoid, where signs of heart failure are thought to be present; and by some physicians in cases of dilatation or valvular disease of the heart. It is classed as a heart stimulant in textbooks of medicine,[A] and many leading physicians consider it as such and advise it for this definite purpose. Is this use rational in the light of the most competent experience with the use of the drug?

A study of our evidence in regard to the question as to whether or not alcohol acts as a heart stimulant points to the conclusion that the best evidence at hand is against its possessing such action, always excepting the initial effect resulting from its irritant action, and certainly force us to the opinion that the use of alcohol for *this purpose of heart stimulation*, especially in continuous doses for periods of one or more days, as it is practised in the case of acute diseases or conditions of debility, is irrational, such use tending rather to defeat than accomplish this purpose.

The theory that alcohol is a heart stimulant has for its principal foundation the special facts of clinical observation, that acceleration of heart beat and apparent increase of pulse strength follow its administration. The fallacy explained below, into which a misinterpretation of these facts has lead the profession, serves as a good example of the danger of following the indications of clinical impressions alone in determining the action of a drug, a habit to which much of our confusion and error in therapeutic practice generally has been due. To my knowledge, there is today no evidence which can stand to prove that alcohol given regularly can increase the capacity of the heart to work, that is, that it is a heart stimulant. The only stimulant effect which it can produce is a reflex effect, which may result in a momentary increase of work by the heart, which, however, is soon overbalanced by the total effect of the drug, and therefore always gives a sum total effect of depression (Brunton[Y]). Such an action may fit the drug for use in single doses in emergencies where momentary action is desired at any cost, but does not give it any value for continued use, to strengthen the heart.

The results of the most accurate experimental investigation in regard to the action of alcohol

upon the heart and the circulation are as follows:

Single doses of alcohol (20 to 60 gm.), if given in ordinary non-diluted form and under ordinary conditions, may cause a temporary acceleration of the heart action followed in measure with the size of the dose by a depression of the action.

If, however, the alcohol is given in well diluted form to avoid the irritant action upon the mucous membranes, and the subject is kept quiet to avoid increased nerve and muscular excitement, which are associated with the ingestion of the drug, it is found that no acceleration of heart action occurs (Zimmerberg, Jacquet). In these conditions small doses have no demonstrable effect upon the heart action; large doses cause depression of this action (Zimmerberg,[3] Jacquet,[1] Martin and Stevens[2]). The same facts are true of the effects of the alcohol upon the character of the pulse and blood pressure. With ordinary administration a greater fulness of the pulse may be observed. If precautions against irritant action and restlessness are taken, however, this effect is not obtained, the blood pressure remaining either unaffected or becoming depressed. Small doses of alcohol have no effect upon the blood vessels; larger doses dilate the vessels.

From these and similar results it is concluded that alcohol is generically a depressant of the heart and circulatory mechanism. Where quantity sufficient to cause any influence in either direction is administered, the sum total of effect is always a depression. Where an initial stimulation is obtained it is due, as Brunton[Y] says, to the act of ingestion of the substance and to its irritant and reflex effects. The ingestion of any food or even of water causes results similar in kind (Brunton, Zimmerberg). These indirect effects of the administration of the drug are a part of its action, but not the whole of it, and it must be judged by its total effect. They are, of course, to be taken into account in a consideration of its use, but they must not be permitted to mask the true generic character of the drug, which is always depressant in kind and soon gets the upper hand of the effect of the reflex action.

This action of alcohol upon the circulatory system as accomplished in medical administration is entirely a result of the action of the drug upon the nerve centres controlling the heart and blood vessels. Evidence of direct action upon heart muscle is obtained only when the amount of alcohol in the blood reaches one-eighth to one-fourth of 1% of the blood, a quantity never present in human blood in medical administration (Diabella[4]). Such direct action obtained in animals is always depressant.

It is not intended by this statement to imply that the use itself of alcohol in these cases of acute disease is necessarily irrational, but simply that its use for this definite purpose of heart stimulation, and in this way mentioned, is so. Alcohol may have other actions which make it useful in certain of these conditions. And in a condition of collapse, as already stated, where it is desired to produce a momentary excitation of the nerve centres, or vital organs through a shock to these nerve centres, alcohol, on account of the reflex effect of its irritant action upon the mucous membrane of the stomach, may, in a single concentrated dose, be of use, according to both clinical and pharmacological evidences.

It may, and undoubtedly will, be urged by some men that, since these pharmacological results are obtained principally in conditions of health, they cannot serve for indications in regard to the action of the drug in disease, where the conditions are different; in other words, that a substance which is a heart depressant in health may be a heart stimulant in a given diseased condition. In consideration of such a claim we will point out: (1) That our pharmacological evidences are collected from conditions of both disease and health, and are so far identical in quality in both[44 46]; (2) that we have no scientific records of any drug possessing a directly contrary pharmacological action in disease from that which it has in health, the difference of action, if any, being simply quantitative*; (3) that since we have, in regard to this particular point at issue, no evidence of a clinical or of any other character pointing to a stimulant action which will bear the test of judicial examination, there is no occasion as yet to raise such an issue upon this subject.

A second character, in which alcohol is advised in practice, is that of a general nerve tonic. Continued use of small doses is considered to be useful in keeping up the body tone, or to help the individual in the accomplishment of continuous or arduous nerve and muscular expenditure in conditions of debility, chronic and acute diseases.

In regard to the generic effect of alcohol upon the nervous system there are two theories held today by physiologists and pharmacologists. The first, that of Binz and his followers, is that alcohol, when incorporated into the blood, first stimulates, then depresses, the nerve centres. According to others (Schmiedeberg and Bunge), and this is the view most generally held among pharmacologists today, it depresses the centres from the start. According to this latter school, of which Schmiedeberg is the most prominent authority, the apparent excitation which occurs as a preliminary stage in the action of the drug is in reality an increased action of certain subordinate centres, resulting from a removal of control or inhibition through the depression or paralyzing influence of the alcohol upon the higher centres, which normally exert a certain inhibitory control over these lower systems. The higher centres, being most delicately organized, are most easily affected by the drug, and the lower centres, being liberated from higher influence, run free for a moment, just as a heart runs free with paralysis of the vagus. Then these lower centres, being af-

* In fever, for example, research shows that metabolism follows the same lines, the oxidation processes having, however, more activity. More alcohol may, therefore, be oxidized in fever conditions, but this cannot change it from a depressant to a stimulant.

fected in their turn, show a depression which, being the sum of the loss of the reserve strength incident upon their period of free action and the final depressant effect of the drug upon them, more than counterbalances the initial excitation, so that the total effect of the drug action upon the body forces is a depression (Schmiedeberg,[7] Binz,[6] Bunge[8]). It will be noted that under both of the above theories the final effect of the alcohol is considered to be a depression. The difference of opinion is simply in regard to the detailed action of the drug in accomplishing its total effect.

This question of the intimate action of alcohol upon nerve forces has been the subject of a large amount of investigation. Kræplin and his pupils have conducted a series of over 2,000 experiments to study the influence of alcohol upon psychical and psychomotor processes. The results of these experiments show that with small single doses of alcohol (15 to 30 gm., one-fourth to one-half bottle of wine) there is on the average, the results differing with individuals, a slight initial increase in the activity of certain simple psychomotor processes, as, for example, a shortening of the reaction time of simple motor innervation, as moving a finger, lasting from one-fourth to one hour.

With psychical processes, where the subject is obliged to dwell upon or compare sensations or perform less simple psychomotor labor, as, for example, the addition of columns of figures, or those involved in typesetting, the reaction time is increased, the depression of the nerve processes occurring with all doses. With doses of over 30 to 40 gm. of alcohol, all types of brain action are depressed.

Continued daily administration of from 40 to 80 gm. of alcohol in twenty-four hours caused after a few days a marked decrease in the usefulness of such psychical functions as memory or mathematical figuring, which soon disappeared when the alcohol was removed. Kræplin concludes that alcohol may, in small doses, stimulate for short periods certain motor centres, while it depresses all other brain centres, the sum total of effect, considering the whole psychical capacity, being a depression. In no condition, the author expressly states, does the alcohol enable the individual to perform a greater total of work in a daily or greater period (Kræplin,[9] Baratynasky[11]).

Experiments upon the effect of alcohol upon muscular power bring us to the same conclusion in this regard. Thus, experiments upon the effect upon single muscular action, as, for example, those of Partridge with the ergograph and dynamometer upon the muscular power of the finger or hand muscles, show that with small single doses there is, in some cases, an initial increase of work for one-half to one hour, with a subsequent depression, in some cases by a decrease from the start. Shafer found that the increase occurred only where plenty of nutritive material was present for the muscles, otherwise a decrease was present (Shafer,[11] Schumberg[12]). In no experiments which will bear inspection was a total increase of power for work an evidence of any dynamogenic quality of alcohol obtained. The same initial increase was obtained by the ingestion of bicarbonate of sodium or nitrate of silver (Gutrickson), and followed the ingestion of sugar before time for oxidation elapsed, and is probably a reflex effect of ingestion of food. Mayer obtained similar results with introduction of water into the stomach.

By far the most conclusive results in regard to the nature of the action of alcohol upon the nerve functions and the power of the body for neuromuscular work are, however, those which are obtained, not from a determination of the effect of the drug upon special processes for special periods, but from a comparison of the total output of labor or neuromuscular force which the individual is enabled to put forth under the use of alcohol and that which he can produce in abstention. The most accurate and complete experiment of this nature which we possess is that of Aschaffenburg,[13] upon the work of typesetters. A comparison of the results obtained from these men in periods of abstention and periods of indulgence in moderate quantities of alcohol (35 to 40 gm. in 24 hours, equivalent to 2 ounces of whiskey) shows that at least 15% less work was performed in the alcohol periods.

Experiments upon the marching records of regiments, performed in the armies of the several nations, invariably give results which point to a similar conclusion. The same men can march less far and endure labor less well with regular moderate rations of alcohol than when using no liquor of any kind (*vid.* Parkes,[14] Baer,[15] Woodhead on Kitchener's Campaign; Hall, Kaffir War).

These results would then indicate definitely that alcohol is not in continued use a tonic to nerve or muscular action. In this finding pharmacological and physiological experiments are in keeping with practical experience among intelligent members of military and exploring expeditions, that alcohol does not increase the power for work, but simply induces a spirit which uses up energy faster, and is more than offset by the depression following, and that its use where any work is to be done is distinctly harmful.

In this connection the results of the use of alcohol upon the nerve cells, as studied by Dehio and by Stewart, are of interest. These researches showed that retrograde changes in the cell substance appeared regularly after the administration of the drug (Dehio,[16] Stewart[17]).

These facts certainly prove that the still too common custom of the use of alcohol as a tonic for nerve or muscular work in conditions of debility or chronic disease is irrational and probably harmful. They also, to my mind, give us food for thought in regard to the continued use of the drug in acute diseases, where a substance which lessens the capacity for endurance of nerve or physical labor is *a priori* the last thing which we wish to use.

ALCOHOL AS A NARCOTIC.

From the point of view of pharmacology the rational use of alcohol for the purpose of its effect upon the nervous system is as a narcotic; for this is the characteristic action of alcohol which it possesses, as far as investigation has gone, under all circumstances and in all doses which have any effect upon the body whatsoever. Of course therapeutic experience must determine for us whether it is a useful narcotic and where. All narcotics are poisons, and we choose in our case that which will produce the greatest benefit in the case with the least danger. If in a given case alcohol is the narcotic which answers best to this requisite, it should be given. It is to my mind undoubtedly to this special influence of alcohol that the majority of the medicinal effects, variously interpreted as stimulation and tonic effects, which are obtained with the use of the drug, are due, always excepting the momentary effects of its irritant action. The higher nerve centres are depressed and thus the nervous excitement which accompanies acute disease or fatigue quieted, and this relief from nerve strain is rest to the patient and he feels better. The effect of the drug in conditions of shock which are reported may be explained in this way, if we adopt the theory so commonly advanced, that shock is a condition of nerve inhibition of the vital functions. Alcohol, in depressing or paralyzing the higher centres which control these inhibitory forces, relaxes the extreme inhibition which has obtained, and the results of shock are ameliorated.

ALCOHOL AS A STOMACHIC.

A third common use of alcohol is as a stomachic. This use would appear to be to some extent borne out by the results of pharmacological studies. These studies show that alcohol produces in the stomach, through its irritant action, a hyperemia of the membranes. This may undoubtedly, if the irritation is not too great, cause an excitement of appetite. Through this irritant action and a reflex from it, an increased secretion of saliva in the mouth and of gastric juice in the stomach occurs. A similar increase of less extent is produced when alcohol is injected into the blood without contact with the stomach.

The total effect of alcohol upon the digestive process is a matter of controversy. The presence of 5 to 10% of alcohol in the stomach retards digestion markedly (Chittenden). With ordinary doses, Kretschy and Buchner found digestion retarded, while Eichenberg and Wolffhardt claim that it is accelerated. Klempner states that the mobility of the stomach is increased by alcohol. According to Brandl and Scanzoni the absorption of the fluid substances in the digestive tract is accelerated by small doses of alcohol. Zuntz and Magnus Levy in their experiments found absorption impeded. Mehring found that solutions of sugar and other substances in alcohol were absorbed from the stomach more rapidly than solutions in water. This evidence, combined with the experience of the wine-drinking nations, would indicate that alcohol taken with food may serve digestion in the character of a *genussmittel*, a substance which by its pleasant taste and slight irritant effect may stimulate appetite. That it has any other influence upon digestion is not proven (Chittenden and Mendel,[18] Chittenden, Mendel and Jackson,[19] Buchner,[20] Scanzoni,[27] Magnus Levy,[28] Brandl,[26] Eichenberg, Gluzinsky and Mehring).

ALCOHOL AS A FOOD.

A fourth character in which alcohol is much used and advocated in medicine is that of a food. It is given for this purpose in conditions of debility, chronic diseases, in acute diseases, and is even advised by some men for this purpose in health. The question as to whether or not alcohol should be considered as a food has been a matter of much controversy among physiologists and scientific men. This matter can be determined only by a study of the effect of the use of the drug upon tissue metabolism. The results of such a study are as follows:

If a given quantity of alcohol (50 gm. hydroxid in 24 hours), for example, be ingested the greater portion (90%, at a minimum, 94 to 96% as an average) is oxidized, the remainder passing through the body and being eliminated as alcohol Atwater,[38] Stassman [39]). The influence of this substance thus utilized in the body upon the metabolism of the tissues is twofold. In the first place, the alcohol, in becoming oxidized, liberates energy which is thus supplied to the body. This energy serves to replace an equivalent amount which, in the absence of the alcohol, would have to be supplied by the oxidation of the body fats, and thus spares a certain quantity of fat in the body. Alcohol thus acts in the metabolism as a tissue-sparing substance or food. This fact has been demonstrated by competent experimental research (Zuntz and Geppert [28 29]). In the second place, the alcohol in circulating among the tissue cells produces certain derogatory or poisonous effects upon them which destroys a certain amount of protoplasm. Alcohol thus acts in the metabolism as a poison to the body. Evidence of this latter fact may be obtained in several ways. First, if a man be given a large quantity of alcohol there will be a marked increase in the nitrogenous waste of his body. This in itself occurring while a man is taking sufficient food to maintain nitrogenous equilibrium under ordinary circumstances is evidence of this poisonous property of alcohol for protoplasm. If the quantity of alcohol used is lessened, or as the individual becomes more immune to its use, the loss becomes less, and with small quantities becomes so slight that it falls within the limits of error of experimental records, or is so counterbalanced by the tissue-protecting effect of the alcohol that it is not apparent in results of experimentation. These facts in regard to the poisonous action of alcohol upon protoplasm are well illustrated in the numerous experimental researches which have been made to test the tissue-sparing influence of alcohol. For these experiments an individual who has been brought

to a condition of nitrogenous equilibrium upon a regular diet consisting of a mixture of proteids, carbohydrates and fats, has a certain portion of the carbohydrate and fat food replaced by an isodynamic quantity of alcohol, and the records of his metabolism in this alcohol period are compared with those of his regular food period. In these experiments it is practically invariably found (in sixteen out of seventeen performed upon men up to 1901) that on the day after the substitution of the alcohol for the regular food, the condition of nitrogenous equilibrium is destroyed, the body losing nitrogen, this loss continuing for four to six days, the period of most experiments, so that the average of the alcohol period shows a decided loss of tissue to the body. Upon the return substitution of the fat food for the alcohol the equilibrium is again restored. Now these results are distinct evidence of the poisonous action of the alcohol upon protoplasm; and they prove that this action can be demonstrated with moderate quantities, the quantities used being from 50 to 70 gm. of alcohol in twenty-four hours. For we know that alcohol spares isodynamic quantities of fat to the body; and we know that this tissue fat can spare a certain quantity of proteid (V. Noorden [40]). Why, then, is the proteid loss not controlled by the fat in the body spared by the alcohol when the alcohol is being administered, as it is when the body fat is protected by sugar of fat in the diet? Clearly because there is greater loss during the alcohol period. The fat protected by the alcohol does serve to protect proteid to its full extent just as it does when sugar or fat are taken. It is insufficient, however, to protect it against both the regular loss and also the extra loss due to the alcohol poisoning, and hence the loss of equilibrium under alcohol (Kassowitz [41]). Equilibrium can be maintained in such cases, as shown by Stammreich, von Noorden and Roseman, only by giving the individuals quantities of proteid, more than sufficient for their needs, which will serve to make up for the extraproteid destruction. This point is further elucidated by some recent experiments of Neumann and of Roseman. These authors show that in individuals thus experimented upon the loss of nitrogen which is seen in the first four to six days of feeding with alcohol grows less after this period until it becomes the same as with the feeding of fat or is at all events less than in the control period when the patient is on a diet which is equal to the regular diet used minus the calorie value of the alcohol. That is, the individual after the first few days becomes accustomed to the alcohol so that the poisonous effects are less and can be offset by the proteid-protecting effect of the alcohol consequent upon its oxidation in the body.

The evidences of the action of alcohol upon the body metabolism thus indicate that alcohol is thus acting in the body at the same time as a food and a poison, the oxidized portion serving to protect the body tissues, the circulating portion tending to destroy them. Where small quantities are used so that the poisonous unoxidized residue is small, the individual may be or becomes so immune to the poisonous action that the alcohol may help, if given with plenty of proteid food, to maintain the tissue equilibrium (v. Noorden and Stammreich,[85] Roseman,[50] Neumann [51]).

References: Roseman, Pfluger; Arch., 1901, Bd. lxxxvi, S. 307[X], gives a record and critical review of all recent experiments upon men and animals and a complete summary of the subject of the food character of alcohol.

The results of scientific investigation at the present time would then indicate that alcohol is to be considered as a food from a physiological point of view. This being established, the only further question for medicine to determine is whether it is a good food for use in disease or in any special diseased conditions. The first point, whether alcohol is a good food for use in disease generally, can be very promptly settled. Both experimental and clinical observation and study have proven to us that alcohol, in addition to its food properties, possesses certain drug properties, as a result of which it tends to produce disturbance of the nervous system and destruction of tissue protoplasm. Also the study of pathology has shown that the continued use of alcohol tends to produce certain changes in the tissues of certain of the body organs harmful to the integrity of the organs and their function.

These facts, determined principally by the observation of the effect of alcohol upon individuals in a condition of health, have definitely established the opinion in which we find practical unison among all scientific men today,—physiologists, pharmacologists and dieteticians,—that alcohol can play no rôle, and is not to be considered as a food substance for use in health under ordinary circumstances. For it is not rational to use for a food a substance which possesses poisonous properties, and which, when given in quantity sufficient to aid materially in the nutrition of the body, will exert these properties and produce disturbance of the body functions when we possess and can utilize other food substances which can be used in sufficient quantity without producing results other than beneficial to the organism* (Foster,[T] V. Leyden,[B] Roseman, loc. cit., p. 273, Fick,[F] Bunge,[G] Schafer,[H] Tigerstadt,[K] Howell,[M] Halliburton.[N]).

And this same reasoning which applies to the use of alcohol in health applies to its use generally in disease. In most diseased conditions which come under our care, the conditions of metabolism do not vary greatly from those of health, or vary only quantitatively (Weber,[44]

* Different individuals possess varying degrees of immunity to the poisonous action of alcohol. Small quantities may be taken by many individuals without producing demonstrable evidences of any poisonous influence. And this immunity may perhaps be increased by continued use of the drug, as with morphia. In many cases the poisonous action can be demonstrated with doses of 20 gm. of alcohol (12 gm. Tigerstadt), an amount equivalent to about an ounce of cognac or six to seven ounces of wine, with a calorie value of 140 cm. And the quantity which the average individual, in America at all events, can take with immunity is certainly, at a maximum, 50 gm. in twenty four hours, equivalent to a half-pint of 10% wine, a quantity which has a calorie value when utilized of less than 350 calories, one-eighth to one-ninth the food necessary for body combustion (Tigerstadt [K]).

Svenson[46]). The drug which depresses the nervous system or wastes protoplasm in health will do so here. The patient can utilize the regular food subtances in one form or another in full quantity or to the extent that he can take any food whatsoever, and there is no necessity or excuse, from the point of view of providing a food, of including alcohol in the diet. These statements will apply to the use of the drug for food purposes in conditions of debility, phthisis and most chronic diseases, and to its use generally in any and all diseased conditions.

In the case of special diseased conditions, however, the matter may wear another aspect. Among such conditions we may have, for example, a condition, in pneumonia or typhoid for example, where the patient cannot utilize the ordinary food substances and can utilize alcohol. In such a case it is, of course, rational to use alcohol as a food. We have, of course, to give in such a case quantities far above the normal limits of immunity to the poisonous effects of the drug, and we must expect to produce to some extent these effects. But we are perfectly willing to risk these for the sake of the nutritional value of the drug.

Such conditions as the above, where alcohol is the only food which can be used, are conditions for the use of alcohol as a food, and they are to my mind, with a few special exceptions, the only conditions in which its use *for this purpose* is rational. In a majority of cases of acute disease the patient can take other foods. And if this is so, there is to my mind the same reason against its use here as in health. Metabolism in the acute diseases, according to what experimental data we have, differs quantitatively from that in health, and only thus. In febrile conditions the oxidation processes and nitrogenous waste are increased.[44] Diakanon, in the only experiments upon the effect of alcohol in febrile disease which we possess, experiments upon two cases of typhoid and one case of pleurisy, found that its influence upon proteid metabolism was no greater than in health.[45]

The fact that oxidation is more active in fever, may result in a greater oxidation of alcohol in such conditions than in health, and may thus account for the commonly reported observation, that patients with fever can take more alcohol without showing signs of intoxication than individuals in health.

However this may be, it is only a question of increased immunity to poison, not of the absolute loss of the poisonous character by the alcohol, and to use a substance with poisonous properties for a food in conditions where other foods can be utilized is not rational medicine.

Among our special diseased conditions there are a few in which the changes in metabolism, as compared with the metabolism of health, are not only quantitative but also qualitative. In such conditions it is possible that alcohol may have a food or drug action quite separate from that in health. To determine this point experimental research with the use of alcohol in each condition is necessary.

Work of this kind has been done in one of these diseases, Diabetes Mellitus, by Hirschfeld.[48] This investigation shows, like those upon health in some experiments, in some an increased loss of nitrogen with alcohol, in others a slight sparing of nitrogenous substances, and indicates, as do all researches with alcohol in disease so far reported, that the action of the drug upon metabolism in disease is similar to that in health.

So much for the consideration of rationality of the employment of alcohol in the more common special uses for which it is advocated and used in medicine generally.

In addition to this general use for specific actual or hypothetical pharmacological actions independent of the type of disease under treatment, as, for example, a heart stimulant in typhoid, as a food in acute febrile disease or diabetes, as a sedative for insomnia or in shock, the drug has a very extensive use as a special therapeutic agent in several definite diseased conditions, as, for example, pneumonia and other acute infectious diseases, phthisis, and conditions of sepsis from pyogenic infection. In many cases, in these conditions, it is used not from any special theory of stimulant or narcotic, or nutritive or any other definite pharmacological action,—for if it were proven that it had none of these special properties the physician would still use it in these cases,—but because extensive experience in its use in these conditions has proven to him that it has a beneficial influence on the course of that particular condition.

What can be said of the rationality of its use under such circumstances? Simply this: that as regards the final therapeutic value of a drug in the treatment of a definite diseased condition clinical experience must be the supreme guide.

We have today no definite scientific knowledge of the total action of alcohol in pneumonia or sepsis, such as we have in regard to the action of quinin in malaria or of thyroid in myxedema, cases where pharmacological investigation has covered the whole ground and where its results and those of clinical medicine are in accord.[45 48] Additional research upon the use of alcohol in diseased conditions is needed. What results of scientifically conducted research with this use of alcohol we do possess indicate that its action here is similar to that in health. Pharmacology can at present prove to us that it is not rational to use alcohol for some special purpose in pneumonia, for direct heart stimulation, for example, or for a food in conditions where a more nutritious food may be taken, and that if we do use it for any purpose we must expect to produce a certain amount of nerve or heart depression, or if the kidneys are in bad shape a certain amount of deleterious action upon these organs and their function, and can thus serve to control our use of the drug in these conditions, but it cannot yet prove to us that the total effect of the use of the drug may not be beneficial. Drugs may have specific actions in

diseased conditions which pharmacology has at present no account of. For instance, alcohol may have a special antitoxic action in pneumonia or sepsis. Also its poisonous action may be less active in the changed conditions than in health.* On the other hand, they may be more active. So that for our final verdict in regard to the value of alcohol in special conditions, pneumonia, for example, in default of absolute experimental knowledge of the subject, we must fall back upon the evidence of our regular clinical experience.

This evidence of clinical experience appears in the shape of the opinions of physicians in general or hospital practice. If we collect these opinions we find, as stated at the opening of this article, that they show marked variance. Among the most competent men of the profession we find two equally assured sets of opinion in regard to the value of alcohol in these conditions in question, the acute infectious diseases, sepsis, phthisis, one affirming that the regular use of the drug in these cases, where infection is severe, is beneficial, the other claiming that such regular use is harmful. Still a third class, taking the stand that the evidence is not conclusive either way, do not use the drug in these cases, on the ground that unless we can have a definite reason for using drugs it is best to do without these elements in practical medicine. Which of these attitudes is the most correct it must be left to each physicians to decide for himself while awaiting more complete clinical and experimental study of the matter.

My own clinical experience with the use of alcohol in one of the most common of these special conditions in which it is advocated, pneumonia, has in sum total left me with the opinion that there is not at the present time a balance of evidence in favor of its beneficial action, when used for periods of a day or more, sufficient to indicate such employment in this disease. And my study of the pharmacology and experimental work upon alcohol has tended to entrench me still more surely in this opinion.

For here I find it proven conclusively that alcohol, in whatever doses it is given, is never a heart stimulant or dynamogenic for nerve or muscular work, but that when used continuously, even in moderate doses, it acts as a depressant in these regards. And if alcohol, in conditions of health, depresses the functions and makes the body less able to work and endure strain, as instanced most conclusively by the experiments upon the typesetters or those upon the soldiers already mentioned, it is reasonable to adopt, and certainly difficult to dismiss *a priori* the supposition that it will exert this same action to some extent in disease.

And, therefore, without good evidence that it fails of such effect, or exerts some other effect, which in its general results more than offsets such action in this disease, it is certainly acting against our knowledge to give it in a condition like pneumonia, in which the work of the body and its exposure to nerve and heart strain are excessive.

This same reasoning would apply equally well to its use in other conditions of acute infectious disease and sepsis.

It is not the intention of this review to deny that alcohol has any value as a therapeutic agent in medicine, or that all of its traditional use in such a capacity is irrational, but simply to present a critical study of this use, in the light of our present knowledge, with the hope of promoting a more careful consideration of the subject among physicians, and a consequent more rational use of the drug in medicine than that which exists at the present time. There is, in my opinion, no drug in wide general use in medicine in the employment of which there is shown so much carelessness and disregard of its specific drug properties, or with which so much harm is done, as alcohol. This fault in the traditional use of this drug has long been recognized by careful observers, and as a result the use in medicine has been for some time undergoing gradual restriction, the quantity per capita given in practice generally today being probably less than one-half that employed twenty years ago. And it is my opinion that, with renewed consideration of the subject in the light of the knowledge and experience upon it which exist at the present time, this use will be much further restricted and corrected.

* Thus, as stated on page 273, there may be a greater proportion of alcohol oxidized in conditions with fever and thus a greater immunity from poisoning from the drug in such conditions.

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## A CLINICIAN'S ESTIMATE OF ALCOHOL AS A THERAPEUTIC AGENT.[1]

BY F. C. SHATTUCK, M.D., BOSTON.

I shall preface the brief remarks which I can make now on this important subject with the statement of two premises, which seem to me sound:

(1) We cannot reason directly from the effects of alcohol in health to those in disease.

(2) There are facts clinical as well as facts chemical, physiological or pathological.

Under each of these heads I permit myself a few remarks. What experience of life I have had leads me to believe that the healthy man, under ordinary conditions, in this climate, does not require alcohol, although he can use it moderately and habitually for years without any apparent harm. Its use may, indeed, afford him a legitimate pleasure, especially if it is taken in a dilute form and at only one period of the twenty-four hours, preferably with food. Wine, in moderation, maketh glad the heart of man today as it did in King David's time. In excess it has the same disastrous effects as it did upon Noah of old.

At the same time the great difference in individual toleration of this, as of any other potentially harmful agent, should be always remembered.

And I should like to call attention to what I believe to be a fact — that while a single moderate dose of whiskey or sherry, for instance, is pretty sure to taint the breath of a man in health, much larger and repeated doses may be given in acute or chronic infectious diseases without tainting the breath at all.

Is there anybody here present who has not seen an amount of alcohol taken in disease without any obvious ill or toxic effect, which, if given in health, would have produced more or less profound intoxication?

Among many personal observations I will cite only two:

A boy of seventeen with pneumonia, not wonted to alcohol, takes a bottle of brandy and two quarts of champagne during twenty-four hours with no more toxic effect than if it were water. He recovered and acquired no fondness for drink. A lady of seventy, always temperate, prostrated with grip, takes for several weeks whiskey at the rate of a bottle every three days, with benefit, to the best of her and my knowledge and belief, certainly without a suggestion of any toxic effect. Such facts as these cannot be blinked. And so numerous are they, derived from so many sources, that very convincing counter-evidence must be brought by those who maintain that alcohol is under no circumstances consumed in the system, and consequently useless or harmful.

I think I have seen persons take alcohol with avidity and benefit for a time, and become instinctively unwilling to take it as the indications which led to its use have passed away. If this observation be true it tends to show that alcohol may be useful as a drug. The difference between its use as a drug and as a beverage should be kept more clearly in mind than is always the case.

As physicians we are under responsibility to see that its use as a drug does not lead to its abuse as a beverage.

Its use as a drug in acute disease, in my opinion, involves small risk of the establishment of a vicious habit. The case is far otherwise in chronic disease. Here also it may be very useful, as I firmly believe, but its administration should be carefully guarded by a realization of its dangers.

I recall the case of an old butler of one of my families. He was of English birth, and, as a young man, had used alcohol to excess. His master made a strong appeal to him which elicited a promise of total abstention. This promise was faithfully kept. In his old age a senile heart and other infirmities seemed to me to indicate moderate doses of alcohol. My suggestion that he should take a tablespoonful of whiskey three times a day met with absolute refusal from him. I then had the druggist "doctor" whiskey for him, and he took his dose thrice daily for the rest of his life, apparently never suspecting the nature of his medicine, but telling me, whenever I went to the house, how much good my medicine did him. I have not had time to run to earth the author of the saying that "wine is the milk of old age." Sir James Paget quotes it in advising his aged father to drink five or six glasses of port wine daily.

[1] Remarks made in connection with the Discussion on The Value of Alcohol as a Therapeutic Agent in Medicine, Clinical Section, Suffolk District Medical Society, Dec. 18, 1901.

Secondly. There are clinical facts, the result of bedside observation, for which the textbooks and the microscope afford no explanation as yet. Among such may be cited the influence of potassic iodide on gummatous syphilis, of opium and the coal tar products as general, of cocain as a local anesthetic.

We can easily call up many clinical beliefs which passed as facts in their day, but which are now known not to be facts. And there can be no doubt that some of the clinical facts of the present day will be removed in the same way. One of these may be the belief of the great majority of clinicians the world over for thousands of years, that alcohol is a valuable remedial agent in disease, a belief which rests on an infinite number of observations made under the most varying conditions. This belief has so far withstood the spirit of skepticism and the demand for proof which for, roughly speaking, fifty years has animated and guided students of natural phenomena.

Whatever the future may have in store I, personally, can see no sufficient proof of the, to say the least, uselessness of alcohol in disease to warrant us in running counter to the mass of evidence on which the belief in its value rests. The burden of proof rests on those who deny its value.

In conclusion, I subscribe to and quote the words of Osler: "We are still without the agent which can counteract the gradual influence of the poisons which develop in the course of acute febrile diseases, such as typhoid fever, pneumonia," . . . "the chief effect of which is exercised upon the circulation, increasing the rapidity of the pulse and inducing a progressive heart failure. To meet this indication the general experience of physicians still points to alcohol as the most trustworthy remedy. Although some hold that alcohol in this condition is not indicated, I believe that it is in many instances the only remedy capable of tiding the patient over the most dangerous period."

## THE THERAPEUTIC VALUE OF ALCOHOL.[1]

BY E. N. WHITTIER, M.D., BOSTON.

I entertain profound convictions of the therapeutic value of alcohol. I do not mean the alcohol of the shops, notoriously an impure article, with a percentage of 2 or 3 of fusel oil, nor the brandies whiskies, rums or wines of legion name and nature, having from 45 to 85 of harmful or, to say the least, useless diluents; but rather that form of absolute alcohol known as cologne spirits, anhydrous, deodorized, defuselized alcohol, widely known formerly as "Atwood's Alcohol," guaranteed by Squibb, and of late in this vicinity manufactured by Graves, under the Atwood process of rectification by manganic and hypermanganic acid.

My convictions of the great therapeutic value of alcohol are based on both personal and professional experience in high, or, perhaps better, in extreme degrees of sickness. Professor Shattuck's admirable paper strengthens and confirms the views I have long held and been governed by. I am not disturbed in the least degree by the arraignment (highly authoritative and fully appreciated) of the methods that obtain in the practice of a very large percentage of physicians and are advocated in the writings of many of the most eminent authorities.

Personally, I am very much opposed to the use, but particularly to the abuse, of alcohol. Professionally, I shall continue to be guided by influences which during earlier years were, to be sure, relatively formative, but in later days and with increased experience and wider knowledge have become competent to establish rules governing safely and advantageously the therapeutic administration of this agent.

Tolerance — an objectionable word, I grant, but corresponding to that of opium when pain is present, and to arsenic in the treatment of various pathological blood states — is particularly true of alcohol, in the profound constitutional disturbances arising in the severe forms of acute infectious and contagious diseases.

Professor Shattuck's experience corresponds with that of many other observers of like large opportunities and freedom from prejudice, regarding the quantity borne by children and adults, in the gravest conditions, and without any of the pernicious effects quoted in laboratory work on subjects in their normal state of health. I do not apprehend that the pharmacological and "physiological" status of alcohol can displace the clinical, or, if I may so describe it, the pathological. Conclusions drawn from laboratory work are not in harmony with bedside observations in the matter under discussion. Toxicity, for a long time recognized as easily induced in a state of health by alcohol C. P., is almost unknown in the pathological conditions requiring the utmost endeavor to maintain life, and wherein this form of alcohol is employed.

I am firmly convinced that the distaste, the nausea, the almost incoercible disinclination on the part of patients to take the various forms of alcoholic stimulants most frequently given, arise not at all from the alcohol, but from the various useless and, because useless, harmful diluents which make up the distinguishing features of odor and taste in the rums, brandies and whiskies given to patients when alcohol is considered needful. I speak in this matter from a personal experience of extreme gravity, and from professional observation during many years.

Standardizing remedies (a process of extreme difficulty) is nevertheless strenuously advocated. The modern synthetical group, with its formidable and lengthening array of symbols, is evidence of the part pharmacology bears in the preparation of remedies; the separation of the active principles from crude drugs, the demand for chemical compatibility of all compounds, the rapidly increasing subcutaneous method of administering

[1] Remarks made at the Clinical Section of the Suffolk District Medical Society, Dec. 19, 1901.

alkaloids, and thus providing for accurate absorption in conditions of gravest import, all demonstrate the demand for precision in the preparation and administration of remedies.

For more than twenty years the statement of an eminent authority, that "it is not easy to define whiskey," has stood unchallenged. I employ this quotation because whiskey appears to be the form of alcoholic stimulant most frequently used, and because the variety of organic substances from which whiskey is made is well-nigh endless. All things in nature which contain sugar, all starches and ligneous substances (since by modern chemistry starches and cellulose are convertible into grape sugar) may be employed in the production of whiskey.

I am unable to comprehend why men, insistent on the utmost purity in drugs, persistently employ mixtures wherein alcohol of doubtful quality occupies, at the best, barely a half-way position as to quantity, and ethers, essential oils, and other and undeterminable factors, complete the volume.

"Silent Spirit," flavorless, colorless, waterless, well-nigh odorless; the highest processes of rectification expend their powers in the removal of the harmful and in the retention of the helpful elements. It was the "Aqua Vitae" of the ancients, the "Usquebaugh" of the Celts, and until the middle of the seventeenth century only used as a remedial agent of great value.

In the highest contention known, the effort to arrest impending dissolution, alcohol will always maintain the position its ancient name imports. It needs no defense at our hands. There it stands, or rather flows, and will continue to flow, a distillate of beneficence, until time shall cease.

## THE INFLUENCE OF ALCOHOL ON THE HUMAN ORGANISM.[1]

BY ELBRIDGE G. CUTLER, M.D., BOSTON.

Alcohol, except as a beverage on social occasions, has ceased to play any part in health. It is no longer issued as a ration in the navy or in the army, for reasons which it is unnecessary for me to detail. The use of alcohol has been shown to impair an individual's resistance on exposure to great heat. It has been tried and found unsuitable as a ration in arctic explorations. It has been discarded, except in the smallest quantities in a weak dilution, in the preparation of the athlete for his contests.[2] It has been found by experiment and by practice to diminish the muscular force, so that its use to encourage muscular effort is confined to the following condition, namely, where for a few instants of time a supreme muscular effort is desired it does enable a man to disregard his feelings and exert himself extremely. It actually lessens the muscular power and is prejudicial to continued muscular effort.[3]

If, then, alcohol in health diminishes the power to endure hardships in the soldier, the sailor, the Arctic explorer, the person exposed to the heat of the tropics, why should we expect a different sort of action in a person who is the subject of disease? The only possible advantage I can conceive of alcohol in the sick is its possible, but not proven, power to neutralize toxic matters when taken in not too large a dose, and its narcotic action. It is conceivable that it may either neutralize or antagonize toxic matter, the result of diseased processes. Future experiments and experience will have to demonstrate the truth or falsity of this hypothesis.

One of the best expositions of the influence of alcohol on the human organism is contained in a book of 260 pages, which has been written by Dr. Georg Rosenfeld, a specialist for internal medicine in Breslau. His work has been done in the laboratory of Professor Filehne, director of the Pharmacological Institute in Breslau, and presumably has his sanction, as in the preface the author thanks him for the advice which he has constantly accorded him in the preparation of his paper, and for his kind permission to carry out his experiments on animals in the institute. Most of my references have been obtained from this book.

In the consideration of the clinical use of alcohol, the question resolves itself into a discussion of its employment for a short time in the acute forms of disease, or for a longer time in certain chronic ones. The forms where its short use would most come in question are the acute infectious diseases, more especially with us in pneumonia, typhoid fever and influenza. Its longer continued use has been advocated in the chronic infectious diseases, as in phthisis; as a fattening food; in cases of cardiac disease; in gastric and intestinal infections; in kidney and liver disease; in diseases of metabolism, gout, rheumatism and diabetes; in the blood diseases, anemia, chlorosis, leukemia, pernicious anemia; in nervous diseases, and as a hypnotic. Let us briefly consider its use in the above order.

Its asserted value in the acute infectious diseases is either (*a*) as a protective agent against infection; (*b*) as an antipyretic; (*c*) as a food; (*d*) as a stomachic; (*e*) as an analeptic.

(*a*) As to its protective influence in furthering the immunization process, there are several papers in the literature of the subject. Among the first is that of Doyen,[4] who infected animals with cholera, and constantly obtained an active infection when he first put alcohol into their stomachs and then injected the organisms. Proceeding from the idea that he had by alcohol produced a

[1] Read before the Clinical Section of the Suffolk District Medical Society, Dec. 18, 1901.

[2] Mr. Arthur N. Rice, champion high jumper of Harvard and coach of the athletic team for a number of years, tells me that alcohol has no place in the dietary of the runner: it is bad for him in any dose. The high jumper may receive alcohol under the following exceptional condition alone: When his record has just been beaten by a jumper and the athlete is to put forth his entire force in one jump, alcohol has been given to put "courage" in him, but he immediately after the trial collapses.

[3] C. Th. Scheffer: Studien über der Einfluss des Alkohols auf die Muskelarbeit. Arch. f. Exp. Path., 1900, Bd. xxxiv, p. 24.

[4] Arch. de Physol., 1885.

predisposing gastro-intestinal irritation, he then used croton oil, cantharides and sulphate of magnesia, but found them not so powerful in this respect as alcohol. Thomas[5] found that alcohol made his cholera cultures six or seven times more poisonous. Delćarde[6] found that in rabies he got no immunity from animals who were alcoholic during the inoculation, but if alcohol were omitted during the process he obtained it. In tetanus, during the use of alcohol immunity was difficult to obtain. In anthrax he found it almost impossible to secure immunity in those given alcohol. The Pasteur Institute found that it was impossible to obtain immunity against rabies in alcoholic subjects. Abbott[7] found, in experiments with staphylococcus pyogenes aureus, bacillus coli communis and streptococcus pyogenes, that the animals receiving alcohol succumbed to the infection more readily.

Valagussa and Ranelletti[8] found that animals previously treated with alcohol showed an increased sensitiveness to the diphtheria poison. Laitinen[9] found that alcohol under all circumstances distinctly and often considerably increased the susceptibility to artificial infection, and he further found the alkalescence of the blood was diminished thereby.

From the above valuable papers, as Rosenfeld says, we may draw the conclusion that in alcoholic intoxication we may find a very strong predisposing condition for the destructive action of bacterial infections and toxic actions, and in practice we find that alcohol drinkers oftener sicken of infectious diseases than those who abstain from its use. Moreover, it is a generally conceded rule that in alcoholics every disease has a greater intensity and a more pernicious course than in abstemious persons, and this is particularly the case in febrile diseases.

(*b*) As an antipyretic nobody would today seriously speak of alcohol. In the time of antipyrin, phenacetine, lactophenin, salipyrin, etc., the small power of alcohol in this direction has no importance. Today we do not speak of treating the fever. We give antipyretics only in small doses as nervines to dispel the troubles of fever, to diminish the headache and similar symptoms, therefore, alcohol as an antipyretic is no longer spoken of.

(*c*) *Alcohol as a food.*— Only a small part (less than 10%) of the alcohol is ordinarily excreted unchanged. The exact amount varies with the quantity taken. With medicinal doses the amount excreted through the lungs is 5 or 6%; kidneys, at the most, 1 to 2½%; skin and intestine, none. To this may be added a very small amount (three-tenths of 1%) in the milk, if the quantity taken is very large, none if moderate. Alcohol may be demonstrated in the blood for twenty-four hours after intravenous injections in large doses. The unexcreted alcohol must be oxidized with the ultimate production of $CO_2$ and $H_2O$ and the liberation of energy. It has been contended by some that the energy so liberated is not utilized in the body, that it is used up in the production of heat and is lost, but it has been definitely shown that it does not lead to an increase of oxidized consumption or $CO_2$ production. It must, therefore, take the place, to a certain extent, of the ordinary sources of energy, carbohydrates and fats. To this may be added a further saving of energy from lessened movement when the alcohol has a quieting effect; but alcohol is not a perfect substitute for carbohydrates and fats, for the latter may, to some extent, replace the nitrogenous diet, while alcohol does not appear to possess this property to any great degree (see below). If alcohol is substituted for carbohydrates or fats, it leads to a loss of nutrition, and it effects no saving if added to the ordinary diet. The other hydrocarbon narcotics act similarly.

Briefly, then, alcohol can to a certain extent take the place of carbohydrates and fats in food, or where the diet is insufficient it will save these constituents of the body. In this case, where the diet is insufficient, whether this be from insufficient supply, from faulty digestion or from extraordinary consumption, the food value of alcohol is considerable. When, on the other hand, the food supply is ample, this combustion of alcohol is harmful, for it then prevents the complete combustion of the ordinary foods, and the incompletely oxidized wastes produced are then excreted and are in this way lost to the organism, or they are retained, and then favor the development of fatty degeneration of various organs.[10]

That alcohol can spare albumin there is no doubt. Chotzen[11] found that 120 cc. alcohol spared 17% of albumin, but, as Rosenfeld says, he was distinctly intoxicated (berauscht) on the first day, and next day rocky (verkatert) and intoxicated. Such a distinct and energetic poisonous action, which we know is not an individual but a general action common to all mankind, speaks strongly against characterizing alcohol as a food; for we call that a food which is both harmless and life-saving, and not at all poisonous and injurious to life.

(*d*) *Alcohol as a stomachic.*— Alcohol may influence the process of digestion by acting (1) on the ferments; (2) on secretion; (3) on the movements of the alimentary tract, and (4) on absorption.

(1) *Action on ferments.*— It is so readily absorbed in the stomach that very little reaches the intestine, so that its influence is practically confined to the gastric ferments, chiefly pepsin. It is found that 1 to 2% of alcohol increases the rapidity of peptic digestion. Up to 15% it causes no perceptible retardation. With 15 to 18% the digestion is reduced by one-fourth to one-third. Twenty per cent strongly inhibits the digestion.[12]

[5] Arch. f. Experiment. Path., 1893, Bd. xxxii, p. 38.
[6] Ann. de l'Institut Pasteur, 1897, Bd. xi, p. 837.
[7] Journal of Experimental Medicine, 1896, i, 117.
[8] Ann. d'Igiene Speriment, ix, 118, cited by Laitinen
[9] Zeits. f. Hygiene u Infectionskrankheiten, 1900, Bd. xxxiv.

[10] Sollman: Textbook of Pharmacology, 1901, p. 124.
[11] Chotzen Zur Frage der Fleischersatzmittel. Dissert. Breslau, 1897. 8 26-27.
[12] Sollman: Loc. cit.

(2) *Effect on secretion of digestive juices.*— The saliva and gastric juice need only to be taken into account. Saliva: Alcohol in the mouth, strong or dilute, increases the amount of solids of the saliva, as do many other substances. This increased secretion does not take place if the alcohol is introduced directly into the stomach through a fistula. Gastric juice: The amount, the acidity and the solids are very markedly increased, even when the alcohol is introduced directly into the intestine and does not come in direct contact with the gastric mucous membrane. This juice is strongly proteolytic.[13]

(3) *Movements of the alimentary tract.*— These show a quickening.[14]

(4) *Effect on absorption.*— Alcohol is very rapidly absorbed. The absorption of other substances is also favored by it.[15]

The effects, then, upon the digestive organs are all merely expressions of its local irritant action. In mild stages it produces an increase of vascularity, and, as a result of this partly and partly through direct action on the cells, an increase of secretion, of movement and of absorption. In the severer grades, such as are produced by strong spirits or large doses, it causes vomiting and diarrhea, and if used constantly, chronic gastric catarrh. To sum up the experimental data on the effects of moderate doses, the action of alcohol on digestion is a purely local one, and, since alcohol does not reach the intestine, only gastric digestion need be considered.

"Moderate doses tend to favor the process of digestion through the increased secretion of proteolytic juice, through increase of the gastric movement and increased absorption. With a percentage of alcohol above 15 these are counteracted by the lessened ferment action. The actual result will depend upon which of these two, the beneficial irritant or the deleterious antiferment action, predominate. Actual experiments on intravitam digestion are not yet sufficiently numerous, but as far as they go they show that in the dog the time required for the digestion of meat is about the same with and without alcohol, and metabolism experiments in man also prove that it does not diminish the utilization of food. Small amounts of weak alcohol taken at meals cannot, therefore, have a bad effect upon digestion, and may even act favorably. The alcohol should not be taken in strength greater than perhaps 20%. Even this would be too strong had it remained for any length of time, but it is absorbed so rapidly that its strength would very soon reach the favorable limit. Large quantities of alcohol, however, and especially when in concentrated form, produce an irritation which surpasses the physiologic limit and interferes with the functions. This is seen most markedly in chronic cases." [16]

The actual observations on the effect of alcohol in moderate doses on nutrition have led to the following conclusions: (1) With a diet on which the individual gains in weight the addition of alcohol lowers the rate of increase; (2) when added to a diet on which the weight remained constant it tends to cause a loss of weight; (3) with insufficient diet it lessens the loss of weight, or may even cause a gain.

L. Wolff [17] under Ewald's direction determined the gastric secretion of individuals without alcohol — and then under exactly the same conditions examined them after half a litre of beer or 20 to 30 cc. cognac. His method was the determination of the acidity. He found that cognac in small quantity slightly increased the HCl production. Larger doses often diminished the acidity and peptonization. Wolff finds in his experiments an explanation of the long-known fact, that "after frequent action of the above-mentioned article (alcohol), the irritation of the ordinary food is not answered with its former energy by the stomach." It is therefore no true stomachic.

(*e*) *Alcohol as an analeptic.*— If under the term "analeptic" we understand a means which improves the circulation, we may say of alcohol that such kind of action is at least not proven, for neither the pulse count nor the blood pressure is improved by even large doses of alcohol to any considerable degree. Moreover, the investigations of Kobert and of Pässler show that it is not a substance which narrows the small vessels. So far as we can determine, alcohol is not an excitant of the circulation. The indications which alcohol must fulfil to be an excitant of the circulation are twofold: (1) It must improve the *vis a tergo*, the cardiac power, and (2) it must improve the tonus of the small vessels. The disturbance of the circulation in infectious diseases can be attributed to one of these two things: either the working power of the heart is insufficient, as in the diseases of the endocardium, myocardium, pericardium, or the enervation of the small vessels suffers in the involvement of the vasomotor centre, as in the general infections, sepsis, pneumococcus sepsis, etc. (Romberg, Pässler). In both these directions alcohol has proved itself as insufficient.

To recapitulate its action, alcohol is no great antipyretic; it is no stomachic and no analeptic. Its action as a food is hindered by its poisonous quality. That it can favor the immunization process in acute infectious diseases is to be denied. Why, then, has it been used so much in these conditions? It is easy to give; it is easy to take. The patient feels for a time more comfortable. It is expensive, and the patient's friends feel they have paid a good price for a good article, and the doctor thinks he has done something. I venture to assert that what a distinguished colleague said to me the other day is true, "If it did not taste good, alcohol would never be used at all."

Its use in the *chronic infectious diseases*, the best example of which is tuberculosis, may well

[13] Sollman: Textbook of Pharmacology, 1901.
[14] Sollman: Loc. cit.
[15] Sollman: Loc. cit.
[16] Sollman: Loc. cit.

[17] Beiträge zur Kenntnis der Einwirkung verschiedener Genuss- und Arzneimittel auf der menschlichen Magensaft. Zeitsch. f. klin. Med., 1889, Bd. xvi, p. 222.

be next considered. It is given in this disease to improve the appetite and to facilitate the nutrition of the patient. That alcohol is no real stomachic is not questioned. That it may by improving the tone temporarily help us for a loss of appetite, no one will deny. Its constant use must, however, be carefully warned against, for we have all of us seen much harm done by this knd of use. It is no lasting stomachic.

*The use of alcohol in cardiac diseases.*— We have seen that alcohol is no analeptic and no heart or vascular tonic. (Professor Porter of Harvard has found that the action of alcohol on the heart directly applied is depressing to its muscular force.) Since I have withheld alcohol in cardiac diseases, I personally have had to use digitalis less often and I get more effect from smaller doses. Furthermore, cardiac pain and oppression are less frequent without it. With its use the kidneys do not act so well, as we all of us have frequently observed. The cardiac hypertrophy of aortic insufficiency bears alcohol better. For the right side of the heart it is a poison. Only in collapse is its use warranted, perhaps, and here even some other means are better though less agreeable.

*In gastric and intestinal diseases.*— In the former we rarely, if ever, find it useful except for a short time, as spoken of above. In the latter, alcohol is only exceptionally of service, namely, after an attack of profuse diarrhea, and then temporarily only. In kidney and liver diseases it is not to be thought of. In gout and rheumatism are we not better off without it? In anemias of various sorts it plays little part at the present time. In nervous diseases the universal testimony is that we are better without it, even in neurasthenia, where it has, perhaps, had its most frequent use.

As an hypnotic it facilitates the getting to sleep, but it shortens its duration unless the dose be large, when it acts as a narcotic, and the sleep is deep and not refreshing. In this respect it cannot compare with hydrotherapy.

Rosenberg says from his experience he would say that alcohol is no tonic, no analeptic (*Anregungsmittel*), but a narcotic, and the freer one keeps himself from its use, whether healthy or diseased, so much the less he disturbs his length of life and his capabilities, and with this I most heartily agree.

It becomes us all, both by our precept and our example, to do what we can to diffuse a proper and scientific knowledge of the action of alcohol on the human economy, and to restrict the prescribing of it to those cases where its use appears rational.

GREGORY TESTIMONIAL BANQUET. — Arrangements are being rapidly completed for the Gregory banquet to be held in St. Louis on April 17. Hon. A. M. Dockery, governor of Missouri, himself a physician and a student of Dr. Gregory, will preside over the banquet. Every indication points to a large attendance.

## PRACTICAL EXPERIENCE WITH HYDROTHERAPY.[1]

BY J. J. PUTNAM, M.D., AND G. W. FITZ, M.D., BOSTON.

THE following is a brief report of certain experiments recently begun by one of us (Fitz) to determine the physiological effects of different kinds of baths. The observations have included chiefly the changes in blood pressure and pulse due to the baths.

The changes in pulse have been both marked and uniform, showing an immediate response to changes in the temperature of the bath. For example, an adult with a normal pulse of 80 entered the circular rain bath under light pressure so as to avoid all mechanical irritation of the skin, and at a temperature of 100°. The following variations of pulse and temperature were noted:

| | | Before. | During. | | | | After. |
|---|---|---|---|---|---|---|---|
| I. | Temperature, water. | .... ..... | 110° | 100° | 90° | 40° | ..... |
| | Pulse ..... | 80 | 110 | 90 | 70 | 50 | .. .... |
| II. | Temperature, water. | ..... | 100° | 110° | 40° | .. | ..... |
| | Pulse ..... .. | ..... | 70 | 90 | 50 | .. | 74 |

No. II followed No. I immediately.

The first experiments to determine changes in blood pressure were made with Gaertner's tonometer, consisting of an elastic strip of rubber covering a metal ring which encircles the finger. Air can be forced into the space between the metal ring and the rubber in such a way as to shut off the entire blood supply of the finger. A stout rubber band is rolled from the tip of the finger up to this ring, thereby pushing the blood of the finger ahead of it and leaving the distal portion white. Air is now forced into the tonometer until a pressure of 180 mm. of mercury is developed. The rubber band is then rolled off of the finger and the pressure gradually reduced until the first return of color. The pressure is read and is supposed to be the maximal systolic arterial pressure.

This method, however, resulted in confusing inconsistences in that different fingers of the same individual gave different results; this difference was in some cases as great as 20 mm. of mercury. Massaging the fingers and dipping them in hot water frequently raised the pressure 10 to 20 mm. The only explanation of these variations seems to be that the arteries of the fingers are so small that they share with the arteriols in their contraction, thereby causing a lowering of the systemic pressure. It would seem, therefore, that any instrument for testing blood pressure depending upon the pressure in the fingers, as, for example, the tonometer or Mosso's sphygmomanometer, must be liable to considerable error.

As a result of these inaccuracies, we were forced to adopt Hill and Barnard's method, which uses a larger compression ring and applies it to the brachial artery above the elbow. This gives

[1] Read before the Clinical Section of the Suffolk District Medical Society, Dec. 18, 1901.

a distinctly higher pressure than the Gaertner tonometer, and is obviously a more accurate gauge of systemic arterial pressure.

Our experiments have shown that normal pressure varies within moderate limits in different individuals. The effect of the hot cabinet is a marked diminution in blood pressure, which in some cases amounts to as much as 20 mm. of mercury. This lowering of pressure is greatest after the beginning of perspiration, and it is apparently due to the peripheral dilation which accompanies that process. This effect of the hot cabinet is of course the reason for the faintness which some patients experience in the cabinet, and suggests one of the dangers of its promiscuous use. Upon leaving the cabinet normal pressure is almost immediately regained owing to the reverse process of peripheral constriction due to the chill of rapid evaporation of water from the surface of the body.

The influence upon blood pressure of the circular rain douche, with its vigorous massage and stinging of the skin, and with the changes of temperature which may be employed, have not as yet been studied by us because of the difficulties involved in the way of appropriate apparatus.

The marked changes in the pulse rate under the influence of varying temperatures suggest correspondingly marked variations in blood pressure, and since both blood pressure and pulse rate are expressions of nerve reaction in the control of the heart's rapidity and force and of vasomotor changes in the vessels, we must recognize that we are exerting a strong influence upon this control. The beneficial result of such influence is shown by the increased strength and slowness of the heart beat and by its recovery of tone in cases of dilation when its diminution in size becomes evident even in cases which show no permanent change in blood pressure. Further experimentation, however, is necessary in order to make clear the detailed physiological effects of the various modifications of the baths, especially as regards temperature and pressure. When this shall have been done, the baths can be utilized with the precision desirable in all therapeutic treatment, and their present almost uniformly favorable effects will rest upon a scientific rather than upon an empirical basis. The results of our experiments thus far are of value mainly in determining advantageous methods of attack upon the problems involved and in selecting suitable apparatus for the study.

My [Putnam] contribution to the discussion on hydrotherapy will consist in a very brief statement of my experience with several small groups of cases which have been under treatment at the Hydrotherapeutic Institute at the Colby Gymnasium during the past few months, the patients having been under my care, however, as a rule, for some time previously, either privately or at the Massachusetts General Hospital.

Before speaking of these cases, I wish to make a brief comparison between the hydrotherapeutic measures available in a private house and those which can be secured only in establishments such as the one to which I have referred.

There is no doubt that many, though certainly not all, of the benefits of water treatment can be gained by use of the domestic tub, especially if this is supplemented by the portable cabinet now so much in use, and is made efficient by the aid of a nurse or well-trained friend. In this way the hand-friction baths, the affusions, the wet pack, the dripping sheet, and other forms, can be effectively used at home, provided the physician has a sufficiently high standard with regard to the best possibilities of water treatments in general, and is willing to take sufficient pains to train or supervise the attendant in charge. As a matter of fact, however, the difficulties are great, and I think there are relatively few physicians who feel able to maintain these standards in a private home; and one of the first of the benefits to be thought of as coming from the existence of well-managed establishments is that they may be looked to as likely to show what can be done under the best conditions, so that one may know what to work for under conditions that are somewhat less favorable.

Again, such places afford a chance for accurate studies through which light may be looked for upon the physiological action of the various agencies embraced under water treatments.

A good deal of interesting work has been done with regard to metabolism effects, as indicated by increase in urea excretion, and with regard to blood pressure, and to changes in the composition of the blood, and increased capacity for muscular work, but all these need to be verified and to be carried further. Marked clinical differences are perceptible between the different sorts of baths classifiable as "tonic"; between the Schott baths, for example, and those which depend more on sharp temporary effects of temperature and pressure. Again, the resemblances and differences in action between the more stimulating sorts of hot and cold baths need closer study.

The beginning of a systematized attempt has been made to obtain light on some of these points through experiments directed by Dr. George W. Fitz, on which he will give a preliminary report tonight.

The Colby Institute is well equipped, in every essential respect, with conveniences for the best clinical work. In spite of its unfavorable hydrostatic position at the top of a high building, a pressure of forty pounds has been secured by the aid of a powerful electric pump, and in summer ice-tanks will be provided to secure cold water. The operators are women of intelligence and good training, and young men selected from the fourth-year class of the medical school, who have had a thorough preparation for this work and take professional and scientific interest in it.

For the present, physicians having charge of male dispensary patients can send them, in limited numbers, during the afternoon hours, particularly if they can pay about fifty cents, to cover a part of the cost of treatment.

The classes of cases which seem to offer especially interesting fields for study are the tuberculous, the diabetic, the anemic, the neurasthenic, the rheumatic and the cardiac. It may prove that even the spinal cases are susceptible of some real benefit, but with the friendly and critical co-operation of physicians having such patients in charge, more light may be expected on these questions.

The clinical cases of which I wish very briefly to speak are twenty-three in number. Ten of these are cases classifiable as neurasthenic; seven are cases of tabes; two are cases of other forms of chronic spinal disease with the symptoms of spastic or spastic-ataxic paraplegia; two are cases of paralysis agitans; two of neuritis. No cases have been considered where the treatments have been less than a dozen, while in some of them they have run over a number of months.

So far as the *neurasthenic* cases are concerned, it is very difficult to form a fair estimate of the value of the baths as such, so largely do the elements of encouragement and discouragement enter into the problem. Most of the patients have in fact gained while under the treatments, while a few have taken them without change, and a very small number have disliked and abandoned them. My best judgment is that this form of treatment is usually of distinct service, and I look to it as a very hopeful resource even when almost all other means at hand have been tried and have failed. The kind of treatment used has been one or another form of the so-called "tonic" baths, but varied within wide limits to suit the individual case. It is, I think, where the nutrition has been poor that the improvement has been most striking, but apart from this and apart even from any action that can be called "tonic," it has been a great deal to strike a certain emotional note of a favorable sort; to give a *sense* of stimulation, or a sense of relaxation, for the patient to carry away and utilize in half-conscious memory against a future need.

The next largest and most interesting group of cases is that of the *tabetics*. I have been for many years — in pursuance of Dr. Baruch's ideas — in the habit of treating my tabetic patients by the stimulation of hot, followed by moderately cool, douches, applied, as opportunity best offered, in one or another Turkish bath establishment of the city, or by domestic methods, but never so systematically as now. Here, again, it is difficult to estimate the share of credit that belongs to the water treatments, because I have also been using largely, and with great success, the co-ordinatory treatment devised by Frenkel, but I think there can be no doubt that the water can claim a share of the result, at least so far as relief of pain are concerned, and, to a certain extent, of the distressing girdle sensations.

I have two patients, for example, men of education and critical judgment, who have voluntarily continued their baths for some six months, that is, ever since the establishment was first opened, and feel thoroughly convinced that they have received material benefit. In other cases the success has been less marked, but only in one or two has there been no sign of improvement. The co-ordination treatment is doubtless by far the more important of the two, even as regards the sensory disorders, but, armed with means of providing these two sorts of treatment, I now regard the entrance of a tabetic patient into my office with a certain degree of pleasurable anticipation.

Still more strange to say, a fairly good result has also been gained under the combined treatment by baths and exercises,— both given at the gymnasium,— in the case of a young man, a hospital patient, with *spastic-ataxic paraplegia*, a form of spinal disorder which has hitherto proved remarkably intractable. Here, also, heat and pressure, with moderate cold, have been relied upon, rather than greater degrees of cold.

Of the two patients with *neuritis*, one has received benefit, the other not, but the evidence from other sources is fairly definite that water-treatment in one or another form can be made of great service in affections of this sort.

The patients with *paralysis agitans* have, as might have been expected, improved only in so far as the general nutrition and sense of well-being was concerned, but in this respect there seems to have been a modest amount of real gain.

In conclusion, I would say that it has not been my experience that patients who have taken water treatments at a special establishment like this become discontented with the simpler forms of baths such as they can obtain at home, or unable to derive benefit from them. On the contrary, I believe that the standards of invigoration and reaction become higher in the minds of the patients, as in those of the physicians, so that they know better what to aim at with their domestic conveniences. Furthermore, their powers of reaction having become trained by the treatments which they have received from the skilled attendants, they are less likely to take cold in consequence of the slight exposures which home treatments are liable to entail. In this connection I wish to say a word about one idea which seems to prevail very largely among persons whose power of reaction is not especially good, and that is, that in order to secure it, it is incumbent on them to rub for a long time with coarse towels or hair straps, etc., after any sort of cold bath. One often hears patients say, with pride, that they have rubbed themselves until the arms were tired. In my opinion, the reaction obtained in this way is not the one at which the bath treatment aims. Moderate friction during the bath, as with the hand or a coarse linen towel or sheet, is doubtless a powerful aid to the temperature of the water in bringing about the tonic action on the circulation in the deeper parts of the body. But after the bath itself is ended the time has gone by when any considerable reaction, in a proper sense, is to be looked for, and the best course is to dry oneself as quickly as possible, and, if necessary, to cover the body at once with a

suitable sheet or robe, in order to prevent slow evaporation with its attendant chilling. With this same end in view the process of drying should be as rapid and as complete as possible.

The question is often asked whether the room in which the bath is taken must be warm. The best answer to this, I think, is that the *walls* should be fairly warm, so that there should not be much tendency for the body to radiate heat to them and thus to become itself chilled. As regards the *air*, the general rule may perhaps be given, that the colder the bath the less the necessity for warm air after it.

Finally, the colder the water (provided that the body had previously been thoroughly warmed) the shorter the time which is required for sufficient stimulation to bring on a suitable reaction. On the other hand, even if the water is at a very low temperature, a certain length of time of exposure to it is necessary for the best results. But, here again, the coat must be cut according to the cloth. If the patient is delicate he must content himself with water of higher temperature, reinforced by friction or by hose-pipe pressure, or with very brief applications of colder water, while if he is habituated to the methods, or is in robust health, he can generally bear comparatively long exposures to cold water of any degree, especially if other measures are concurrently used to bring on the reaction. So, too, if applications are to be made over a small portion of the body, very much colder applications can be used than are admissible when the whole body is to be immersed, and thus some patients gain more real benefit by bathing to the waist in water of very low temperature, while the rest of the body is kept thoroughly warm, than they do by general baths of a higher temperature.

## Medical Progress.

### REPORT ON DERMATOLOGY

BY JOHN T. BOWEN, M.D., BOSTON.

#### RODENT ULCER.

Dubreuilh and Auché[1] present quite an elaborate study of this affection, both from a pathological and clinical standpoint. Jacobs of Dublin was the first to describe it clinically in 1827, and hence it has been sometimes called "Jacobs' Ulcer" and "Carcinoma Jacobs." The affection has been studied in England chiefly where the authors distinguish three periods. The first extends from the time of Jacobs to the studies of Hutchinson in 1860, in which it is sharply separated by its clinical characters from epithelioma of the malignant type. During the second period it was sought to confirm this difference by histological examination, in that the arrangement of the cells was a lobular or tubular one, that they were smaller than those in epithelioma, etc. In the third period the origin of the growth was studied, and in 1894 the weight of opinion favored the hair and sebaceous follicles as the starting point. In Germany and France comparatively little attention has been paid to the subject.

With regard to etiology, of 110 cases analyzed, 25 occurred in men and 65 in women, and the age averaged 48 years at the time of the beginning of the disease. Two cases are cited where the disease began at 12 and 18 years respectively. Hence it is concluded that rodent ulcer occurs more often early in life than other forms of epithelioma. Rodent ulcer never springs from keratosis senilis, but there are reasons for thinking that a wound may be sometimes the starting point, and also a nevus.

Histologically the nodular form is divided into three types, the acinous, the alveolar and the trabecular, which are often associated with one another. Several processes of degeneration of the cells are observed: A stellate atrophy, followed by the death and disappearance of the cell; a necrosis *en masse*, producing cystic cavities in the centre of the epithelial alveoli; a form of coagulation necrosis; and a hyaline degeneration. One of the principal histological characteristics is the absence of epithelial pearls, except in rare instances. The starting point of the epithelial proliferation is the epidermis, the hair follicles and sebaceous glands.

Clinically, rodent ulcer develops usually by a papule or small nodule, which increases slowly in size and ulcerates. Sometimes the ulceration appears early; sometimes it may be months or years before it develops. The ulcerated surface bleeds less readily than in the other forms of epithelioma. The edges are made up of a hard raised rim which is characteristic,—the "rolled edge" of the English writers. This edge has the hardness to the touch, almost cartilaginous, that is characteristic of epithelioma in general. The neighboring lymphatic glands are not affected.

Rodent ulcer is always of very slow growth, and it takes usually several years for it to attain a size of 2 or 3 cm. It may remain stationary for years and then assume a more rapid growth. It has its seat almost always in the upper part of the face and especially in the neighborhood of the internal angle of the eye or the lateral portions of the root of the nose. The lower lip, so frequently the seat of the squamous-celled variety of epithelioma with epithelial pearls, is never affected in the form we are discussing. Cysts are frequently present in rodent ulcer, sometimes covering almost the entire surface. There is sometimes pigmentation, also.

A *forme térébrante* is described, characterized by the intensity of the ulcerative and destructive process. Its point of departure is usually the nose or the orbit, and it begins exactly like the ordinary form. The ulceration quickly attacks and destroys the skin of the nose and eyelids, and soon afterward the cartilage and bone.

The spontaneous cicatrization that is often seen in the course of this disease may predominate to

[1] Ann. de derm. et de Syph., August and September, 1901.

such an extent as to create a special form. It has a marked predilection for the frontal region, and it is probable that the cicatricial tendency is due to its situation. It begins usually as a small, pale or grayish nodule, which gradually extends, sometimes presenting a temporary ulceration, and cicatrizing in the centre. In this way a vast cicatricial plaque is formed, of irregular contour. The edge is slightly raised and very hard. Oftentimes there is pigmentation, especially when it is situated near the edge of the scalp. It extends peripherally with great slowness, lasting in one case 22 years.

[It will be questioned by some if all the forms described by Dubreuilh and Auché should be included under the rodent ulcer type, although it must be admitted that it is only a question of names if it is recognized that all are epitheliomatous in character and malignant. The case reported by White in 1894 as multiple benign cystic epithelioma is regarded by the writers as more probably belonging with the rodent ulcer type. Although several of the multiple tumors in that case offered considerable resemblance to rodent ulcer, the histological appearances coincided perfectly with the benign cystic form as described by Fordyce and others. At the same time the acinous type of rodent ulcer as described by Dubreuilh and Auché, bears sufficient resemblance to the benign form to make it questionable whether we can always draw a sharp histological distinction between these various types of epithelioma. — Rep.]

### THE ETIOLOGY OF ECZEMA.

Bender, Bockhart and Gerlach[2] have endeavored by a series of experiments to add to our knowledge of the relationship that exists between the yellow and white pyogenic cocci and eczema. With this purpose, experimental inoculations were made on the human skin with pure cultures of these cocci, and also with the filtrate from the cultures, which contained the staphylococcus toxin. The cultures of the staphylococcus were obtained from the pus of furuncles or of impetigo, not from eczematous skins purposely.

In experimental inoculation with pure cultures of the pyogenic staphylococci, the action of the cocci themselves, or the poison contained in their living organism, must be kept separate from that of the staphylococcus toxin. By the staphylococcus toxin is meant the poison that is contained in the filtrate of bouillon cultures, which is probably a secretion product of the staphylococci.

The inoculations were made on the upper arm or forearm. The place was previously irritated either by scraping with a scalpel or by the application of plaster followed by washing with potash soap and alcohol. Agar cultures and the coccus organisms were rubbed vigorously into the skin with a glass rod, while the bouillon cultures and the filtrates of the cultures were applied on gauze which was kept continuously applied under an impermeable covering. The experiments were performed on the writers themselves, one of whom had previously suffered from mild attacks of eczema. Control experiments were made with simple moist applications and sterile bouillon.

(1) Inoculation experiments were made with pure cultures of staphylococcus aureus and albus on agar. The result in five cases out of seven was the production of typical pustules of impetigo staphylogenes. In no case was an eczema produced.

(2) Staphylococcus organisms isolated from bouillon cultures, by filtering, afforded the same result upon inoculation as the agar cultures, that is, they produced impetigo but not eczema.

(3) Inoculation of the filtrate of old bouillon cultures of staphylococci produced on the irritated or not irritated, disinfected or not disinfected skin, typical, acute, papular or vesicular eczema, when applied to the skin for from 20 to 48 hours in the form of moist applications. The eczema produced in this way was a typical well-developed form, which sometimes spread spontaneously after the inoculation, and often had a relatively long course. The small primary vesicle of these eczemas proved to be sterile. The older vesicles filled with sero-pustular fluid sometimes contained the staphylococcus aureus or albus in pure culture.

(4) Inoculation experiments were made with bouillon cultures of staphylococcus albus. It was found that these also were capable of producing eczema, but not impetigo. From these experiments it is concluded that it is not the staphylococci themselves that cause eczema, but the staphylococcus toxin. In the presence of the staphylococcus toxin the cocci do not produce impetigo; in this case eczema alone is produced and the primary action of the staphylococci is inhibited.

In a later article Bockhart[3] discusses this question further. He regards it as proved by the foregoing experiments that the staphylococcus toxin, or staphylotoxin, as it has been called, always produces eczema on the skin and never suppuration, while the poison contained in the organism of the cocci, the staphyloplasmine, always produces suppuration and never eczema. This eczema is described as staphylotoxin eczema.

Staphylotoxin is unquestionably a very poisonous substance. In most of Bockhart's experiments only a local action was produced by its inoculation, but in two instances there were symptoms of an intense action on the system. It is supposed that the staphylococcus penetrates the skin by means of the follicular openings.

A microscopical examination of a bit of tissue excised from the staphylotoxin eczema showed edema of the papillæ, parenchymatous edema of a part of the epidermis cells, and an interepithelial edema of the epidermis. From the similarity of these findings with those emphasized by Unna on the anatomy of an eczema vesicle, it is concluded that the papule of the staphylotoxin eczema is

[2] Monats f. prak. derm., Aug. 15, 1901.

[3] Monats f. prak. derm., Nov. 1, 1901.

simply an incomplete eczema vesicle, as is the papule of papular eczema.

Staphylococci have been found by Bockhart and others in the mouths of the follicles of the normal skin. This explains why in the case of the fresh primary eczema vesicles, a part are found to contain staphylococci, while a part are sterile, the former being those situated over follicles that contain the cocci.

He concludes that eczema is an infectious inflammation of the upper layers of the skin. The causative agents of eczema are staphylococci. The healthy follicles of a predisposed individual may contain living, but inactive staphylococci. The micro-organisms may be rendered active by some cause either from within or from without, that improves the soil of the cocci in the follicle. This is followed by the excretion of staphylotoxin, which, as soon as it is poured out from the follicle upon the epidermis, causes the formation of papules and vesicles. The papule or vesicle over the follicle contains thin serum and staphylococci, while those in the vicinity of the follicle remain for a time sterile. Later the staphylococci in the vesicle at the mouth of the follicle begin to multiply, and leucocytes appear in the vesicle. Afterward these staphylococci migrate and infect secondarily the sterile vesicles in the vicinity and leucocytes also appear in these vesicles. Whether or not the vesicles become pustular later, depends on the amount of plasmine contained in the staphylococci. The opened vesicles and the weeping eczematous surfaces can be infected by staphylococci that contain much plasmine, and in this way the pyogenic complications of an eczema are brought about. If the eczema becomes chronic, tissue changes in the corium and subcutaneous tissues are produced that are not directly caused by the staphylococci.

*(To be continued.)*

## Reports of Societies.

### CLINICAL SECTION OF THE SUFFOLK DISTRICT MEDICAL SOCIETY.

HENRY F. HEWES, M.D., SECRETARY.

Regular meeting, Dec. 18, 1901, Dr. V. Y. Bowditch in the chair.

Drs. J. J. Putnam and G. W. Fitz submitted a report on

PRACTICAL EXPERIENCE WITH HYDROTHERAPY.[1]

Dr. C. P. Putnam: I should like to say a few words about hpdrotherapeutic measures, although generally for a different class of cases from those mentioned. Hydropathic treatment, until within a short time, has had to be used at home, although I have sent patients to this institution since it has been opened. I want to speak of patients treated at home, some for acute and some for chronic affections. Baths can be used with great effect in all cases of acute disease where restlessness and excitement are found, in cases of grip and pneumonia, all the eruptive diseases, etc., and also in chronic cases where the nervous system seems to require stimulation. By requiring stimulation I do not mean where patients are quiet and require to be made lively, but where they are excited and want to be quieted. I saw recently a boy with mumps merely, and yet he was in an extremely excited condition, and had been delirious a good many hours when I saw him. It seemed rather questionable at the moment whether the delirium and the other nervous symptoms could be due entirely to the mumps. The boy took a bath treatment and enjoyed it, and although he had been jumping around the bed and muttering and talking all sorts of things a good while before, he immediately went off to sleep and had a good night. It is not less true that in chronic cases that excited and nervous conditions are quieted by baths, and this is quite as true of young people as of the grown people, as my brother has already mentioned.

In practice the general way in most cases is to begin by giving hot baths and end by giving cool ones, and one may say roughly, the greater the distance between the high and the low temperature the greater the effect. With grown-up children and adults I generally start the bath at 105° and end at 80°. It is often necessary to reduce the temperature a degree or two lower than that. Young people do not like to get up so high or down so low in temperature as adults, but generally between 101° and 110° does for the beginning and between 80° and 75° for the end. Of course the latter is not cold, but only cool. Middle temperatures, on the other hand, are not nearly so good, especially in cases where there is not a very high temperature, because, unless they are prolonged, they do not have much effect, and if prolonged are apt to be debilitating. The alternation of the heat and the cold produce quite a different effect from the effect of the middle temperatures.

After these baths, whether in acute or chronic cases, it is generally better to put the patient to bed, because rest and sleep can often be obtained as at no other time. I have in mind a little girl whom it was extremely difficult to keep quiet at any time in the day except after she had had her bath in the middle of the forenoon, when she was glad to lie still and would get up thoroughly refreshed for dinner.

If it is impossible to get hold of an institution of this sort, one can in some cases in private houses rig up quite a good spray apparatus. The bathtub can be arranged with rubber curtains, and it is not impossible to throw water of the right temperature through a hose pipe if one cannot get the better arrangements of an institution.

I am going to take the liberty of passing around a drawing or sketch which I have just made, representing a baby in a wash-boiler. It

[1] See page 284 of the Journal.

is to suggest to the members that the wash-boiler is one of the best things in which to give baths to a small person. In a shallow bath it is very difficult to keep the head out and the body in when the patient is lying down. A wash-boiler is just about the right size for putting in the small person and immersing the whole body except the head.

DR. TUTTLE: Hydrotherapeutics has been used at the McLean Hospital since the spring of 1897. Until the last of June in that year, when the hydrotherapeutic apparatus was installed, such procedures were employed as are adapted to the patient's bedroom or an ordinary bathroom, such as ablutions, the dry pack followed by half-baths or affusions, the drip sheet, etc. With the regular apparatus full baths have been given with varying degrees of duration, pressure and temperature. With patients of sufficient strength the immediate effect is stimulating and tonic, the appetite improves and there is a gain in weight and strength. There probably is a secondary and more permanent effect upon the blood vessels and circulation. There is no doubt that very pronounced effects can be obtained, and that one ought to prescribe it from accurate knowledge, because some of these effects may be bad if the treatment is not adapted to the condition of the patient. I have been obliged to begin carefully with my patients, making use of the hot-air cabinet for a time long enough to cause warmth or gentle perspiration, a circular douche at a temperature of 100°–95° for 15 seconds, with a pressure of fifteen pounds, and a few dashes with the fan douche at a temperature of 85°. From this it was possible to rapidly increase the pressure and duration, and to reduce the temperature until a bath is given from which a good reaction is obtained. Many of my patients enjoy it.

The hot-air cabinet should be used with caution. Three have fainted in it, and the general complaint of neurasthenic patients, particularly early in the treatment, is of a feeling of exhaustion after a bath, which lasts several hours. I now begin very carefully with such patients, using the mildest of measures, and gradually changing to those which are more vigorous.

I have found cold packs very serviceable in cases of excitement. They are begun at a temperature of 85° and reduced daily till 60° is reached. The duration of each pack is from half an hour to an hour. They allay restlessness and sometimes cause sleep. If the time of these packs is much prolonged ill effects can be produced. The pack becomes a warm bath after twenty or thirty minutes. Soothing at first, it soon causes a rise in temperature. It then becomes exhausting and may be even dangerous. In general, I have thus far seen some very good effects from the use of hydrotherapy. Many patients have recovered, but they were cases of curable forms of mental disease.

DR. J. J. PUTNAM: In regard to the cases of tabes: in the first place, I would not be understood as claiming that all the cases turn out as favorably under the Frenkel treatment as those to which I have alluded, and every now and then cases are met with where nothing seems to do any good. Nevertheless, where co-ordination is in question, and where the disease is not taking a malignant course, favorable results from co-ordination exercises may almost invariably be expected. Not only this, but the sensibility improves also, and that must indicate that the spinal cord and nerves are in a better condition to be acted upon by measures tending toward improvement than they would otherwise have been, and under those circumstances it seems to me it is fair to believe that these hydrotherapeutic measures, which do have a profound effect upon the circulation temporarily, and give things a lift in that way, may give just the help that is needed, that is, in cases that are already improving, they help the improvement a little further. That is what I should be inclined to claim.

DR. H. F. HEWES read a paper entitled

THE VALUE OF ALCOHOL AS A THERAPEUTIC AGENT IN MEDICINE.[2]

DR. F. C. SHATTUCK: After listening to Dr. Hewes's very interesting and clear exposition of the pharmacological studies of this question, I have some diffidence in speaking from the purely clinical standpoint and from the point of view of general impressions, for the lack of value of which we have the high testimony of Virchow. I have no so-called scientific statements to make, and I hope you will not think that what I have to say is egotistical; it is not meant so, but simply represents my own feeling and views on the subject, with such light as I have at my disposal.[3]

DR. E. G. CUTLER: Twenty-five years ago I thought very much as do Drs. Shattuck and Whittier. At that time, fresh from the schools and from abroad, I received, through the kindness of Dr. Shattuck, an appointment as visiting physician at the House of the Good Samaritan. My six months' term of service included the summer months. At the end of my first service it came to my ears that the bills for alcoholic drinks for the six months on which I had been on duty had never been equaled at any time in the history of the hospital, and, the lady manager who supported the hospital pathetically remarked, that she did not see that the patients were any the better for it. This set me to thinking and to investigating the merits of each case to which I gave alcohol, and as a result of my clinical experience and knowledge I have come to use less and less alcohol as the years went on, and at the present time I rarely give it except as a narcotic in collapse, as a temporary medicament in cases of loss of appetite, or in diabetes. I have never regretted not having given alcohol, but I have a number of times bitterly regretted having done so.

The question of individual tolerance, which has been dwelt upon by both Dr. Shattuck and

[2] See page 271 of the Journal.
[3] See page 279 of the Journal.

Whittier, is a curious one, but I personally have never in my life met with a case where anything like the doses which they speak of were either indicated or were taken.[4]

Dr. R. C. Cabot: As to the value of general impressions: I think a good example is furnished by one statement in Dr. Hewes' paper, namely, the statement of the hospital managers, that the use of alcohol was not diminishing. I have looked up the facts at the Massachusetts General Hospital in regard to the amount of alcohol per patient every year from 1880 to the present time, and it shows a very interesting curve. The amount rose from 1880 to 1884, when a maximum of $1.48 per patient per year was reached. From that point it begins to fall. In 1890, 76 cents per patient per year; 1897, 45 cents per patient per year; 1900, 29 cents per patient per year. It has fallen, then, from $1.48 to 29 cents. I found these facts still more forcibly impressed upon my mind when I went through the wards in search of material to carry out some experiments. I could not find any patients taking alcohol and alcohol alone. I remember that when I was house officer, alcohol and alcohol alone was given in many cases. I could not find a patient in the hospital taking alcohol alone, and the nurses told me that was only what I should expect, that it was a long time since they had seen any patient given alcohol and alcohol alone. I want to ask Dr. Shattuck why he is using alcohol less than formerly. If the arguments he brought up are sound he ought to keep on using it as much as ever.

As to the use of the term "clinical facts," Dr. Shattuck has advocated the importance of clinical facts against laboratory facts. A fact is a fact wherever found. A clinical fact is a heart sound as found by the stethoscope, a blood pressure found by Gaertner's tonometer, a gain in appetite, an improvement in the amount of sleep, but we are not giving a clinical fact when we simply give our general impressions upon the utility or nonutility of any drug without mentioning any definite beneficial result due to it. I do not see that it is at all profitable for us at any time to draw the line between the clinician's facts and laboratory facts. Facts are always welcome. General impressions are relatively fallacious. The laboratory man might perfectly well have his general impressions and does, but he does not trust them. The clinicians should not trust them any more.

I have been trying to get some definite clinical facts about the use of alcohol at the Massachusetts Hospital. I have studied the therapeutic books of the men who believe in alcohol, and tried to see what particular good they think it does in febrile diseases. Most of them say it makes the tongue cleaner, the appetite improve, the sleep better, delirium less marked, skin moister and the pulse slower and stronger. Regarding these claims I am now carrying on an experimental research on some of the patients in Dr. Shattuck's wards. Are the patients better in any statable particular after the taking of a given amount of alcohol? Are they definitely affected in regard to sleep, tongue, appetite, pulse, etc.? Although I have not gone far enough to report any results, it seems to me to point the direction in which, as with the use of Gaertner's tonometer, the pulse rate recorded on the chart and the other data recorded by the nurses, we can come nearer to a definite knowledge of the use of alcohol in disease.

Dr. F. C. Shattuck: I give less alcohol because I give less drugs than I used to, and alcohol in sickness I regard as a drug. I also reserve its use in hospital to acute disease, feeling more recently than formerly, perhaps, the serious responsibility we, as physicians, are under with regard to its abuse. I formerly prescribed ale and beer, sometimes stronger forms of alcoholic drinks, to hospital patients with debility from one or another cause. I do not do so now. I quite agree with Dr. Cabot that a fact is a fact; but it may be convenient to classify our faith in accordance with the source and kind of evidence on which they rest. A clinical fact is one which depends on bedside investigation. Most facts in therapeutics are of this kind. The efficacy of cinchona bark in malaria was an established fact over two centuries before its action was explained scientifically. The curative effect of mercury and potassic iodide on syphilis is still unexplained. The laboratory does not help us understand the action of opium against pain.

Dr. E. P. Joslin: Alcohol is valuable in the treatment of diabetes: (1) Because it will replace a certain amount of fat in the body. That is very essential, because there are few of our severe cases who get along on less than six to eight ounces of pure fat in one form or another a day. Two ounces of whiskey or brandy will lessen the need of taking about one ounce of fat. That makes a great difference to the patient. (2) Alcohol enables the patient to take a great deal more fat in diabetes than he could without its use. A teaspoonful of brandy or other form of alcohol after meals makes the fat "set well," why, I don't know. (3) Alcohol is valuable in that it stops the hunger, and is an easy form of lunch for the patient between meals, on going to bed or on waking in the night; one teaspoonful of brandy or whiskey will do what hardly anything else will. (4) Alcohol is valuable because of its sedative action. As for the dose, not over five ounces in twenty-four hours; one half to one ounce is usually enough. The severer the case of diabetes the more alcohol is generally indicated. Finally, alcohol is valuable in coma. Coma is caused, so far as we know, by an accumulation of an enormous quantity of acids in the body. These acids, when present in the healthy individual, as after simple starvation, disappear promptly on taking sugar. Sugar does not cause the disappearance of these acids in diabetes because the sugar passes through the body unchanged. Recently it has been shown that

[4] See page 281 of the Journal.

certain derivatives of sugar will lessen the acid intoxication, and among the derivatives of sugar we have alcohol. Von Noorden feels very strongly that alcohol is of value in coma, and recommends heroic doses. Schwartz[5] has recently demonstrated that gluconic acid, another derivative of sugar, will diminish the acids which cause coma. As yet, however, the alkaline treatment is our mainstay in this complication of diabetes.

## Recent Literature.

*The Practical Medicine Series of Year Books.* Comprising Ten Volumes of the Year's Progress in Medicine and Surgery. Issued monthly under the General Editorial Charge of Gustavus P. Head, M.D., Professor of Laryngology, and Rhinology, Chicago Post-Graduate Medical School. Volume I: General Medicine. Edited by Frank Billings, M.S., M.D., Head of Medical Faculty and Dean of the Faculty of Rush Medical College, Chicago. With the Collaboration of S. C. Stanton, M.D. Chicago: The Year Book Publishing Co. October, 1901.

The editor has felt that something was wanting in previous Year Books, or they would have been more used by the profession than they have been. After reflection he concluded that that something for which physicians in general were waiting "before taking to Year Book literature," was in the plan rather than in the quality of such literature. To meet this want he has decided upon the present plan, as stated on the title page. Each subject, or division of subjects, is treated in a separate volume. The division of General Medicine is embraced in two volumes, one appearing in October, the other in May of each year. This volume, a small octavo, contains 270 pages. It contains the literature of the past year upon those diseases which are most prevalent in the winter and spring; the May volume will contain the literature of the year upon those diseases most prevalent in the summer and autumn. Subjects which may not be much influenced by seasonal or meteorological conditions are assigned to the volume to which they most naturally fall. In Dr. Frank Billings the general editor has found a very competent person to take charge of the Department of General Medicine. The volumes are of a convenient size for the hand or the pocket. The paper and print might be better, but perhaps are all that the necessarily short life and the price of such a series of books justify.

*Nursing Ethics: for Hospital and Private Use.* By Isabel Hunter Robb. Late Superintendent of Nurses and Principal of the Training School for Nurses, Johns Hopkins Hospital, Baltimore, Md., etc. Pp. 273. Cleveland: J. B. Savage. 1901.

With all the books on nursing in its various aspects which are finding their way into circulation, none, to our knowledge, occupies just the place of the one before us. From experience and training the author is amply justified in writing what others of less knowledge might well hesitate to attempt. The vigorous and straightforward description of what a nurse should be and how she should act under the varying conditions of her work is admirable and unquestionably needed. No details are considered too trivial for comment, and the book is full of warnings and suggestions which every nurse should read and take to heart. After a consideration of nursing as a profession, the probationer is taken in hand, and finally through succeeding chapters developed into a graduate nurse. The duties devolving upon her in her various stages of development are discussed with excellent judgment and force.

Whatever other textbooks may be used in the training school we are inclined to think this should have a place of special prominence. It is a matter of regret that somewhat better paper was not used, and that the general appearance of the book is not more in accord with the character of its contents.

*A Textbook of Medicine.* Begun by the late Charles Hilton Fagge, M.D., F.R.C.P., sometime physician to Guy's Hospital. Completed after his death, and since revised and rewritten by Philip Henry Pye-Smith, M.D., F.R.S., Fellow of the Royal College of Physicians; Consulting Physician to Guy's Hospital. Fourth edition, in two volumes. Vol. 1. Philadelphia: P. Blakiston's Son & Co. 1901.

This is the fourth edition of a textbook of medicine begun by the late Dr. Charles Hilton Fagge, at one time physician to Guy's Hospital, and completed after his death, and since revised and rewritten by his friend, Dr. Pye-Smith, consulting physician of Guy's Hospital.

We have reviewed this book several times and it is unnecessary to go again into detail in regard to it, but we must not avoid once more expressing our very favorable opinion of it as a textbook of medicine. It is proper also to say that in the present edition the book has been rearranged and in part rewritten. Some of the old material has been left out and new has been added where indicated by the recent advancements and changes in medical science. The first volume is now in our hands and the second volume is expected to appear shortly.

*The Diseases of the Respiratory Organs, Acute and Chronic.* By William F. Waugh, A.M., M.D., Professor of Practice and Clinical Medicine, Illinois Medical College, etc. Chicago: G. P. Engelhard & Co. 1901.

This represents an attempt to compress into a small octavo of 221 pages the whole subject of diseases of the respiratory organs, including pathology and treatment. As a compendium it has some value, but it suffers from the faults common to all this class of aids to the student, so that it can hardly be commended for use beyond the bounds of the author's own lecture room.

[5] Prager Med. Woch., 1901, Nos. 30 and 31.

THE BOSTON

# Medical and Surgical Journal.

THURSDAY, MARCH 13, 1902

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## INSUFFICIENT MEDICAL SERVICE IN THE NAVY.

SURGEON-GENERAL RIXEY of the navy has recently submitted a strong letter to congress in support of his request for an increase in the number of naval surgeons, forwarded with the approval of the Secretary of the Navy. Dr. Rixey presents numerous facts to show that the personnel of his corps is insufficient to meet present and future demands upon it, and in its growth has by no means kept pace with other branches of the naval service. He shows that in the last four years the strength of the navy and marine corps has increased 87%; that the average number of enlistment examinations has increased 115%, that tropical service has increased the number of cases of disease and injury by 66%; that the time lost in the navy from sickness has increased 75%; and that the number of patients treated in naval hospitals has increased 111%. He also states that while at the present time it is only with great difficulty that proper medical attendance can be provided for the ships now in commission, there are twenty-seven ships now out of commission, requiring the services of thirty-three medical officers, which are liable to be called into service at any time. An additional number of ships now being constructed will require the services of fifty-eight more medical officers within two or three years at the most. With present insufficient numbers, it is impossible to grant the leaves to which medical officers are entitled, a condition which has produced much discontent and dissatisfaction with the service and a number of resignations.

Such an array of facts as is presented by Surgeon-General Rixey in behalf of an increase in his corps does not admit of intelligent opposition, and it remains to be seen if they will be appreciated by congress at their proper value or will be ignored and passed over without action, as seems to be frequently the case where the needs of the medical branches of the governmental services are concerned. These latter have little influence and power, and claims founded merely on right and justice are too often pushed aside for political considerations. For these reasons, the needs of the medical branches of the services are always the last to receive attention from congress, and such a condition of affairs as is revealed by the above statements of Surgeon-General Rixey becomes known. The medical profession should awaken to its own political potentiality, and, through proper organization, place itself in a position to enforce the enactment of municipal, state and national legislation for the advancement of its interests.

## SENTIMENTAL MEDICAL WRITING.

MERE sentimentalism, under any circumstances, should have an exceedingly small place either in literature or life. It is particularly offensive when it is forced upon us in writing meant to be scientific in tendency and scope. No degree of enthusiasm justifies printed rhapsodies over the inherent beauty of a tumor or the charm of a diseased ovary. From the point of view of the student of esthetics, it is no doubt a legitimate and highly interesting problem, whether pathological products are essentially beautiful. Many of us, no doubt, who have studied the results of disease by means of the microscope have been duly impressed with the exquisite arrangements of cells in new growths or other abnormal processes, however destructive we may have known these processes to be. Some of us may even at times have exclaimed: What a superb tumor! What a magnificent stone! This is praiseworthy enthusiasm, with a certain justification in philosophical esthetics. Let it not be checked, but also let us pray for self-control when we are tempted to transcribe such ebullitions in the pages of our so-called scientific articles. Spoken words are apt to be forgotten; written ones may, at least, not be, however much we may wish the contrary. Examples of the tendency to which we refer are not hard to find in our everyday medical literature. Here is one of the unrestrained variety, recently published in a most highly esteemed contemporary:

> Once in studying a profoundly diseased ovary, with a power of four hundred, there was presented a picture of almost dazzling brightness: Long-branching protoplasmic bodies of exceedingly delicate and exquisite organization, winding in all directions, and in most graceful curves. It made a fairyland of beauty. It was a forest of wonderful structures. But the ovary! In it was found no normal tissue. Large portions were transformed into this peculiar growth, which was

filled with coarse granules, hematoblasts, and other life material, proving its innate powers and, possibly, its destructive tendencies. . . . The microscope reveals the pathological change, clinical history gives the life reflection, and makes the momentous reverberations of the almost tragic records.

Just what all this may have meant to the writer it is of course beyond our power to discover, but that a "fairyland of beauty" is an exceedingly poor description of a diseased ovary is sufficiently self-evident. Ovaries are to the unsentimental student simply structures of special anatomical form; they are surely not, even in pathological conditions, "pictures of dazzling brightness" or "fairylands" or "forests." Why not be "homely in our drift," when we are attempting to describe facts? Science would certainly be a gainer, and medical literature no loser thereby.

## DISINFECTION OF THE HANDS.

THE question of hand disinfection is naturally a very important one, and one about which there is likely to be considerable difference of opinion for some time to come. Dr. Charles P. Noble of Philadelphia, writing in *American Medicine*, narrates a personal experience which is of interest in this connection. He had been in the habit of using the usual soap and water, alcohol, permanganate of potash, oxalic acid, followed by a bichloride solution. The method was satisfactory until, with the introduction of rubber gloves into surgery, a black discoloration of the nails followed its use, due to the formation of sulphide of mercury. To avoid this unpleasant consequence Dr. Noble was led to experiment with a solution of formaline in place of the bichloride. The result of the use of formaline for about a month was a violent inflammation of the finger tips, involving the nails. There was for a time danger that the nails would be exfoliated, an outcome which was averted by vigorous treatment. The result was a separation of the nails for about one-third of their length, from which recovery, at the time of writing, was gradually taking place.

After a careful investigation the conclusion was reached that the following factors were concerned in the production of the inflammation: First, the use of formaline solution, and, second, its prolonged contact with the finger ends, there being enough of the solution left inside the gloves to keep the finger ends moistened in the solution while the gloves were worn. It transpired also that gloves which had been filled with a 1 to 500 solution of formaline had, just previous to the appearance of the inflammation, been worn for four hours on two successive days.

The moral to be drawn from this experience is the importance of avoiding a prolonged contact with formaline, even in dilute solution. How far formaline will supplant the usual bichloride solution is still open to doubt; it certainly has definite drawbacks in its effect upon mucous membranes, its pungency of odor, and its highly irritative action upon the skin. In all these respects bichloride is to be preferred, and will, no doubt, retain its place of favor until some other substitute be found, with fewer disadvantages than the commonly used preparation of formaline.

## MEDICAL NOTES.

THE AMERICAN ASSOCIATION OF UROLOGISTS.— The above association was organized on Feb. 22, 1902, essentially for the purpose of further development in the study of the urinary organs and their diseases. Although most of the founders of the association are specialists in genito-urinary diseases, membership is not limited to those engaged exclusively in this specialty. Thus gynecologists, who embrace renal and vesical surgery in their work, are among the founders, as are also several gentlemen who devote themselves to the microscopy and chemistry of the urine, as well as a number of practitioners interested in the study of the kidney from a medical standpoint. The association consists of active, corresponding and honorary members, and is in great measure modeled upon the plan of the Societé Française d'Urologie, modified to suit American circumstances and conditions. Whenever possible, the branch associations throughout the United States, British Possessions and Spanish America, will hold their meetings on the same evenings as does the parent association in New York (the first Wednesday of each month). The work of the association is principally clinical, for the demonstration of new methods of the technique of examination and treatment. The annual meeting of the American Association of Urologists will be held on the last day and the day following the annual meeting of the American Medical Association. The officers of the association are: Ramón Guiteras, M.D., President; Wm. K. Otis, M.D., Vice-President; John Van der Poel, M.D., Treasurer; Ferd C. Valentine, M.D., Secretary; A. D. Mabie, M.D., Assistant Secretary.

PASTEUR INSTITUTE, BUDAPEST.— According to the *Philadelphia Medical Journal*, during 1901 the Pasteur Institute at Budapest treated 2,490 patients. Ninety-one per cent of these were bitten by mad dogs, 6% by mad cats, and the rest by other animals. The average length of treatment was 18 days. Of the total number treated, .28% only contracted hydrophobia. The Servian Government has sent a commission to Budapest to study the methods employed.

Inspector F. B. Stephenson a Charter Member.—On Feb. 18, 1902, a chapter of Phi Beta Kappa was organized at Allegheny College, Meadville, Pa. Among the foundation members made at this time was Medical Inspector Franklin Bache Stephenson, U. S. N., now in charge of the Medical Department of the Naval Station at Portsmouth, N. H.

Four Centenarians.—It is reported, apparently on sufficient authority, that the following persons have recently died at the ages respectively of 103, 106, 108 and 112; Daniel Harrington, a recent immigrant from Ireland; Deborah Doty, of Frewsburg, N. Y.; Margaret Carpenter, of Philadelphia, and James Walsh, Maryland.

A Sweeping Vaccination Law.—It is reported that a law has been promulgated in France which makes vaccination against smallpox compulsory in the first year of a child's life, and requires revaccination at the age of eleven years and also ten years later.

### BOSTON AND NEW ENGLAND.

Acute Infectious Diseases in Boston.—For the week ending at noon, Mar. 12, 1902, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: Diphtheria 25, scarlatina 18, measles 197, typhoid fever 11, smallpox 19.

Boston Mortality Statistics.—The number of deaths reported to the Board of Health for the week is 230, as against 238 the corresponding week last year, showing a decrease of 8 deaths, and making the death-rate for the week 20.92. The number of cases and deaths from infectious diseases is as follows: Diphtheria, 34 cases, 7 deaths; scarlatina, 26 cases, no deaths; typhoid fever, 4 cases, 2 deaths; measles, 233 cases, 5 deaths, tuberculosis, 23 cases, 28 deaths; smallpox, 17 cases, 6 deaths. The deaths from pneumonia were 37, whooping cough 1, heart disease 24, bronchitis 17, marasmus 4. There were 10 deaths from violent causes. The number of children who died under one year was 48; under 5 years, 66; persons more than 60 years, 49; deaths in public institutions, 70.

New State Sanitarium for Tuberculosis.—The Committee on Public Charitable Institutions of the Massachusetts Legislature gave a hearing last week to Senator W. T. A. Fitzgerald, Dr. E. O. Otis, and others, on the former's petition for legislation to provide for the erection and equipment of a new State sanitarium at a cost not exceeding $150,000. Senator Fitzgerald made an earnest appeal in behalf of this institution. He stated that every private house in Rutland which would take patients was filled with people paying $7 and $8 a week until such a time as the institution could find room for them. He was of the opinion that the State should proceed to build another institution at once, and that it should contain a larger proportion of free beds for those who could not afford to pay for their treatment.

Hearings on Regulation of Vivisection.—The bill before the Legislature of this State for the further prevention of cruelty to animals was heard last week by the Committee on Probate and Chancery. Mr. Asa B. French appeared as counsel for the petitioners; Dr. H. C. Ernst will conduct the case for the remonstrants, with the co-operation of Dr. H. P. Bowditch, Dr. Theodore Hough, Dr. W. T. Porter, and others. The hearing was continued till March 14, at 10.30 and 3 o'clock. The following hearing will be given on March 18 at 3 o'clock, when it is hoped to bring the matter to an end.

### NEW YORK.

Important Ruling Regarding Validity of a Will.—Joseph H. Bryan, who died in September, 1899, left a will in which, although he was survived by a widow, he bequeathed the bulk of his property to a cousin. He had been in ill health for almost two years before his death, and his principal beneficiary had stayed the greater part of this time in his house, nursing him and directing the affairs of the household. An aunt of the deceased, who was dissatisfied with an annuity of $200 given her by the will, contested the validity of the instrument, on the ground that it was not the free and voluntary act of her nephew. The Appellate Division of the Supreme Court, on March 7, rendered a decision in the case in which it was held that, while the evidence was insufficient to warrant a finding by the jury that the execution of the will was not the voluntary and unconstrained act of the testator, yet the previous judgment must be reversed because the attending physician, called as a witness by plaintiff, had not been allowed to state what the deceased's condition was during the month preceding his death. The Court found that the provision of the code which prohibits a physician from disclosing information as to a patient does not apply when waived by the personal representatives of a deceased patient, and that such waiver was made by the plaintiff in calling the medical attendant as a witness.

Bequests to Hospitals.—By the will of the late Mrs. Nathaniel Currier, $5,000 each is left to the Presbyterian Hospital, the New York Society for the Relief of the Ruptured and Crippled, and the "Babies' Ward" of the New York Post-Graduate Hospital.

## ARMY NOTES.

Health of the Army in the Philippines.— The health report from the chief surgeon of the Philippines, just received, covering the month ending Jan. 15, 1902, states that in the department of North Philippines there were 436 sick in quarters, 690 at station hospitals, 288 in department hospitals, 310 in Manila hospitals — a total of 1,724; and in the department of South Philippines 169 were sick in quarters, 242 in station hospitals, 136 in department hospitals, 263 in Manila hospitals — a total of 810. The total sick among the soldiers in the Philippines during the month was 2,534, the strength of the command was 41,116 and the percentage of sick 6.16. This is the lowest sick rate yet attained in the islands, and is very gratifying in view of the arduous nature of the military operations going on in Samar and Batangas. The previous lowest rate — 6.79% — was attained in November, 1901. The consolidated sick report of 4 hospitals in Manila and 18 military hospitals in the division gives the following data as to diseases: Typhoid fever 7.33%; malarial fevers, 7.25%; dysentery, 16.7%; diarrhea, 6.91%; other intestinal diseases, 2.41%; gastric disorders, 5.07%; wounds and injuries, 10.48%; venereal disease, 15.54%; tuberculosis, 1.24%; insanity, 2.08%; undetermined, 8.88%; all other diseases, 23.11%. In the hospitals in Manila and the military hospitals outside, the same proportion of cases of typhoid fever were under treatment as during the preceding month, while there was a slight reduction in the amount of malarial fevers. Intestinal and gastric diseases show a considerable reduction, while wounds and injuries are somewhat decreased. There was a considerable decrease in the number of deaths — 59, as compared with 77 for the previous month. Of these 59 deaths only 34 were due to disease. Of the 25 deaths due to gunshot or accident, 6 were due to drowning.

Naval Receiving Ships as Foci of Disease.— In response to a demand from the House of Representatives for the reasons for the discontinuance of the *Vermont* as a receiving ship at the Brooklyn Navy Yard, the Navy Department has transmitted to Congress, in addition to other information, a communication from the acting surgeon-general of the navy with reference to the unsanitary conditions obtaining on these decaying old hulks, and the impossibility of keeping the sick-rate among naval recruits on board of these ships at a satisfactory figure. The surgeon-general states that during the five years prior to the abandonment of the *Vermont* as a receiving ship, the deaths on board amounted to an annual rate of 13.37 per 1,000, while the total death-rate for the entire naval service for the same period, which embraces the war with Spain, was but 6.49 per 1,000. The death-rate on board of the *Vermont* was thus more than double that for the entire service for all causes. The deaths from disease amounted to 10.50 per 1,000, while those from the same cause in the navy at large amounted to but 4.57. These figures have obtained in spite of the fact that the unhealthfulness of these old wooden receiving ships has long been recognized by naval medical officers, and that unusual care has been taken to prevent the introduction and spread of infectious diseases on board of them. The present system of receiving ships has perpetuated the commissions of old wooden ships, which are saturated with the human emanations of many years, are poorly ventilated, and are undergoing the changes of decay. Medical officers of the navy are strongly of the opinion that such receiving ships should be replaced by the construction of modern barracks, and this view has been adopted by the Navy Department.

Proposed Increase in the Medical Department of the Navy.— Surgeon-General Rixey, of the Navy, has recommended an increase of forty medical officers in his corps, the present number of which is inadequate to meet the demands of the service. He recommends that this increase be made by the addition of fifteen surgeons, to be promoted from the passed assistant surgeons and the addition of twenty-five passed assistant surgeons and assistant surgeons to the number now in those grades. He states that the division of the additional number of medical officers between the grades specified is only just and proper, as the senior in the list of past assistant surgeons has been in the service for twelve years. The recommendations of Surgeon-General Rixey have been approved by the Secretary of the Navy, and transmitted by him to Congress.

Examining Board for Candidates for the Navy.— Surgeon-General Rixey proposes to establish an examining board at San Francisco, for the examination of candidates desirous of entering the medical corps of the navy. At present examinations of such candidates are held only at the Naval Hospital in Brooklyn, but with the considerable increase in the number of naval surgeons which Congress is expected to authorize during the present session, it is thought that a second examining board will be required.

Laundry at Manila.— A large laundry plant has been installed by the Army Medical Department at Manila, at which all clothing soiled in the large Manila hospitals and the convalescent hospital on Corrigedor Island are now washed. The installation of this laundry has resulted in marked benefit from the sanitary, administrative and economic standpoints.

# Obituary.

## EDWARD MOTT MOORE, M.D.

Dr. Edward Mott Moore, one of the leading physicians of New York State and most eminent citizens of Rochester, died at his home in the latter city on March 4, in the eighty-eighth year of his age. He was born in Rahway, N. J., July 15, 1814, and was of Quaker and Huguenot descent. He received his collegiate education at the Rensselaer Institute at Troy, and was graduated from the Medical Department of the University of Pennsylvania in 1838. He was one of the founders of the New York State Medical Association, and was elected the third president of that society in 1886. He was also prominent in the work of the Red Cross Society of the State. During all his life he was deeply interested in matters affecting the public welfare, and in Rochester he was familiarly known as "The Father of the Parks." Dr. Moore was a man of unusually fine physique and presence, and made a model presiding officer in any assembly in which, as was frequently the case, he was called to take such a position. His professional attainments were comprehensive and of a high order. In addition he was possessed of great general culture, and his genial disposition and rare urbanity of manner no doubt assisted no little in gaining him the exceptional influence which he enjoyed. In many of his characteristics he resembled to a very considerable extent the late Dr. Austin Flint, of whom he was a warm personal friend. His son, Dr. Edward M. Moore, Jr., is also a prominent physician of Rochester.

## ERVIN ALDEN TUCKER, M.D.

Dr. Ervin Alden Tucker of New York, one of the most eminent obstetrical authorities in this country, died from pneumonia, after a brief illness, on March 3. Dr. Tucker was born in Attleboro, Mass., Feb. 2, 1862, and was a graduate of Amherst College. After receiving the degree of M.D. from the College of Physicians and Surgeons, New York, in 1889, he pursued a course of special studies in Berlin, Munich and Paris. When the Sloane Maternity Hospital was opened in connection with the Medical Department of Columbia University he became the permanent resident physician there, and at the same time was appointed instructor in obstetrics in the Medical College. After several years' admirable service he resigned the position in order to go into private practice, and was then made assistant visiting physician to the Sloane Maternity. He devoted his attention to obstetrics alone, being the only physician in New York practising this specialty exclusively, and at once took the highest position as a skilled accoucheur and consultant in midwifery cases. His many fine qualities made him deservedly esteemed in the community, and his untimely death in the prime of his usefulness is deeply deplored.

## CHRISTIAN FENGER, M.D.

Dr. Christian Fenger, one of the best known surgeons in Chicago, died March 8, at the age of 62. He was born in Copenhagen, Denmark, served as a surgeon in the war between Denmark and Germany, and was an interne in the Royal Friedrichs Hospital, Copenhagen. He was also a surgeon in the Red Cross Ambulance Corps in the Franco-Prussian War, and prosector and *Privat docent* at the Copenhagen City Hospital. He went to Egypt as a member of the sanitary council, and was appointed surgeon of the Khalifa district of Cairo. He removed to Chicago in 1887. At his death he held the chair of clinical surgery in Rush Medical College, University of Chicago, and was a frequent contributor to medical literature. The king of Denmark had honored him with a knighthood.

Dr. Fenger's reputation extended far beyond the confines of his adopted home. In his death surgery in America loses one of its most distinguished foreign-born exponents.

# Correspondence.

## CHRISTIAN SCIENCE AND BUDDHISM.

Navy Yard, Portsmouth, N. H., Feb. 25, 1902.

Mr. Editor: In *Transactions* of the Asiatic Society of Japan, Vol. XXIX, Part I, is an article by the Rev. D. C. Greene, D.D., of Tokyo, Japan, concerning the *Remmon Kyō Kwai*, one of various sects of old Buddhism. Its manifestations are similar to those of the so-called Christian Science in this country: testimonies of marvelous cures, direct answers to cries for help to their various deities, use of certain phrases — *Ji no Myōhō* — and similar irrational procedures. The incoming of modern science — truth in Nature — however, bids fair to relieve the Greeks of the far East from the incubus of such mental darkness.

Very respectfully,

F. B. Stephenson, M.D., U.S.N.

## RECORD OF MORTALITY

For the Week ending Saturday, March. 1, 1902.

| Cities. | Population * Estimated, 1902. | Reported deaths in each. | Deaths under five years. | Percentage of deaths from | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | Infectious diseases. | Acute lung diseases. | Diphtheria and croup. | Typhoid fever. | Diarrheal diseases. |
| New York . . | 3,665,352 | 1,542 | 510 | 22.82 | 18.80 | 2.46 | .39 | 1.68 |
| Chicago . . | 1,852,828 | — | — | — | — | — | — | — |
| Philadelphia. | 1,349,624 | 592 | 176 | 19.26 | 20.62 | 2.20 | 1.18 | .17 |
| St. Louis . . | 603,717 | — | — | — | — | — | — | — |
| Baltimore . . | 525,330 | 201 | 43 | 18.00 | 22.00 | 1.50 | — | .50 |
| Cleveland . . | 411,826 | — | — | — | — | — | — | — |
| Buffalo . . . | 375,742 | — | — | — | — | — | — | — |
| Pittsburg . . | 341,401 | 174 | 61 | 15.52 | 27.00 | 1.15 | 1.72 | 1.72 |
| Cincinnati . | 332,032 | — | — | — | — | — | — | — |
| Milwaukee . | 304,975 | — | — | — | — | — | — | — |
| Washington . | 289,537 | — | — | — | — | — | — | — |
| Providence . | 185,870 | 82 | 21 | 18.30 | 21.96 | 2.44 | 2.44 | 3.66 |
| Boston . . . | 588,736 | 219 | 62 | 20.52 | 14.59 | 2.73 | .91 | 1.82 |
| Worcester. . | 127,337 | 48 | 20 | 10.41 | 18.75 | — | — | — |
| Fall River. . | 111,872 | — | — | — | — | — | — | — |
| Lowell . . . | 99,574 | 41 | 18 | 21.95 | 17.47 | 9.75 | — | — |
| Cambridge . | 96,334 | 29 | 9 | 13.75 | 6.90 | — | — | — |
| Lynn. . . . | 71,144 | 16 | 2 | 6.25 | 39.50 | — | — | — |
| Lawrence . . | 67,275 | 28 | 13 | 21.42 | 10.71 | — | — | 7.14 |
| Springfield . | 66,854 | 22 | 1 | 13.62 | 13.62 | — | — | — |
| Somerville . | 65,882 | 21 | 1 | 23.80 | 23.80 | — | — | — |
| New Bedford. | 65,574 | 24 | 6 | 20.80 | 20.80 | 4.16 | 4.16 | — |
| Holyoke . . | 48,065 | 15 | 3 | 39.96 | 26.64 | 13.33 | 6.66 | — |
| Brockton . . | 43,208 | 15 | 5 | 13.33 | — | — | — | — |
| Haverhill . . | 40,392 | 17 | — | 11.76 | 23.52 | — | 5.88 | — |
| Salem . . . | 36,567 | 12 | 2 | 16.67 | 25.00 | 8.32 | — | — |
| Newton. . . | 36,336 | 9 | 2 | 22.22 | 11.11 | 11.11 | — | — |
| Malden . . . | 35,390 | 11 | 5 | 9.09 | 27.27 | — | — | — |
| Chelsea. . . | 35,264 | 14 | 2 | 14.28 | — | 7.14 | — | — |
| Fitchburg. . | 33,848 | 4 | 1 | — | 25.00 | — | — | — |
| Taunton . . | 32,759 | 13 | 2 | 23.10 | 7.70 | — | — | — |
| Everett . . . | 27,114 | 10 | 5 | 10.00 | — | — | — | — |
| North Adams | 26,583 | 4 | 2 | 75.00 | — | 25.00 | — | — |
| Gloucester . | 26,121 | 7 | 3 | 14.30 | — | 14.30 | — | — |
| Quincy . . . | 25,307 | 6 | — | 16.67 | — | — | — | — |
| Waltham . . | 24,612 | 11 | 2 | 18.18 | 18.18 | 9.09 | — | — |
| Pittsfield . . | 22,311 | 3 | — | 66.67 | 33.33 | 33.33 | — | — |
| Brookline. . | 21,679 | 7 | — | 28.60 | — | — | — | — |
| Chicopee . . | 20,390 | 1 | — | — | — | — | — | — |
| Medford . . | 20,014 | 4 | 2 | 25.00 | 25.00 | — | — | — |
| Newburyport | 14,478 | 5 | 1 | — | 40.00 | — | — | — |
| Melrose . . | 13,384 | 4 | 1 | 25.00 | — | — | — | — |

* The populations of the cities outside of Massachusetts were estimated on the basis of the rate of growth from 1890 to 1900. Those of the Massachusetts cities were estimated upon the rate of growth from 1895 to 1900, since the State had an intermediate census in 1895. The populations of Gloucester, Marlborough and Newburyport were allowed to stand as in 1900, they having suffered a slight decrease during the five-year period.

Deaths reported 3,238; under five years of age, 985; principal infectious diseases (smallpox, measles, scarlet fever, cerebrospinal meningitis, diphtheria and croup, diarrheal diseases, whooping cough, erysipelas, fevers and consumption) 664, acute lung diseases 620, consumption 333, scarlet fever 42, erysipelas 19, typhoid fever 26, whooping cough 24, cerebrospinal meningitis 10, smallpox 36, measles 50, diarrheal diseases 40.

From whooping cough, New York 14, Philadelphia 6, Baltimore 1, Boston 2, Cambridge 1. From cerebrospinal meningitis, New York 5, Baltimore 1, Boston 1, Worcester 2, Brockton 1. From scarlet fever, New York 33, Philadelphia 2, Baltimore 2, Pittsburg 1, Worcester 1, Springfield 2, Malden 1. From erysipelas, New York 9, Philadelphia 2, Baltimore 4, Providence 1, Boston 2, Everett 1. From smallpox, New York 11, Philadelphia 17, Providence 1, Boston 5, Quincy 1, Revere 1.

Beginning with January, 1902, the term "great towns" as employed in the Registrar General's Weekly Return of births and deaths includes the seventy-five municipalities of England and Wales which have a population of more than 50,000 in each.

In the seventy-six great towns of England and Wales, with an estimated population of 14,862,003, for the week ending Feb. 15, the death-rate was 22.6. Deaths reported 6,451; acute diseases of the respiratory organs (London) 681, whooping cough 134, diphtheria 76, measles 124, smallpox 60, scarlet fever 52.

The death-rate ranged from 11.7 in Hornsey to 29.9 in Rhondda; London 25.9, West Ham 18.7, Croydon 19.7, Brighton 18.4, Portsmouth 14.1, Southampton 24.2, Bristol 18.2, Birmingham 23.9, Leicester 22.4, Nottingham 23.6, Birkenhead 22.7, Liverpool 26.8, Manchester 24.0, Salford 18.2, Bradford 22.2, Leeds 20.0, Sheffield 16.8, Hull 20.8, Newcastle-on-Tyne 22.6, Cardiff 14.5.

## METEOROLOGICAL RECORD

For the week ending March 1, in Boston, according to observations furnished by Sergeant J. W. Smith of the United States Signal Corps:

| Date | Barometer | Thermometer. | | | Relative humidity. | | | Direction of wind. | | Velocity of wind. | | We'th'r * | | Rainfall in inches. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Daily mean. | Daily mean. | Maximum. | Minimum. | 8.00 A.M. | 8.00 P.M. | Daily mean | 8.00 A.M. | 8.00 P.M. | 8.00 A.M. | 8.00 P.M. | 8.00 A.M. | 8.00 P.M. | |
| S...23 | 30.05 | 26 | 31 | 20 | 54 | 83 | 68 | N | S E | 19 | 4 | C. | C. | |
| M..24 | 30.20 | 34 | 42 | 25 | 94 | 86 | 90 | S | S W | 9 | 10 | O. | C. | |
| T..25 | 30.12 | 36 | 38 | 33 | 91 | 91 | 91 | N W | N E | 1 | 16 | O. | O. | |
| W.26 | 29.66 | 38 | 40 | 36 | 100 | 100 | 100 | N E | N | 24 | 16 | R. | R. | 1.40 |
| T..27 | 29.83 | 46 | 52 | 40 | 93 | 82 | 88 | N | S W | 12 | 10 | O. | C. | T. |
| F..28 | 29.86 | 40 | 47 | 34 | 100 | 100 | 100 | S E | E | 4 | 20 | F. | R. | .26 |
| S....1 | 29.70 | 54 | 62 | 45 | 86 | 80 | 83 | S W | S W | 16 | 14 | C. | C. | 1.46 |
| ☞ | 29.92 | | 45 | 33 | | | 89 | | | | | | | 3.12 |

*O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow. †Indicates trace of rainfall. ☞ Mean for week.

## CHANGES IN THE MEDICAL CORPS OF THE NAVY FOR THE WEEK ENDING MARCH 8, 1902.

D. N. CARPENTER, passed assistant surgeon. Detached from the "Illinois," ordered home and granted sick leave for one month.

DR. W. E. GRIFFITH, appointed assistant surgeon from Feb. 20, 1902.

H. D. WILSON, passed assistant surgeon. Ordered to accompany a detachment of marines, March 8, to the Asiatic Station.

## SOCIETY NOTICE.

SUFFOLK DISTRICT MEDICAL SOCIETY. — There will be a meeting of the Section for Clinical Medicine, Pathology and Hygiene in Sprague Hall, Boston Medical Library Building, 8 The Fenway, Wednesday, March 19, at 8 P.M.

Dr. W. H. Robie will read a paper entitled "Some Considerations of Uremia." Dr. J. L. Morse will read a paper entitled "Notes on the Diagnoses of Diseases of the Kidneys and Bladder in Infancy."

Discussion by Dr. Rotch. Dr. Edward Reynolds will present "Remarks upon some Prevailing Errors in the Diagnosis of Renal Conditions."

H. F. HEWES, M.D., Secretary.

## ENNO SANDER PRIZE.

THE time limit for submitting the essays on "The Most Practicable Organization for the United States Army in Active Service," in competition for the Enno Sander prize, has been extended to March 31, 1902.

There is much interest in the subject, and the competition promises to be an interesting and active one.

## RECENT DEATHS.

DR. CONRAD MUND of New York, a younger brother of Dr. Carl Mund, was drowned on March 2, by the capsizing of a sailboat on the Great South Bay, Long Island. He was twenty-eight years of age, and a graduate of the medical department of Columbia University.

DR. ARTHUR T. MUZZY of New York, died at the Presbyterian Hospital in that city on March 4, of cardiac disease. He was born in India, where his father, the Rev. Dr. Clarendon Muzzy, was a missionary, and was fifty-one years of age. He was a specialist in diseases of the eye, ear and throat, and at the time of his death was visiting ophthalmologist to the Isabella Heimath Hospital, New York, Christ Hospital, Jersey City, and St. Mary's Hospital, Hoboken.

## BOOKS AND PAMPHLETS RECEIVED.

Report of the Kensington Hospital for Women. From Oct. 8, 1900, to Oct. 14, 1901. Illustrated. 1901.

Report of the Commissioner of Education for the Year 1899-1900. Vol. II. Washington: Government Printing Office. 1901.

Compend of General Pathology. By Alfred Edward Thayer, M.D. Illustrated. Philadelphia: P. Blakiston's Son & Co. 1902.

Summary of the Annual Report of the Library Committee of the College of Physicians of Philadelphia for the Year 1901. Reprint. 1901.

Annual Reports of the President and the Treasurer of Harvard College, 1900-1901. Harvard University, Cambridge, Mass., Jan. 25, 1902.

Animal Experimentation. A Series of Statements Indicating its Value to Biological and Medical Science. Boston: Little, Brown & Co. 1902.

A Manual of Ophthalmoscopy for Students and General Practitioners. By J. E. Jennings, M.D. Illustrated. Philadelphia: P. Blakiston's Son & Co. 1902.

Syphilis, a Symposium. By L. Duncan Bulkley, A.M., M.D., Follen Cabot, Jr., M.D., Louis A. Duhring, M.D., and others. New York: E. B. Treat & Co. 1902.

The Social Evil, with Special Reference to Conditions existing in the City of New York. A report prepared under the Direction of the Committee of Fifteen. New York and London: G. P. Putnam's Sons. 1902.

The Sanitary Service of the English Army. By John Stewart Kulp, New York City, Captain Medical Department, U. S. Army; Major and Surgeon of United States Volunteers. Illustrated. Reprint. 1902.

Handbook of Bacteriological Diagnosis for Practitioners, including Instructions for the Clinical Examination of the Blood. By W. D'Este Emery, M.D., B.Sc. (Lond.). Illustrated. Philadelphia: P. Blakiston's Son & Co. 1902.

Outlines of Anatomy, a Guide to the Methodical Study of the Human Body in the Dissecting Room. By Edmund W. Holmes, A.B., M.D. Second edition. Illustrated. Lancaster, Pa.: Press of the New Era Printing Co. 1902.

The Impropriety of Cesarean Section in Placenta Previa, with Remarks on a Rational Method of Treatment. By Hugo Ehrenfest, M.D., of St. Louis, Mo., Consulting Gynecologist to the St. Louis City and Female Hospitals. Reprint. 1902.

Sulphur Dioxide as a Germicidal Agent. By H. D. Geddings, M.D., Passed Assistant Surgeon, Acting Director Hygienic Laboratory, U. S. Marine-Hospital Service, Washington, D. C. Washington: Government Printing Office. 1902.

Transactions of the Obstetrical Society of London. Vol. XLIII, for the year 1901, with a list of Officers, Fellows, etc. Part IV, for October, November and December. Edited by Herbert R. Spencer, M.D., and Alban Doran, F.R.C.S. London. 1901.

Foreign Bodies Accidentally Left in the Abdominal Cavity. With Report of One Hundred and Fifty-Five Cases. By August Schachner, M.D., of Louisville, Ky., Professor of Surgery in the Louisville Medical College. Illustrated. Reprint. 1901.

## Original Articles.

### OSTEO-ARTHRITIS OF THE SPINE; SPONDYLITIS DEFORMANS.[1]

(SECOND PAPER.)

BY JOEL E. GOLDTHWAIT, M.D., BOSTON.

The first paper on this subject was presented by the writer at the meeting of this association held in New York in May, 1899. In that paper the disease was described and a series of well-marked cases reported. The milder cases were purposely excluded because of the question which might arise as to diagnosis, and little was said in regard to prognosis and treatment, as neither point at that time was at all clear. In the time which has elapsed since the presentation of this first paper some of these questions have been settled, so that a later communication seems justified. As the result of this later knowledge it is now possible to recognize the disease at a much earlier stage, at which time its arrest is possible, and the serious degrees of crippling avoidable.

By osteo-arthritis is meant a disease which has commonly been classed with chronic rheumatism, in which, pathologically, there is a marked proliferation of the edges of the articular cartilages, with ultimate ossification of this proliferated portion, together with an ossification of certain portions of the fibrous or ligamentous tissue. The bone adjoining the part in which this change has taken place is not materially altered in its appearance or structure, and in this is in marked contrast to the atrophy which is always present in these structures in the other type of arthritis deformans, designated for convenience "rheumatoid arthritis," and described more carefully in the previous paper and in a paper published by the writer some years ago with the title "The Treatment of Joints Disabled by the so-called Rheumatoid Diseases."[2] The hypertrophied or new formed tissue is made up of cartilage and bone and does not represent a deposit of urates or other such chemical substances, as has been more or less commonly supposed.

The process in the spine always begins, except in the cervical region, upon one side anteriorly, and extends up and down along the anterior lateral ligament. It may remain as a comparatively local process, involving only a small portion of the ligament, as is shown in Fig. 1 and Fig. 2, or it may cross over to the other side and extend up and down until the whole spine is affected. When this occurs the chief deposit or new formation of bone is always on one side, the change in the median line and other side consisting simply of a fusion of the vertebræ, as shown in Fig. 3.

At times, even though the hypertrophic change is quite active, that which develops from adjoining vertebræ does not fuse and a more or less free joint remains. This is distinctly shown in Fig. 3 and also in Fig. 4, in which an intermediate joint remains mobile (*a*), even though the osseous deposit has been so extensive as to entirely overlap the articulation in front (*b*).

As the disease goes on in the ligaments and cartilages the intervertebral disc may be absorbed before ankylosis takes place. If this be the case naturally the back is rounded and the spine becomes very much arched, as shown in Figs. 5 and 7. If, on the other hand, the process is more active, the vertebræ may become ankylosed before the disc is absorbed, and consequently no deformity is produced. If this be the case, the disc ultimately is replaced by osseous tissue and the ankylosis rendered more complete. The condition is shown in Figs. 4 and 9. If the process is more active on one side than the other, it is easy to see that lateral deformities may result, and naturally this is more commonly seen in the cervical region where the spine has greater flexibility. The condition is well shown in Fig. 6. In the cervical region, the disease is much less constantly confined to one side than in either the dorsal or lumbar region, and this more general distribution of the disease is also shown in Fig. 6.

While these changes are taking place in the anterior portion of the spine, similar changes may take place in the ligaments and articulations more posterior, so that the transverse and, possibly, though rarely, the spinous processes are affected. It is the disease in these regions that causes most of the symptoms of paralysis or disturbed sensation, by narrowing the foramina through which the spinal nerves pass, and as the disease is always more marked upon one side than the other, the presence of these symptoms upon one side and not the other is easily understood.

In the previous paper the cases reported were those in which the disease was very extensive, the whole spine being ankylosed, and they are of interest in this paper largely as showing the extent of the ankylosis which may result and the wide difference in the posture or type of deformity which such a condition may produce. The rounded back, the commonly supposed characteristic attitude, is shown in Fig. 7, but in Fig. 8, with the spine also rigid, there is marked lateral deformity as well, while in Fig. 9 the spine is perfectly straight, and yet in this case the spine was ankylosed from the cervical region to the sacrum.

In the cases reported in this paper nearly all were seen when only a small portion of the spine was affected, and the chief purpose of the paper is to emphasize the importance of early recognition of the disease, knowing that an arrest of the process at this time is almost certain if proper measures are adopted.

*Symptoms.*— In studying the symptoms of the disease upon which a diagnosis is made, while pain, limitation of motion, muscular contractions, referred pains due to pressure upon the nerve roots are common, it is to be remembered that these symptoms may have been present in so

[1] Read before the meeting of the American Orthopedic Association, held at Niagara in June, 1901.
[2] Boston Medical and Surgical Journal, Jan. 28, 1897.

slight a degree as to attract little attention and the disease may be detected in the course of some other examination.

Usually pain and limitation of motion are quite prominent symptoms, and it is for the relief of these that the patient seeks treatment.

The pain varies in character and there are two or three more or less constant types. There may be no pain at the seat of the disease, but the referred pains in the leg, arm or side, depending upon the location of the disease, may be very severe. On the other hand, there may be severe pain at the seat of the disease, and this may be referred directly to the back, or to the anterior part of the spine at the back of the abdomen.

When the pain is referred to the back it may suggest lumbago, and is almost always at first mistaken for this. It is usually worse after periods of rest, and may be somewhat relieved temporarily by stretching or limbering-up exercises, although certain motions are always painful.

The anterior spinal pain is the most severe and usually occurs in paroxysms, being seen only in cases in which the disease is very acute and then frequently after periods of sleep. At this time the muscles which have carefully guarded the part and prevented motion during the day, are relaxed, and in some turn or movement the diseased areas are pressed or pulled upon. As this form of pain is more commonly seen when the disease is in the low dorsal or lumbar regions, it is probable that with the relaxation of the muscles the lumbar spine, not being supported, sags down, or the curve becomes obliterated, and the anterior portions of the bodies of these vertebræ are crowded together. As the disease is on this portion of the vertebræ, the continued pressure leads to reflex muscular contraction, and the patient wakens in a violent paroxysm of pain, followed by stiffening of the other muscles, so that for some minutes he may be "cast," and not until the position of the body is changed is the pain and muscular rigidity relieved. The fact that if the spine is kept normally extended, or at times hyperextended, these paroxysms can be prevented, makes the above theory probable.

The referred pains are due to the pressure of the thickened tissue upon the nerve roots, and as the disease is always more marked upon one side than the other, the pain is one sided, or if there should be pain upon both sides, it comes at different times, that upon one side being associated with the early part of the disease, while that in the other coming much later and representing the gradual extension of the disease to that side. If the pain should be present upon both sides it is always much worse upon one than the other. The pain is referred to the distribution or ends of the nerves, and is not felt along the course of the nerve, as would be the case in neuritis. For this reason there may be definite areas of hyperesthesia, or if the pressure be more severe, it is readily seen that these areas of hyperesthesia may become areas of anesthesia, and relatively the same thing is true if the motor nerves are pressed upon, and slight impairment of motion or complete paralysis may result.

The pressure upon the nerves is probably due to the hyperemia which surrounds any irritative or inflammatory process, and is not due to the direct pressure of the new formed or thickened bone, as the symptoms are practically always relieved by treatment, which would not be the case if the bone change were the direct cause.

This feature of the referred pains is so common and the real condition so often overlooked, that it is emphasized perhaps out of proportion to the other symptoms. Probably fully half of the cases have pain referred to some part of the body, arm, side or leg, distinctly remote from the seat of the disease, and as in a large proportion of these cases there is no pain at the seat of the disease, the importance of the symptom should be at once realized. After seeing a considerable number of such cases, it has become a fixed rule that the spine should be thoroughly examined at all times, when there has been pain in the leg, side, shoulder or arm, or in which there are areas of numbness or hyperesthesia in the side, arm or leg, the symptoms being wholly or largely upon one side, and where the condition has not been influenced by other treatment.

Frequently the pain, still remote from the seat of the disease, is increased by some movement, such as side bending when the pain is in the leg, coughing or forced inspiration when the process is in the dorsal region, or rotation of the head with cervical disease, and this should always be suggestive of the spinal condition.

The limitation of motion, which is the next most common symptom, is undoubtedly due in part to the osseous deposit and in part to muscular spasm. That which is due to the former is naturally permanent, while that which results from the muscular spasm will disappear as the disease subsides.

As the osseous deposit is more marked upon one side than the other, so also the muscular spasm will show more upon one side, and the result of both of these features is at once apparent in bending forward or to the side. In the forward bending the body may be drawn markedly to one side, the amount increasing the more the motion is forced. In side bending the motion will not only be more free to one side, but the segments of the spine in which the motion is allowed may be different. For example, the motion to the right may be accomplished by bending the lumbar spine, while to the left the lumbar spine may be rigid and the bending occur in the low dorsal region. Backward bending or hyperextension is practically always limited, as would be expected from the strain upon the diseased area which the motion would cause.

In the illustration (Fig. 10) of a case of early disease in the upper lumbar and the low dorsal region, the body is held erect. Forward bending is limited, as is shown in Fig. 11. Bending to the left (Fig. 12) is much restricted and the motion

is seen to be confined to the low lumbar and upper dorsal regions. Bending to the right (Fig. 13) is somewhat more free, and is accomplished by the whole spine.

In the illustration (Fig. 14) of a very acute early case of disease in the lumbar spine (Case III of the series here reported), the best position, and this could be assumed only with support, was as is shown, with the spine inclined to the left. Bending to right (Fig. 15) was performed almost wholly by the dorsal spine, while in bending to the left (Fig. 16) the motion is performed by both the dorsal and lumbar spines, the dorsal being still the more free.

At times, if some peculiar position is taken, the motions from that point are decidedly more free. In one case, when the spine was slightly flexed, flexion and side bendings were not normal, but nevertheless quite free, while with the body erect, the greater restriction of movements was very noticeable. The exact explanation of this is not perfectly clear, but is probably due to the presence of some mass of the new formed osseous tissue which overlaps the other vertebra and which on assuming certain positions impinges less upon the adjoining part, so that freer motions are possible.

The deformity or peculiar attitudes assumed in this disease are due, as is true of the limitation of motion, in part to osseous thickening and in part to muscular spasm, and the attitude is permanent or not in proportion to the predominence of one or the other of these features.

That there is no constant characteristic attitude in the extreme cases has already been shown in this paper (Figs. 7, 8, 9). In the acute or early cases there is usually some lateral deformity on standing, as is shown in Fig. 14. In walking or rising the attitude is often more suggestive than when standing, many of the motions naturally made by one portion of the spine being less perfectly performed by other parts of the spine or the hips and shoulders.

In walking there may be a distinct limp, due to the irritation and contraction of the psoas muscle causing the flexion of the thigh. The attachment of this muscle at the side and front of the spine makes its irritation and contraction easily understood, and because of the one-sided nature of the disease, the contraction would be expected, as it is seen only on one side. This symptom would only be present when the disease is in the low dorsal or lumbar region. This feature was present to a marked degree in the Case Fig. 14, and the contraction, as is at once apparent, was upon the left side.

*Etiology.*— In the first paper, so far as could be determined, all of the cases which had previously been reported were collected and studied. There were thirty-five such cases in this series beside the ten cases of my own which were reported at that time. One of the most apparent features in the analysis was that there was no definitely recognized cause for the disease. Gonorrhea was mentioned in a certain number of instances, but in a much larger number this was not even suggested as a possibility. Trauma and heredity, together with exposure to wet or cold, were also factors of importance in the minds of the various writers.

All of these are undoubtedly of importance, but no one or all explains satisfactorily the nature and reason for the disease. It is hoped that certain investigations which are now being carried on in the pathology and chemistry of such conditions may result in more definite information.

From the clinical standpoint, the study of the cases suggests that probably, as the result of overwork or some debilitating condition, the metabolism of the body has been carried on imperfectly and that in this condition trauma, a septic or infectious process, exposure or any such allied condition represent exciting causes of a disease which would not have developed but for the state of the general health. It is probably also true that even though there may be an inherited predisposition to some bone or joint lesion of similar nature, this would not have developed had not an injury, overwork or some acute disturbance of the general health represented the exciting cause.

The fact that seemingly slight or simple injuries or that infectious processes not commonly of a serious nature are oftentimes followed by conditions of this type should be borne in mind in making prognoses.

*Treatment.*— The treatment of osteo-arthritis is of more importance than is commonly supposed, and is partly medicinal and partly local and mechanical. An early diagnosis is, of course, of the first importance, as it is at this time that the most can be accomplished. The disease is probably in part a trophic process, and consequently all medicines or methods of treatment which debilitate should be most carefully avoided. This naturally includes the various so-called rheumatic remedies, if they are to be used for any length of time, because of their depressing action, and also the various baths or courses of treatment which tend to lower the vitality. The general treatment should be wholly nourishing and stimulating, care being taken to see that the eliminative functions are ample. Extra diet, stimulating bathing, massage of the unaffected parts, electricity in a mild current, all are of value, and also the dry heat, provided it is not used so often as to be debilitating. For medicines, iron, arsenic and strychnia are the drugs which are of the greatest value, together with the phosphate of soda, the bicarbonate of potash, or such simple remedies as tend to increase the eliminative functions. Cod liver oil and alcohol in medicinal doses are also useful.

The mechanical treatment consists chiefly of some form of support which will limit the motions at the seat of the disease. The disease is apparently aggravated by injury or irritation, and this must be prevented as far as possible. If the symptoms are very acute, complete fixation of the spine is indicated, and this is best accomplished by some form of support which entirely encircles the body. A plaster-of-Paris jacket, or one made

of stiffened leather, are the most practical. Simple recumbency is not enough, as considerable motion of the spine is still possible, and as the normal curves of the spine are not supported. Not only is the pain not relieved by such procedure, but frequently it is increased owing to the crowding together of the anterior portions of the vertebræ, the region of disease, as the lumbar curve relaxes. When the body is prone, the muscles and ligaments relax, especially during sleep, and the curves of the spine which are present when the body is erect disappear in both the dorsal and lumbar regions.

In the former the anterior concavity becomes less concave, and the anterior portions of the bodies of the vertebræ are drawn apart, while in the latter, or lumbar curve, the anterior convexity becomes less convex and the anterior portions of the bodies of the vertebræ are crowded together. Either condition may cause pain, which will be worse after sleep when the muscles have been most relaxed. The jacket, if it is to be successful, must fit the figure so perfectly that these changes in the curves of the spine can not take place. If for any reason a jacket or fixed support cannot be worn, the patient should be kept recumbent, with pads or firm pillows adjusted so that all parts of the spine are supported.

In case a jacket is to be used, it can best be applied with the patient standing and assuming the most erect position possible without pain. Suspension, forced hyperextension, or any other method of correction of the position is not indicated, as they would all produce strain or pressure at the diseased areas. The jacket, if applied for disease in the lumbar or lower half of the dorsal region, should extend from the top of the trochanters to the axillæ.

If there is much deformity, either lateral or anteroposterior, the jackets should be reapplied every one or two weeks until this has been corrected as much as possible. The fixation, by protecting the diseased area from irritation, allows the reflex muscular contractions to subside, and as this takes place the posture becomes more natural. In cases of short duration, three or four weeks is usually enough for the best position to be reached.

In the acute or severe cases a fixed support, such as the jacket, is usually necessary for three or four months, while for the subacute or mild cases, or for the acute cases during the convalescent period, a support as rigid as a jacket is not necessary, and a light brace with uprights in the back made of spring steel, or a corset made of heavy webbing reinforced with flexible steels, will probably be sufficient. At times, strapping the back with adhesive plaster is helpful, or a swathe pinned tightly about the body may give relief.

Local warmth is always agreeable, and a layer of rubber or flannel across the back inside of the support is a simple way of producing this effect. Beside the warmth, the increased vascularity which the rubber produces relieves some of the muscular contraction.

In order to illustrate the different types of the disease as they behave under treatment, the following cases are reported:

CASE I. E. B., 42 years of age, and a seaman by occupation, came to the Carney Hospital in January, 1901, giving the following history:

Having previously been well, a few months ago he began to have pain across the chest, and occasionally shooting down into the left leg. The pain in the chest had grown worse, and for the two or three months previous to his first visit to the hospital he had been unable to sleep lying down. He had worked with great difficulty until three weeks before he was first seen. He gave up because of the pain. Medical treatment which he had received had given him no relief.

At the time of the first examination at the hospital he showed good muscular development and stood erect. All motions of the spine were made very guardedly. On attempting forward bending, the body was drawn to the right. Respiration was very difficult because of pain, and was made by short, quick breaths, chiefly diaphragmatic, the thorax moving but little. The grunting character was quite marked.

There was no paralysis, and nothing to indicate cord or nerve root pressure, except an occasional shooting pain in the leg.

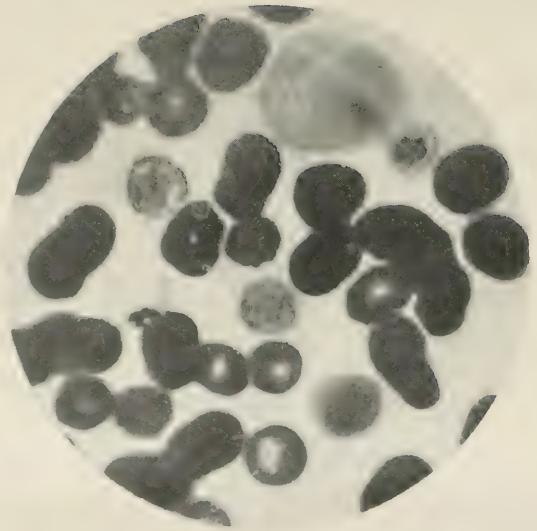
A diagnosis of osteo-arthritis, involving the dorsal region of the spine, with involvement of the costovertebral articulations, was made, and a plaster-of-Paris jacket was applied. Five days later the patient was seen again, giving the report that except for some irritation from the upper edge of the jacket he had been perfectly well since it was applied. At this time the breathing was quiet, the grunting character having entirely disappeared, and the pain was entirely relieved. The jacket was trimmed, but not removed. After this the recovery was uneventful; the jacket was continued for a month or six weeks and then removed. The respiratory movement improved very markedly; the extreme limitation seen at the first examination being due to the acuteness of the process, which was arrested before the permanent osseous changes had taken place.

CASE II. G. W. E., a man 38 years of age, was first seen by me Jan. 26, 1900. For many years he had been closely confined at clerical work, and fourteen years before he had what was termed "heart exhaustion," making an invalid of him for some time.

For six or seven years previous to the time of his first visit he had had "rheumatism." Different parts of the body had been affected, but in no one place had it remained until a year before, when it settled in the right shoulder and has continued there ever since. The pain has gradually extended to the spine, and recently to the left arm and leg. During this period there had been a loss of thirty pounds in weight. The family history was negative as to "rheumatism" and tuberculosis. He had had many forms of treatment without relief and with a gradual extension of the process.

At the time of the examination there was considerable emaciation, with much nervous depression. The spine throughout was rigid, the most active disease being in the cervical and low lumbar regions. The hip joints were free, and from the character of the pain in the leg it was undoubtedly due to pressure upon the nerve roots. This was also true of the pain in the left arm. The right arm was paralyzed; there was much atrophy and voluntary motions were impossible. The joints of the arm, except the shoulder, which was slightly involved, were not affected, the lack of function being due apparently to the pressure upon the nerve roots.

For treatment the patient was fitted with a leather jacket and a Thomas collar, so that the whole spine was supported, and beside this he was kept in bed for more complete rest of the affected areas. Tonics were also given, together with forced diet and good general hygiene. The bed treatment was continued



Boston Medical and Surgical Journal, March 20, 1902.

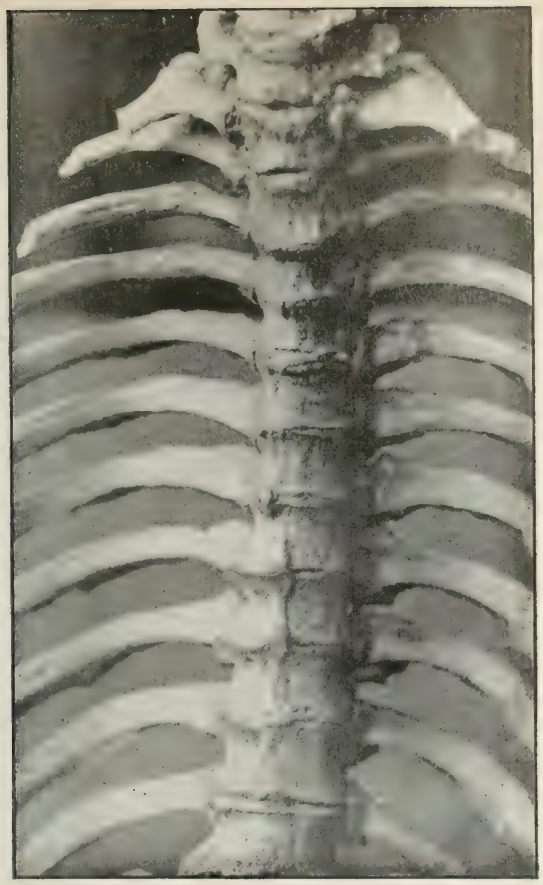


FIG. 1.



FIG. 3.



*b* FIG. 4. *a*



FIG. 2.



FIG. 5. FIG. 6.

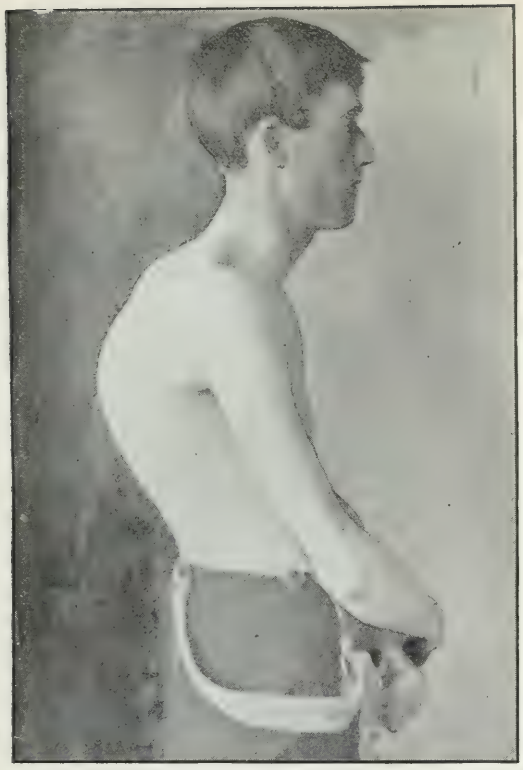


Fig. 7.



Fig. 9.



Fig. 8.

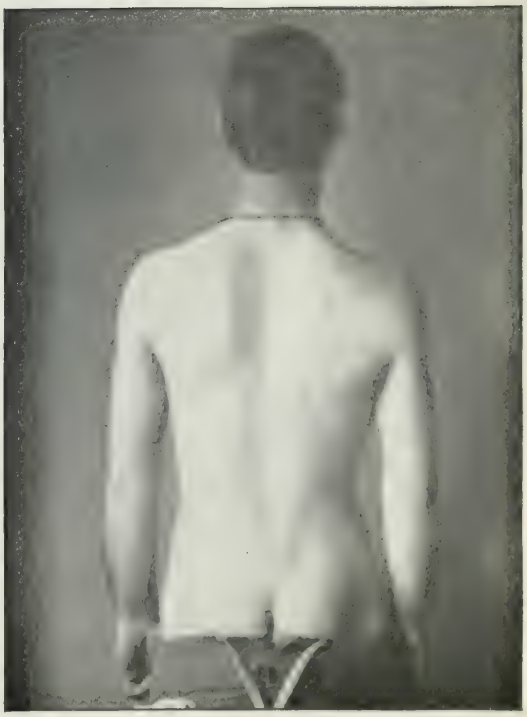


Fig. 10. *a*.



FIG. 11. *a*.



FIG. 13. *a*.



FIG. 12. *a*.



FIG. 14. *b*.



FIG. 14. *b.*

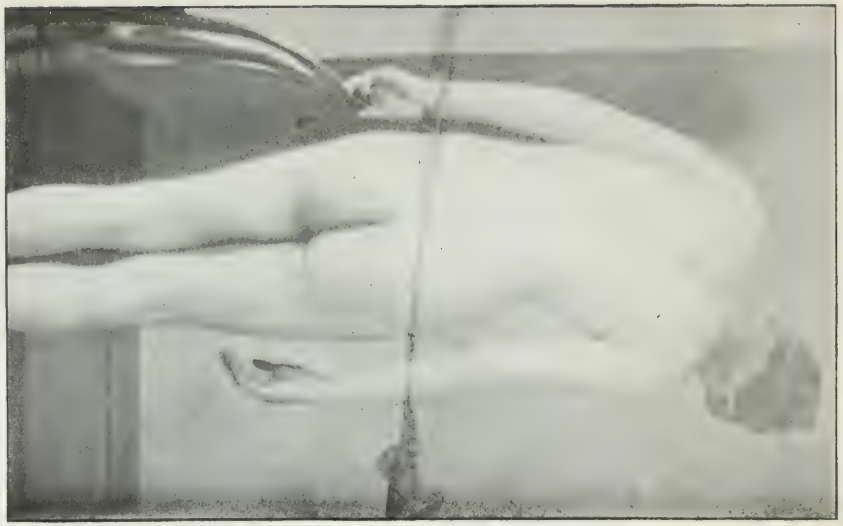


FIG. 15. *b*

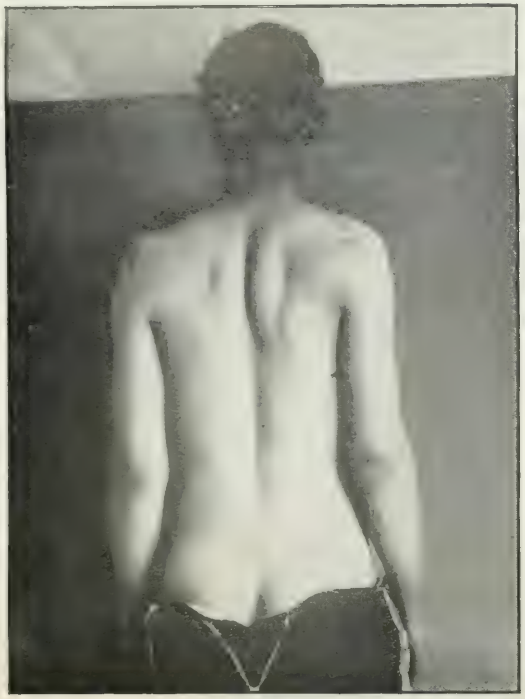


FIG. 17 *b.*



FIG. 18. *b.*



FIG. 19. *b.*

for about two months, soon after which the patient was sent South, where he remained, living out of doors, until the summer, when he came North, living in the country most of the time, out of doors until the fall. During this time, covering seven months, he steadily improved; the pain in the leg and lower back disappeared first, then the pain in the neck, and gradually the strength in the right arm returned, until at the end of about six months the use was normal. The jacket was worn for about seven months, after which a light spring steel brace was substituted, and this was worn for a few weeks longer.

Since then the patient has been well except for the restriction of motion in the spine, and able to lead an active life. There has been no return of the so-called "rheumatism," and the gain in weight is quite marked.

Case III. Mr. E. W. L., 24 years of age, a hospital attendant by occupation, was first seen in February, 1900. The history given was that three months before pain came on rather suddenly in the back of the left thigh. There was no known injury or apparent cause. He had played football a good deal, but was not conscious of injury. The pain gradually increased and with the increase a gradual inability to make certain movements involving bending of the spine developed. To pick up objects or to lace his shoes had become impossible.

At the time of the examination he was in extreme pain, all referred to the left leg. Standing erect without support was almost impossible, and in the best position the body inclined to the left. On bending forward the body was drawn to one side. The lateral bending was more free to the left than to the right. There was much spasm of the spinal muscles. The motions at the hips were free, except hyperextension in the left, which was limited by the Psoas contraction.

For treatment a plaster-of-Paris jacket was applied, tonics given, and the patient sent to his home in the country. The jacket was worn for about three months, after which there was practically no pain, and in the fall of that year the patient returned to his work and has remained well since.

Figs. 14, 15 and 16 illustrate the condition previous to the treatment. The condition today is shown in the illustrations (Figs. 17, 18 and 19). The body is erect and there is almost no permanent restriction of motion. On bending to the right (Fig. 18) it will be seen that the motion in the low lumbar spine is a little less free than on bending to the left (Fig. 19).

Case IV. P. S., a man 32 years of age, was first seen Feb. 6, 1900. The history as given was of a marked family tendency to rheumatism. The patient had been well until four years previously when he had an attack of "rheumatism" in the back. At times since there have been other mild attacks, with occasional pains in hips and arms. For four weeks previous to the time of the examination there had been an unusually severe attack with pain in the back between the shoulders and extending up into the neck. The pain was worse after resting. At the time of the examination the spine was straight. There was free respiration. The spine was carefully guarded by muscular spasm, almost no motion being allowed.

No relief followed external applications or internal medication. A leather jacket was finally applied, and later on a spring steel brace was substituted. There was gradual improvement until the summer, when the apparatus was discarded by the patient, and much active exercise, such as diving, boating and horseback riding, undertaken. This was followed in a few weeks by an unusually acute attack which was relieved only after two or three months of fixation in a leather jacket, the patient at the same time being kept in bed. During this period some pain was almost constant, while the paroxysmal pains which usually came on after sleep were more severe than one is often called upon to witness. These sudden violent pains were referred to the back of the abdomen and extending into the loin.

The symptoms gradually improved, so that at the end of some months the jacket was omitted, and a spring steel back brace applied in its place. This was worn for about three months, and a webbing belt to give some support to the abdomen and lumbar spine was substituted. This is still being worn. The pain has entirely ceased, and the motions are much more free.

Case V. H. D., a physician, 45 years of age, was seen in July, 1901. There was the following history: About ten years previously, after exposure of the back to a draft, he had an attack of "sciatica" in the left leg. At that time he was laid up for six weeks. Three years ago there was another attack of pain in the left leg, and at that time also in the back. The body was drawn to one side, and the whole attack lasted nine months. The present attack began nine months ago with severe pains in the left leg and with "cramps" in the back. The pain in the leg was referred to the distribution of the cutaneous nerves. No treatment had given relief.

At the time of the examination the body was inclined forward. From this position forward bending was quite free. Side bending was much limited, especially to the left, while backward bending was impossible, except after certain rotary motions, when something would slip and a more erect position could be assumed. From this new position, however, forward bending was much less free than it had been in the first position, and in the attempt to bend forward the pain in the leg was increased. Motions in the hips were free.

For treatment a leather jacket was applied, with marked relief to the pain in the leg within a few days. Under this fixation the position of the spine improved, so that at the end of about two weeks it was necessary to mould over the jacket to the new position, and this has been necessary once since. As the condition improved so that the spine could assume a better position the jacket felt less comfortable and there was more pain, which was relieved by remodeling the the jacket.

*Prognosis.*— The prognosis of osteo-arthritis must be considered with reference to both the immediate and the ultimate result.

The immediate result is definitely known. Without treatment there is, in the majority of cases, a gradual extension of the disease due to the continued irritation from motion, until the discomfort is so great that the patient is obliged to give up and go to bed. Under the imperfect rest which this represents, the process gradually, after a long period, quiets down and the patient is about again, well, except for the stiffness in the region of the spine involved. The duration of the disease and the completeness of the recovery is determined in a large degree by the general hygienic influences with which the patient is surrounded, and if these are particularly unfavorable, not infrequently there is a gradual extension of the disease to the other joints, with great crippling as the result.

In a certain number of cases the disease is so mild that the muscles alone are able to protect the part, and recovery takes place with but little to show for it except some slight restriction of motion, until some exposure, injury or debilitated condition is followed by another and more severe attack. There may be intervals of months between these attacks, or even years, the general health as well as the extent of the original process largely determining the frequency.

With treatment, even the most severe attack is shortened very materially and the extension of

the disease which would result if the irritation were not relieved, is prevented. In the first stages of the disease, even though the pain may be very intense, the relief given by the support is usually apparent within a very few days, while in some instances the relief is almost instantaneous. If the disease has been present for some time so that already considerable bone thickening has taken place, the relief will not be apparent so soon, and several weeks of fixation may be required before the pain disappears. As this ceases the muscular contraction also subsides, so that the rigidity which was due to this disappears. The return of motion is so complete at times in the early acute cases that the traces of the disease are only detected by the most careful examination. This is extremely well shown in the series of photographs (Figs. 14, 15, 16, 17, 18, 19).

The ultimate result of this disease can only be determined by many years of observation with the same individuals, so that positive opinions at this time are impossible. It seems fair, however, as some of the patients have been under observation for several years, to attempt to draw conclusions, even though some of the conclusions may need to be changed later.

Apparently after the attack is once over and has been thoroughly treated, unless there is some accident, injuring the affected part, or some debilitating condition, such as acute general illness, overwork, or great mental strain or worry, the patient remains well.

The debilitating influences, overwork, etc., are followed at times by a return of the trouble in the spine, probably for the same reason as any other weak part might become apparent, when if reasonable general health had been maintained none of these weak parts would have needed attention. In giving a prognosis this should be borne in mind, and should any such condition develop, the treatment is not unlike that which was used, or would have been used, for the original attack. The cause should be removed and the region affected immobilized.

An indirect factor which must be borne in mind in the prognosis is the effect upon the lungs of the limitation of the respiratory movement due to the ankylosis of the ribs to the spine. Two patients have been seen with pulmonary tuberculosis, this having developed after the thoracic movements had been restricted. The development of such a disease is not hard to understand, if the theory is correct that the imperfect expansion of the lung tissue is a large contributing factor to the development of tuberculosis.

To indicate the possible results and the permanency of the results, perhaps the first case of the series reported in the former paper upon this subject, is the best illustration because it was an extremely severe type of the disease, and because the patient has been for the longest time under observation.

The patient, a woman 58 years of age, was seen by me in July, 1893, with a very active osteo-arthritic process in the cervical spine. The disease was so acute and extensive that both arms were paralyzed, due to the pressure upon the nerve roots. After six months of careful treatment the patient was well except for the stiffness of the region of the spine involved. Since then the patient has been seen or heard from at intervals, and there has been no return of the symptoms, although her life has been an active one.

With the other cases, a shorter time has elapsed since the treatment was begun, but so far as my memory serves me, in no case has there been a genuine relapse. In several cases, while the active treatment was being carried on there has been an acute exacerbation of the symptoms, but not after the disease has once thoroughly been arrested.

It seems to me that we can say with definiteness that the disease is a local one, influenced or caused perhaps by general conditions, but that it can be corrected, the pain relieved, and the patient made, for all practical purposes, well.

## PRIVILEGED MEDICAL COMMUNICATIONS: A REJOINDER.

BY DAVID W. CHEEVER, M.D., LL.D., BOSTON.

AT the Councillors' meeting of the Massachusetts Medical Society, on Oct. 2, 1901, I presented a paper on "Privileged Medical Communications," requesting its reference to the Committee on Medical Legislation. It was so referred, and I am informed that this committee has the subject under consideration.

On Oct. 17, 1901, this paper was published in the *Boston Medical and Surgical Journal*. On Jan. 2, 1902, the *Boston Medical and Surgical Journal* published a reply to my paper. The present paper, written Feb. 25, 1902, is intended as a rejoinder, and is published, by my request, in the *Journal*, hoping it may meet the eyes of the committee as well as the public. The article which I have termed the reply contains errors of sentiment; the original article contains errors of fact. I desire to correct the latter, and to point out the former; and then to briefly reconsider the whole matter.

The law of Massachusetts, to quote an authority, says on "Privileged Communications": "Neither is protection extended to medical persons in regard to information they have acquired confidentially, by attending in their professional characters."[1] Thus "by the common law of Massachusetts the physician is obliged to state publicly, on the witness stand, whatever may have been told him by his patient, even although involving character or family secrets." This latter is my statement and I can stand by it as correct. But in a succeeding paragraph I imply that the law of England protects the physician. This is not true. The common law of England is like that of Massachusetts. "No practitioner [in England] can claim exemption from answering because his answer

[1] Greenleaf on Evidence, 1896, i, 248.

would violate secrecy or implicate the character of a patient. This is the law; and however it may be defended on legal grounds, we hope there are not a few medical men who would prefer to sacrifice their personal liberty to their honor."[2]

"These are no medical secrets. A professional man who claims a privilege, where none is allowed, sets himself above the law."[3]

This cancels the errors of fact. I now speak of my critic's errors of sentiment, or opinion. He says: "This appeal will impress the careful reader, first of all, as novel, in that this proposed legislative action is invoked in behalf of physicians; whereas, all similar legislation elsewhere has been framed ostensibly on grounds of public policy." He then terms this "class legislation," etc.

This is an error. Whom does the physician seek to protect? His patient and his patient's secrets, his patient's family, the *morale* and the honor of society. This, first of all; secondarily, the physician seeks to protect his own conscience and heart and honor, again for his patient's sake. There is no class legislation in this. "The privilege is solely for the patient's protection." "He, or his representatives, may waive their rights of privacy, when the doctor may speak." "As to the doctor, he is to regard all knowledge as to his patient's affairs as sacred, and refuse to testify except at the request of the patient, or under the direct order of the court, and even when commanded to testify he should feel his way cautiously," etc. "The rule of [English] common law has been pronounced 'harsh in itself, of questionable policy, and at variance with the practice of France and some of the United States of America.'"[4]

Again, as to matters of opinion, my critic says (quoting me): "We instinctively, as physicians, can recognize but one side, the sacrednesss of professional secrets." Then he goes on to speak as follows: "Seventy-five years ago this censure may have been largely merited; but with improved educational methods there has been developed physicians of different type, with faculties trained to accurate observation, and the cultivation of a judicial temper, combined with a delicate perception of personal honor."

We suppose this refers to expert testimony. It is a matter of opinion whether expert testimony is more valued in court today than the statement of the general practitioner. We claim for the old-fashioned doctor as much sense of honor, and less of the commercial spirit, than the modern expert.

Returning to the main subject, we have quoted the statutes of New York as prohibiting the revelation of professional confidences. "The New York law has not proved an unalloyed benefit, and has been successively modified in 1891, 1892 and 1893. It excludes testimony as to mental condition; as to drunkenness; as to life insurance; as to cause of death; it has met with much criticism, but it is for the legislature to correct this."[5]

We think this goes too far, and, as we see, in one respect, has been modified:

"In an action for damages for a personal injury the testimony of a surgeon of a hospital may be taken before a referee."

In insanity also another line may be drawn:

"Information afforded by a sane patient, for the better understanding or treatment of his malady, to a medical man, is sacred."[6]

Again, it is claimed that the physician may lose his safeguard for his defense in malpractice suits, if not allowed to testify. This can be corrected, as follows: "In Indiana it has been held that when the patient testifies in an action for malpractice against his physician, the physician is then at liberty to testify, or to introduce other witnesses to testify, concerning the matter in controversy."[7]

We admit that the laws are in an unsatisfactory state. The Roman law extended a privilege to physicians.[8] The French penal code forbids revelations. The English common law compels the physician to testify. The law of Massachusetts also. New York prohibits revelations. The United States are now about evenly divided; some twenty-four states and territories following the New York law, and about twenty-five the Massachusetts law. The United States Courts follow the state's law unless in criminal cases.

Some of your readers may recall the Fisher case, in which the writer took some part, here in Boston, and which led, by its exposure of the abuses of the coroner system, to the legal establishment of the medical examiners. The case turned on a question of the evidences of pregnancy in an innocent girl.

About six years ago in London the Playfair case disturbed the moral sense of the community. Whether or not physicians should testify as to matters of a private nature, in open court, was a question warmly debated. The *Lancet*, May 9, 1896, p. 1292, sums up fairly as follows: "Never was the question of professional etiquette more forcibly presented. There is no written code to guide a practitioner. There are [things][9] which it would be subversive to every moral rule to divulge; there are those which it is his bounden duty to disclose. It is a safe formula that, unless there are overpowering reasons to the contrary, a patient's secret should be held inviolable by his medical adviser, almost if not quite as binding as the confessional of the Roman Catholic Church. When it involves the actual commission of crime, morality and justice require the breaking of a confidence," etc.

The judges in the Playfair case did not say they would always commit the physician for contempt, if he refused to answer, but favored the

[2] Tidy, on Legal Medicine, quoted in Taylor, p. 41. The brackets are ours.
[3] Taylor: Medical Jurisprudence, twelfth American edition, New York, 1897.
[4] Best on Evidence, p. 582; Hamilton and Godkin, New York, 1894, pp. 625, 626. The brackets are ours.
[5] Witthaus and Becker, i. 134.
[6] Journal of Mental Science, April, 1897.
[7] Witthaus and Becker, 1894, i, 133.
[8] Tidy, p. 41.
[9] The brackets are ours.

honorable retention of professional secrecy, distinctly. "The safer rule for the physician is never, under any circumstances, to reveal the confidence of his patient, and to preserve inviolate every secret obtained in the course of his professional practice." "Let the consequences take care of themselves. The court will honor, rather than punish, such action," [10] etc.

Now the Massachusetts law says to the physician, "You must tell," but professional opinion adds, "You ought not to."

The doctor in the court of law is in a cruel and false position. If an honorable man, false in proportion to his sense of honor. Some would go to prison rather than betray a confidence; some would consider the law absolved them.

The law should recognize the rights of the patient, the duties of the medical man, but also the justice due the community. "*Salus populi suprema lex.*"

How can these difficulties be reconciled? Perhaps by a modification of the statute of New York. We propose the following for consideration:

It shall be considered unprofessional and improper for a physician to divulge anything confided to him by a patient, unless:

(1) With the patient's consent.

(2) To defend himself when accused.

(3) To expose crime.

(4) In all other cases such professional confidences shall be classed as "privileged communications." It shall be a question of honor whether the physician shall ever feel it his duty to repeat such a "privileged communication": if he conscientiously declines, he shall be protected; if he conscientiously testifies, it shall be before the judge or referee only, in private; and no such revelation shall be published.

## CASES OF EXTRA-UTERINE PREGNANCY ILLUSTRATING DIFFICULTIES IN THE DIAGNOSIS OF THE CONDITION.[1]

BY EDWARD REYNOLDS, M.D., BOSTON.

ON looking over the cases of ectopic gestation which I have seen during the past year, I find six in which the conditions found before operation were so far obscure as to be fairly representative of the difficulties often met with in the diagnosis of this condition, and as they illustrate nothing else than this single point, submit them without further comment. All of them made good convalescences.

CASE I. Seen with Dr. E. T. Twitchell, on Nov. 4, 1901. Mrs. P., 21 years old. Has been married one year. Became pregnant shortly after marriage, and was confident that she was in that condition before missing her period. Was delivered in July, 1901. Had normal periods in August and September, and ten days before the succeeding (October) period again thought herself pregnant. The period, however, appeared in due time, but was painful for almost the first time in her experience. She dismissed the idea of pregnancy, but a fortnight later again experienced the peculiar sensations which she associates with pregnancy, and was again confident that she was in that condition. In the last week of October, lancinating abdominal pains appeared, referred to the umbilicus, and persisted at intervals until I saw her. After three days of these pains, each attack was followed by slight, pale blood stains appearing per vagina.

In the evening of Nov. 3 she was seen by Dr. Twitchell, with an unusually sharp attack of pain, attended by a chill, apparently of nervous origin. The pulse was 100, the temperature 99°. There was slight tenderness in the left iliac region. Under a small dose of morphia she slept, but woke in the morning with less severe stabbing pains in the same left iliac region, and still attended by slight occasional bloody flow from the vagina. Her pulse when I reached her was 80, color good, abdomen hardly rigid, some tenderness in left iliac fossa. On vaginal examination, the uterus appeared to lie in the first degree of retroversion; there was a slight soft resistance over the left broad ligament region, with little or no tenderness, certainly none on the right side. No tympanitis. The pain was less than a few hours before. I thought, with Dr. Twitchell, that it was a probable extra-uterine pregnancy, but that, if it were so, it was unruptured, there was no immediately urgent indication for operation, and her country home was too far from his office to make it wise to operate there. We accordingly recommended that she be removed to a private hospital, and there kept under observation for a few days, unless further symptoms developed. She entered St. Margaret's Hospital that afternoon, and was very comfortable until the next morning, when she had a little more pain, coupled with the appearance of rigidity of the abdominal muscles over the left iliac fossa and considerable tenderness there. These symptoms decided me to open the abdomen at once.

In reviewing the diagnostic features of this case, we see that the patient thought herself pregnant by comparison with her previous experience, but shortly afterward had a period which varied from the normal only in the existence of pain, which was unusual. She still felt the sensations of pregnancy, and when presumably four weeks along (too soon for the physical signs of pregnancy to be perceptible) was attacked by the characteristic pains of an extra-uterine gestation, which were morever accompanied by the strongly diagnostic point of slight uterine flowing. Vaginal examination distinctly referred the trouble to the left side, but was otherwise inconclusive. The appearance of localized abdominal rigidity and increased tenderness made me feel that the risk of operation was much less than the possible risks of a continuance of the condition.

[10] Taylor's Medical Jurisprudence, edition of 1897, p. 43.

[1] Read before the Obstetrical Society of Boston, Dec. 17, 1901.

On opening the abdomen, I found a small movable uterus in a little more than the first degree of retroversion, with a normal left tube and ovary lying under it, the tube sharply flexed upon itself and much engorged with blood, the mucous membrane of the fimbriated extremity swollen, slightly everted, and just adhering to the parietal peritoneum against which it lay, the adhesion being so slight as to be swept away at the first pressure of the finger. The pelvic peritoneum, generally, was injected and had slightly lost its glisten, the same being true of the coils of intestine which presented into it. The right tube and ovary were normal; the appendix had been removed at a previous operation. On raising the uterus to its normal position, the tube rose with it, and with this change of position the much engorged condition promptly disappeared. It was not thickened or inflamed. The uterus was ventrosuspended, the whole operation occupying but a few minutes. The patient had no more pain, recovered from ether without nausea or thirst, never suffered any more discomfort, and returned to her home in three weeks. There was no sign whatever of an ectopic pregnancy.

Case II. Mrs. S. Seen with Dr. S. A. Houghton of Brookline, on Feb. 25, 1901. An unusually strong, well woman. She was 37 years old. Fourteen years married. Two children, one miscarriage. The last pregnancy seven years ago. Periods always regular to exactly thirty-five days, no pain whatsoever. No previous illnesses or ill health. For the last year the periods, though regular, have been beginning hesitatingly, but lasting as usual, one week; the December period, however, lasted ten days, intermittent and dribbling. The next period occurred after an interval of six weeks and was again slightly prolonged, though not profuse. Early in the winter she was awakened in the night by a sharp bearing down pain in the rectum, and for the week before I saw her had been troubled by diarrhea, accompanied by tenesmic rectal pains radiating into the abdomen and left side. She had been conscious through the winter of a pain in the perineal region on jumping, running or sitting on a hard seat.

She consulted Dr. Houghton for her diarrhea and incidentally mentioned the slight peculiarity of menstruation as something which had never occurred before. He, being fully impressed with the belief that any increase in menstrual flow in a woman approaching forty is worth investigating, made a vaginal examination, and finding a large, soft cervix, sent her to me. I felt sure that the cervix was not malignant, but finding a slight tenderness behind the cervix recommended the vaginal use of glycerin for a fortnight and a second examination.

At her second visit there was much less tenderness or pelvic resistance, and I was able to make out an ill-defined mass in Douglas' fossa, which I took to be either the fundus of a retroverted uterus or a new growth pressing on the rectum, thus explaining the rectal tenesmus. Believing that the appearance of a sensitive mass unattended by symptoms in a perfectly well women was strongly suggestive of a new growth, I advised an examination under ether with permission to do whatever might be found necessary. This being acceded to, I etherized the patient a few days afterwards, and on examination found a uniformly rounded mass of about the size of a hen's egg, lying behind the uterus, apparently an ovarian cyst. I therefore opened the abdomen.

In reviewing the diagnosis, we see that this patient presented no sign of pregnancy, had had no amenorrhea, no more alteration of the catamenia than is habitual with many women, and had had no pain except rectal tenesmus accompanied by diarrhea, and evidently symptomatic of pressure on the rectum from the new growth.

Yet, on opening the abdomen, the only abnormality was an extra-uterine gestation of the size of a hen's egg in Douglas' fossa. It was free from adhesions and was evidently on the point of rupture. Dr. Whitney's report on the specimen is appended:

"Microscopic examination showed the presence of chorion villi in the mass which filled the tube. I have been unable, however, to find any trace of an embryo, so it is possible that it may be some months since the impregnation has taken place, and it is to be regarded in the nature of a retained tubal abortion. The villi would correspond to those of perhaps about two to three months, and this is the only indication as to the length of time the pregnancy was active."

Case III. J. F. was admitted to my wards in the Boston City Hospital Sept. 20, 1901. Twenty-seven years old. Ten years married. No children or miscarriages. Menstruation regular until four weeks before entrance, since when it had been present intermittently. A few hours before entrance she was attacked by a sharp stabbing pain in the left ovarian region, succeeded by fainting. Vaginal examination showed nothing but diffuse tenderness over the lower abdomen. The patient was reacting, and was kept under observation for a few days. On Sept. 22, for the first time, a tender mass was found to the left and behind a retroverted uterus, not large or of definite outline. She was watched until Oct. 5, having no more pain and constantly gaining in condition, the mass slightly increasing in size. It was then thought advisable to perform operation.

On review of the diagnostic points, this woman presented no symptoms of pregnancy, but is a typical instance of the accepted dictum, that when a woman who has been exposed to impregnation has a menstrual irregularity, followed by sharp abdominal pain, and this succeeded by collapse, the diagnosis of extra-uterine pregnancy is intrinsically probable. In this case it was further strengthened by the gradual development of a tumor in the left flank.

The condition proved to be an acute hydrosalpinx alongside of a small ovarian cyst, the latter evidently of some duration.

Case IV. Mrs. B. was seen with Dr. C. F. Painter. Thirty-four years old. Sixteen years married. Two children, two miscarriages; last six years ago. With first miscarriage, thirteen years ago, sepsis, curettage, and in bed eight months. Since then always more or less of a neurasthenic invalid. For ten years after this was liable to sudden and very severe attacks of abdominal pain, then had an appendectomy by another surgeon, at which time the uterus and tube were found bound down in retroversion, but at the request of the family were not disturbed. After this she was free from pain for two years and until twenty-four hours before I saw her, during which time she had been having another of the familiar attacks, apparently of tubal colic. Her periods had always been fairly regular at from twenty-three to twenty-four days, except that four months before I saw her she had had a week of menstruation, which had occurred after an interval of twenty-eight days and was succeeded by ten days of slight drizzling flow. Examination showed a retroverted uterus with tubal masses on both sides. The question of extra-uterine at once suggested itself, but was dismissed, as there were no signs of pregnancy, and the patient was inclined to consider it impossible.

She was habitually confined to her bed; I kept her very quiet for about three weeks, watching her along on unimportant treatment, until I was informed by telephone one morning that she was miscarrying. On my arrival I found that she had just passed a blighted ovum of somewhat peculiar appearance, which was sent to Dr. Whitney.

This woman was a chronic invalid, presenting no signs of pregnancy, having had no menstrual irregularities except that one period had been of the normal length, while her habitual period was a few days shorter. She had had no pain other than that she had been accustomed to for thirteen years, but Dr. Whitney reported the specimen to be the uterine decidua of a pregnancy without evidence of chorionic villi or amnion, and therefore symptomatic of a pregnancy outside the cavity of the uterus. On this evidence, and on this alone, I operated, and found an ectopic pregnancy 5½ cm. long and so near rupture that, although it was non-adherent, it was impossible to lift it out of the abdomen without bursting it. It was rendered nonpalpable, on digital examination, by the large mass of adherent tubes and retroverted uterus which lay below it.

Dr. Whitney's report is appended: "The tube from Mrs. B. shows a flattened oval tumor 5.5 by 3.5 cm. At the end of the tube, on the surface, is some hemorrhage and adhesions. At one part is a shaggy membrane projecting, which on microscopic examination shows branching filaments with clubbed ends, quite flat and corresponding to the villi of the chorion of the tenth to thirteenth week of pregnancy. On opening the mass there was a cavity about 2 cm. long lined with a very thin membrane. No embryonic remains were found. The diagnosis is a tubal pregnancy with abortion of about the tenth week."

Case V. C. D. was admitted to my wards at the Boston City Hospital March 17, 1901. Thirty-two years old. Married ten years. Three children, one miscarriage at two months, one year before. Her periods had been regular until two months before, that is, she had missed one period and another was due. There were no other signs of pregnancy, which had not been thought of. One week before entrance she was seized with severe pain in both lower abdominal quadrants, lasting about two hours. During the next three days she vomited incessantly and was very weak. Two days later she had another attack of pain, also associated with vomiting, but had been comfortable for two days before entrance. During the next three days she was comfortable. Vaginal examination was strictly negative except for marked tenderness throughout the lower abdomen, but her pain was constant, and the abdomen was accordingly opened on March 20.

A review of the diagnosis shows that the only symptom was amenorrhea of nearly two months' duration and diffuse abdominal pain with tenderness, attended by vomiting. One ovary was found filled with blood, the left tube was ruptured in its middle third, nonadherent, and at the time of the operation not bleeding. A small macerated fetus was found free in Douglas' fossa. It is interesting to compare the symptomatology of this case with that of Case III, from which it differs in the existence of amenorrhea instead of menorrhagia.

Case VI. E. L. C., admitted to my wards at the Boston City Hospital April 9, 1901. Two children, youngest six years old. Menstruation was regular until the appearance of the usual period earlier in January, since which time she had flowed almost continuously, and at times excessively. On Feb. 2 she had a severe attack of abdominal pain, which lasted intermittently for one week, the pain being referred to the right lower quadrant. After entrance there was no pain, but continued flowing. On vaginal examination, April 10, showed a mass on the right, which I thought probably ovarian or fibroid, filling almost the whole fossa of Douglas, and extending somewhat to the left across the back of the uterus. The patient had not thought herself pregnant, there had been no amenorrhea, the only symptom possibly referable to extra-uterine pregnancy was that of intermittent abdominal pain, which is, however, as we all know, common to many other conditions. An abdominal incision revealed a mass of clotted blood and semiorganized blood lying to the right of and behind the uterus and partially enclosed in an inflammatory sac formed of the right tube, ovary and broad ligament, with neighboring coils of intestines. The tube and ovary were removed and submitted to the pathologist. The first pathological report was negative; later, however, chorionic villi were found, and the case must, therefore, be considered one of extra-uterine pregnancy without symptoms, so far as could be discovered from the history of a somewhat unintelligent woman.

## CASE OF COMBINED EXTRA- AND INTRA-UTERINE PREGNANCY.[1]

BY H. P. PERKINS, M.D., WEST NEWTON, MASS.

This case is one of some interest beyond the presence of the condition for which I have the pleasure of presenting it to this society tonight.

The patient, a woman twenty-six years old, in good circumstances, well developed, weighing 130 lbs., had been under my care for two years, with periodical attacks of hysteria, with convulsions of minor grade, and occasional attacks of hystero-epilepsy. These attacks were frequently of menstrual origin, but at other times were brought on by overindulgence in stimulants or from family disturbances.

There were two well-marked zones. One was in the region of the left eye, the organ being amblyopic and frequently congested. The second zone was over the region of the right ovary and was very hyperesthetic. Mild seizures could be induced at any time and severe seizures made worse by pressure on the zones. I had at various times given her treatment for ovaritis, the right ovary being considerably enlarged and tender.

Within the year previous to the pregnancy she had had two mild attacks of appendicitis, with slight temperature and considerable pain, each attack lasting about a week. With them there was no marked induration, but the appendix could be felt, swollen and rigid. The patient could not be induced to have an operation performed either during or following these attacks, although told of the dangers. It is a curious fact that, although practically springing from the hysterogenous zone, these symptoms were not accompanied by any hysterical outbreak.

She had been married five years. Her menstrual life had been fairly normal except for the occasional hysteria already spoken of, with little pain and no excessive hemorrhage. In her early married life she had one pregnancy, which ended in an early abortion, the cause of which I could not learn, but believe it was induced. She passed her menstrual period, due about Nov. 30, but had no nausea. There was some slight pain two weeks later, but not enough to require attention.

On Dec. 21, while riding in a street car, she had very sharp darting pains low down on the right side. These were cramp-like, but were easier while standing, so that she rode a little further in this position. As they grew worse, she took a carriage and drove to the house of a friend who was a physician. There she went to bed and was given a hypodermic of morphia, which relieved her. She had no fainting or nausea, no evidences of shock. She did have a slight chill, followed by a low grade of fever which lasted until I saw her at her home in Newton. No vaginal examination was made and no attempt at a diagnosis.

I first saw her on the evening of Dec. 24. She was not feeling ill and had no sensation beyond that of slight pressure and fulness low down on the right side. She said she had had another of her appendicitis attacks. There was no nausea; the functions of the bowels and kidneys were normal. Temperature 100.6°, pulse 110. There was some tenderness on pressure on the right side, extending downward from about the sup. spin. process, with the centre just below the McBurney point. There was slight dulness on percussion over this region, but not well marked.

By the vagina the uterus was found in normal position, but a little high, fairly movable and enlarged. The ovary and tube of the left side were found normal. At the right side was felt an illy defined boggy mass, seemingly closely connected to the uterus, extending outward to the brim, and exquisitely sensitive to pressure. Pain was also caused by moving the uterus upwards or to the left.

It will be seen in this brief statement of the history of the case that the diagnosis was not altogether clear sailing. She had been sterile for several years, but none of the absolutely classical symptoms of extra-uterine pregnancy were present beyond this fact and that of sudden pain. There had been no bloody vaginal discharge, no decidual remnants. The uterus was absolutely enlarged and undoubtedly pregnant. It was not bound down or pushed to one side. The objective and subjective symptoms were all characterized by their mildness. The patient had had a chronic ovaritis. She had had two attacks of appendicitis and, to her feelings, this attack was much like the others. But, on the other hand, her ovaritis could not be responsible for the sharp pains with the bogginess close to the uterus. A ruptured appendix with its inflammatory product would give more decided signs of its presence. A mild appendicitis might be present, but alone it could not be responsible for the whole train of symptoms. There could be no question of salpingitis. The character of the onset, the pain, the slight dulness on percussion, the peculiar feeling in the vault, led to the conclusion that what I had to deal with must be a hematocele. The cause of this I could not determine and so informed the patient. The possible conditions were fully explained and the need of immediate operation, but this she would not consent to.

Dec. 25. Condition was about the same, but the temperature and pulse had both subsided.

Dec. 28. The temperature was again 100° and pulse 110, and the pain was more marked.

I was now convinced of the condition existing, and after great difficulty she finally agreed to an operation the next day, which I did at the Newton Hospital. The incision was median, and on entering the abdomen a quantity of fluid blood with some clots escaped. This was not measured, but was estimated at between 20 to 30 oz. A mass of adherent tissue was broken through, and the bleeding point found to be in the right Fallopian tube, which was enlarged and ruptured close to the uterus. From the ruptured cavity there was some little fresh blood oozing. This was clamped and ligated; the folds of the broad ligament were infiltrated with blood and covered

[1] Read before the Obstetrical Society of Boston, Dec. 12, 1901.

with clots, which were removed. The ovary was found considerably enlarged and cystic, more than three-quarters of its structure being involved. This was also removed. The portion of the tube involved was less than one-half inch from the uterus, but the enlargement did not invade the uterus itself. Great care was taken not to disturb the uterus, in the hope of saving the normal pregnancy, but the ligature securing the tube had to be placed practically on the uterus itself, owing to the friable state of the tissues. The tip of the appendix was adherent to the ovary, the appendicular ovarian ligament being obliterated. The organ was swollen and congested, and was removed. After the usual washing out with saline solution the wound was closed.

The patient rallied promptly from operation, her highest subsequent temperature being 99°.

Having used such care in the manipulations, I had hoped to save the uterine fetus, but flowing and pain began on the fifth day after the operation, Jan. 3.

On Jan. 4, without ether, I dilated and curetted, removing the remains of an eight weeks' fetation. The uterus was swabbed out with iodine and packed with iodoform gauze, which was removed the next day, no symptoms developing.

The progress of the case was uneventful, and she left the hospital on the fifteenth day after operation. Her condition since then has been most satisfactory. She has gained in flesh and strength and control over herself, having had but two of her hysterical attacks in the last year, which were of short duration and light character.

In studying this case there are to me some interesting points. The uterine pregnancy and existence of other morbid conditions were elements tending to confuse the diagnosis, but I still cannot understand how the condition of hemorrhage present could cause so few subjective symptoms.

How small a portion of ovarian structure is required for efficient work was shown by the condition of the ovary removed. The intimate connection between the diseased ovary and the appendix was interesting as to the influence the former had in causing the inflammatory attacks of the other, which contained no concretion or fecal matter. Finally, the practical cessation of the hysterical outbreak which has followed the removal of the diseased ovary showed that this hysterogenous zone had a cause for being.

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ACCORDING to a late report, cholera is epidemic in various parts of Asia. Over 100 deaths have occurred at Medina, and it is also very prevalent among the Chinese on an island opposite Canton. One European in Canton is said to be dead from the disease. The Hong Kong authorities are taking every possible precaution against it. A despatch from Melbourne states that all dirty blocks are being cleaned, rats are being destroyed and garbage is being burned, in order to prevent the further spread of bubonic plague, which is epidemic in parts of Australia.— *American Medicine.*

## Clinical Department.

### ACUTE LYMPHEMIA WITH ESTIVO-AUTUMNAL MALARIA.

BY PHILIP KING BROWN, M.D., SAN FRANCISCO, CAL.

PATIENT, A. R., male, 45 years old. Applied for treatment in September, 1896, giving a history of having lived for some years in a malarial country but without having contracted malaria. He had been in San Francisco but a few weeks, and had felt badly ever since his arrival. No history of any acute illnesses and no lues. He has used alcohol to excess for many years and smoked moderately. Complained of headache, malaise and fever, with irregular chills for some weeks. Prostration was extreme for a few days prior to the examination.

The patient's heart was dilated, the arteries were atheromatous, the urine contained a small amount of albumin with hyaline and granular casts. The liver was 14 cm. broad in the right mammary line, the spleen was easily palpable during inspiration, but not tender. There were no scars on body or penis. The glands were everywhere slightly enlarged, but not particularly tender. The skin was pale and there was a puffiness about the eyes.

Temperature at 11 A.M. 102°, pulse 100. Blood examination showed a leucocytosis of 40,000, 82% of the leucocytes being large lymphocytes. There were also a good number of estivo-autumnal parasites in the blood — ovoids and crescents.

The patient died in five weeks. My unfavorable prognosis sent him elsewhere for help, and I did not see him again.

The accompanying photograph shows a characteristic field.

## Medical Progress.

### REPORT ON DERMATOLOGY.

BY JOHN T. BOWEN, M.D., BOSTON.

(Concluded from No. 11, p. 289.)

#### ORTHOFORM ERUPTIONS.

Dubreuilh[4] reports two interesting cases of dermatitis from this drug. Orthoform has been generally considered innocuous, as large ulcerated surfaces may be covered with it, without causing any signs of intolerance. Its analgesic properties on surfaces denuded of epidermis are very marked, while, when applied to an intact skin or mucous membrane, its effect is slight or wholly wanting. The eruptions that may be caused by orthoform are either of an erythematous nature, complicated or not with vesicles and pustules, or gangrenous. The erythema may be limited to the vicinity of the part to which the orthoform has been applied, or it may become generalized over a large part of the body. It is not necessary that the orthoform be applied to a

[4] La Presse méd., May 18, 1901.

wound, as application to the unbroken skin has given rise to severe dermatitis.

Asam was the first to call attention to the gangrenous lesions from orthoform. He reported nine cases in which wounds or varicose ulcers were treated with orthoform and gangrenous ulcers produced, which were accompanied by violent pain. In some of the cases it is stated that no relief from the pain was afforded by a further application of the orthoform. This was not true in the following cases that Dubreuilh reports:

The first case is that of a married woman of 38, of an intensely neurotic temperament, who had applied powdered orthoform for relief from pruritus of the anus. The part was found to be intensely inflamed, and in the immediate vicinity were isolated and confluent ulcerations, with a sharply defined border, and a dry, grayish floor, giving the impression of a limited gangrene of the skin. They had appeared spontaneously, without preceding inflammation or bullæ, and had persisted for months. They were the seat of a very violent sensation of burning pain, which could only be relieved by renewed application of orthoform.

The second case relates to a woman of 30 years, who had been recommended to use an ointment containing a small amount of cocain and 10% of orthoform for a pustular and excoriated eruption of the hands. The first application was followed by an intense dermatitis extending over the forearms. Applications of a mixture of powdered dermatol and salol caused so much pain that recourse was again had to the orthoform ointment, with the result that it instantly relieved the pain. When seen by the writer the fingers were swollen and desquamating in large masses, and covered with sharply punched out ulcers on the dorsal and lateral surfaces. These ulcers were not sensitive to the touch, but when exposed to the air, or at other times without known cause, they were the seat of violent crises of pain, which was instantly relieved by application of the orthoform ointment. At first it was impossible to persuade the patient to give up the application, the pain was so intense. Finally, recourse was had to subcutaneous injections of morphia, and by means of these and of chloral the ulcers healed under a weak creolin dressing in the course of two weeks. The writer remarks upon the fact that the acute erythema caused by the orthoform in this case disappeared in spite of the continuance of the drug, while at the same time the latter produced another type of lesions.

### OIDIOMYCOSIS OF THE SKIN AND ITS FUNGI.

Ricketts,[5] who has had especial opportunity in Chicago for studying this class of affections, considers that the organisms isolated from cases of so-called blastomycetic dermatitis fall into three groups, which are so much alike biologically and morphologically that they probably represent different species of a common genus, that of oidium. After a review of the history of oidia, of the occurrence of blastomycetes and saccharomycetes in human and animal lesions other than blastomycetic dermatitis, and of experimental infections in animals, the author gives a summary of so-called blastomycetic infections in man. He would include:

(1) The case published by Busse, in 1894, as saccharomycosis hominis, in which there were numerous subcutaneous abscesses containing a yeast fungus, and similar lesions were found in the internal organs.

(2) A case published by Curtis, in 1896, under the title "saccharomycose humaine," in which also subcutaneous abscesses containing a yeast fungus were found. Similar tumors were produced by inoculation of the pure cultures on animals.

(3) The blastomycetic dermatitis, first observed and described as a pure skin disease by Gilchrist in 1894. Twenty-six cases are referred to by Ricketts as belonging to this form, although the history is not complete in each instance. Of these he himself contributes 11 not previously reported (or only partially), and in most of these careful pathological studies were made. It would seem from these statistics that no part of the skin is immune from this affection, which bears a very close resemblance to the verrucous form of cutaneous tuberculosis, both clinically and histologically. Of the 26 reported cases 15 have been discovered in the Rush Medical College in Chicago. In 10 of these clinical study was possible, and in 9 an attempt was made to cultivate organisms, this attempt succeeding in 7 instances. Stained sections showed:

(*a*) A large amount of carcinomatoid epithelial hyperplasia.

(*b*) Minute intra-epithelial abscesses.

(*c*) A granulomatous condition in the corium, characterized by masses of plasma cells, minute abscesses and tuberculoid nodules and giant cells.

(*d*) The presence of a spherical budding organism, particularly in the epidermal and sub-epidermal abscesses, but also distributed unevenly and in small numbers in epithelial masses and granulation tissue. The cases from which a mould fungus has been isolated exhibit a remarkably large number of eosinophiles. In some of the cases inoculation of animals with pure cultures obtained from the lesions produced abscesses from which the same fungus could be isolated.

(4) A number of cases of a generalized infection accompanied by similar cutaneous lesions have been reported, especially by Rixford and Gilchrist, the disease being very similar to acute ulcerative and miliary tuberculosis. The authors have considered this disease to be protozoic in character, and have named it protozoic dermatitis, because of the structure of the large spherical organisms found in it and their inability to cultivate them, as a rule, on artificial media. Ricketts considers that this protozoic affection is simply another form of oidiomycosis, inasmuch as a mould fungus cultivated from a case by Ophüls and Moffit appears identical morphologically and

[5] Journal of Medical Research, Boston, December, 1901.

pathogenetically with that cultivated from five of his own cases. He concludes that:

(1) The so-called protozoic disease of Posadas, Wernicke and others, Busse's and Curtis's saccharomycosis hominis, and Gilchrist's blastomycetic dermatitis are various manifestations of the same disease.

(2) The condition in the skin possesses constant clinical and histological characteristics, which separate it positively from all other skin diseases, particularly verrucous tuberculosis, carcinoma and syphilis.

(3) The organisms isolated from various cases differ in minor respects among themselves, but are so closely related morphologically and biologically as to justify their inclusion in a common genus — oidium; they are analogous in a pathogenetic sense to the fungi which cause actinomycosis, and to those causing trichophytosis.

(4) The variations among the organisms allow the recognition of three morphological types: (*a*) Blastomycetoid, or yeast-like; (*b*) oidium-like; (*c*) hyphomycetoid.

(5) There are two histological forms of the disease in the skin, the eosinophilous and the non-eosinophilous, the former being associated with the mould type of the organism.

(6) In accordance with Conclusion 3, oidiomycosis is an appropriate term for the conditions caused by the organisms, and oidiomycosis cutis for the disease as it occurs in the skin.

(7) Aside from the infections considered in this communication, certain cases which have been described in the literature from time to time indicate that oidium-like organisms may cause other severe pathological conditions in man.

### THERAPEUTIC DETAILS IN THE TREATMENT OF FURUNCULOSIS.

Arning[6] asserts that the successful treatment of furunculosis depends upon a method carried out with the minutest detail. The first axiom is the treatment of the individual lesions, since every furuncle is a culture medium for staphylococci, and is a menace of infection. The second rule is protection of the adjacent parts of the skin, and the third treatment of the dermatoses that are often the basis of a local furunculosis, chiefly those of a pruriginous nature. Further points are the protection from external irritants, and correction of constitutional disturbances.

In treating the individual lesion Arning warns against too energetic disinfection of the skin in a surgical sense, as it is important not to break the skin. With regard to an abortive treatment, the writer, after numerous attempts with the injection of antipyrin, carbolic acid, painting with iodin, carbol-mercurial plasters, etc., has come to use the thermo cautery entirely. The small beginning furuncle is pierced at its centre with a fine-pointed Paquelin burner. Pain is immediately relieved by this operation, owing to the annihilation of the poison by the heat, in the writer's opinion. In places where the clothes touch, or where the surrounding skin is already irritated, a varnish of the following composition is applied: Tumenoli, 8.0; ether. sulf., 20.0; tr. benzoin, 30. Over this, before it is dry, is laid a small bit of gauze, and over this in turn a strip of plaster, perhaps a 2% salicylated soap plaster. This dressing is changed every day.

With regard to the second rule,— protection of the adjacent parts of the skin, rubbing of collars, or sharp corners of clothing, should be especially avoided. The hair should not be clipped too closely behind, as short, stiff hairs increase the irritation of the collar.

Frequently a psoriasis or a mild eczematous condition of the occipital region furnishes, through the itching and resultant scratching, the origin of a furuncle. Pediculi capitis should be thought of. In the case of furunculosis of the axilla, to which the female sex is especially predisposed, the irritation from clothing, from too closely cut armholes, and from India rubber shields, which tend to cause maceration, must be taken into account and removed. Eczema about the groins is often the starting point of furunculosis of this region, as well as scabies and pediculosis pubis. In these cases care must be taken not to use such energetic treatment for the furuncles as will serve to keep up the underlying condition. Boracic acid solutions and ointments, creolin baths and salicylic acid have proved of great value under these conditions. Creolin baths, 20 to 25 gm. to a full bath at about 30° C., are especially recommended. After the bath there should be careful drying of the surface, without rubbing, and bathing of the part in a 2% solution of salicylic acid in alcohol. The small lesions are then quickly touched with a small Paquelin point and the whole affected surface covered with a thin zinc paste to which sulpher and camphor in small quantities may be added. In general the writer wishes to warn expressly against the use of remedies of so stimulating a character that the sound skin becomes irritated.

[6] Monats. für. prak. Derm., Bd. xxxiii, No. 7.

## Reports of Societies.

### THE OBSTETRICAL SOCIETY OF BOSTON.

MALCOLM STORER, M.D., SECRETARY.

MEETING of Dec. 17, 1901, the president, DR. G. J. ENGELMANN in the chair.

DR. J. W. ELLIOT, by invitation, reported

#### A CASE OF COMBINED EXTRA- AND INTRA-UTERINE PREGNANCY.

DR. H. P. PERKINS, by invitation, also reported

#### A CASE OF COMBINED EXTRA- AND INTRA-UTERINE PREGNANCY.[1]

DR. WHITNEY: The best two papers that I have found upon this subject are those of Brown[2] and of Strauss.[3] As the cases reported by Brown

[1] See page 309 of the Journal.
[2] Transactions Obstetrical Society, 1880.
[3] Zeitsch. f. Gyn., March, 1901.

occurred before the days of aseptic surgery, the mortality was of course large; the cases collected by Strauss give much better results. The most interesting case was that in which the mother and both children lived. The statement has been made that such double pregnancies occur in about one in fifty cases of extra-uterine pregnancy. This seems to me much too large a proportion. I have seen many more than fifty cases of extra-uterine pregnancy, yet Dr. Elliot's is the only one of combined pregnancy that I have examined.

Dr. Storer: Will Dr. Whitney please inform us whether in the cases of which he speaks, the two pregnancies were always synchronous or whether in some it was not a normal pregnancy grafted on an earlier extra-uterine pregnancy with the retained products of the former conception.

Dr. Whitney: As it is generally conceded that ovulation ceases during a pregnancy, such cases must be synchronous. Where there is any discrepancy in the age of the two fetuses it is more likely that the development of one has been arrested by abortion than that they are ova of different ages. The point is that the presence of fetal envelopes from the uterus does not exclude the presence of an ectopic gestation.

Dr. Washburn: I have never had a case of simultaneous pregnancy in the uterus and in the tube. I do, however, remember well a case which, examined under ether at two and a half months, showed a very distinct mass outside of the uterus which in the course of eight days worked its way into the uterine cavity.

Dr. Dodge: It is interesting in view of the question of superfetation, that in Dr. Elliot's case it is stated that the extra-uterine pregnancy was of three and a half months' duration, while the intra-uterine one was only two months.

Dr. Whitney: As there was no fetus in the extra-uterine condition the age could only be approximately determined by the appearance of the villi, which cannot be fixed as definitely as the fetus.

Dr. Boardman: Would not a double uterus allow the possibility of a pregnancy in one cavity with a later one in the other? As regards Dr. Elliot's case I do not see why it is not possible that the fetus expelled by miscarriage was not anything but the fetus originally extra-uterine that had made its way into the uterus through the tube. If so, the case would, of course, be one of simple extra-uterine pregnancy.

Dr. Whitney: In that case it seems to me inconceivable that the tube between the uterus and the tubal pregnancy should have been of normal size.

Dr. Elliot: I have seen a case in which the fetus thus slipped from the tube into the uterus, and suspected it in this case. But the uterine end of the tube was very small, while the mass was as large as two thumbs and it was ruptured outside. Moreover, the tube between the mass and the uterus looked perfectly normal, and it seems, as Dr. Whitney says, inconceivable that such a mass should have passed through it and left it normal.

Dr. Boardman: I do not question that this view is correct. I only suggest that nature might have passed the fetus through the apparently normal tube. We know how a gallstone of considerable size can pass through a small canal and leave it intact.

Dr. Edward Reynolds read a paper entitled

A SERIES OF CASES OF EXTRA-UTERINE PREGNANCY.[4]

In the paper read by Dr. Elliot the ground was taken that it was wiser in critical cases to wait before operation until the patient had been stimulated and reaction had taken place.

Dr. Storer: I have known for some time that Dr. Elliot holds these views, and am glad to have him state them to us so clearly. I do not think, however, that in all cases the expectant treatment will be followed by such striking success. I have in mind a case on which I operated last year. She was brought to the hospital in collapse, and had been thought to be dead in the carriage. She revived a little under stimulation, but by the time I got to the hospital the pulse had again become almost imperceptible, the breathing worse and the extremities cold again. Upon opening the abdomen (as she would evidently soon be dead if nothing were done) I found active hemorrhage going on. She died within an hour after a quick operation. Hardly a drop of blood was lost by the operation, yet her death was from acute anemia. An operation a week later upon another patient in practically the same condition gave a recovery without an untoward symptom. The first patient would undoubtedly have bled to death if not operated upon, and I consider the operation as giving her the one chance in a thousand. I confess that with cases like this in mind I should hesitate very much about waiting for reaction with possibly active hemorrhage going on.

Dr. E. Reynolds: It strikes me that one of the things commonly said about extra-uterine pregnancy is absolutely wrong; I refer to statements about the large amount of blood found in the abdominal cavity. Personally I have never found more than a relatively small amount — never enough to bring up the question of a patient's bleeding to death. I believe it is mostly shock that kills.

Dr. Engelmann: I believe that if hemorrhage is fatal it is the first violent hemorrhage and not subsequent oozing.

Dr. J. G. Blake: Up to twenty-five years ago there were few laparotomies for pelvic hemorrhage. We used to see many cases of hematocele which were doubtless most of them cases of ruptured extra-uterine pregnancy. Many of those cases recovered. It is rare to have a fatal result after the primary shock.

Dr. D. W. Cheever: I have had little experience in these cases, but I am quite sure that the old rule not to operate in a state of collapse is of

[4] See page 306 of the Journal.

general application. We are all familiar with accident cases brought in pulseless in which the question of operation arises, which, if operated upon at once die, and if allowed to react before operation, get well. I am inclined to agree with Dr. Reynolds that the cause of death in some cases is due to the place where the hemorrhage occurs and not to the amount of blood lost. Nature is apt to stop the hemorrhage, and if it recurs it is not apt to be such as to threaten life.

DR. PERKINS: I would like to submit to Dr. Elliot a case which I think I saw bleed to death from a ruptured tubal pregnancy. Operation was refused until a certain man could be procured to perform it, and while waiting for him I saw the patient's abdomen grow larger and larger. Three quarts of blood were taken from it at the final operation. Death followed in forty-eight hours — a result that I am sure would have been different had the operation been earlier.

## Recent Literature.

*The Surgical and Medical History of the Naval War Between Japan and China During 1894-1895.* Translated from the original Japanese Report, under the direction of Baron Saneyoshi. By S. SUZUKI. Tokio. 1901.

This is a large volume of 544 pages, containing a detailed and painstaking account of the medical history of the recent Japanese-Chinese naval war. An accurate account of the battle of Yalû is given at the beginning of the book, in which the effect of shells both upon vessels and upon men is narrated at length. Following this, and comprising the bulk of the volume, is a systematic consideration of the injuries and disease from which the participants in the battle suffered, as well as a general discussion of food, drinking water, clothing, prophylaxis of disease, etc. The whole work is a monument of industry and care, and should prove of the greatest service to surgeons and others interested in the effects of modern projectiles. An excellent feature of the book is the profusion of its illustrations, many of them full-page colored plates. The type is clear, and the general arrangement of the subject matter will appeal to all lovers of well-made books.

*Outlines of Anatomy.* A guide to the Methodical Study of the Human Body in the Dissecting Room. By EDMUND W. HOLMES, A.B., M.D., Demonstrator of Anatomy, University of Pennsylvania (1892-1901), etc. Second edition. Pp. 185. Lancaster, Pa.: Press of the New Era Printing Company. 1902.

The author makes the modest claim for this small book that it "was written in an endeavor to introduce method and discipline into the dissecting room, and by thus securing cleaner and more systematic work, to revivify, if possible, the interest in practical anatomy." It consists chiefly of an outline of each day's work in the dissection of the human body, and tells the student what to do, what to see, and what to read in connection with his practical work. Such books are useful, and in no way infringe the sphere of the larger textbooks. It is probable, however, that each demonstrator of anatomy would prefer to modify the details of such an outline to meet his personal views of the scope of a course in dissection. The book is satisfactorily printed, in type of generous size, and contains a few explanatory diagrams.

*Uterine Tumours: Their Pathology and Treatment.* By W. ROGER WILLIAMS, Fellow of the Royal College of Surgeons. New York: William Wood & Co. 1901.

The interest of uterine tumors both to the surgeon and pathologist is great, as the author remarks, "as well for the frequency of their occurrence as for the important surgical procedures often undertaken for their removal." The author considers the subject first from the point of view of a statistical investigation of 2,649 consecutive cases, then discusses the embryology and anatomy of the uterus, and finally the pathogenesis, morphology, pathology, clinical features and treatment of myoma, uterine cancer, and the other rarer uterine tumors. The result is an interesting monograph of 350 pages. It contrasts favorably, by reason of its comprehensiveness and accuracy, with the chapters devoted to the subject in many "systems of gynecology" in which the authors have been, perhaps, necessarily cramped by the necessity of confining themselves within a given number of pages, in order to prevent the volume from becoming too bulky.

The publisher's work is of high character.

*Diet and Food.* Considered in Relation to Strength and Power of Endurance, Training and Athletics. By ALEXANDER HAIG, M.A., M.D. (oxon.), F.R.C.P. Third edition. Philadelphia: P. Blakiston's Son & Co. 1901.

This is a small volume of 112 pages, which again reiterates the well-known doctrines of its author. We are strongly of the opinion that the case against uric acid is not so bad as he would have us believe, but as a point of view it is certainly worthy of attention. This third edition of the book will no doubt do its share, as its predecessors have done, in keeping before the professional mind the significance of food in the treatment of disease and the danger of its abuse.

*Crazes, Credulities and Christian Science.* By CHARLES M. OUGHTON, M.D. Chicago: E. H. Coligrove. 1901.

This is a brief, vigorous and plain-spoken attack on Christian Science and certain allied vagaries of medical treatment. It contains few original ideas for those who have studied the subject, but we can easily imagine that it might influence the wavering. To the person really addicted to Christian Science it would, we suspect, serve merely as a lash to his enthusiasm. It is not sufficiently conciliatory to be a valuable missionary document, but its writing has no doubt afforded the author a good deal of righteous satisfaction.

THE BOSTON

# Medical and Surgical Journal.

THURSDAY, MARCH 20, 1902

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## EXPANSION OF HARVARD UNIVERSITY MEDICAL SCHOOL.

WITHIN a week public announcement has been made of the completion of the amount desired — nearly $5,000,000 — for the plan of development of the Harvard University Medical School. The situation, as regards medical education, is unprecedented. Never before, so far as we know, has such a sum of money been set aside for the immediate purposes of medical science. It is a clear and final recognition of the fact that in the popular mind medicine has taken its place among those branches of human endeavor which have a distinct right to expect and claim liberal and permanent endowment. Such has been the attitude of the many contributors to the fund for the extension and development of the Harvard Medical School. When the means have been provided for such an expansion as this promises to be the responsibility of the givers ceases and that of the receivers begins. This fact, no doubt, all who are interested in the university at large and in the medical school in particular are pondering at the present time. It has been a task of much responsibility to provide the requisite means for the accomplishment of this new enterprise; it is a far greater responsibility to provide for the wise expenditure of the large sum now available. The real question at issue is not how many buildings may be built or how complete the facilities for students may be made, but rather how the best interests of the whole profession of medicine may be fostered and invigorated, and thereby the greatest good of the people at large be subserved. This is the duty which the university has taken upon itself, in venturing upon this great expansion of its medical department.

There are certain aspects of the question about which there can be little difference of opinion. In the first place, the need of new buildings is apparent to anyone acquainted with the trend of recent educational methods. Each student must be provided with laboratory facilities for a considerable portion of his medical course, and this means a very decided increase of space under the best conditions of light and air. Naturally, also, the university authorities must have an eye to the future in the construction of these laboratory buildings. Were they to prove inadequate in the near future, either as a result of great increase in the number of students or from other cause, the blunder would not be lightly condoned; if, on the other hand, a reaction from the extremes of laboratory teaching should occur, the waste of space would be equally unfortunate. To meet the probable exact needs of the future in this respect will call for the highest wisdom and prophetic judgment. The development of special departments of medical research, now perhaps dimly or not at all foreshadowed, must also be taken into account in the design and arrangements of these buildings. Laboratories, for example, more closely associated with clinical work than have heretofore existed will undoubtedly form an integral part of the general scheme of instruction in the future. Patients will be studied in the laboratory spirit as never before, particularly that great class suffering from chronic disease, and the provision for this clinical-laboratory study of such patients should not be lost sight of in a modern scheme of laboratory construction. The possible separation in the near future of so-called basic studies from elective studies must also be borne in mind in the adaptation of the buildings to the requirements of teachers and students. The growth of an elective system in some form may be looked upon as inevitable in medical education. Opportunities should be given, not only for the fullest development of what are now recognized as the main departments of medical study, but also for the development of subdepartments, the importance of which may now be merely conjectured. By this division and at the same time concentration of interest, results may be expected which can never be attained by the repression of various lines of work at variance with accepted precedent. Not only departmental libraries, but subdepartmental libraries should be fostered in the attempt to focus interest in special lines of investigation. To carry out such a plan of development means the construction of buildings with that end in view. Rooms should be arranged to meet demands which are already clearly defined, and also those tendencies which an intelligent foresight recognizes are about to take definite shape. In other words, the construction of the buildings should encourage the best there is in specialism.

Even if this ideal may be completely met, it is, nevertheless, discouragingly evident that, however conducive to the best work the best workshop may be, the responsibility lies far deeper than the clever adaptation of physical means to ends. If the university is to retain the traditions of the past in its department of medicine, it must not only maintain the standard it has already set for itself, but raise it to a still higher level. Provided with all the tools and facilities for research, the expanded medical school must foster investigators, develop teachers and train clinicians in the completest way. These tasks are all far more difficult of accomplishment than the construction and equipment of any number of buildings and laboratories. To their solution the best energies of the profession in this community must be given if the university is to be true to the trust imposed in it.

Investigators, no doubt, are born, not made. Genius cannot be cultivated, though it may be fostered. It is a sporadic product which appears at unexpected places and is rarely transportable. It can, therefore, never be held up as a reproach to an institution of learning that no great discoveries have ever come from its students or teachers. If such an event, by chance, occurs it is a lasting source of satisfaction, but the standing of an institution should never be reckoned in terms of such events. Good investigation this side of brilliancy may, on the other hand, most certainly be cultivated, and it becomes the plain duty of the modern medical school to discover and support, if need be, its own pupils and those who come from a distance for such work. The endowment of research is a phrase about which we are likely to hear a great deal in the coming years.

The development of teachers has never been assiduously prosecuted in medical education. The best investigators are often indifferent teachers; this is proverbial. It has long stood in the way of effective instruction wherever universities exist, and will, no doubt, continue to do so, to a greater or less extent. Nevertheless, we look forward to the time when men will be selected to teach because they have capacity in that direction, and not because they have attained distinction in some quite alien field. Teachers should be cultivated, just as we attempt to develop investigators; men who show aptitude should be given opportunities and not be suppressed. Medical education would certainly thereby be a gainer, and we should hear fewer complaints from the intelligent student body. The opportunity to cultivate medical teachers should not be lost sight of in the development which is now immediately before us.

The product of improved teaching will be a better equipped and more enthusiastic body of graduates, far better able to recognize the complicated interrelations of medical science, and hence more fitted to shape their careers to a worthy end. If original investigation is faithfully fostered, if the art of teaching is cultivated as a worthy end and sufficiently remunerated, if the ideals of the future practitioner be kept high, there can be little doubt that the destiny of the Harvard Medical School will be such as to justify, both to the lay and professional mind, the trust which has been imposed.

## THE PROGRESSIVE WORK OF THE ELMIRA REFORMATORY.

THE work of the New York State Reformatory at Elmira is always of interest to the physician and anthropologist, as well as to the community at large. For many years experiments have been undertaken at the institution which go far toward the solution of the problems of vice and crime. This work has done much toward readjusting the relation of the so-called criminal to society by recognizing what is good in him rather than by always emphasizing his vicious propensities. It is naturally undesirable to err on the side of sentiment, and equally so to do injustice to the victims of circumstance or heredity. A just balance is not easy to attain. Toward this end the Elmira Reformatory has long been working with more and more positive results, which are coming to have a wide bearing on certain of our most fundamental sociological problems. The annual report of the institution is, therefore, always a document of much more than passing interest. The report for 1901 is before us, and presents many statistics and details, which well repay a careful reading. One's final impression is that the field of work there undertaken, far from being hopeless, is one of the most encouraging upon which men of combined philanthropic and scientific tastes are engaged. Through the elaborate system of classification, the recognition of merit, together with the physical and moral influences under which the inmates live, the prisoners are almost invariably returned to the outer world better fitted to lead respectable and useful lives than when sentenced.

Much, of course, remains to be done, and this appears, in general, to lie in the direction of more careful medical examination of persons before being sent to the reformatory, as well as after admission. The problem is clearly a medico-social one, and the need is that greater emphasis be laid on the medical side, to the end that the

complicated social aspects of the question may the better be understood. Dr. Frank W. Robertson, general superintendent, suggests the advisability of an examination of criminals, by competent physicians, before they are brought before a judge for sentence. The judge would thereby be materially assisted in his often difficult duty, and a better preliminary classification of defectives would be attained. After admission Dr. Robertson also urges more painstaking medical examinations, that the deficient in intelligence, or the sick, may be more carefully classified. The study of the individual is a further necessity, rather than the mere observation of criminals as one of a class, or a variety of classes. To accomplish this means a high degree of enthusiasm on the part of specially qualified men. Regarding the influence of the physician in the institution, Dr. Robertson writes: "During the time which I acted as senior physician, I was impressed by the confidence which the inmates repose in their medical adviser; it is the physician who ministers to them when they are ill, thereby gaining a confidence seldom shared by others. It is the physician who must determine whether the inmate is physically able to perform the tasks allotted in the trades-school, or mentally equipped to receive the instruction afforded by the school of letters. In a way, it is the physician who may be said to be best able to determine the mental and physical capacity of the inmate; all of which goes to prove that it is possible for the physician to exercise an influence perhaps second to that of no other officer in the institution. It being maintained in many quarters that crime is a disease (and recent investigations would seem to support this view) would it not be logical, such being the case, to organize the staff upon a medical basis, and increase, rather than decrease, the number of physicians employed in reformative institutions?"

The general tendency of employing medically trained men in institutions of various sorts is undoubtedly a step in the right direction. Apart from the value of the preliminary training, the time has come for physicians to recognize that their fields of usefulness lie beyond the realm of disease, as ordinarily understood, and extend into a consideration of the various maladies of the body politic, of which crime is certainly one.

## AN AMERICAN PIONEER IN DERMATOLOGY.

After a long and honorable service in the cause of medical education, Dr. James C. White has resigned his professorship of dermatology at the Harvard Medical School, to take effect at the end of the academic year, retaining, however, his interest in hospital work and in private practice. It is forty years (1861) since Dr. White delivered his first lectures on skin diseases to a class at the Medical School; a time when the active pursuit and teaching of a specialty required courage and determination. In 1864 he gave a course of university lectures on skin diseases, and was also instructor in dermatology in the summer school. In 1866 he was appointed adjunct professor of chemistry, a position that he held until 1871, when he was made professor of dermatology, and this chair he has uninterruptedly occupied during the last thirty years. Dr. White's claim to the distinction of being one of the foremost in developing American dermatology and in enforcing its general recognition throughout the country will be denied by none of his colleagues in the American Dermatological Association, and his clear, succinct lectures and clinical demonstrations will always be remembered and appreciated by the graduates of the school who have been his pupils. The great credit is always due to the one who has shown the better way under difficulties, and those who succeed Dr. White, with increased facilities, should remember that what they may be able to accomplish has been rendered possible in large measure by his services as an initiator.

Apart from his furtherance of the cause of dermatology, Dr. White's interest in the general needs of the Harvard Medical School has been of great importance, and his influence in the faculty has been of much value in building up the new system of American medical education. It will be a satisfaction and pleasure to those who have profited by Dr. White's teaching and example to know that the governing boards of the university have given him the title of Professor of Dermatology, Emeritus.

## MEDICAL NOTES.

Cleveland Medical Journal.— The *Cleveland Medical Gazette*, in its seventeenth year, and the *Cleveland Journal of Medicine*, at the beginning of its seventh year, have combined interests to form the *Cleveland Medical Journal*. In addition to those who were engaged in the publishing of the older journals, there has been enlisted in the support of the new one a complete representation of the medical interests of Cleveland. We are informed that it has been the guiding motive of those who promoted the consolidation to unite so far as possible the entire profession of Cleveland in the support of the *Cleveland Medical Journal;* that this journal will be the active exponent of the highest ideals of modern medicine; that it will seek to make the medical profession realize the mission of scientific medicine;

that it will stand for an active and pure professional polity; that it will represent all the physicians and all the medical institutions of Cleveland; and that it will not forget to chronicle the good work done by *confrères* in other cities, by those in this country, or by those in foreign lands.

INSPECTION AND CLEANING OF HOUSES IN MANILA.— According to the December Report of the Board of Health for the Philippine Islands, about 2,000 houses were cleaned and disinfected during that month and about 10,000 cartloads of dirt taken from these houses. The material carted away consisted of dirt, filth, infected earth, rubbish, mats, rags, broken furniture, broken tiles, brick, etc. In some instances as many as twenty wagonloads were taken from one house. Cases of plague had occurred or rats infected with the disease were found in about 25% of these houses. The houses were disinfected with chloride of lime, carbolic acid or solutions of bichloride of mercury. This work was done under the direction of Medical Inspector Meyer Herman, who deserves great credit for his energetic and efficient work. The assistant sanitary engineer, Mr. H. D. Osgood, inspected about 200 houses in the city in which plague cases had occurred or rats infected with the disease were found, and submitted estimates for their repair and remodeling. Already a large number of these houses have been repaired and placed in a sanitary condition and a number are under way.

ST. LOUIS NOT LIABLE FOR DEATHS FROM BAD ANTITOXIN.— It has been legally decided that the city of St. Louis is not responsible for damages in the deaths of the thirteen children who died through the administration of antitoxin procured from the Board of Health. The presiding judge held that the city acted for the State of Missouri, which cannot be held liable for the acts of its agents, and that the city, therefore, cannot be held liable.

PENNSYLVANIA SOCIETY FOR THE PREVENTION OF TUBERCULOSIS.—This society, organized in 1892 and incorporated in 1895, has recently published its report for the past year. It has been a source of gratification to its members that it has been able to exert a strong influence, not only in the city and State in which it had its origin, but by its example and by means of its publications has led to the establishment of similar societies in the United States.

INVESTIGATION OF CANCER.— A number of well-known physicians of western Pennsylvania, with Dr. Roswell Park of Buffalo, have recently held a meeting in Pittsburg for the purpose of discussing the pathology and cure of cancer and also to devise ways and means to raise funds for an international commission for the study of cancer. A meeting will later be held in Buffalo to organize a permanent society, elect officers and arrange to hold regular meetings from time to time.

NEW MEDICAL BUILDING FOR TORONTO UNIVERSITY.— A new $125,000 building which is being erected for the medical faculty and the arts department of physiology of Toronto University will have its interior construction based on what is called the unit system, worked out by Prof. C. S. Minot of Harvard. The unit adopted here is 30 by 23 feet, with the long wall of each unit practically filled by two large windows, thus insuring perfect light.

A LONGER MEDICAL COURSE AT MCGILL UNIVERSITY.— It is reported that the faculty of McGill University, Montreal, has decided to ask the Dominion Government at the present session of Parliament to enact a law inaugurating a five years' course in medicine instead of four.

A CENTENARIAN.— Mrs. Deborah Doane King, the oldest and in several respects the most remarkable woman in Ohio, died last week. Mrs. King is reported to have been in her 106th year.

## BOSTON AND NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON.— For the week ending at noon, Mar. 19, 1902, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: Diphtheria 42, scarlatina 14, measles 181, typhoid fever 11, smallpox 21.

CLINICAL BUILDING FOR YALE MEDICAL SCHOOL. —A new clinical building for the Yale Medical School is practically completed. It was erected at a cost of $100,000 with money provided by a donor whose name has been withheld. It is 94 feet in length by 64 in width, and is three stories in height. The front portion will be occupied by the city dispensary, while the rear portion contains the lecture-room, amphitheatre and several ante-rooms immediately connected with it. There are also on the first floor twelve clinical rooms, a clerk's office, a prescription department and a students' waiting-room. On the second floor there are fourteen rooms to be used for general class work, a clinical room, a lecture-room and a waiting-room. On the third floor there are seventeen rooms to be devoted to general clinical uses.

J. BAXTER UPHAM, M.D.— Dr. J. Baxter Upham, formerly of Boston, died in New York March 17. He was eighty-two years old, and was born in Claremont, N. H., graduated at Dartmouth in 1842 and at the Harvard Medical School in 1847, practised medicine in Boston until the outbreak of the Civil War, and then

enlisted to serve through the war as a surgeon major under General Burnside. After the war he resumed practice in Boston and was for some years a visiting physician at the Boston City Hospital. In 1880 he went to New York and went into business. Two years later he retired on account of ill health. Dr. Upham was at one time president of the Handel and Haydn Society of Boston.

The Department of Municipal Statistics in Boston.— All those who have had occasion to refer to the reports of this department of the Boston City Government would deplore its abolition, and it is to be hoped that a movement to this end among certain politicians may be promptly defeated. We could wish that all departments gave as much return in proportion to the outlay.

The Harvard Medical School Fund.— The conditions attached to Mr. John D. Rockefeller's gift of a million dollars to the Harvard Medical School have not only been already met, but more than met. Drs. Warren and Bowditch have so successfully pursued the completion of the task which they took in hand that in the short space of four or five weeks not only has the sum of $765,000, called for by Mr. Rockefeller's stipulations, been raised, but by the generosity of the contributors and the zeal of the solicitors this sum has been exceeded by $56,000, and a total amount of $821,000 has been promised in addition to the two preceding gifts of a million dollars each from Mr. Morgan and Mr. Rockefeller already announced.

The largest single subscription to this sum of $821,000 comes from Mrs. C. P. Huntington of New York, who offers $250,000 for the construction of the Pathological and Bacteriological Laboratory, with the understanding that this laboratory is to be known as the Collis P. Huntington Laboratory and so designated by a suitable inscription upon the exterior of the building. In her letter to the president and fellows of Harvard University, announcing her intentions, Mrs. Huntington says:

"I am happy to say that I have reached the conclusion that the serious and important work which is to be done in the Harvard Medical School in connection with pathology and bacteriology would have most strongly commended itself to the personal interest and wise judgment of my deceased husband, who was always deeply interested in promoting opportunity for sincere and earnest work in the best fields of labor."

With its previous endowments and all these new gifts, with funds promised by the University itself, and with its present land and buildings at a very moderate valuation, the Harvard Medical School may be considered as having at its disposal $4,950,000 applicable to the plans for its future development. It is now hoped to raise contributions for a new building for the dental school.

A list of contributors to the medical fund is appended:

Miss Mary S. Ames, $5,000; Oliver Ames, $5,000; C. W. Amory, $10,000; anonymous, $100; anonymous, $10,000; C. F. Ayer, $50; Robert Bacon, $25,000; Francis Bartlett, $10,000; Franklin H. Beebe, $1,000; Mrs. S. Parkman Blake, $10,000; John L. Bremer, $10,000; Mrs. John L. Bremer, $5,000; Miss Sarah Bremer, $5,000; George P. Brigham, $100; Shepherd Brooks, $1,000; Peter C. Brooks, $1,000; I. T. Burr, $1,000; Walter C. Cabot, $5,000; Mrs. Charles P. Cheney, $250; Mrs. E. S. Cheney, $1,000; W. Murray Crane, $5,000; George F. Fabyan, $25,000; Mrs. William H. Forbes, $5,000; Frederick Guild, Jr., $50; Charles Head, $1,000; Augustus Hemenway, $15,000; Francis L. Higginson, $60,000; George Higginson, $10,000; Henry L. Higginson, $10,000; James J. Higginson, $10,000; John Hogg, $1,000; H. S. Howe, $1,000; H. H. Hunnewell, $12,500; Walter Hunnewell, $2,000; Mrs. Collis P. Huntington, $250,000; C. C. Jackson, $1,000; Eben D. Jordan, $5,000; Harris Kennedy, $100; David P. Kimball, $5,000; Gardiner M. Lane, $1,000; Amory A. Lawrence, $1,000; Elliott C. Lee, $25,000; Joseph Lee, $5,000; Arthur T. Lyman, $5,000; Mr. and Mrs. Charles Merriam, $2,000; G. H. Monks, $1,000; Mrs. Leopold Morse, $100; Parkinson & Burr, $1,000; F. H. Peabody, $1,000; Sumner B. Pearmain, $100; W. L. Richardson, $25,000; Stephen Salisbury, $1,000; Dr. and Mrs. Frederick C. Shattuck, $50,000; Mrs. G. H. Shaw, $1,000; David Sears, $25,000; Mrs. Knyvet W. Sears, $200; Miss Mabel Simpkins, $200; Francis Skinner, $5,000; W. D. Sohier, $1,000; John T. Spaulding, $10,000; W. S. Spaulding, $10,000; James Stillman, $100,000; Moorefield Storey, $500; Nathaniel Thayer, $25,000; Mrs. Charles Van Brunt, $100; James C. White, $625; Mrs. Henry Whitman, $250.

NEW YORK.

Mortality Statistics.— The reports of the Health Department show that during the month of February the mortality in the city represented an annual death-rate of 21.79 against 20.08 in January and 19.77 in the month of February last year. The corrected death-rate for February, 1902, excluding non-residents and infants under one week old, is 20.86. Among the diseases which showed an increased mortality were the following: The weekly average of deaths from scarlet fever increased from 25.75 in January to 34 in February; of deaths from measles, from 24.25 to 34.75; of deaths from smallpox, from 9.25 to 12; of deaths from whooping cough, from 8.75 to 11.75; of deaths from pneumonia, from 202 to 218.75; of deaths from phthisis, from 137 to 184.25; of deaths from influenza, from 7.25 to 8.75; of deaths from cancer, from 41.5 to 44; and of deaths from diseases of the urinary system, from 124.25 to 127.5. Among the diseases which showed a decline in mortality were the following: The weekly average of deaths from diphtheria and croup decreased from 50 to 47.75; of deaths from typhoid fever, from 11.5 to 5.75; and of deaths from bronchitis, from 65.5 to 61. During the week ending March 1 one death was reported from Cæsarian section.

Bill Relating to Supervision of Insane.— At a meeting of the Medical Association of the Greater City of New York, held March 10, a resolution was unanimously adopted advocating the immediate passage by the legislature of a supple-

mental bill amending lunacy bill No. 368, recently enacted, which abolishes the positions of the two medical superintendents at the Manhattan State Hospital for the Insane on Ward's Island, New York, and places the two offices under one head; thus putting over 4,000 insane patients under one management. The supplemental bill provides for the restoration of these positions, so that the divisions of the hospital departments as they have heretofore existed, one for males and one for females, may be maintained. In presenting the resolution Dr. L. L. Seaman read a letter addressed to the governor of the State, and signed by Drs. A. Jacobi, F. P. Kinnicutt, M. Allen Starr, Francis Delafield, Charles McBurney, W. T. Bull, E. L. Keyes, and other prominent physicians, which urgently protested, from a professional point of view, against the placing of over 4,000 insane patients under the care of a single medical superintendent. The letter went on to say: "Moreover, we should greatly deplore the loss of either of the two superintendents now in charge of the two hospitals on Ward's Island. The loss of either would be a loss to the State. Dr. Macdonald, the senior officer, with his fine record of thirty-two years' service, would, of course, have prior claim to the place; but we sincerely hope that you will find a way to continue the present divisions of two hospitals."

HOUSE OF REST FOR CONSUMPTIVES.—The House of Rest for Consumptives has just purchased for $75,000 two mansions, connected by a *porte cochère* and surrounded by extensive grounds, at Inwood, on the Hudson. This institution, which was organized in 1869, was formerly located at Tremont, in what is now the borough of the Bronx, but some years ago this property was given up, and since then it has been connected with St. Luke's Hospital. Under a contract with the managers of the hospital a certain number of beds for both men and women, in separate wards, were maintained for tuberculosis patients. This was always regarded, however, as only a temporary arrangement, adopted for the sake of expediency. The House of Rest for Consumptives already has an endowment fund of nearly $500,000, and it is now purposed to raise this, if possible, to $1,000,000.

REPLY TO GOVERNOR ODELL'S CHARGES.—The members of the Board of Managers of the Manhattan State Hospital for the Insane, of which the Hon. Henry E. Howland was president, who, together with the members of all the other boards of State hospitals, have recently been legislated out of office, have just made public their reply to certain charges made by Governor Odell. In the beginning of the reply the governor is arraigned for constituting himself both accuser and judge in giving publicity to charges without making an investigation. After taking up *seriatim* and answering the various specifications of dereliction in the charges, the document concludes as follows: "The Manhattan State Hospital Board does not claim that the law nor the board's fulfilment of it has been free from imperfections, but it does deny, with emphasis and with a sense of official injury, the charges made by Governor Odell, both in general and in particular."

COMPULSORY VACCINATION BILL OPPOSED.—At a meeting of the Board of Health held March 13, the following resolution was adopted and forwarded to the Assembly Committee on Cities at Albany. The opinion of the Board of Health of New York City is that the passage of any bill requiring compulsory vaccination is unwise and uncalled for. President Lederle and the members of the bureau of contagious diseases have stated that they meet with little serious opposition in their efforts to vaccinate the people of the city, and that they believe that a compulsory vaccination law would be a powerful weapon in the hands of antivaccinationists. During the week ending March 16, 50,000 vaccinations (of which 30,000 were in the borough of Manhattan) was the record of the vaccinating corps.

POLLUTION OF BROOKLYN WATER SUPPLY.—Dr. J. H. Raymond, sanitary superintendent of the borough of Brooklyn, has forwarded to the president of the Board of Health a report prepared by C. P. O'Connor, chemist of the local department, showing a considerable pollution of Brooklyn's water supply. From a recent investigation of the watershed supplying the Ridgewood reservoir it was found that the tributary streams had overflowed into thickly populated tracts, and an analysis of the water taken at various points along the line of these streams disclosed unmistakably an organic pollution. Accompanying the report Dr. Raymond submitted a recommendation for the establishment of a sanitary patrol similar to one maintained when Brooklyn was a separate city.

SMALLPOX IN ORANGE, NEW JERSEY.—Statistics prepared by the Health Department of Orange, N. J., show that of the 52 cases of smallpox reported in that city during the past winter, in 49 the patients had either never been vaccinated or had not been vaccinated for twenty-five years or more. The remaining three patients had not been vaccinated in seven years.

HOSPITAL FOR CONTAGIOUS DISEASE.—The legislature has passed a bill providing for the establishment, and appropriating $500,000 for the erection, of a public hospital in the Bronx borough, which shall be provided with accommodations for the reception of cases of contagious disease.

Smallpox in Institutions.— Cases of smallpox have recently been discovered in both the Tombs Prison, New York, and the Westchester County Jail at White Plains, N. Y. All the prisoners (numbering 392 in the Tombs) and attendants were promptly vaccinated.

## ARMY NOTES.

Work of the Civil Board of Health in the Philippines.— Since the establishment of this board suitable medical and sanitary laws for the islands have been drafted, in addition to the performance of its routine duties. So far, bills have been submitted to the commission for the practice of medicine, dentistry, pharmacy, veterinary surgery, embalming and undertaking, for provincial and municipal boards of health, for the control of leprosy, the manufacture and sale of liquors, and many others. Of these, a number have already become laws, and the remainder will come up for consideration in the early future. A board of examiners for persons desiring to practise medicine in the islands is now in session, and it is hoped to place medical standards on as high a plane as obtains in the United States. Matters now receiving consideration are the organization of provincial and municipal boards of health, a system of compulsory vaccination, and the installation of the pail system of disposing of excreta in Manila.

Anomalous Military Position of Contract Surgeons.— As illustrating the anomalous military position of army contract surgeons and contract dental surgeons, neither of whom are commissioned officers, though responsible for the discipline and control of the enlisted men under their direction and care, it has recently been found necessary in the Philippines to issue an order requiring that these surgeons receive the military salute and proper respect from enlisted men. In no other branch of the military service would such an indeterminate status on the part of the personnel be tolerated for an instant, and its existence in the Medical Department is a severe blow to the administrative efficiency of the latter and the self-respect of the excellent class of civilian physicians serving under contract with troops.

A Surgeon as Soldier.— Capt. Harry L. Lemen, assistant surgeon, with two infantry privates, trailed a small party of Filipino insurgents into the swamps near San Filipe Laguna on the night of Jan. 1 and captured three insurgent officers armed with revolvers. This was considered a very daring feat, as the chances were favorable for the Americans being ambuscaded and killed by the insurgents.

## METEOROLOGICAL RECORD

For the week ending March 8, in Boston, according to observations furnished by Sergeant J. W. Smith of the United States Signal Corps:

| Date | Barometer | Thermometer. | | | Relative humidity. | | | Direction of wind. | | Velocity of wind. | | We'th'r * | | Rainfall in inches. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Daily mean. | Daily mean. | Maximum. | Minimum. | 8.00 A.M. | 8.00 P.M. | Daily mean. | 8.00 A.M. | 8.00 P.M. | 8.00 A.M. | 8.00 P.M. | 8.00 A.M. | 8.00 P.M. | |
| S....2 | 29.36 | 47 | 55 | 39 | 100 | 83 | 92 | S E | S W | 2 | 27 | O. | O. | .13 |
| M..3 | 29.54 | 42 | 48 | 35 | 77 | 71 | 74 | W | W | 16 | 16 | O. | C. | |
| T...4 | 29.84 | 36 | 40 | 32 | 74 | 43 | 58 | W | W | 17 | 18 | C. | C. | |
| W..5 | 29.80 | 31 | 34 | 28 | 50 | 100 | 75 | N E | N E | 5 | 30 | O. | N. | .65 |
| T...6 | 29.92 | 32 | 37 | 27 | 83 | 49 | 66 | N W | N W | 15 | 9 | O. | C. | .14 |
| F...7 | 30.25 | 38 | 51 | 26 | 48 | 46 | 47 | S W | S W | 12 | 14 | C. | O. | |
| S....8 | 30.50 | 39 | 42 | 36 | 68 | 78 | 73 | N E | E | 8 | 19 | O. | O. | |
| ☞ | 29.89 | | 44 | 32 | | | 69 | | | | | | | .92 |

*O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow. † Indicates trace of rainfall.
☞ Mean for week.

## RECORD OF MORTALITY

For the Week ending Saturday, March. 8, 1902.

| Cities. | Population* Estimated, 1902. | Reported deaths in each. | Deaths under five years. | Percentage of deaths from | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | Infectious diseases. | Acute lung diseases. | Diphtheria and croup. | Typhoid fever. | Diarrheal diseases. |
| New York . . | 3,665,352 | 1,404 | 464 | 25.14 | 16.38 | 2.27 | .36 | 3.35 |
| Chicago . . | 1,852,828 | 514 | 163 | 22.17 | 15.95 | 3.11 | 1.36 | 3.55 |
| Philadelphia. | 1,349,624 | 508 | 139 | 20.00 | 20.88 | 2.17 | 2.31 | .59 |
| St. Louis . . | 603,717 | — | — | — | — | — | — | — |
| Baltimore . . | 525,330 | 192 | 48 | 18.23 | 15.11 | — | — | 2.08 |
| Cleveland . . | 411,826 | — | — | — | — | — | — | — |
| Buffalo . . . | 375,742 | — | — | — | — | — | — | — |
| Pittsburg . . | 341,401 | 150 | 43 | 20.00 | 22.00 | .66 | 3.33 | — |
| Cincinnati . | 332,032 | — | — | — | — | — | — | — |
| Milwaukee . | 304.975 | — | — | — | — | — | — | — |
| Washington . | 289,537 | — | — | — | — | — | — | — |
| Providence . | 185,870 | 84 | 21 | 13.09 | 25.42 | 1.19 | 2.38 | — |
| Boston . . . | 588,736 | 230 | 66 | 23.04 | 23.47 | 3.04 | .87 | 2.17 |
| Worcester. . | 127.337 | 30 | 8 | 6.67 | 10.00 | — | — | 3.33 |
| Fall River. . | 111.872 | — | — | — | — | — | — | — |
| Lowell . . . | 99,574 | 36 | 10 | 16.67 | 25.00 | — | — | — |
| Cambridge . | 96,334 | 27 | 5 | 14.80 | 14.80 | — | — | — |
| Lynn. . . . | 71,144 | 20 | 3 | 20.00 | 20.00 | — | — | — |
| Lawrence . . | 67,275 | 15 | 8 | 40.00 | 13.33 | 6.66 | — | 6.66 |
| Springfield . | 66,854 | 15 | 2 | 13.33 | 26.67 | — | — | — |
| Somerville . | 65,882 | 22 | 5 | 13.63 | 27.27 | — | 4.54 | — |
| New Bedford. | 65.574 | 22 | 13 | 18.18 | 27.27 | — | — | — |
| Holyoke . . | 48,065 | — | — | — | — | — | — | — |
| Brockton . . | 43,208 | 15 | 2 | — | — | — | — | — |
| Haverhill . . | 40,392 | 8 | 1 | 12.50 | 37.50 | — | — | — |
| Salem . . . | 36,567 | 10 | — | 20.00 | — | — | — | — |
| Newton. . . | 36,336 | 5 | 2 | 20.00 | 40.00 | — | — | 20.00 |
| Malden . . . | 35,390 | 9 | 1 | 11.11 | — | — | — | — |
| Chelsea. . . | 35,264 | 17 | 4 | 29.40 | — | 5.88 | — | — |
| Fitchburg. . | 33,848 | 9 | 3 | — | 11.11 | — | — | — |
| Taunton . . | 32,759 | 2 | — | — | 50.00 | — | — | — |
| Everett. . . | 27,114 | 6 | 1 | — | — | — | — | — |
| North Adams | 26,583 | 8 | 3 | 50.00 | — | 25.00 | — | — |
| Gloucester . | 26,121 | 6 | 1 | 33.33 | — | — | — | — |
| Quincy . . . | 25,307 | 12 | 4 | 33.33 | 16.67 | — | — | 8.33 |
| Waltham . . | 24,612 | 6 | 1 | 16.67 | 33.34 | — | — | — |
| Pittsfield . . | 22,311 | 4 | — | — | 25.00 | — | — | — |
| Brookline. . | 21,679 | — | — | — | — | — | — | — |
| Chicopee . . | 20,390 | 8 | 2 | 12.50 | 25.00 | — | — | — |
| Medford . . | 20,014 | 6 | 1 | — | 33.33 | — | — | — |
| Newburyport | 14,478 | 2 | 1 | — | 50.00 | — | — | — |
| Melrose . . | 13,384 | 4 | — | — | 25.00 | — | — | — |

* The populations of the cities outside of Massachusetts were estimated on the basis of the rate of growth from 1890 to 1900. Those of the Massachusetts cities were estimated upon the rate of growth from 1895 to 1900, since the State had an intermediate census in 1895. The populations of Gloucester, Marlborough and Newburyport were allowed to stand as in 1900, they having suffered a slight decrease during the five-year period.

Deaths reported 3,446; under five years of age, 1,036; principal infectious diseases (smallpox, measles, scarlet fever, cerebrospinal meningitis, diphtheria and croup, diarrheal

diseases, whooping cough, erysipelas, fevers and consumption) 761, acute lung diseases 614, consumption 412, scarlet fever 35, erysipelas 13, typhoid fever 34, whooping cough 25, cerebrospinal meningitis 16, smallpox 30, measles 39, diarrheal diseases 82.

From whooping cough, New York 15, Chicago 5, Baltimore 1, Boston 1, Lowell 2, Northampton 1. From cerebrospinal meningitis, New York 8, Pittsburg 1, Boston 2, Lynn, Somerville, Gloucester, Southbridge and Watertown 1 each. From scarlet fever, New York 21, Chicago 10, Philadelphia, Pittsburg, North Adams and Marlboro 1 each. From erysipelas, New York 5, Chicago 2, Philadelphia 2, Baltimore 1, Boston 2, Worcester 1. From smallpox, New York 10, Philadelphia 11, Boston 6, Cambridge, Lawrence and Quincy 1 each.

Beginning with January, 1902, the term "great towns" as employed in the Registrar General's Weekly Return of births and deaths includes the seventy-five municipalities of England and Wales which have a population of more than 50,000 in each.

In the seventy-six great towns of England and Wales, with an estimated population of 14,862,003, for the week ending Feb. 22, the death-rate was 24.4. Deaths reported 6,959; acute diseases of the respiratory organs (London) 885, whooping cough 139, diphtheria 99, measles 145, smallpox 69, scarlet fever 49.

The death-rate ranged from 13.4 in Derby to 36.2 in Merthyr Tydfil; London 24.4, West Ham 26.7, Croydon 23.4, Brighton 23.0, Portsmouth 14.7, Southampton 19.8, Bristol 22.0, Birmingham 24.6, Leicester 19.3, Nottingham 17.6, Birkenhead 21.8, Liverpool 27.3, Manchester 26.8, Salford 22.6, Bradford 17.8, Leeds 20.3, Sheffield 19.0, Hull 18.0, Newcastle-on-Tyne 29.8, Cardiff 20.4.

## SOCIETY NOTICE.

SUFFOLK DISTRICT MEDICAL SOCIETY.—There will be a regular meeting of the Section for Obstetrics and Diseases of Women in Sprague Hall, Boston Medical Library Building, 8 The Fenway, March 26, 1902, at 8.15 P.M.

Papers: Dr. F. H. Davenport, "The Present Status of the Pessary in the Treatment of Displacements of the Uterus"; Dr. W. H. White, "Electricity, its Use in Gynecology." Dr. George Haven will report a number of interesting laparotomies.

W. H. GRANT, Secretary.

## RECENT DEATHS.

JONATHAN WOODWARD GOODELL, M.D., M.M.S.S., died in Lynn, March 12, 1902, aged seventy-two years.

DR. J. W. GOODELL, one of the oldest physicians in Lynn, Mass., had practised his profession forty-six years, with more than ordinary success, first at Greenwich and since 1866 at Lynn, Nahant, Swampscott and neighboring towns. Dr. Goodell was a member of the American Medical Association and of the Massachusetts Medical Society, of which he was at one time one of the counsellors. For two years he was president of the Essex South Medical Association.

ALBERT RIPLEY LEEDS, for many years professor of chemistry in the Stevens Institute at Hoboken, N. J., died in Philadelphia on March 13 from cancer of the stomach. He was about sixty years of age, had a national reputation as a chemist, and was the author of many scientific papers. He was especially held in repute as an authority on water supply and pollution. Since 1872 he had been the chemist of the Water Boards of Newark and Jersey City, and he had also held the same position from a number of other cities. Only a few weeks before his death he resigned his professorship at Stevens Institute, on account of the condition of his health, and in doing so he presented to the college his valuable library. Professor Leeds was one of the original seven members of the faculty when the Institute was started in 1871, and so great was his interest in its welfare that he heroically concealed his intense suffering, and persisted in attending to his duties up to the last possible moment.

## BOOKS AND PAMPHLETS RECEIVED.

A Letter from Germany. Homeopathy on the Continent. By Horace Packard, M.D. Reprint. 1901.

Human Embryology and Morphology. By Arthur Keith, M.D. (Aberdn.), F.R.C.S. (Eng.). Illustrated. London: Edward Arnold. 1902.

Vaccine Virus, with Special Reference to the Dangers of Glycerinated Lymph. By F. J. Runyon, M.D., Clarksville, Tenn. Reprint. 1902.

The Uses of Tuberculin. By Charles Denison, A.M., M.D., Denver, Colo. Reprint. 1901.

Annual Report of the New York State Reformatory at Elmira, for the Fiscal Year ending Sept. 30, 1901. Twenty-sixth Year Book. Illustrated. 1901.

Implantation of a Gold Ball for the Better Support of an Artificial Eye. By L. Webster Fox, A.M., M.D., Philadelphia. Illustrated. Reprint. 1902.

Vernal Conjunctivitis. By L. Webster Fox, A.M., M.D., Professor of Ophthalmology in the Medico-Chirurgical College, Philadelphia, Pa. Reprint. 1901.

Eleventh Annual Report of the State Board of Medical Examiners of New Jersey. 1901. Trenton, N. J.: MacCrellish & Quigley, State Printers. 1902.

Reports of the Trustees and Superintendent of the Butler Hospital, Presented to the Corporation at its Fifty-Eighth Annual Meeting, Jan. 22, 1902, Providence, R. I. Illustrated. The Providence Press: Snow & Farnham. 1902.

Obscure Diseases of the Urethra. By E. Hurry Fenwick, F.R.C.S. (Eng.), with special chapters on Urethral Carcinoma and Calculus. By J. W. Thompson Walker, M.B. (Edin.), F.R.C.S. (Eng.) Illustrated. Philadelphia: P. Blakiston's Son & Co. 1902.

A New Localizer for Determining the Position of Foreign Bodies in the Eye by the Roentgen Rays. By L. Webster Fox, A.M., M.D., of Philadelphia, Professor of Ophthalmology, Medico-Chirurgical College, Philadelphia, Pa. Illustrated. Reprint. 1902.

Diseases of Women, a Manual of Gynecology, designed especially for the use of Students and General Practitioners. By F. H. Davenport, A.B., M.D. Fourth edition, revised and enlarged. Illustrated. Philadelphia and New York: Lea Brothers & Co. 1902.

The Accessory Sinuses of the Nose, their Surgical Anatomy and the Diagnosis and Treatment of Their Inflammatory Affections. By A. Logan Turner, M.D. (Edin.), F.R.C.S. Ed. Illustrated. New York: Longmans, Green & Co. Edinburgh: William Green & Sons. 1902.

On the Alterations Produced in the Large Intestines of Dogs by the Ameba Coli, by Heat, and by Various Chemic Substances, with Notes on the Anatomy and Histology of This Viscus. By H. F. Harris, M.D., Atlanta, Ga. Illustrated. Philadelphia: Printed for the College. 1901.

A Manual of Practical Anatomy. By the late Prof. Alfred W. Hughes, M.B., M.C. (Edin.), F.R.C.S. (Edin.), F.R.C.S. (Eng.) Edited and Completed by Arthur Keith, M.D. (Aberd.), F.R.C.S. (Eng.) In three parts. Part I. Illustrated. Philadelphia: P. Blakiston's Son & Co. 1901.

A System of Physiologic Therapeutics, a Practical Exposition of the Methods, other than Drug-Giving, useful in the Prevention of Disease and in the Treatment of the Sick. Edited by Solomon Solis Cohen, A.M., M.D. Vol. VI. Dietotherapy and Food in Health. By Nathan S. Davis, Jr., A.M., M.D. Philadelphia: P. Blakiston's Son & Co. 1902.

Affections of the Mouth and Throat. Associated with the Fusiform Bacillus and Spirillum of Vincent. By Emil Mayer, M.D., of New York, Surgeon to the New York Eye and Ear Infirmary, Throat Department; Fellow of the American Laryngological Association, of the Academy of Medicine, of the American Medical Association. Illustrated. Reprint. 1902.

Publications du Progrès Médical. Recherches Cliniques et Therapeutiques sur l'Epilepsie, l'Hystérie et l'Idiotie Compte-Rendu du Service des Enfants Idiots, Epileptiques et Arriérés de Bicêtre Pendant L'Année. 1900. Par Bourneville avec la collaboration de MM. Crouzon, Dionis du Séjour, Izard, Laurens, Paul-Boncour, Phillippe et Oberthur. Vol. XXI. Paris. 1901.

Nothnagel's Encyclopedia of Practical Medicine, Variola, Vaccination, Varicella, Cholera, Erysipelas, Whooping Cough, Hay Fever. By H. Immermann, Th. von Jurgensen, C. Leibermeister, H. Lenhartz, G. Sticker. Edited, with additions, by John W. Moore, M.D., F.R.C.P. Authorized translation from the German, under the editorial supervision of Alfred Stengel, M.D. Philadelphia and London: W. B. Saunders & Co. 1902.

The Standard Medical Directory of North America, 1902, including a Directory of Practicing Physicians in the United States of America, Canada, Cuba, Mexico and Central America. Also Directories respectively of Medical Officers of the U. S. Army and Navy, Medical Societies, Medical Colleges, Medical Laws and Boards, Medical Publications (Books and Periodicals), Hospitals and Sanitariums, Mineral Springs, Drugs and Medicines, Medical and Surgical Products, Manufacturers, Life Insurance Companies, etc. Chicago: G. P. Engelhard & Co.

# Original Articles.

## THE SUTURE OF ARTERIES.[1]

BY J. C. HUBBARD, M.D., BOSTON,

*Third Assistant Visiting Surgeon, Boston City Hospital; Surgeon to Out Patients, Carney Hospital; Assistant Surgeon to Out Patients, Infants' Hospital.*

The suture of blood vessels is no new attempt of the surgeon to enter unexplored fields, for in 1762 Lambert put stitches into the artery of a horse, and at about the same time Hallowell sutured the brachial in man. The operation then fell into disrepute from the unsuccessful experiments of Assman in 1773. No more attempts were made till after the discovery of antiseptic methods, when in 1881 Czerny sutured the internal jugular vein in man. The suture was a success, though the patient died from other causes. From this beginning the repair of injuries to veins came to be more and more generally employed, until in 1892 Schede was able to report twenty-five to thirty successful vein sutures of his own, including one of the inferior cava.

Meanwhile, however, the repair of arteries seems not to have been so generally attempted and little, comparatively, was done. This conservatism was due partly, without doubt, to the fear of the formation later of an aneurism at the site of the suture, or of an endarteritis with thrombosis, but principally to the failure of the experiments on animals carried out by Gluck in 1882 and Horoch in 1888. Gluck reported a series of nineteen failures due to uncontrollable bleeding from the stitch holes, and Horoch found in all his cases a thrombus filling the vessel at the region of the suture.

In 1889, however, Jassinowsky published a series of successful experiments, proving the fears of the older surgeons completely groundless. It seems to be due to his work that the operation has been brought out of disfavor, for his experiments were carried out most satisfactorily. His animals were killed at varying intervals from one hour to one hundred days after the operation, and some of the specimens were examined microscopically. In all his cases but one the lumen of the vessel was open. In this one the wound about the vessel was septic and a thrombus partially occluded the artery. In none of the cases was there any tendency to the formation of an aneurism. On the contrary, the vessel wall was thickened and in some the lumen was somewhat narrowed.

He formulated a few rules, following which would ensure a successful result. The wound in the vessel wall must be smooth, not bruised or covered with adherent clots; the suture must pass through only the adventitia and media, and any bleeding through the stitch holes must be controlled by pressure for a few moments.

The next great step was made by Murphy in 1897, who found by experimentation that when an artery is cut more than one-half across it is best to adopt his invagination method (which I will describe later) and not try to suture it, for in a cut of such magnitude the vasa vasorum are so destroyed that there is fear of slight necrosis of the vessel wall and secondary hemorrhage. Under such circumstances he resects that bit of the artery and invaginates the proximal into the distal portion.

His method is as follows: Two or three double-headed sutures are inserted into the proximal portion, including only the two outer coats of the artery. These are then reinserted at regular intervals, one-third to one-half of an inch above the end of the distal portion, from within outward. The threads are then tied, invaginating the artery as they are pulled tight. In order to facilitate the invagination, a small incision, from one-third to one-fourth of an inch in length, is made, parallel to the long axis of the vessel. Four or five interrupted sutures are then inserted into the intussuscipiens, binding it to the surface of the intussusceptum, the sutures in the latter including only the adventitia and media. By this method a large surface contact of the vessel wall is secured, ensuring a more safe healing and less chance of hemorrhage, as the greater the arterial pressure the closer pressed together are the vessel walls. He reports a number of experiments and two actual cases.



Fig. 1.



Fig. 2.

Murphy's Invagination Method.

Fig. 1. First step in operation. Fig. 2. Completed operation.

Dörfler then took up the subject, with the hopes of deciding some of the disputed questions as to the best suture material and method of controlling the circulation during the operation, etc. He thoroughly, it seems to me, worked out their answers. Before his experiments, everyone had felt it very necessary not to injure the intima by the clamps or ligatures which control the circulation during the operation, feeling that a thrombus was sure to form at the site of the injury. Dörfler showed that it was safer to control the circulation with such light pressure, that the intima could not be injured, and also that a bruise or tear of the lining coat would not necessarily cause the formation of a thrombus. In other words, an injury to the intima is of no consequence in itself, but that interference with the circulation and infection are the principal causes of trouble, and that injury to the intima is a favoring factor only. He realized that the operation was rendered more difficult and retarded by limiting the sutures to the two outer coats of the

[1] Read before the Surgical Section of the Suffolk District Medical Society, Jan. 8, 1902.

artery wall, so he passed his stitches through the whole thickness with perfectly satisfactory results. Those who opposed this suture through all three coats did so from fear that the foreign substance in the vessel would cause endarteritis and thrombosis, that the injury to the endothelium necessarily caused by the sutures would interfere with the healing of the intima, and that bleeding might easily occur through the stitch holes, which might be enlarged by an increase in the blood pressure. Dörfler found that these fears were practically without foundation. In sixteen artery sutures which he did twelve included the intima and four only the adventitia and media. In one of each a thrombus formed. These were the first two experiments he did and the clot formation was due to faulty technique. He collected from various sources forty-three experiments where the intima was included in the suture, with thrombus formation in but five, and these five failures were said not to be due to the method itself, and, furthermore, there have been five entirely successful cases in men where all the coats were included, without any thrombus formation. After five to eight weeks nothing is to be seen of the sutures, and a thickening of the artery wall with a slight prominence of the intima alone indicates their position. The advantages of the suture through all the coats are its easy application, its adaptability to thin-walled vessels, and the certainty that the suture passes deep enough not to tear out, as might happen if one were trying to include only the two outer coats. He considers that very fine silk is the best suture material.

Jacobsthal hardened some of Dörfler's specimens and examined them microscopically. He found that the wound separation of the vessel wall is filled with blood and fibrin which extend into the perivascular tissue. In a few days a thickening of the endothelium occurs, which surrounds the sutures and shuts them off from the lumen of the vessel. Soon a new growth of cells and blood vessels forces its way into the blood clot, which becomes more or less organized. From this comes a cellular growth end — mesoperiarteritis. Next, a retrograde process appears, in which the cells decrease in number, with fibres between them, and become poorer in protoplasm. The growth in the adventitia and media is principally connective tissue, with rarely some elastic elements, while in the intima the new growth is exceptionally rich in fine elastic lamellæ and fibres, which may go on to the formation of a sort of second elastica in the neighborhood of the scar. The sutures lying in the lumen are entirely shut off by the thickening of the intima and covered by endothelium. In the adventitia they become surrounded by granulation tissue and giant cells. There is no formation of new muscle fibres.

The work up to this point of repairing an injury to an artery has been carried on without any mechanical aids. In 1894, however, Abbé carried out some experiments, inserting glass tubes into the arteries. After finding the tube plugged by a clot in his first case, the circulation having been carried on by the collateral branches, he put one into the aorta of a cat, thinking that there the collateral circulation would not be sufficient if the tube became plugged. He showed the cat four months later at a medical meeting, feeling sure that the tube and aorta were patent.

In 1900 Payr published an account of two new methods in which mechanical devices play an important part, similar to that of the Murphy button in intestinal anastomosis. He says that his experimental results have been satisfactory, but fails to describe any of them. For the first method

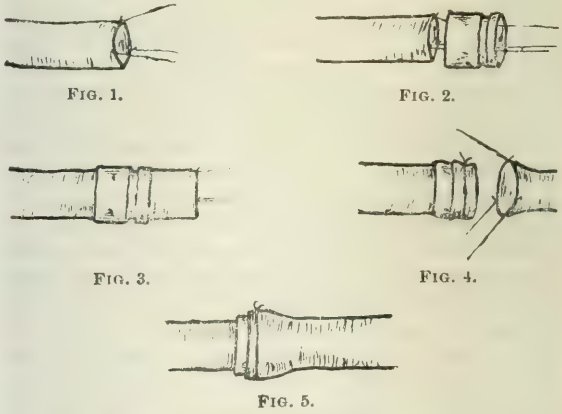


FIG. 1. FIG. 2. FIG. 3. FIG. 4. FIG. 5.

PAYR'S FIRST METHOD.

FIGS. 1, 2, 3, 4. Succeeding steps in operation. Fig. 5. Completed anastomosis.

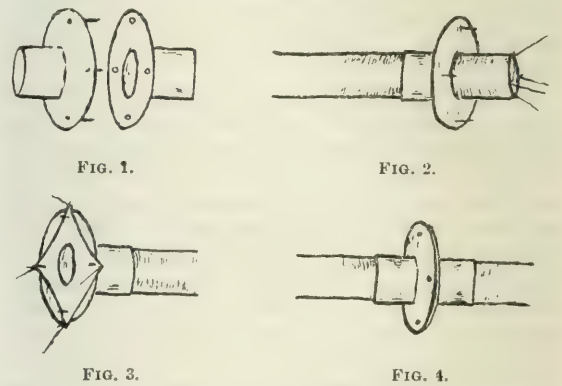


FIG. 1. FIG. 2. FIG. 3. FIG. 4.

PAYR'S SECOND METHOD.

FIGS. 1. Male and female cylinders. FIG. 2, 3. Steps in operation. FIG. 4. Completed anastomosis.

a cylinder with a groove near one end is necessary. Through this the proximal end of the artery is drawn by pulling on sutures passed through its end. The vessel is then turned back over the cylinder and held by a ligature fitting into the groove. The distal end of the artery is then stretched by means of sutures in its end and pulled over the proximal end and the cylinder. Another ligature holds this in place. Thus intima is brought into contact with intima. For his second method he uses a male and female cylinder, the male having four pegs and the female four holes. The end of the artery is drawn

through the male cylinder and pulled out so that it is caught on the pegs, the intima being thus turned out. The peripheral end is then drawn through the female cylinder and pulled out in a similar way, so that when the two cylinders are joined the intima of one end is fastened against the intima of the other. The cylinders in both methods are made of magnesium, which was found to be absorbed in a short time.

There are a few points about the technique of any repair operation on an artery which are almost self-evident, but might be overlooked unless one had thought about this branch of surgery. In the first place, absolute asepsis is necessary, for any infection about the wound makes the likelihood of thrombus formation the greater. The circulation must be controlled sufficiently far away from the injury to give room to work, and especially far away if a resection is to be done, for an artery when cut across retracts a long way. The circulation may be controlled by clamps armed with rubber, instruments made for this particular purpose, bands of gauze or the finger. No matter what means is used it must be with the slightest pressure possible, to prevent any more bruising than necessary. The vessel wall must be handled as little as possible. The suture must just fill the hole made by the needle, and both needle and suture must be the finest that can be handled. All clots must be wiped from the wound in the artery. A continuous suture is recommended because it minimizes the handling, and is quicker than an interrupted one, and because it always leaves a thread with which to hold the vessel wall away from the opposite one that a stitch may not include both. After the suture is complete the compression must be taken first from the distal end of the artery. This will let the blood flow back and test the suture before allowing the full blood pressure against the stitches by taking off all compression. If there is any real bleeding the circulation can be again controlled and more stitches put in. If there is only an ooze it can be stopped by gauze pressure for a moment or two. Suturing the sheath of the vessel is recommended, not so much because it strengthens the artery wall, as because it makes a barrier to any sepsis which may occur in the superficial part of the wound.

The field for the suture of arteries is necessarily rather small. It is suitable only when the vessel walls are healthy, and would be of no use in calcified arteries or a secondary hemorrhage where the vessel is bathed in pus. It is particularly serviceable in wounds of large arteries, such as the femoral or brachial, where a sudden tying of the vessel might possibly cause gangrene. The most favorable cases are those where the wound is made at the time of an operation. However, any clean cut wound can be sutured and ragged ones resected, if not involving too great a length. This suturing of arteries is adaptable to the treatment of traumatic and dissecting aneurisms.

The prognosis seems to be fairly good, though of course the procedure is still in its infancy. Even if the suture itself is a failure through obliteration of the lumen, the operation may still be a success as far as the object for which it was undertaken is concerned, for as the closure of the vessel is slow, the collateral circulation has time to adapt itself to the new strain. There seems to be no danger of a bit of clot being washed away by the blood stream from the line of suture and causing trouble farther on, for in none of the cases or experiments was anything of this sort found, and as many of them were on the carotids a cerebral embolism with symptoms would certainly have occurred. The danger of the formation of an aneurism at the site of the suture seems to be slight, none having occurred in either experiments or actual cases. The longest experiment lasted, however, but 100 days, and in a 37 day old femoral suture there was a little out swelling, but not really enough to be called an aneurism, and it was considered probably due to the retraction of the scar in the surrounding tissues.

I have been able to collect up to the present date twenty recent operations on arteries, which I will briefly mention to show the practical value of this procedure:

1. Durante, 1892. Tibial artery wounded during removal of chrondrosarcoma; catgut sutures through adventitia and media. Next year amputation for recurrence. Artery then found without any change except a narrowing at site of suture.
2. Durante, 1892. Amputation breast; axillary artery wounded; catgut sutures.
3. Rosa, 1892. Suture of wound in brachial 7 mm. long, including only two outer coats.
4. Heidenhain, 1894. Wound of axillary artery while dissecting glands in axilla; catgut sutures.
5. v. Zoege Manteuffel, 1895. Wound of femoral while operating on arteriovenous aneurism; sutured.
6. Israel, 1895. Common iliac injured during a perityphilitic operation; silk sutures through all layers.
7. Ssabaujeff, 1896. Embolus in femoral artery from ulcerative endocarditis; gangrene threatened. An attempt was made to remove the embolus, but patient too weak to permit Ssabaujeff to carry out his whole plan. The artery, however, was opened and sutured. Nineteen days later patient died from the endocarditis and a spindle thrombus was found along the opening in the intima.
8. Orlow, 1896. Wound in popliteal artery sutured through all the layers; additional stitches through adventitia and connective tissue; amputation later, when artery found patent but narrowed.
9. Murphy, 1897. Bullet wound of thigh; two small aneurismal sacs of femoral; one-half inch of femoral artery resected; proximal end invaginated into distal, the adventitia having been peeled off proximal; after the invagination it was pulled down over the line of suture and fastened there; the suture also of femoral vein.
10. Lindner, 1898. Femoral artery wounded during an operation for intestinal resection; suture with silk through all the coats; safety stitch through the adventitia.
11. Garré, 1898. Internal carotid injured during removal of cancerous glands; silk sutures through adventitia and media.
12. Garré, 1898. Wound of upper arm day before entrance to the hospital; wound of brachial artery sutured through all coats. After operation pulse and color returned to hand, which before had been pulseless and cyanotic.
13. Gérard Marchant, 1898. Arterial suture of humeral for arteriovenous aneurism. Doubtful result.

14. Richard, 1899. Axillary artery wounded during operation on axilla; catgut sutures.

15. Cammaggio, 1899. Wound of femoral artery; suture through all the coats.

16. Kümmell, 1900. Four to five centimetres of femoral artery resected, because involved in cancerous growth; proximal end invaginated into distal.

17. Seggel, 1900. Artery wounded in neck by would-be suicide; silk sutures through adventitia and media; jugular vein also sutured.

18, 19. Pacha, a Russian, is reported to have done two cases by the Murphy method on the axillary artery.[2]

20. Peugniez. Suture of artery for arteriovenous aneurism. I could not get the journal in which this article was published, and therefore can give but the title.

When Dr. Lund spoke to me about writing this paper, I at first was tempted to decline, realizing that anything new which I might have to say should be supported by many experiments; but later, I felt that collecting and bringing up to date the literature of the subject might possibly not be without interest and might serve to awaken some discussion. I was glad of the chance to read a paper of this sort for another reason, that I might have an opportunity to urge upon those in charge of the new medical school the great need in Boston of a proper place in which to carry on such original experiments as are necessary in a subject of this sort.

Last spring I became interested in this branch of surgery, and, after having thought about it for awhile, decided that possibly I might add a little to its advance. To do this, many experiments should be carried out. At present there is no opportunity for such work either at the Harvard Medical School or the hospital laboratories in Boston. Finally, I got a chance to work at one of the veterinary hospitals in the city, where the surgeons were most kind and thoughtful. The opportunity for aseptic work was, however, very slight, and the expense of keeping a number of dogs would have amounted to so much that I was forced to give up all my schemes. I sincerely hope that accommodations for such work will be made in the new school, that Boston may not be behind in the advance of experimental surgery.

I hoped to show by experimentation that transplantation of arteries was possible, for if an artery can be entirely divided and then sutured successfully, why can it not be stitched to another trunk? To accomplish this a lateral implantation would be necessary. If this proved possible, I had an idea that possibly in a certain number of abdominal aneurisms this procedure might be of some value.

Dr. Jones was kind enough to help me with the few experiments I did. As the technique of artery suture seemed rather hard, we started in on a simple operation.

I. *Large black dog.*— Right carotid dissected free. Circulation controlled by bands of gauze pulled about the artery and held tight by hemostatics. A longitudinal incision of about one-third of an inch was made in the artery. The incision was closed by fine silk interrupted sutures. Loosening the distal gauze showed a leak in the suture line. The gauze was tightened again and another stitch put in. This procedure had to be repeated again before the leaking was controlled. There was still a little oozing, which entirely stopped after compression. The blood then passed freely though the sutures seemed slightly to constrict the vessel.

A week later we killed the dog by trying to tie a glass tube into his aorta. The carotid was found somewhat adherent to the surrounding structures. The stitches were scarcely discernible on the inside of the vessel. There appeared to be a very small parietal thrombus at one end of the cut, and there was a thread of what seemed like fibrin free in the lumen. The calibre of the vessel did not seem to be altered.

II. *Irish terrier.*— Left carotid was dissected free and divided between two ligatures. Circulation was controlled by gauze bands as before. Longitudinal cut was made in each end and the corresponding edges were sutured with silk. When the distal gauze was loosened there was some leaking which was controlled by two more sutures. When both controlling gauzes were taken off there was no leaking. The pulsation proximal to the anastomosis was strong, distal to it weak, but distinct. The soft parts were joined by one stitch over the anastomosis. Five days later a more or less broken-down blood clot was let out.

Two weeks after the operation the dog was killed with chloroform. The carotid was dissected out. About the site of the suture there was a large fusiform mass, apparently an organized blood clot. Air could be forced through the anastomosis without any leakage. On section, the ends of the two portions of the artery at the anastomosis were filled with a soft blood clot. Although the air had passed freely, it was possible to find only a connection big enough to admit a hair.

III. A week before the dog was killed we did a similar operation on the left carotid, only in this case cutting out a portion of the artery wall, that the opening at the anastomosis might be larger. After the operation the pulsation distal to the anastomosis was stronger than it had been on the right, where only slits had been made in the artery, but still weaker than on the proximal side of the anastomosis.

When the dog was killed this specimen was a week old. As he died, there was a secondary hemorrhage. On dissection it was found that a stitch had given way. A clot was in the hole and extended into the artery. When this was removed a probe could be passed freely through the anastomosis.

My apology for presenting such imperfect results is the firm belief that if they can be obtained under the circumstances in which we worked, perfect ones can be reached when aseptic work is carried out. I trust that someone who has the opportunity will go on with this branch of surgery, for it certainly has a definite field of usefulness.

[2] Bouglé. Bull. et mém. Soc. Anat. de Paris, 1900.

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## A CONTRIBUTION TO THE STUDY OF CATGUT AS A SUTURE AND LIGATURE MATERIAL.[1]

BY HUGH CABOT, M.D., BOSTON.

The extent to which absorbable suture materials have come into general use makes it of the first importance that we should have quite definite ideas in regard to the position which they hold as compared with the unabsorbable materials. The question of sterilization has called forth much able and thorough investigation, and upon it, at the present time, investigators are substantially in accord. It is, I think, generally accepted as proved that, by a considerable variety of methods, animal materials can be rendered sterile, and that danger of infection from their use is almost *nil*, or perhaps as nearly so as with any material at our command. While the question of sterilization has been closely studied, less attention has been paid to the behavior of these materials in the tissues, and little is known of their durability and of the length of time during which they retain sufficient strength adequately to hold the tissues in apposition. The views of surgeons differ widely in regard to the length of time during which their suture materials remain strong, and there is surprisingly little experimental evidence to be found upon this point. In view of this unsatisfactory dearth of information, the writer undertook an investigation to determine if possible the length of time during which catgut of various sizes and makes and of different methods of preparation retains its strength in the tissues.

It will, I think, be generally admitted that it is desirable that a suture material retain its strength for three weeks, and it is obviously unwise to use absorbable materials which are retained in the tissues much longer than is positively necessary. What we want in an absorbable material is that it shall remain strong for three weeks and then disappear as fast as possible, for where these materials are retained in the tissues for a great length of time, they are open to many of the same objections as the unabsorbable materials. We not very infrequently see catgut and animal tendon sutures discharged through sinuses, showing that they have become foreign bodies, and that their absorption has been too slow to counterbalance the tendency of the tissues to sequestrate foreign material.

The process of absorption of catgut takes place by infiltration with round cells and polynuclear leucocytes, and the rapidity of the process depends largely upon the blood supply of the part. In tissues of poor blood supply and consequent low vitality, as subcutaneous tissues and fascia, the rapidity of infiltration is much diminished and absorption is therefore markedly slower, while in very vascular tissues the most rapid absorption takes place. These facts should be borne in mind in estimating the true durability of absorbable materials.

### METHODS OF INVESTIGATION.

In order to arrive as nearly as possible at uniform results, animals of the same variety have been used in all experiments, and sutures have been placed in an anatomically similar position. Rabbits were chosen because of their marked ability to withstand infection from the pyogenic organisms and on account of the ease with which they can be handled. For the benefit of our anti-vivisection friends, it may be here stated that all animals were completely etherized during the operation and were treated as surgical patients. All sutures were placed deep in the muscles of the hind leg, a region of free blood supply where absorption would be as rapid as in any part of the body, and were so arranged as to include a considerable bundle of muscular fibres and to be covered above and below by muscular planes. In order to have pieces of sufficient length to test their strength when removed, the gut was passed twice around the muscle selected and then knotted with the ends left long. The skin was closed with fine silk and a collodion dressing applied. Immunity from anything more than a mild skin infection was very marked, and in only three cases did any pus formation occur about the sutures. The materials used were plain catgut in sizes Nos. 0, 1 and 2, from makers Lee, Peak, Leavens, Van Horn and Countie. Chromicized catgut in the same sizes and from the same makers was also used.

### RESULTS.

Briefly stated, the results were as follows:

*Plain catgut.*— Prepared by heating under pressure in alcohol, a method very generally employed in the moist preparations. The strength of these materials when removed was estimated by an attempt to break them. When they could not be broken in short lengths of one and one-half to two inches, they were considered of full strength; when broken only with difficulty they were considered of good strength; when broken easily, worthless. No. 0, good strength at four weeks (two cases); No. 1, full strength four to six weeks (seven cases); No. 1, prepared by dry heat, nearly absorbed in three weeks (two cases);

[1] Read before the Surgical Section of the Suffolk District Medical Society, Jan. 8, 1902.

No. 2, unsterilized and not hardened, full strength four weeks (one case).

*Chromicized catgut.*— The following results include the product all makers considered together, as the methods of preparation do not differ widely. They are all prepared by the moist method and sterilized by superheating in alcohol in closed tubes; No. 0, little strength at four weeks (two cases); No. 0, moderate strength at six weeks (one case); No. 1, full strength five to eight weeks, present and of some strength eight to ten weeks (five cases); No. 2, full strength eight to twelve weeks, nearly absorbed sixteen weeks (four cases).

With a view to determining whether diminution in the strength of the solution of chromic acid or bichromate of potash would materially diminish the absorption time, some special gut was kindly prepared for me by Mr. Sampson, then with Countie & Co. Two sets were prepared, one with a solution one-half the usual strength for one hour as against the usual thirty hours, another with a solution one-quarter strength for one hour. These special preparations looked not unlike the regular material, but were somewhat lighter in color, though of the same strength and pliability. Both of these special preparations retained full strength for from three to four weeks as against five to eight weeks for gut prepared by the usual method (eleven cases).

The gut subjected to one-half strength solution retained some strength in the tissues from five to eight weeks (five cases), while that treated with one-quarter strength solution was absorbed in four to six weeks (six cases). These last experiments show that the catgut prepared with the weaker solutions retains its full strength for a somewhat shorter time, and that after the process of absorption has begun it is completed more rapidly.

Briefly stated, my conclusions are as follows: (1) That in rabbits chromicized catgut of No. 1 size is retained longer than is desirable in a suture material for surgical use; (2) that plain catgut of No. 1 size is retained a sufficient length of time; that is to say, a minimum of three weeks; (3) that that catgut prepared by dry heat is more rapidly absorbed than that prepared by moist methods; (4) that the time required for absorption increases very rapidly with the increase of size, as No. 2 gut took from two to three times as long to absorb as No. 1.

The question that now confronts us is that of correlating these results with the requirements of operative surgery. It is not possible to obtain any large number of clinical observations on the subject of buried suture material, and we must therefore take advantage of a few isolated observations. I have at present in my possession a piece of No. 1 chromicized gut which was removed from an abdominal sinus seven weeks after operation, and which at that time was apparently as strong as when applied. I have in three cases removed ligatures of No. 1 plain catgut from the subcutaneous tissues at intervals varying from one week to ten days, and in all three cases the gut was apparently as strong as ever. In a number of cases in which No. 1 chromicized gut had been used to suture the superficial fascia in a laparotomy in a thin patient, the knots of the suture have been felt under the skin apparently as plainly as at the time of operation, after intervals varying from four to six weeks. It has been my feeling that catgut sutures placed in the skin were more rapidly absorbed than when entirely buried in the tissues, and I find that the same impression exists among other observers, though no absolute evidence has been introduced. Through the kindness of Dr. Porter and the house staff of the Massachusetts Hospital I was enabled to obtain records of a number of cases in which No. 2 plain catgut was used as a continuous skin suture. This material was so completely absorbed that it could be wiped off without the use of force after an interval varying from eight to fourteen days. The conditions prevailing in mucous membranes appear to be favorable to rapid absorption, and in a few cases No. 1 chromicized gut placed in the cervix has been so far absorbed as to break on the least tension after an interval varying from seven to ten days.

The relation of these somewhat scattered observations may perhaps be rendered more obvious by a brief discussion of the reasons which may govern the choice of material in different regions. Catgut has its largest field of usefulness in the suture of wounds and as a ligature material for vessels of moderate size.

In the suture of wounds, the choice of size and preparation is of considerable importance, for the use of sizes too small will jeopardize the firmness of the scar, while the use of sizes too large gives rise to the danger of slow absorption and possible sinus formation, thereby forfeiting its superiority over silk.

Let us consider in detail the closure of an abdominal wound in layers. For the suture of the peritoneum where no tension exists and healing is rapid, size No. 0 or even No. 00 unchromicized will prove ample to retain the tissues in apposition until healing has taken place. The suture of the muscular layer where it has been split longitudinally, opens the question whether it is wise to suture this layer at all. The application of a suture including a considerable bundle of fibres subjects this portion of the muscle to pressure which will probably result in its conversion into fibrous tissue. This action is rendered more probable by the inevitable changes in the size of the muscle whenever the patient moves, and some muscular action is inevitable, especially during the nausea following operation. In this connection a case observed by Dr. C. A. Porter is of interest and importance. Appendectomy was done in December, 1900, by incision through the right rectus. The wound was closed in layers with chromicized catgut, the separated fibres of the rectus being brought together by chromic No. 1 catgut sutures, including a considerable bundle of fibres, and especial care was taken to see that the

sutures were *tied without tension*. In July, 1901, seven months later, the abdomen was again open for intestinal obstruction due to post-operative adhesions, the incision being made in the site of the former one. Those portions of the rectus included in the sutures applied at the previous operations were found replaced by fibrous bands one inch wide, thus converting the lower segment of the muscle almost completely into scar tissue and seriously impairing its function. This observation and several other less striking ones have served to convince me that atrophy of tissue included in a suture very generally takes place, and that it is unwise to anticipate any other result. If sutures coapting muscular edges are so placed as to include very few fibres, they are of little or no value in strengthening the wound or preventing the occurrence of dead spaces, as the fibres are so friable that the suture gets very little hold. If any sutures are used in the muscle, they should be of the smallest size of plain gut, so as to be absorbed in a few days.

The fascia is the layer of the most importance, and it is here that opinions will be found to differ most widely. The object to be gained is the union of this layer *without tension* by a material that will retain its strength for from three to four weeks. The use of catgut in sizes smaller than No. 1 is not to be advised, as it certainly will not come up to the requirements in durability. No. 1 chromicized gut will last sufficiently long and appears to satisfy the requirements as well as any material at our command. Many surgeons prefer to use larger sizes, as No. 2 or occasionally No. 3, on the ground that No. 1 is not strong enough. This objection seems to me unsound, because the demand for a stronger material implies that too great tension is being put on the sutures. No suture tied under much tension can be depended upon to maintain nice approximation, for it will inevitably cut out until this tension is relieved. This process of cutting involves a certain amount of necrosis of tissue, and the danger of wound infection is thus increased. I have seen reason to believe that some at least of the wound infections which have been thought due to the use of infected material have in reality been due to the lowered vitality of tissue included in too tight sutures. In exceptional cases, when No. 1 gut is not quite strong enough or it is desirable to use tension despite its obvious dangers, No. 1 gut may be used doubled, thus giving ample strength without increasing the time required for absorption.

What has been said above in regard to the use of catgut in uniting fascial layers is entirely applicable to the special fascia involved in the radical cure of hernia. In this operation wound infection is so serious a complication that every effort has been made to discover and remove every possible cause. Too great tension on the sutures, while not perhaps a primary cause of infection, is undoubtedly a predisposing element, and may be avoided by the use of suture materials which will not stand too great a strain.

As a suture material for the skin, catgut has only one great claim, namely, that it does not have to be removed. The process of cell proliferation by which it is absorbed results in the formation of more scar tissue than takes place about the nonabsorbable materials,—silkworm gut and silver wire,—and therefore is likely to leave a less perfect scar. It also acts as a drain to the fluids in the tissues, and by thus keeping the wound moist renders the surface a more favorable site for the growth of bacteria. The redness which is often seen in skin wounds sutured with catgut is not, however, always to be considered as evidence of infection, for it is often but the visible evidence of the formation of new vessels to carry on the process of absorption. When, however, it seems desirable to use catgut in spite of these disadvantages, No. 2 plain gut can be relied on to last from eight to fourteen days, and seems to be the size most nearly satisfactory.

As a ligature material, catgut has come into very general use, and in the practice of some surgeons into almost universal use. Its rapid rise in popularity has been due, first, to the well-known tendency of silk to form sinuses, and, second, to the general acceptance of the belief in the possibility of rendering catgut perfectly sterile. The bar to its universal acceptance has been a fundamental disbelief in its safety when applied to vessels of any considerable size. This fear is in part well founded, but it has to my mind proved more of a barrier to the use of catgut than the facts justify. It will be generally admitted that when vessels of large calibre or large masses of tissue are concerned, the softening which takes place in catgut when in contact with moist tissues will make its hold less secure than that of silk. Where great pressure is necessary to occlude the vessels, catgut will not maintain a high degree of tension for a sufficiently long time. But this does not apply to vessels of medium or small calibre, or conditions where it is possible to avoid ligature *en masse*. The fault which has been found with catgut under these circumstances and the liability to secondary hemorrhage belong not always to the material, but to the manner in which it is applied. The danger of trusting to two knots when three would give perfect security, and of cutting the ends of the ligature too short, have not been sufficiently recognized. If the ends of a catgut ligature are left one-half, or, better, three-quarters, of an inch long, the danger of the knot untying is eliminated.

The choice of sizes and preparations for ligature material is regulated by much the same considerations as in the suture of fasciæ. Sizes larger than double No. 1 chromicized gut are rarely necessary, for they are retained too long and may lead to sinus formation. In cases where catgut is to be used to ligate vessels of the first calibre, the larger sizes must be used, but I believe silk is a safer material for this purpose. For use on small vessels, as in breast operations, the small sizes, No. 0 and 00 plain gut, are to be preferred,

as they are only needed for a few days and they are rapidly absorbed. It may be stated as a general rule that catgut should be used in sizes as small as will do the work required in any given case.

In conclusion I wish to emphasize certain points which seem to me of importance: (1) In order to get the best results from catgut, care must be taken to select the size and preparation best suited for each occasion; (2) the use of too large sizes is one cause of unsatisfactory results; (3) care in tying and cutting catgut ligatures is essential to safety.

## NEGLECTED METHODS FOR THE STERILIZATION OF "GUM-ELASTIC" CATHETERS.[1]

BY F. J. COTTON, M.D., BOSTON,

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IN regard to the methods to which I am to call your attention, I would say that they are in no sense original methods of my own. They were new to me when first found and have proved new to a number of men to whom I have spoken of them. These methods I have tested rather carefully and, believing that they deserve to be used, call attention to them.

The first method, that of Herman of Rydygier's clinic, was published early in 1901.[2] He had found that gum-elastic catheters and bougies could be boiled in a saturated solution of ammonic sulphate without damage, not only for a few minutes, but for several hours.

Somewhat later Claudius of Copenhagen published an article,[3] the original of which I have not seen, stating that "silk" catheters could safely be boiled in concentrated salt solution. A reasonably extended search in textbooks and periodicals, for mention of these or like processes, resulted only in the finding of a passing notice by Alexander, in Morrow's "System," to the effect that gum-elastic instruments could be washed, then boiled in salt solution one drachm to the ounce, dried and dipped in boiling water before using. These three methods seemed worth testing, and have accordingly, especially the first two, been pretty thoroughly tested.

First, as to the ammonic sulphate method. This salt, $(NH_4)_2SO_4$, may be gotten of the wholesale drug and chemical dealers at twenty-five cents or less the pound. It is evidently a by-product and very dirty. It can, however, be cleared by filtering the solution, or, still better, by letting it stand and decanting. The salt is soluble in one and three-tenths parts of water. This saturated solution boils in the open dish at 227° F. For actual use a slightly weaker solution was used. An ordinary open pan was used, over a rose-burner. (*a*) In the first experiment an ordinary cheap gum-elastic catheter was boiled in this solution two hours at a time for a total of eight hours. It showed no change of surface or flexibility, though slightly darkened in color. (*b*) Next, three catheters were boiled for a half-hour, and let lie in the solution for two days without damage. (*c*) A mixed assortment of seven catheters, bougies and filiforms of various grades[4] were boiled for ten to twenty minute periods for a total of five hours. They were washed and dried between boilings. Only one — a bougie by no means new — showed a little cracking and roughening. (*d*) Next, two catheters and an old bougie were boiled three-quarters of an hour and let lie in the solution for twenty hours. The old bougie was a good deal roughened, the catheters intact. (*e*) A mixed set of catheters and bougies — all new — were boiled for fifteen minutes, absolutely without damage.

Like experiments were made with concentrated salt solution. Salt is less soluble than the ammonic sulphate, but a saturated solution proved to boil at nearly the same temperature, 227½° F. None of the fifteen assorted instruments subjected to long boiling in saturated salt solution showed any damage, save one cheap black bougie, which blistered slightly.

The method of using 12% salt solution (1 dr. to 1 oz.) was tried only twice, but on these trials boiling for fifteen minutes failed to show any damage to the instruments used.

Most of these experiments were carried out over six months ago, and most of the instruments used were kept, to watch for any late effects. There were none, except that instruments which were cracked before the experiments showed a recurring deposit of feathery crystals at the crack. This, however, like the crystals that form at the eye of catheters so boiled, is readily washed off and leaves no defect behind.

As a result of these tests, I am ready to claim that all the gum-elastic catheters, bougies, and filiform bougies ordinarily sold may be boiled repeatedly and for long periods in saturated (or something less than saturated) solutions of ammonic sulphate or sodic chlorid without essential damage. New instruments show no damage whatever, used instruments only a deterioration that is of no great consequence. As to a choice between the two, I feel a little surer of the ammonic sulphate, perhaps, but would choose it not so much because of this as because it is easier to handle and spatters less when it boils down than does the common salt.

As to the weaker solutions of common salt, they seem to be all right, but the tests made are too few as yet to be conclusive. At all events, the use of these more dilute solutions has no obvious advantage and has the disadvantage of lowering the boiling point.

It will be generally admitted that the use of gum-elastic instruments has been limited by the inefficiency of methods of sterilization, and that

[1] Read before the Surgical Section of the Suffolk District Medical Society, Jan. 8, 1902.

[2] Centrbl. f. Chir., 1901, H. 3.

[3] Hospitalstidende, 1901, vol. i, p. 515, Nos. 13-16.

[4] It seems impracticable to ascertain the ultimate source of many of these instruments. Suffice it to say that all obtainable sorts were tried.

an easy and reliable method is desirable. It is to be feared that wiping with corrosive has not gone out of fashion entirely. Boiling in water almost instantly destroys the resinous coat of these catheters, as does steam. Formaline sterilization does no great damage, but is unreliable, as various experiments, notably those of Katzenstein,[5] reported in 1900, have shown. Formaline, here as elsewhere, gives only a surface sterilization at best, and leaves the lumen of hollow instruments almost untouched.

The methods here presented have not been tested bacteriologically, because it seems superfluous. Here is a choice of methods whereby this class of instruments can be subjected to boiling for indefinite periods without damage, and at a temperature, not of 212°, but of fourteen or fifteen degrees higher. The salts used, though not poisonous or essentially irritant, are soluble, and readily rinsed off in boiling or in sterile water.

It would seem that these methods are fitted to remove the reproach of gum-elastic instruments, that they "are not sterile," and to place their sterilization on as firm a basis as that of the metal instruments, with which we rest content.

## TWO NEW METHODS OF OPERATING FOR RETRODISPLACEMENT OF THE UTERUS.[1]

BY FREDERIC COGGESHALL, M.D., BOSTON.

The number of operations for the cure of retroversion of the uterus which are now in use is in itself a proof that none of them have afforded perfect satisfaction. I do not think we are any of us quite content, in all cases, with the operations that have been most commonly employed. These are my reasons for drawing the attention of the members of this society to two new operations which have been devised and successfully employed in the West, but which, as far as I can learn, are very little known in New England. Each of them has its special indications, and I have used both in the last few years with highly satisfactory results. The length of time which has elapsed since the earliest of my own operations may not be sufficient to give absolute certainty as to the permanence of the results, if one is to judge only by experience, but the method of securing the uterus is such that I think we can predict with a great deal of confidence that it will prove efficient, without waiting for many years to elapse in order to test its permanency.

The two operations to which I allude are those of Goldspohn of Chicago, which is a modification, or rather extension, of the Alexander operation; and that of Gilliam of Columbus, Ohio, which seems to me very much superior to ventral suspension or fixation in cases where those operations are commonly thought to be indicated. Much of the dissatisfaction with the ordinary Alexander is due undoubtedly to the lack of knowledge of its technique, so that many men experience a great deal of difficulty in finding the ligaments, and complain that they are liable to break when they are being drawn out. I feel convinced, as a result of my own experience, that the operation is always a short and easy one if properly performed. This is not the place to enter into a discussion of the technique of the operation; I only speak of it, as the first part of the Goldspohn is the same as the Alexander operation. The other objection to Alexander's operation is founded on the assertion that after it has been performed it often fails to give satisfactory results. This, I believe, is due, as I have pointed out elsewhere,[2] to lack of care in selecting cases. Large numbers of cases of retrodisplacement of the uterus are complicated by more or less disease of the ovaries or tubes, and, in the bad cases of long standing, are almost sure to be complicated by adhesions tending to hold the uterus in its abnormal position. It is in meeting these difficulties that Goldspohn's operation is so much superior for complicated cases of retroversion to the ordinary Alexander. One ordinarily sees unsuccessful Alexander operations in which the uterus has been left to be pulled both ways, forward by the shortened ligaments, backward by the old adhesions, or shortened uterosacral ligaments which the operation afforded no means of breaking up. Again, one sees Alexander operations where the uterus has remained in good position, but the dismenorrhea and backache has not been relieved because of the presence of sclerocystic ovaries which the operation has left untouched. It is so common to find a retroversion of long standing complicated by adhesions, shortened uterosacral ligaments, and diseased tubes and ovaries, that an operation which, without adding materially to the seriousness of an ordinary Alexander, will enable us to correct the common complications of retrodisplacement, seems to me to fill a very important place. I assume that it will be granted that the ordinary incision into the abdominal cavity adds sufficiently to the gravity of the operation and lengthens and complicates the convalescence enough to be avoided if possible, provided these conditions can be equally thoroughly treated without it.

Goldspohn's operation, as I have performed it during the last three years, is as follows: The common Alexander incision having been made through the skin, the fat is separated with the fingers to avoid hemorrhage, down to the superficial fascia; this is cut, and the fat again separated with the fingers down to the deep fascia, which is thoroughly cleaned off before any attempt is made to find the ligaments. This makes the ring perfectly obvious, the two pillars being laid bare and standing out distinctly, the fat of the ring can be seen bulging up between them and we know that the ligament lies somewhere below it. The operator then proceeds to find the ligaments. The superficial fat of the ring being

[1] Read before the Suffolk District Medical Society, Section for Obstetrics and Diseases of Women, Oct. 23, 1901.

[5] Centrbl. f. Chir., 1900, Vereinsbeilage, p. 105.

[2] American Gynecological and Obstetrical Journal, June, 1901.

gently lifted, the tissues just beneath it grasped in the forceps will usually bring immediately into view the nerve and the ligament. However, it is perfectly possible that instead one will take hold of some fascia or deeper-lying fat. Before beginning to pull out on any tissue grasped by the forceps, it is necessary to clean it up sufficiently to be perfectly certain of what we are pulling on. Holding a pair of forceps in each hand, the operator grasps in one of them the mass of fat and fascia which he supposes to contain the ligament, while he slips the other pair under any part of the mass he is holding which is obviously not ligament. The second is then grasping rather less than the first, having excluded the nerve and a part of the fat. The first pair then lets go and proceeds to take another hold, excluding a little more of the superfluous tissues, and this process, which regularly eliminates all extraneous tissue, is repeated until the white shining ligament, whose appearances when every step has been accompanied by careful cleaning up of the tissues and sponging, to avoid discoloring the tissues with blood, is perfectly characteristic. As soon as the ligament has been separated from the adjacent tissues, and especially from the closely attached strands of fascia which connect it with the edges of the ring, it pulls out perfectly freely and with a suddenness that is apt to alarm one lest it has been broken. Both ligaments having been found in this manner, thoroughly cleaned and drawn out free from any attachments to the surrounding tissues, the peritoneal reflexion comes into view. The external ring is then slit upward with scissors for about half an inch. The loose fold of peritoneum which hangs about the ligament should be grasped about one-third of an inch, if possible, from its attachment to the ligament, and snipped through with scissors. This gives one a direct opening into the peritoneal cavity at the upper angle of each Alexander incision. The opening is large enough to admit the finger readily, and can be expanded so as to admit two if necessary. With the forefinger of each hand in the peritoneal cavity, one on either side, adhesions in Douglas' pouch can be readily broken up; tubes and ovaries on either side can be drawn up through the openings and inspected, and if their condition requires resection or removal this can be accomplished as easily as through the median incision. The adnexa are then returned to their proper place, and the cuts in the peritoneum closed with fine catgut, the slit in the external rings closed with kangaroo tendon or celluloid thread, and the operation completed as an ordinary Alexander.

To my mind this operation possesses the immense superiority over the ordinary Alexander that the round ligaments are not shortened until after any adhesions which may hold the uterus back have been broken up, and that any diseases of the tubes or ovaries which may have been complicating the case have been removed. Its advantages over the median incision is that there is, I believe, practically no danger of hernia when the wounds are carefully closed, that the bowel has not been exposed in the least, many times not even touched by the fingers throughout the operation. The consequence is that the patient's convalescence is much shorter; it is my practice to allow them to sit up on the seventh day, and if they are anxious to save expense in the hospital, send them home on the tenth. These advantages more than counterbalance in my opinion the fact that the operation involves two incisions and requires somewhat longer to perform than the single median incision. Goldspohn himself, with larger experience and more finished technique than I can lay claim to, finds that the operation takes no more time than an ordinary celiotomy. This method of operation is of course adapted only to cases in which the tubes and ovaries are of moderate size, and I still think, though I have employed Goldspohn's method more in the past year than formerly, that in cases where the shortening of the uterosacral ligaments is a marked feature, the method that I have employed for some years, of posterior colpotomy with section of the shortened ligaments and operation on the ovaries through the vagina, followed by a simple Alexander, is preferable. I do not think that we can deal equally thoroughly with the uterosacral ligaments by Goldspohn's method.

Gilliam's operation is adapted to all cases of retrodisplacement where for other reasons a larger abdominal incision is necessary, as where large pus tubes or cysts of the broad ligament have to be dealt with or where myomectomy is required. Here it is the common practice to perform fixation or suspension. The objections which I entertain against these operations I have stated elsewhere;[3] they are well known to all of you, as they are those which have been urged by many careful gynecologists ever since these operations were first introduced. Gilliam's operation is free from all these objections in any case in which it is really necessary to make a median or abdominal incision, that is, cases in which Goldspohn's operation would not apply. It holds the uterus forward by the connective tissue and muscle fibre of the round ligaments instead of by adhesions. It is therefore less open to the danger of the stretching of the attachments and it leaves no artificial bands in which the bowel can be caught. The uterus, after such an operation, being secured by its normal ventral attachments only, can accommodate itself to the changes of position in pregnancy as well as it could after an ordinary Alexander. The operation takes no longer to perform than ventral suspension or fixation and involves no longer convalescence, in fact, in my practice, a shorter one. This operation, which, as far as I am aware, was first described by Dr. Gilliam at the annual meeting of the American Association of Obstetricians and Gynecologists in September, 1900, was new to me up to that time, so that my experience with it has been a short one. My first operation was immediately after the reading of Dr. Gilliam's paper, and I

[3] American Gynecological and Obstetrical Journal, June, 1901.

have since done eight others by the same method. The first case is little more than a year old, and several others were done nearly a year ago. The operation that I have performed is as follows:

After we have finished the myomectomy or whatever else may be necessary in the case, a ligature is passed under each round ligament about an inch from its uterine origin and the ends temporarily secured with pressure forceps. The skin and fat are then pushed back from the cut edges of the fascia at the lower end of the incision for the space of about an inch. The fascia is then pierced with the point of a knife at a point about one inch from the edge of the median incision and an inch and a half above the pubes, a sharp-pointed pair of pressure forceps, such as Kelley's, is then thrust through this opening in the fascia on either side and through the muscle and peritoneum, the finger being held on the inside to receive the point of the forceps. These forceps then grasp the ligature under the round ligament and draw the ligature and after it the round ligament up through the opening in peritoneum, muscle and fascia. Any slack at the distal end of the ligament is drawn out through the opening and the ligament is secured to the outer surface of the fascia by three or four stitches of kangaroo tendon. The uterus has in this manner been fastened forward by means of its round ligaments, which are attached to the abdominal wall at a point about two inches from each other, and in such a manner that about an inch of the proximal end of each ligament has been left inside the abdominal cavity. The abdominal wound is then closed in layers in the ordinary way. The patient may be allowed to sit up on the tenth day and leave the hospital on the fourteenth.

These operations are of course only applicable to women who are not old enough for the round ligaments to have undergone atrophy. They leave the stronger proximal portion to afford support, and dispense with any dependence upon the thin distal end of the ligament. In this respect they seem to me much superior to any method of shortening the round ligament by doubling the proximal portion upon itself within the abdominal cavity.

## THE INFLUENCE OF SCHOOL LIFE OVER HEALTH.[1]

BY FRANK W. WRIGHT, M.D., HEALTH OFFICER, NEW HAVEN, CONN.

The influence school life has over the health of pupils should interest not only physicians and those actively engaged in school work, but all parents who desire their children to arrive at maturity with their physical as well as their mental powers well developed and equipped to meet the struggles of life. Undoubtedly the seeds of many of the ills of those of mature age are sown in the schools, and it is highly probable that many of the failures of manhood are due to the slothful dispositions and indolent habits engendered by badly ventilated and poorly lighted schoolrooms, in which they, as children, have spent many hours, supposedly improving both their physical and their mental endowments.

The first principles of school hygiene are embodied in the selection of the sites for the schoolhouses and the construction of the buildings and furniture as regards ventilation, light, the positions the pupils must maintain during school hours and the sanitary requirements. Concerning these, the physician is never consulted, and seldom the sanitarian. In cities and large towns some consideration is given to these requisites when a schoolhouse is about to be constructed, but in the small towns the schoolhouse is usually placed where the land is least available for other purposes, and the building is such as will receive the approval of the most conservative taxpayer.

In selecting a site for a school, proximity to marshes and unsanitary surroundings should be avoided. A high position is desirable, and the ground should be dry by nature or by properly constructed drains.

The construction and furnishing of school buildings cannot be fully discussed in this paper, as the details are many and technical, but it is necessary that some of the essential features be mentioned. The buildings ought not to be over two stories high, with wide and well-lighted halls and stairways. The floors and all woodwork should be closely joined, in order that dust and disease germs may find no hiding places. A cellar should be under the whole building. The walls may be tinted, but the ceilings should be white. If heated by a furnace, care should be exercised that the cold air taken in is free from all possible contamination. Forty or fifty pupils are as many as should occupy any room, and about twenty square feet of space should be allowed for each person occupying the room. I believe that, with proper care, a room can be better ventilated by the natural air circulation than by any of the elaborate systems for artificial ventilation. Light should be introduced from the left of the pupils, and a northern light is preferable. The area of glass should be about one-fifth of the floor area. Water closets should never be in the basements, but should be placed at convenient distances from the schoolhouses and have covered approaches. Desks and seats should be so constructed that the front edge of the desk will be upon a line perpendicular with the edge of the seat, which should be of such height that the pupil's feet may rest flatly upon the floor. The top of the desk ought to be about even with the elbows and slightly sloping.

The diseases most common to school life are near-sightedness, deformities of the spine, disorders of the nervous and digestive systems, tonsilitis, consumption and the contagious diseases of childhood, such as scarlet fever, diphtheria, measles and whooping cough. It has been found by the examination of the eyes of many thousand children in the high schools of Europe that over 40% were near-sighted to a greater or less degree. It was also found that this defect increased

[1] Read before the American Public Health Association, Sept. 20, 1901.

from the primary to the higher rooms not only in frequency but in degree. The causes of this trouble are badly arranged and insufficient light, bad air, improperly constructed desks, and badly printed textbooks. One investigator found that in the more modern schoolhouses, where more attention is paid to the light and arrangement of the seats, that the proportion of pupils with defective eyesight is less than among those of the older schoolhouses.

Curvature of the spine is quite common among school children, and can nearly always be attributed to the positions assumed by them on account of improperly constructed desks and seats. A much larger proportion of girls have spinal deformities than boys. A prominent cause for this is the fact that the clothing of girls hangs loosely about them, and when they are seated tends to gather into irregular pads, raising one hip higher than the other. They also, when at study, are more inclined to assume twisted positions than boys.

Nervous disorders, such as headaches and hysteria, are not at all infrequent, and affect the teachers as well as the pupils. Girls, again, are more subject to these disorders than the children of the opposite sex. Impure air, defective light and mental strain are accountable for these troubles.

Disorders of the digestive system with which many school children are visited, are caused by poor food, cold lunches, eating nuts and sweets and neglect of the calls of nature. One of the important factors in the causation of disturbances of both the nervous and digestive systems I believe to be too long school hours. In my opinion, many of the failures in health and scholarship among the pupils of our high schools are due to the hours. A session of three hours, with a short intermission, is as long as any growing person should work. The hours most of the high schools are in session require an early breakfast and a late dinner. Often the latter is long after the rest of the family have dined, and the food is either cold, or warmed over and not palatable. From personal observation I am certain that the exercise and refreshment taken during the intermission are not of the right nature. Those that take exercise do so with the same clothing that they wear in school and with uncovered heads, be the weather fair, cold or damp. The lunches are largely of sweets and other indigestible foods. These not only cause digestive disturbances, but prevent keen mental activity.

It seems certain that many who develop consumption later in life have the way paved for this disease during their school life by overcrowding, bad air, overheating, and cold draughts of the schoolrooms, by neglected coughs, poor nourishment, etc. I believe the surest way to correct this is to employ only healthy teachers and to give delicate children accommodations by themselves.

Tonsilitis is often epidemic in schools and is contagious. It is very apt to prevail at the time diphtheria does and may be confounded with it. Special care should be taken that children who have had the latter disease do not return to school and report that they have been sick with tonsilitis. It will be impossible to always prevent this, as the clinical symptoms of both diseases are very similar and the most conscientious physician is liable to be mistaken. A bacteriological examination alone surely establishes the correct diagnosis. Tonsilitis may be caused by poor ventilation or by sewer gas that has escaped into the room.

The diseases that are most frequently brought to the teacher's attention, and that often cause serious alarm, are, scarlet fever, diphtheria and measles. These diseases are never contracted from defects in the construction of the school building, nor even from poor ventilation or escaping sewer gas, but each of these may lend material aid towards rendering persons susceptible to the contagion of any of the complaints. No one of these diseases can be contracted in the schoolroom except by some person bringing into the room the particular micro-organism that is peculiar to it. This may be by the person who has been sick, returning to school before sufficiently recovered, or before his person and clothing have been disinfected, by other members of the family attending school or by persons residing in houses in which contagious diseases exist, unless great care is taken in isolating the patient and in disinfecting the articles likely to be infected.

Physicians, sanitarians, architects and school boards are at the present time seriously considering how sickness among school children may be lessened, and as a result of this, the hygiene of our schools must improve, but the good accomplished will be more noticeable in years to come when statistics for several decades can be compared.

The first great care, when schools are assembled, is to see that all, both pupils and teachers, have been successfully vaccinated. If we allow children to pass into adult life unvaccinated, we are raising a population that are liable at any time to contract a disease that, previous to the discovery of vaccination, killed more people than all other diseases together. At the present day it is well known that communities where this has been neglected suffer more from this scourge than those where vaccination is compulsory. It is of the greatest importance that not one person connected with a school should be in the least susceptible to smallpox, as a single case would cause a panic that would not be confined to the school in which it occurred, but would so interrupt the usefulness of all of the schools of a city or town that it would be many months before anything like systematic work could be resumed. Children who have not been vaccinated during infancy should be before beginning school, and again when they are twelve or fourteen years of age, and the dates and results of such operations should be made a part of the school record.

No child from a family in which a contagious disease exists should be allowed to attend school,

and no child from the same house should do so until some person, whose duty it is to personally investigate, certifies that all due precautions have been taken by isolation and by disinfection of all articles exposed to infection, and that the one receiving the certificate has been free from exposure to the disease. Any person who has been exposed to a contagious disease should not attend school for at least two weeks from the last known exposure.

A person who has been sick with scarlet fever should be kept from school until at least the process of desquamation has been completed, and even then he should not return until there has been a thorough disinfection of the person and premises.

Many seem to believe that when, in a case of diphtheria, the membrane has disappeared from the throat, the danger of its being communicated to others is past. I am certain that outbreaks of this disease often have their origin from persons who have been allowed to return to school before their throats have become free from the Klebs-Loffler bacilli. As a bacteriological examination of cultures made from the throat is necessary to establish a positive diagnosis, so is it necessary to positively prove that the bacilli have left and the danger is past. Disinfection after this complaint is of the same importance as after scarlet fever.

Measles and whooping cough are diseases that do not receive sufficient attention, especially the latter. Measles is a dangerous disease unless the best of care is given to the sick. Fatal attacks of pneumonia and bronchitis are frequent complications of measles, and many other complaints may be more or less directly due to it. Children who have been exposed to measles need to be isolated fully as much as those who have been exposed to scarlet fever or diphtheria, as in measles the danger of contagion is probably greatest during the catarrhal stage, which usually precedes the eruption by about four days.

It is frequently stated that whooping cough is but a trivial disease, and that all children should have it while young and be through with it. To my knowledge teachers have within a few years made the statement that "having whooping cough was no excuse for being absent from school." Such opinions and teachings are not only erroneous, but extremely dangerous. I regard this disease as one to be shunned as much as possible. While whooping cough is not particularly fatal to older and robust children, it may be contracted by them at school and by them communicated to other members of the family. It is a very fatal disease to young and delicate children. During the year 1898, the year whooping cough was last epidemic in New Haven, there died in that city from this complaint about one-third more than there have from scarlet fever in the last eight years.

Any disease that can be contracted at school and carried to the home should be most rigorously excluded from school, and teachers should refrain from giving advice at variance with this policy. No invariable rule as regards the length of time one who has had a contagious disease should be kept from school can be given, as all diseases vary in severity and duration. I am of the opinion that a person who has had scarlet fever can resume his usual avocations, provided disinfection of person and home has been thorough, at the end of seven weeks, diphtheria four weeks and measles two weeks. It sometimes happens after any of these diseases that the time above given is not long enough, and often a person may safely associate with others in a much shorter time.

It should be forcibly brought to the attention of teachers that all rules for the protection of the health of the children should apply to them as well as the pupils.

I deem it of the greatest importance that the pupils should have nothing in common, as it is well known that children with contagious diseases often attend school for several days before it is discovered that such is the case. It has been conclusively shown that diphtheria can be communicated by means of pencils, drinking cups, books and clothing. Most of the attempts that I have seen to keep separate these articles have been but a delusion. Each child should have books used by no one but himself, and the books when dirty or infected should be destroyed. One of the bright young teachers of the writer's own city has devised a cap for pencils that is superior to anything known of by him for preventing the liability of contagion being spread by this means. This cap is about one and a half inches long, and is made of aluminum with an alloy of some metal hard enough to make it unpleasant to bite. This can be easily wiped with a disinfectant. A number is stamped into the top which preserves the individuality of the pencil. New Haven has also the credit of manufacturing within its limits the only sanitary drinking fountain of which the writer, after diligent inquiry, can learn. It is impossible to intelligibly describe this, but it is so constructed that a column of water is raised with more or less force as required, in such a manner that the smallest child can readily drink without inconvenience and without soiling his lips with anything that has been touched by another. I have viewed with pleasure the coat rooms of some of the modern schoolhouses, which are so constructed that the garments of the pupils are kept entirely separate from each other.

Medical inspection of schools, if properly performed, seems to offer more possibility toward lessening sickness among the young, not only at the school, but in the home, than any plan yet adopted. This can best be done by making four classifications of the subject, namely: (1) Sanitation of the buildings, which should include the inspection of closets, urinals, heating and ventilating apparatus, lighting and the general cleanliness of the rooms and halls, the water supply and means by which this is served, and possibly supervision of books, pencils, etc., as to neatness and disinfection, and destruction if necessary. (2) Examination of pupils, which should be daily, for

the prevention of contagious diseases and at stated intervals for the detection of parasitic diseases and vermin, and at least once every term to ascertain if all pupils have been successfully vaccinated. (3) The examination several times a year of the eyes and ears of each pupil, that errors in refraction of vision may be corrected and defects in hearing may be treated. Many a child, naturally bright, has been considered hopelessly dull, simply because no one had discovered that there was a defect in his sight or hearing. (4) What may be called outside inspection; that is, investigating into causes of absence of children from school, and if they are found to be sick, the nature of their illness. The custom of sending children from the schools for this purpose is very wrong and should not be allowed. I have several times been present in houses in which there were contagious diseases, when children have come from the schools and were intending to return immediately, and have known them to be invited in to wait, which they would have done except that I prevented it. I am convinced that in this manner contagion is sometimes conveyed to the schoolroom. It is plainly the object of medical inspection of schools, not only to exclude those actually sick, but to use all means to preserve the health and happiness of the pupils and their relations and friends at home.

The increased agitation by sanitarians, within the past few years, of this important subject, school hygiene, has awakened an interest among the parents of children that attend the public schools, and they are now expecting precautions against diseases by health and school authorities, that ten years ago had not even been considered possible. I know of no more tangible results than can be obtained from the labors of local health authorities than by attention to school hygiene. It is, therefore, necessary that local health boards and their employees cultivate by efficient performance of their duties the interest the people now exhibit in this branch of sanitary science, that the work may not alone be passively endured, but be in such demand, that sufficient appropriations for this purpose cannot be denied by the financiers of the local governments.

## Medical Progress.

### REPORT ON THORACIC DISEASES.

BY JOHN W. BARTOL, M.D.

#### COMPRESSION THROMBOSIS OF LEFT INNOMINATE VEIN IN PERICARDITIS.

ZEZSCHWITZ[1] reports the case of a patient suffering from pericarditis complicated by a left-sided pleural effusion. A striking feature of the physical examination was the presence of numerous dilated veins appearing on the surface in the upper chest, and supplying neck, head and left arm. The obstruction to the internal veins of which this collateral circulation seemed a proof was taken to be an inflammatory affection in the mediastinum (no ground for assuming new growth). In the left supraclavicular depression was to be felt a cord-like thickening which corresponded in situation and direction to the external jugular, and another corresponding to the course of the thyroid vein. At autopsy (six weeks after first observation and several months after beginning of the ill-defined sickness) was found chronic and acute pericarditis; thrombosis, from compression, of the left innominate, the internal jugular and the inferior thyroid on the left; and a left-sided hydrothorax; the left pleural cavity containing five litres fluid (in spite of several aspirations during life) while the right contained only one-half litre. A discussion follows as to the mechanical factors in the case, and the difficulty of satisfactorily explaining the existence of unilateral hydrothorax.

[1] Muen. Med. Woch., No. 34.

#### RIGHT-SIDED CARDIAC HYDROTHORAX.

Stengel[2] having had his attention originally attracted to a frequency of this condition much greater than is granted in the majority of writers, by a double series of cases observed by him from 1893 to 1897 and reported by Steele, analyzed a further series of 100 consecutive cases of cardiac disease (chronic myocardial or valvular). Of these, seventeen showed the existence of hydrothorax, and out of the seventeen the effusion was at some time confined to the right side in seven, was bilateral with greater involvement of the right side in seven, and was left-sided in three. The inadequacy of other explanations that have been offered led him to seek for one in the anatomical relations of the greater azygos vein to the right auricle. He shows that even a moderate dilatation of the right auricle will press upon the vein and produce a congestion felt throughout the supply of the right intercostals and often resulting in a right-sided hydrothorax. A secondary and less extensive left-sided effusion (shown in seven of his cases) may be explained by the fact that the upper and lower azygos veins on the left empty into the greater azygos, and consequently feel the effects of stasis to a greater or less degree.

#### TRANSPOSITIONS OF THE HEART; ACQUIRED AND CONGENITAL.

Under the heading of Acquired Dextrocardia Lohsse[3] describes a case of extreme displacement in which the heart's dulness apparently extended from anterior axillary line on right along the lower border of fourth rib to about 4 cm. from right sternal border, then obliquely downwards to the sixth rib at about 2 cm. from right sternal border where the apex was located; the evident cause was the pull from contraction of right lung as a result of tubercular disease and the push of the emphysematous left lung. He satisfied himself by experiments that such displacement is the result of two motions: (1) The rotation of the

[2] University of Pennsylvania Medical Bulletin, June, 1901.
[3] Muen. Med. Woch., No. 34.

heart's base, which, owing to the normal attachment of the pericardium, is more movable than the apex; (2) the dislocation of the heart as a whole toward the right.

Walbaum[4] reports a case similar, but with less displacement, and concludes, largely on theoretical grounds, that the change of position is the result of four motions: (1) Direct displacement to the right; (2) displacement upward, as combination of pressure from the diaphragm and pull from the contracting lung; (3) rotation of heart about a sagittal axis running through the middle of the base; (4) rotation about an axis which measures the longest diameter of the elliptical cross-section of the heart.

Paltauf[5] calls attention to the diversity of underlying causes and actual conditions, and makes a plea for greater uniformity of nomenclature and sharper definition of the types already recognized as existing: thus, as examples: (*a*) Simple acquired dislocation of the heart to right side of body, apex pointing to right, without change in anatomical relations of vessels or chambers. To this quite rare condition he would give the name of "dextroversio cordis." (*b*) The congenital condition of transposition of the great vessels, the aorta and pulmonary arteries arising more or less anomalously, with or without a change of the heart to the right side of the body. This differs from (*c*) Situs Transversus, in which the heart is on the right, but the vessels in their relative anatomical relations are normal. Under (*d*) Dextrocardia are included the indefinite cases where the heart is dislocated to the right, but the apex maintains its direction toward the left.

### OCCLUSION OF ALL VESSELS ARISING FROM AORTIC ARCH.

A truly remarkable case is reported by Türk[6] in which, as a result of aortic disease, the right coronary artery, the innominate, the left carotid and subclavian, and several of the upper intercostals were completely plugged. This change came about so gradually that the patient complained only that for past years, in brisk walking or hard work, there was a feeling of oppression in his chest, without palpitation, dyspnea or cough. A few weeks before admission the discomfort had been increasing and extended toward back, shoulders and upper arm, especially on left side; occasionally passing dizziness and imperfect vision were present. He was forty-four years old and at thirty-three underwent inunction cure for syphilis. The striking points in examination were paralysis of left recurrent laryngeal nerve; moderate dulness over manubrium; heart sounds everywhere clear, the second aortic plainly increased and somewhat ringing. Examination with x-ray entirely negative. At the base of the neck a very strong pulsation was to be felt, which reached above the region of the jugular bulb. The right subclavian was palpable, but the pulse beat in it very small and weak. The right carotid felt like a stiff and only weakly pulsating tube; in the right axilla, with great care, a suggestion of pulsation was at times to be felt; in the right brachial and radial, however, there was absolutely no pulse to be felt; the left carotid could be felt but did not pulsate, nor did the left subclavian, axillary, brachial or radial show any sign of pulse wave. The vessels themselves, wherever palpable, were felt as stiff and tortuous tubes; in like manner the two temporals were visible, palpable and pulseless. In striking contrast to the arteries of the upper extremities, those of the lower were more than ordinarily full and strong in their pulsations. Inspection and palpation of the skin of trunk showed astonishing anomalies in the shape of branching, tortuous, plainly pulsating vessels, the size of a quill and larger. They were especially numerous in the upper portion of the back, evidently rising from the deeper regions, and after giving off branches in region of angle and outer border of scapula, gradually centred toward the axilla and disappeared beneath the surface. By pressure on these vessels it could be demonstrated that the current in them was from below upwards and in general from the middle line outward. The appearances on the anterior surface of trunk were not so striking, but in regions of supply of inferior and superior epigastric arteries on the right, pulsating vessels were plainly felt.

During the twelve weeks which followed the first examination there were simply the signs of moderate cardiac insufficiency, and the complaint of pain on swallowing. Death ensued suddenly, with hemorrhage from mouth and nose. The autopsy findings were aneurism of aortic arch adherent to esophagus and recurrent laryngeal nerve; perforation into the esophagus; occlusion of the right coronary, the innominate, the left carotid and subclavian and several of the upper intercostals, from aortitis. A study of the collateral supply was made and it was found that the most important factors were the lower intercostals and the lumbar arteries; less important was the anastomosis between epigastric and internal mammary.

### AIDS TO DIAGNOSIS OF ADHERENT PERICARDIUM.

The "cardinal" symptoms of concretio pericardii being notoriously unreliable, Türk[7] has given the condition careful investigation, and reports a series of cases with instructive comment and conclusions. He has been especially helped by signs not generally considered as suggestive of the condition. Thus in the first line, he would put a striking picture of cardiac insufficiency, without proof of valvular disease, or cause for muscular degeneration; evidence of tricuspid insufficiency, a sign of such weight that, given such evidence in the absence of organic affection of the valve or other probable causes, a diagnosis of adherent pericardium is as good as made; an extreme cyanosis as the heart loses power, with a peculiar hydrops of the serous cavities showing

[4] Deutsch. Med. Woch., Sept. 19, 1901.
[5] Wien. klin. Woch., No. 42.
[6] Loc. cit., No. 32.
[7] Wien. klin. Woch., No. 37, et. seq.

itself first in the peritoneal cavity; in the presence of ascites and hydrothorax the absence of hydropericardium is most significant; congestion of hepatic circulation is likely to be marked. A feature of all these proofs of an obvious impairment of the heart's activity is the obstinacy which they show to ordinary methods of relief. They are given with numerous other hints, not as being essentially new in themselves, but because they are too often undervalued as being of less importance than the considerations which receive the chief attention in the textbooks.

### THE FLINT MURMUR IN AORTIC INSUFFICIENCY.

Thayer has made [8] a careful statistical study of seventy-four cases of aortic insufficiency coming to necropsy. In 45, or 60%, of these was heard at some time during observation a murmur suggestive of mitral stenosis; in only twelve of these forty-five cases was there a stenosis of the mitral valve, while in thirty-three the orifice was of normal or increased circumference. Going on to a careful consideration of the signs of uncomplicated mitral stenosis, mitral stenosis with aortic insufficiency, and aortic insufficiency with Flint murmur, he concludes that the Flint murmur exists at some time in fully one-half of the cases of uncomplicated aortic insufficiency; the character of the murmur differs in no essential particular from that observed in true mitral stenosis, except that it is more often of moderate intensity; a presystolic thrill is very often present. As differential points, especial stress must be put on the absence in uncomplicated aortic insufficiency of the tapping systolic impulse and snapping first sound so characteristic of true mitral obstruction, and the failure of the pulse to show a notable diminution in volume. He inclines to the theory, modified from Flint's explanation and supported by Guitéras, Potain and Broadbent, that the great curtain of the mitral valve, pressed up by the retrograde current from the aortic orifice, vibrates under the double influence of this stream and the forward one from the auricle, and thus produces the thrill and murmur.

### TRACHEAL TUG.

The value of Oliver's sign as pathognomonic of thoracic aneurism is again discredited by the investigations of Sewall.[9] He studied 430 persons, presumably not having aneurism. These he divided into three classes: (1) Normal individuals, or those in whom there was no evidence of left-sided pleural adhesions or pulmonary fibrosis; (2) cases manifesting signs of tuberculosis at the left apex, or those with a history of pneumonia or pleurisy on the left; (3) cases of marked atheroma or emphysema, that is, those in whom there might be assumed to be simply lack of extensibility of the lung tissue. He draws the two important conclusions: (1) That a tracheal tug quite palpable is very apt to be associated with and dependent upon adhesions of the left pleura. Diminished extensibility of the lung tends to produce the same phenomenon, and the tug is most pronounced when the conditions are combined; (2) that in the normal individual descent of the heart with inspiratory movement of the diaphragm may so press the aortic arch upon the left bronchus as to impart to the trachea the aortic pulse, recognizable at the larynx as a palpable tug of greater or less distinctness.

### TREATMENT OF ANEURISM.

The enthusiasm for treating aneurisms by gelatine injections has cooled down, in the face of failure to realize the hopes originally held forth, and while this procedure continues to give somewhat encouraging results in selected cases, the pendulum is swinging again to surgical interference with wire and galvanic current. Papers by Willard [10] and Freeman and Hall [11] give review of the literature and report cases which are illustrative of the possibilities and limitations of this method.

### COMPRESSION-THERAPY IN HEART DISEASE.

Mendelsohn [12] is convinced that the two years' experience since the first device for applying pressure over the region of the heart was put in use by Abée, has shown the measure to be of very distinct value in mitigating the distress in many cases of heart disease; in all those, in other words, in which there is enlargement with hypertrophy and dilatation of the left ventricle; not in nervous affections, in degenerations, or valvular trouble without hypertrophy. The explanation of relief afforded by the apparatus, is based on the idea that the distress is caused by the impact on the chest wall of the hypertrophied heart; the area of impact being much increased by the pushing aside of the lungs which normally act as a buffer, and the force of the impact being actually much greater owing to the added power of the heart. Also as factors in the production of distress are to be considered the dragging of the heavy organ on its suspensory attachments, and the increased mobility which it acquires.

If then, by any means the chest wall can be steadied, if something can partly fill the function of the lung as an elastic buffer, if the heart can in a measure be supported and kept from too much change of position, a great relief will be afforded. Such has proved to be the case, and numerous forms of apparatus have been devised to these ends.

The one here described is a metal plate moulded in a plaster cast of the chest wall to fit an area slightly larger than that corresponding to the enlarged heart. On the inner surface of this plate is fixed an air cushion which can be blown up by the patient after the plate has been firmly fixed to the body by straps.

[8] American Journal Medical Science, November, 1901.
[9] Loc. cit., Aug. 1, 1901.
[10] University of Pennsylvania Medical Bulletin, September, 1901.
[11] American Journal Medical Science, December, 1901.
[12] Berl. Klin. Woch., No. 31.

SUDDEN DEATH FROM HEART FAILURE IN CASES OF SUPERFICIAL ULCERATIONS.

Zuppinger[13] reports three cases in children all under four years in which during the course of trifling ulcerative processes, sudden death intervened. In the two which came to autopsy a similar condition was found of myocarditis and nephritis. The pus from the lesions was not examined, but the supposition is that the pathological condition in heart and kidneys was the result of toxin absorption. The ages of the patients are held responsible for the great susceptibility of the organism to such poison.

PERFORATING WOUND OF HEART SUCCESSFULLY SUTURED.

Wartten[14] details many points of interest in his account of what he claims to be the first and only operated case, in which the heart wound was complicated with perforation of the right pleural cavity and with pneumohemothorax. Three sutures were taken in right ventricle and complete recovery ensued.

FOUR CASES OF SUDDEN DEATH IN HEART DISEASE WITH UNUSUAL PATHOLOGY.

In *British Medical Journal*, Nov. 23, are reported three cases of sudden death from rupture of the left ventricle, all occurring in insane patients, but without any immediately antecedent activity leading to strain on the heart. Necropsy in all cases showed marked fatty degeneration of heart without other striking changes.

In the same journal is described a case of sudden death of a patient while in bed, with autopsy findings of an atheromatous perforation as large as a small crowquill in the posterior wall of the left ventricle, corresponding with a ragged, funnel-shaped ulcer the size of a shilling on the inner wall.

CHEST COMPLICATIONS IN ABDOMINAL DISEASE.

Bruce[15] gives timely emphasis to the necessity, perhaps well recognized, but certainly often overlooked, of making carefully repeated routine examinations of the chest in all cases of abdominal disease in which the diagnosis is in the least obscure, and vice versa. He details two interesting groups of cases. The first includes tuberculous peritonitis, appendicitis, subdiaphragmatic abscess, and affections of the chest secondary to hepatic disease. In all the instances under these headings diagnosis was made conclusive only by careful consideration of the signs within the chest representing complications of suspected conditions within the abdomen which alone were not adequate to furnish all the details of the clinical picture. In the second group of cases, including hepatic disease, pleurisy and perigastric abscess, pleurisy and perinephritis, pleurisy and peritonitis, hydatid of liver, and pelvic disease, very instructive instances are given in which the principal symptoms seemed to point to the chest, but the condition there on careful examination was found to be secondary to the original and at first unrecognized abdominal trouble.

[13] Wien. klin. Woch., No. 34.
[14] Deutsch. Med. Woch., Sept. 12, 1901.
[15] British Medical Journal, Nov. 23, 1901.

COLLAPSE OF LUNG IN PNEUMOTHORAX.

As a result of a few experiments on rabbits, Hellin[16] concludes that in pneumothorax the lung does not entirely collapse; that double pneumothorax is not of necessity immediately fatal; that the lung is able to re-establish its function by prompt absorption of the air in the pleural sac as soon as the opening is closed.

[16] Berl. klin. Woch., No. 40.

## Reports of Societies.

### SURGICAL SECTION OF THE SUFFOLK DISTRICT MEDICAL SOCIETY.

F. B. LUND, M.D., SECRETARY.

Regular meeting Wednesday, Jan. 8, 1902, Dr. F. S. Watson in the chair.

Dr. J. C. Hubbard read a paper on

THE SUTURE OF ARTERIES.[1]

Dr. Cheever: The subject is all new to me, but I cannot help reflecting on the hopefulness of the future when I recur in my mind to one or two cases that occurred to me. A little girl, who was stabbed in the thigh by an oyster knife, was brought to the City Hospital, without any history, two or three days after the injury. The wound was near the bottom of Scarpa's triangle. The thigh was enormously distended. There was an absence of pulsation in the foot below.

The diagnosis of traumatic aneurism was made. The vessel was controlled above and the sac having been laid open I turned out a large quantity of slightly solidified blood amounting to, I should think, nearly a pint, and then found very easily the femoral artery cut and gaping. There was a case. What did I do? What everybody did at that time: I tied each end of the femoral artery, cut between, closed the wound. In these days we might easily have restored, perhaps, that artery, because it was a young child with a healthy elastic vessel. In consequence of the aneurism being traumatic, collateral circulation not having had time to restore itself, the main current being absolutely cut off and the patient dependent on the circulation of the large profunda, the tissues a good deal injured by distention and pressure, the life of the limb was jeopardized for several days. The child finally recovered, with a fairly useful limb and sloughing of one or two toes, and the mutilation went no further. There would seem to be no just reason why that artery could not have been safely sutured. The aneurism having been treated aseptically, I think there would have been a fair chance of saving the vessel and avoiding any peril to the limb itself.

[1] See page 323 of the Journal.

In the other case everyone was afraid to do anything, myself included. Other surgeons more distinguished than I had seen the case and passed it on. This was a case of arteriovenous aneurism of the iliac region, deep in behind Poupart's ligament. The pulsation was diffusive, the sound almost audible when you sat near the patient, and resembled a musical murmur or placental souffle, only much louder. It was evident that there was a communication, resulting from a wound, between the artery and vein, as evidenced by the livid circulation in the limb, musical sound, etc. How long the man lived I do not know. It was before the days of asepsis. It was concluded that cutting through behind the peritoneum to reach a doubtful condition of things at the junction of the vein and artery, inasmuch as the man was not in immediate danger of dying, was too great a peril. It is not, perhaps, to be wondered at that surgeons hesitated in view of the chances, of the certainty I may say, of suppuration, the chance of peritonitis, and the probability that the hemorrhage would be so great that you would lose your landmarks and not be able to control it. Now, it seems to me, with aseptic methods, vessel after vessel might be sutured or tied, according to circumstances.

DR. MARCY: I have no experience in the suture of arteries. I am familiar with the work of Dr. Murphy. With reference to the suturing of veins, I would like to speak of two or three cases. My first case was a suture of the axillary vein, where it was badly torn. The vein was larger than usual. The subsequent recovery was simple and easy. The femoral vein, by accident, I opened where it was varicosed in an extraordinary way, with an incision I suppose three-fourths of an inch long, and the vein itself easily admitted a finger. I sutured this, with perfectly easy recovery. I used a very fine needle, round, without cutting edges, the eye near to the point, and a very fine tendon suture, making a double stitch, bringing the enclosed parts together in the manner of a shoemaker, and thus closed the intima of the vein without any danger of leakage. I think this method of suturing a vein is a very desirable one. I believe the suturing of arteries opens a new and very interesting field.

DR. HUBBARD: The cases by his method on men were all successful. Murphy and Kümmell have each done one and a Russian, Pacha, is reported to have done two more; so that there are probably four or five in all.

D. HUGH CABOT read a paper entitled

A CONTRIBUTION TO THE STUDY OF CATGUT AS A SUTURE AND LIGATURE MATERIAL.[2]

DR. MARCY: I am interested in this subject of buried sutures for a good many reasons, and if for no other purpose I should like to rise to express my approval of the paper to which we have listened. It seems to me there is very little to be added. I would like to call attention to the magnificent paper that was published in 1827 by Dr. Jameson of Baltimore, a name perhaps unknown to almost all of you. He certainly was the originator of the buried animal ligature, of its introduction and its dissemination. So rapidly did it become a favorite material for the ligation of arteries, following Dr. Jameson's essay, which was given a prize and republished in pamphlet form, that it was used by nearly all the leading surgeons of that day and many of the leading men in London, and why did it lose its position and, like many another most excellent discovery, go into forgetfulness almost without a history? The pages of the surgeries of that day, and following to the day to which Dr. Cheever has made mention, were filled with hundreds of long articles upon that doubtful question of wound inflammation, and, in the heat of the controversy over it, failing to recognize the fundamental cause, it naturally fell into forgetfulness and ceased to be used. The variety of suture material at that time was something rather extraordinary. Some of the physicians got into very hot fever over the discussion of the shape of the ligature, one declaring it should be flat, another round, one that it should be hard, another soft; but Dr. Jameson's paper shows he compassed entirely the ground in reference to the subsequent result that followed the ligature of arteries in aseptic wounds, and as an extremely good operator he was fortunate in carrying out a series of experiments in the lower animals, in which he traced the absorption of the buried ligature in such a way as to show a permanent, vitalized constriction at the point of ligation. This work was so utterly forgotten that Mr. Lister knew nothing of it when he went to France to make his researches upon the ligation of arteries with catgut, but he traversed the same lines, perhaps more favored by the teaching of the new pathology, of which he still stands as the great master.

Following that came the possibility of burying sutures of other materials and for other purposes, and it was in 1870 that I took up the subject very much as Dr. Cabot, and with a long series of experimental studies attempted to show what became of the buried suture, at that time using only catgut, and under favorable conditions I found a demonstration so remarkable that I at first thought we had not only a transplantation of our buried tissue, but a vivification of it, so thoroughly did I find the reproduction in shape of the buried material. Later I determined that we had a proliferation of leucocytes, afterwards the leucocytes slowly changing to connective tissue corpuscles until they surrounded, later invaded, the foreign tissue thus implanted, and the result was a connective tissue band which took the shape of the buried suture. I placed a good deal of emphasis in my writing upon the subject that this was important as a reinforcement of the tissues, especially in the cure of hernia. I published a series of cases of hernia in 1870, cured after operation similar to that now in common use. I claimed the reconstruction of the parts was possible only by the use of the buried animal suture.

[2] See page 327 of the Journal.

You may overchromicize animal suture. I saw one removed that had been buried a whole year, and a piece I think ten or twelve inches long, so unchanged that the surgeon was unable to break it: it was black from its overchromization. The absorption of such material does not readily take place even in young healthy animals.

In reference to the burial of the suture there are many things I might, if the time was thought favorable, emphasize, and certain perhaps from which I would dissent. A suture buried in fatty tissue is likely, if you apply very much tension, to give trouble, resulting from fat necrosis; therefore, it is as rare as possible that I bury an animal suture in fatty tissues. Again, I thoroughly dissent from the interrupted suture wherever you may bury it. An interrupted suture is simply a ligature. A continuous suture is far to be preferred, has very many advantages. You can coapt far more accurately. I should as soon think of sewing a coat with interrupted stitches as I would the tissues of the body. In reference to the coaptation of the stronger tissues, in laparotomies nothing can be more important than to see that like tissues are joined and in such a way that you may have coaptation at rest, which means minimization of constriction in such a way that the parts may be held for the most easy revitalization of damaged structures. That means a great deal.

In reference to catgut, what has been said favorably of it may be said with much greater emphasis in reference to good tendon sutures for various reasons, which, however, is a little foreign to this discussion.

I have often noticed in the earlier days the criticism which Dr. Cabot properly makes of the interrupted suture that goes through and through the skin. The most rapid proliferation of tissue is in the deeper layer of the skin itself. As you pull gently upon a stitch you have left in the skin, in such a way that you may draw the loop through, you will find on the part where it was in juxtaposition to the vascular layer it has disintegrated to half its original size, showing how much more rapidly, at a certain point, the absorption of the suture material goes on. For that reason as one and for the fact that you are so likely to introduce infection from the deeper glands of the skin, etc., it is of the first importance to coapt the skin itself with a buried continuous suture; do it in such a way that your sutures are in the deeper layer below the follicles of the skin. With gentle tension upon the end of the suture you bring into easy coaptation the separated portions of the skin; they lie in juxtaposition, the suture is buried out of sight in the deeper layer only, and the iodoform collodion seal finishes the work of the surgeon for good or for ill before the patient leaves the operating table.

Dr. Lund: I have felt that the prejudice against catgut was unfounded, and I believe that the people who stick to silk do it because they are afraid that catgut cannot be sterilized. I am sure it can be sterilized.

With regard to suturing fascia of the abdominal wall with fine sizes of catgut, in the majority of cases I should be unwilling to trust that entirely, especially as we frequently have to operate on cases which have a cough and are going to strain the abdominal muscles. I think in many cases we should reinforce the layer suture by a button and plate suture. I would not advocate that in all cases, but in many it is important. I do not believe fine catgut would be strong enough after eight days, and I have seen an abdominal wound come open after that.

Chromic catgut I think has the advantage of ease of handling at the time. When you are tying large vessels I think chromic catgut is about as easy to handle as silk, and has a slight advantage over ordinary catgut for this reason.

With regard to the point of tying three knots and cutting catgut ligatures long, I think it is a very important one.

Regarding subcutaneous catgut suture of the skin, I think it is a beautiful suture, and I have been in the habit of closing abdominal wounds and herniotomies in this way.

In regard to interrupted sutures, I think in many cases they have an advantage over the continuous, because you do not need the continuous all along the edges and put in more sutures than are necessary. With the interrupted suture you can get your strongest apposition where you need it.

Where you have two definite edges of fascia to unite there is nothing so good as continuous suture, as is especially shown in sewing Poupart's ligament to the conjoined tendon in hernia.

Dr. F. C. Cotton read a paper entitled

### Neglected Methods for the Sterilization of Gum-Elastic Catheters, etc.[3]

Dr. Hugh Cabot: Since discussing this matter with Dr. Cotton some eight months ago, I have used this method of sterilization and been very well satisfied with it. It seems to me a very valuable contribution to our present methods of sterilization because it greatly increases the safety with which gum-elastic instruments can be used. In the methods of sterilization ordinarily employed, the life of a gum-elastic catheter is short and we are always in some doubt as to the efficiency of the method. By the method brought forward by Dr. Cotton we are ensured of absolute sterility, and a moderate experience with the method has convinced me that it does not injure the catheter and will, therefore, greatly increase the number of cases in which these instruments may be used with safety.

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American Association of Pathologists and Bacteriologists.— As announced elsewhere, this society will hold its second annual meeting March 28 and 29 at Cleveland, Ohio. The program is a long one, including forty titles, on varied subjects connected with pathology and bacteriology. The meeting promises to be a notable one.

[3] See page 330 of the Journal.

## Recent Literature.

*Hughes and Keith: A Manual of Practical Anatomy.* By the late PROF. ALFRED W. HUGHES, M.B., M.C. (Edin.), F.R.C.S. (Edin.), etc., Professor of Anatomy, King's College, London; Edited and completed by ARTHUR KEITH, M.D. (Aberd.), F.R.C.S. (Eng.), Lecturer on Anatomy, London Hospital Medical College, etc. In Three Parts. Part 1, pp. 274. The Upper and Lower Extremities. Illustrated by 38 colored plates and 116 figures in the text. Philadelphia: P. Blakiston's Son & Co. 1901.

The volume before us, the first of three, has an added interest from the fact that its gifted author, Prof. Alfred W. Hughes, died before its publication—a victim of typhoid fever contracted while on duty at a hospital in South Africa. The partially prepared manuscript fell into the hands of Dr. Arthur Keith, who has accomplished his difficult task of editorship in a most satisfactory manner. The aim of the book is distinctly practical, and will form, when completed, an elaborate dissecting guide for students. The first part, the only one thus far published, includes a consideration of the upper and lower extremities from the topographical point of view. This arrangement is certainly to be highly commended; it permits of easy reference to any part of the human body desired and gives a description at once adequate and concise of the structures to be found there. As in most good textbooks of anatomy, plates and drawings are numerous; there are 38 plates and 266 other less elaborate illustrations, all admirably drawn and reproduced. So far as one may judge without actually having given it a trial in the dissecting room, the book fully meets the needs for which it was prepared. The work of the publishers is excellent throughout. An index concludes the volume. We await the later volumes with interest.

*Obscure Diseases of the Urethra.* By E. HURRY FENWICK, F.R.C.S. (Eng.). Surgeon to the London Hospital, Surgeon to St. Peter's Hospital for Urinary Diseases. With special chapters on Urethral Carcinoma and Calculus. By J. W. THOMSON WALKER, M.B. (Edin.), F.R.C.S (Eng.). London: J. & A. Churchill. Philadelphia: P. Blakiston's Son & Co. 1902.

This little volume has the same finished quality that has characterized previous publications by its author. Its interest for the general medical reader lies in the presentation of the subject of urethral endoscopy and what may be accomplished by this means both in diagnosis and treatment of some of the obscure conditions which are ordinarily beyond the general practitioner's reach in a curative sense, while its value to the specialist is owing to its being a clear, terse summary of the work of this nature that has been done by one of the most skilful and experienced endoscopists in the profession.

The book sets forth the authors' manner of using the aëro-urethroscope, and the advantages, dangers and fallacies that it offers for the purpose of making minute examination of the diseased urethra; describes the appearances of certain of the urethral pathological conditions, and also gives the symptoms and treatment in a carefully considered and detailed manner. The volume is well illustrated, and will have particular interest for specialists in this branch of surgery.

*A Civilian War Hospital.* Being an Account of the Work of the Portland Hospital and of Experience of Wounds and Sickness in South Africa, 1900, with a Description of the Equipment, Cost and Management of a Civilian Base Hospital in Time of War. By the Professional Staff, ANTHONY A. BOWLBY, C.M.G., F.R.C.S.; HOWARD H. TOOTH, M.D., C.M.G., F.R.C.P.; CUTHBERT WALLACE, M.B., B.S., F.R.C.S.; JOHN E. CALVERLEY, M.B., B.S., M.R.C.S., and SURGEON-MAJOR KILKELLY, C.M.G., with numerous illustrations. New York: Longmans, Green & Co.; London: John Murray. 1901.

The comprehensive title of this volume of 343 pages gives a general idea of its scope. In times of war such books are inevitable, and usually welcome, as giving a picture of conditions which are quite unlike those ever met with in times of peace. The Portland Hospital, the history of which is narrated, was the first of the civilian hospitals to be equipped and sent to South Africa after the declaration of war, in October, 1900. After a description of the equipment and work of the hospital, the diseases met with are discussed at length, Wounds and their results naturally occupy a large share of the authors' attention, though the strictly medical aspect of the work is by no means neglected. A large number of appendices on a great variety of topics of interest, especially to army physicians, take up the last forty pages of the book. Much of the information regarding the medical aspects of the work done is similar to what has frequently found its way into print. It is, however, of much interest, and no doubt as cumulative evidence on many points is of distinct value, to the student of military medicine. The letter press is excellent and many illustrations serve to enhance the interest of the text.

*The Social Evil.* With Special Reference to Conditions Existing in the City of New York. A Report prepared under the direction of the Committee of Fifteen. Pp. 188. New York and London: G. P. Putnam's Sons; The Knickerbocker Press. 1902.

In our issue of Feb. 20, 1902, we commented editorially on the work undertaken by the New York Committee of Fifteen. A careful reading of the book serves to confirm our opinion, both of the conscientiousness of the committee and the difficulty of the problem it has set itself to solve. The volume is published in attractive form, is written in admirable style, and should have a wide circulation among thoughtful people.

THE BOSTON

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283 Washington Street, Boston, Mass.

## ARE THERE TOO MANY SURGEONS?

Tendencies which mark the profession of medicine as a whole naturally find a reflection in the rank and file of medical students. It is not to be expected that the normal, average student should show marked originality in thought or in his conception of the possibilities of a medical career. He is, in the first place, usually a hero-worshiper, and in the second place a docile and unquestioning follower of the procession which has gone before. This is inevitable and, up to a certain point, desirable, provided his heroes be real heroes and the procession be in the right direction. It is, however, well to recognize the added responsibility which these facts impose upon the appointed leaders of medical thought and medical teaching. There is increasing danger that in our enthusiasm for special lines of work we shall lose sight of the relative importance of other branches in which we may profess small knowledge or interest. That attitude of mind on the part of a teacher which not only admits to his students ignorance, but also parades it unnecessarily, is not conducive to raising the standard of undergraduate opinion on medical matters. This we occasionally see; ignorance is unavoidable, but the disparagement of other branches of study, which at times accompanies it, is an influence of the most pernicious sort in the construction of a symmetrical science of medicine. An example in point, now much before the public, is the testimony of certain medical men, usually ignorant of the subject, against the practice of vivisection. Such men have done, and will, no doubt, continue to do, much harm, and exert influence proportionate to their position of popularity. A more generally practical instance of the attitude to which we refer, and which directly affects students, is the attitude of the medical teacher who is inclined to disparage surgery or of the surgical teacher who looks upon medical problems with indifference. Controversies in such matters among physicians are usually stimulating, but to the student they are bewildering and conducive to wholly wrong points of view.

Upon the teachers of surgery rests unquestionably the greatest responsibility at this time. Surgery is having its day of achievement, and has impressed laity and physicians alike with its powers of accomplishment. Under the circumstances it is not strange that the young man ambitious to study medicine should have had his ideals shaped by this branch of medicine. Medical students as a class think of themselves as possible operative surgeons and direct their best efforts toward the preliminary attainment of surgical experience. The men in any given class of students of most capacity, fortunately with notable exceptions, choose, or would like to choose, surgical careers, and there is an evident tinge of disappointment if for any reason this ambition is incapable of gratification. This attitude, for obvious reasons, is natural, but it is none the less unfortunate, because it fails utterly to estimate the broad medical needs of the time and of the immediate future. Surgery is unquestionably the most fascinating field of medicine to the average mind. It holds out certain attractions, from the nature of its work, which no other branch is likely to attain, and for this reason it is the most hopelessly overcrowded. The time is rapidly passing when a man trained in surgery will be regarded as a competent physician, and no one knows better than practising surgeons in our large cities that all the operative surgery of the community may be done by a very small fraction of the number qualified by training and desire to do such work. In the meantime, what is happening? Medical students, following their predecessors, are struggling for surgical appointments, and, if successful, after an admirable training in surgical diagnosis and operative technique, are turned out with small opportunity for establishing themselves in their chosen line of work. In our large medical centres it will not be long before these men find themselves cut off from medical practice, for medicine now demands special training in the same sense that surgery does. What we need, and what most of all should be impressed upon the medical student, is a recognition of the fact that medicine now offers far greater opportunities to the industrious man than does surgery. Outside of the now limited field of operative surgery, the problems of medicine and surgery are identical, and yet we are continuing to train men in operative technique to the exclusion of branches which demand the most pains-

taking preliminary study, as, for example, medical diagnosis. There are slight signs of a change in the student attitude, but surgery still undoubtedly has a predominant place in popular student estimation. In the meantime, our laboratories are multiplying, opportunities for telling work are being offered as never before, and yet students are not to be found to take advantage of them. This is certainly one of the chief problems of our expanding medical education — to inspire enthusiasm for work in those fields in which work is needed, and in which it will give positive results, and, on the other hand, to divert it from lines which are already full to repletion. Just how this is to be accomplished it is not our present purpose to discuss. We must, however, bear in mind the fact that medicine in all its multiplying branches demands workers and offers careers as never before among the recent graduates of our best medical schools, whereas operative surgery has no such need. It is to be hoped that this knowledge may gradually find lodgment in the minds of our medical students before they reach a final decision as to future work in their profession.

## SEX MORTALITY.

IT has been a popular impression that women as a class are shorter lived than men. This impression gained weight, no doubt, from the dangers attending childbirth, which not many years ago found justification in statistics. We hardly realize the change which aseptic midwifery has brought about in the reduction of mortality from this cause. Beyond the supposed greater general weakness of the female sex there is not much left to justify an assumption that women have less chance for long life than men. The ardent and at times overzealous life insurance companies are apparently waking up to the fact that women may serve as "risks" as well as men, with the result that some of the more enterprising companies already have women's departments and even women medical examiners. From a purely mercenary point of view, which is naturally the insurance company's attitude, this is unquestionably a wise business stroke; it now looks as if no family, however feminine in its components, will long escape the omniverous agent. This is not, in all respects, pleasant to contemplate, but it is certainly wholly in accordance with our present statistical knowledge.

In this connection certain figures and comments recently published in the *Medical Press* are suggestive. It appears that in the first years of life thirteen male children die to ten female. An explanation of this fact is not forthcoming. Between the ages of ten and twenty slightly more females die than males, supposed to be due in great measure to the earlier appearance of tuberculosis in women. Owing to the remarkable lessening of mortality among women during the child-bearing period, the difference in the death-rate during these years may be ignored. After thirty-five, women have the advantage until the end of life, due probably to the earlier appearance of degenerative changes in men, leading to a premature old age and death. However inexact such statistics may be it is at least reasonable to suppose that they represent the general situation, and that we may hereafter consider that if any advantage exists for prolonged life it lies on the side of women rather than of men. The importance of this is self-evident, a fact which, as we have suggested, the life insurance companies are not likely to allow to pass unobserved.

## MEDICAL NOTES.

MEDICAL BULLETIN OF WASHINGTON UNIVERSITY.— This is a new medical publication which will be issued quarterly by the Medical Faculty of Washington University. It is published for the benefit of the alumni of the school, and will contain original communications, clinical reports, department notes and items of personal interest to its graduates. It is hoped by this means to maintain a permanent bond of union between the university and its former students, which will prove of real value to both. The editors will welcome brief medical papers, and also all matters relating individually to the alumni, such as changes of residence, appointments, etc.

DR. MORIZ KAPOSI.— Dr. Moriz Kapozi, professor of dermatology and syphilology at the University of Vienna, died on March 6 at the age of sixty-five. Dr. Kaposi was a native of Hungary, and while a student at Vienna under Hebra, attracted his attention and received through him an appointment on the staff of the university clinic. His relations with Hebra were always of the closest, both professionally and socially, due, in a measure, to his marriage with Hebra's daughter. While he contributed much to the literature of dermatology, Kaposi's greatest success was as a clinical teacher.

INTERNATIONAL MEDICAL CONGRESS.— The fourteenth session of this congress will be held at Madrid, Spain, from the 23d to the 30th of April, 1903. The Spanish minister of foreign affairs has invited various governments to be represented at the congress. A similar invitation has been sent to all universities, schools of medicine and to the leading medical societies of all

nations. To facilitate the work of the general secretary it is desired that those who intend being present at the congress send their membership fee of from 23 to 25 francs as soon as possible.

Smallpox Among Negroes.— From the weekly bulletin of the Chicago Health Department we learn that, with only 1¾% of the total population of the city, the negro contingent has furnished nearly 80% of the last group of smallpox cases. Between March 4 and March 22 there were 34 cases found — 7 white and 27 colored, a proportion of 79.4% of colored. Of course not one of these, either white or colored, had ever been vaccinated. This is a shame and a disgrace to two classes of the community: first, the more intelligent among the colored who fail to use their influence, as leaders and instructors, to promote vaccination among their people; and, second, to every employer, whether white or colored, who neglects to comply with the ordinance which specifically commands him "to cause and procure that every minor or individual in his care, custody or control shall be so promptly, frequently and effectively vaccinated that such individual shall not take, or be liable to take, the smallpox."

School for Crippled Children near Philadelphia.— Estimates have been submitted for the erection of a training school for crippled children at Logan, a suburb of Philadelphia, by P. A. B. Widener, as a memorial to his wife. It is his intention to establish a home, hospital and school for crippled children where they can be cared for if helpless, receive medical and surgical aid, and receive a general education and instruction in such industrial pursuits as will assist them toward self-support. The cost of the building, equipment, furnishings and site, including endowments, will be about $2,000,000.

Summer School at University of Pennsylvania.— A summer school will be opened at the University of Pennsylvania Medical School the last of June for the benefit of practising physicians. The work will be entirely post-graduate and largely in the nature of research. Courses of instruction will be offered in twenty-five branches, and will be arranged to suit the students. The teaching staff of the school will give the instruction, which will be increased in scope when the new laboratories are opened for use.

Prize Offered by Dr. S. Weir Mitchell.— The board of trustees of the University of Pennsylvania has accepted the offer of Dr. S. Weir Mitchell, made some time ago, to establish a prize, of the annual value of $50, for the best original investigation on "The autumnal coloration of plant parts." The competition will be open to students in botany at the university.

A Portrait of Dr. John Morgan.— A copy of a portrait of Dr. John Morgan, founder of the University of Pennsylvania Medical School, and painted by Angelina Kaufman, it is reported has been presented to the university by D. T. Watson of Pittsburg. Dr. Morgan was a member of the first class which graduated from the university.

Cholera in Mecca.— It is reported that pilgrims are fleeing to Jedda (sixty miles west of Mecca) from Mecca on account of the epidemic of cholera in the Holy City. On one day there were 280 deaths from cholera. The pilgrims numbered 240,000.

### BOSTON AND NEW ENGLAND.

Acute Infectious Diseases in Boston.— For the week ending at noon, Mar. 26, 1902, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: Diphtheria 43, scarlatina 13, measles 184, typhoid fever 6, smallpox 15.

Diminution in Number of Smallpox Cases.— Sporadic cases of smallpox only are now being found in Boston. Many of the new cases are tramps and persons of no fixed habitation.

Report of Massachusetts Hospital for Dipsomaniacs and Inebriates.— The tenth annual report of this institution shows that 720 patients have been under the care of the hospital during the year, 391 of whom have been committed during the year. The daily average number of patients in the hospital shows an increase of nearly twenty-two over that of last year. Of the 324 patients discharged during the year ending May 5, 1901, 36.11 are reported as wholly abstinent, 11.11 as improved, 39.81 as unimproved, 11.11 as not found and 1.85 as dying after leaving the hospital. All patients so reported on have been out of the hospital at least two months.

Vital Statistics of Brookline, Mass.— During 1901 there were 273 deaths in the town of Brookline, according to the annual report of vital statistics. Of these 138 were males and 135 females. Of this number 29 were due to pneumonia, 40 to heart disease, 22 each to old age and brain diseases, and 18 to accident and suicide. There were 481 births recorded during the year, 244 being males and 237 females.

### NEW YORK.

Physical Injury as a Cause of Tuberculosis.— Another case has been adversely decided in the courts regarding the alleged causation of acute pulmonary tuberculosis from physical injuries. A jury awarded Mrs. James Hoey a verdict of $12,500 in a suit brought by her against two street railway companies for the death of her hus-

band from rapid consumption, which, it was claimed, was proximately caused from injuries received in a collision between two cars. The trial justice, however, ordered a dismissal, and his decision is now affirmed by the Appellate Division of the Supreme Court of New York. The court, after adopting the definition of proximate cause given by the Court of Appeals in the famous Laidlow against Sage case, continues: "There is no doubt that the deceased sustained very serious injuries in the collision, and by reason thereof, within a short time thereafter, developed what is termed in the record 'progressive muscular atrophy'; but there is nothing in the evidence which would justify a finding that the tuberculosis which resulted in his death was caused by, or necessarily flowed from, that disease." After referring to the accepted nature of tuberculosis as a germ disease and the manner of its contraction, the opinion goes on to say: "What is claimed is that the intestate's condition was so weakened by his injuries, and the disease resulting from them, that is, progressive muscular atrophy, that it made him susceptible to tuberculosis, and by reason thereof he contracted it. There is nothing in the evidence to sustain this claim, and such conclusion is based upon conjecture and speculation alone. To entitle the plaintiff to recover, she was bound to prove that the death of the intestate was the direct result of his injuries; that his injuries were the cause, and his death the effect — an unbroken chain extending from the cause to the effect, and any link in that chain could not be supplied by a mere possibility. If it could, then it is not difficult to see how easy it would be to take property from one person and give it to another, sanctioned by judicial procedure. The negligence of the defendants may have been the cause of the intestate's death, but whether it was or was not is a pure guess, and nothing more, and a judgment in law cannot stand upon a guess or bare possibility."

A PHYSICIAN'S TESTIMONY.— A judgment for the plaintiff in an action against the Brooklyn Heights Railroad Company has been reversed by the Second Appellate Division of the Supreme Court because the ambulance surgeon was not allowed to testify as to statements made to him by the injured man while on his way to the hospital in which he was treated. These statements concerned the manner in which the accident happened, and were admissible, the court holds, because it did not appear that the information disclosed by the injured man could have any possible bearing upon the surgeon's professional conduct or action. The rule is that a trial court cannot properly exclude testimony from a physician as to information which he acquired on attending a patient, unless the information was necessary to enable him to act in his professional capacity. There was, therefore, no violation of the law prohibiting physicians from disclosing information acquired in attending a patient, for in this case the statements made by the patient concerned the accident, did not have reference to his injuries, and were not necessary to enable the doctor to act in a professional capacity.

MORE PUBLIC BATHS IN TENEMENT DISTRICTS. — A mass meeting was held on March 13, in the interest of more public baths in the crowded tenement districts of the city, and at its close resolutions urging the municipal authorities to give the East Side more baths, in accordance with the pledge of the Citizens' Union platform, were adopted. Among the speakers was Prof. Charles Sprague Smith, who stated that Liverpool, with a population of 668,000, had spent on public baths more than all American cities combined, while Glasgow, with 732,000 inhabitants, had twelve public baths and five swimming-pools. The Continent, especially Germany, which seemed to have received a stimulus from Great Britain, was not far behind. As a rule, it was assumed in Germany that there should be one swimming bath for every 25,000 of the population. In Japan, Tokio had 800 public baths and 300,000 daily bathers, in a population of a little over 1,000,000. In this country, Boston seemed to take the lead.

FOURTH TRIAL OF A SUIT FOR DAMAGES.— The fourth trial of the suit brought by Miss Helen Ward against St. Vincent's Hospital, to recover $30,000 damages for injuries alleged to have been received by improper treatment at the hospital, resulted on March 21 in a verdict in her favor for $19,420, which includes an allowance for counsel's fees. It will perhaps be remembered that Miss Ward, who is a sister-in-law of ex-Judge Henry E. Howland, had an operation performed on one of her legs, while she was a private patient at the hospital, and that after the operation a nurse carelessly allowed a hot-water bag to remain in contact with the limb, in consequence of which, it was claimed, permanent injury had resulted. At the first trial of the suit the case was dismissed; the second resulted in a disagreement of the jury; and on the third trial she secured a verdict for $10,000. The case was then appealed, and the Appellate Division reversed the judgment, on the ground that the hospital was not bound to provide a patient, even though a private one, with its best nurse, and ordered a new trial.

ANTIVACCINATION AGITATION.— The compulsory vaccination bill at Albany was recently killed in the Committee on Public Health, to which it had been referred, and since then the

antivaccinationists have had introduced in the legislature a bill repealing the sections of the public health law, which require compulsory vaccination in all children attending public schools in the State. The bill also includes provisions for the appointment of a commission to investigate the nature and value of vaccination, antitoxins, and other "alleged" prophylactics.

Public Baths.— At a meeting of the Board of Aldermen held March 18 appropriations of $300,000 for public baths in the borough of Manhattan and $180,000 for baths in Brooklyn were voted. With the $300,000 appropriated for Manhattan three baths will be erected, each of which is to have double the capacity of the Rivington Street bath, now in operation. They will be permanent buildings, open all the year, and are not intended to supersede the summer free swimming baths along the river fronts.

Opposed to One Superintendent.— At a meeting of the New York Academy of Medicine held March 20 a resolution was adopted similar to that passed by the Medical Association of the Greater City of New York, protesting against the placing of 4,000 insane patients on Ward's Island under the medical supervision of one superintendent, and urging that there be not less than two superintendents.

Nu Sigma Nu Medical Fraternity.— At the twelfth biennial convention of the Nu Sigma Nu Medical Fraternity, representing twenty-one leading medical colleges of the United States and Canada, which was recently held in Cincinnati, Dr. E. K. Dunham, professor of pathology in the University and Bellevue Hospital Medical College, New York, was elected president.

## ARMY NOTES.

Venereal Disease and Alcoholism.— In the effort to counteract the increasing frequency of alcoholism and venereal disease among troops in the Philippines and at other tropical stations, the War Department has issued an order which is in part as follows: "The only really efficient way in which to control the diseases due to immorality is to diminish the vice which is the cause of these diseases. Excessive indulgence in strong drink is absolutely certain to ruin any man, physically and morally; while disease due to licentiousness produces effects which are quite as destructive and even more loathsome. It is the duty of regimental, and particularly of company, officers to try, by precept and example, to point out to the men under their control, and particularly to the younger men, the inevitable misery and disaster which follow upon intemperance and upon moral uncleanliness and vicious living. The officers should, of course, remember always that the effect of what they say must largely depend upon the lives they themselves lead."

Contract Dental Surgeons.— The Secretary of War has decided that contract dental surgeons have no official relations to the surgeon of a post in which they may be serving; nor have their enlisted assistants, except that the latter may occasionally be attached to the local detachment of the hospital corps for rations and quarters. Contract dental surgeons and their assistants will be mustered separately from the medical officers and the hospital corps. Should it for any reason be necessary to recommend the excuse from duty of an officer or enlisted man on account of dental disease, the contract dental surgeon will report the case to the surgeon of the post, who will take it up on his register of sick and wounded, but no report of operations by the dental surgeon will be made except by him.

Cholera in Manila.— The War Department is informed that cholera has made its appearance in Manila, probably as a result of its importation from Hongkong, where the disease is prevalent. The Board of Health of Manila is using every endeavor to stamp out the infection, and to this end the importation of vegetable matter from China is prohibited, inspection and isolation camps have been established, the use of boiled water and cooked food enjoined upon the population of the city, and their hearty co-operation against this formidable peril urged. So far, there have been no cases of cholera among the soldiers, though sixteen cases with fifteen deaths occurred among the natives in two days.

To Prevent the Re-Infection of Havana with Yellow Fever.— General Wood has issued an order, which is as follows: "All persons non-immune to yellow fever, coming to the city of Havana from places infected with yellow fever, shall report at such time and place as directed by the chief sanitary officer of the city of Havana. The chief sanitary officer shall be the judge as to immunity and infection, and shall serve proper notice upon persons concerned." Violations of this order are to be punished by either a fine or imprisonment.

Medical Care of Native Constabulary in the Philippines.— In view of the lack of proper civil hospitals in the Philippines, the Philippine Constabulary, a native force of 5,000 men, will hereafter be given the necessary medical attention by army surgeons in the military hospitals. The cost of this treatment is to be repaid to the War Department from the insular funds.

## Miscellany.

### "THE BARNUM OF SURGERY."

WE quote the following from the *Practitioner* as an example and a warning:

M. Doyen's newspaper report of his operation on Radica and Doodica has been made the subject of an amusing parody in that eminently respectable paper the *Temps*. The author records how he operated upon Dr. Doyen, whose exceptional cerebral activity had doubled his personality.

By ill luck the scissiparity was incomplete, the two persons remained attached to one another by a membrane extending from the umbilicus to the sternum. To distinguish them it was necessary to call one Radoyen, and the other Doyenka. This at first caused no inconvenience, but with increase of age troublesome disagreements, grave imcompatibilities of character and temper became manifest between the two doubles. . . . . It was determined to separate them, and my scientific aid was invoked. The operation did not last twenty minutes. I had invited my friends, the phenomena of Barnum and Bailey's circus, who are now indispensable to me. They were of the greatest use to me, particularly the man with the elastic skin. By stitching the skin of his abdomen to that of the abdomen of the living skeleton, I constructed artificial Siamese twins, on whom I made most interesting preliminary experiments. There were also present the armless man, who wrote at my dictation with his foot, and the pincushion man, who played a modest but indispensable part, as will presently be seen.

The two monsters, Radoyen and Doyenka, were placed upon a table invented by me, covered with a sheet sterilized by means of a preparation which is my property. I took up my position on their right, so that the cinematograph should lose nothing, either of my movements or my features. The superficial part of the portion of the membrane was formed by a cartilaginous plate of a certain thickness, which I divided with a bistoury made according to my directions. As is usual in my clinic, anesthesia was produced by means of chlorid of methyl. As I ceased to require my needles, my scissors and my forceps, I stuck them into the cheeks of the pincushion man — that is what he served for. Underneath the cartilaginous plate, I found, as was to be expected, a bridge of liver, seven centimetres in breadth by four in thickness, traversed by a large number of arteries, arterioles, veins and venules. This was the time or never to use my original method of hemostysis. I therefore performed extemporaneous crushing of the hepatic pedicle, by means of my large double lever forceps from Creusot, which weighs a million tons, but which can be set in motion by one finger, and which exerts a pressure of 600,000 kilos. . . .

Happily for posterity the operation was completed before the cylinders of the cinematograph were exhausted. Radoyen was first carried to a neighboring table, a compress invented by one of my usual assistants was placed in the wound, and the skin provisionally brought together with toothed forceps, of which I recently published a drawing. Then came the turn of Doyenka. I sutured his abdominal wall, taking care to leave in a small drain of gauze sterilized by my ordinary attendant, whom I cannot recommend to my *confrère*. The operation had succeeded. As for Radoyen and Doyenka, I hope they will get over it.

An immense concourse of people, which I estimate at seven millions, was waiting at the door of the hospital, and I had to escape from their acclamations. There were also seen under the windows twelve or fifteen hundred automobiles, among which could be recognized those of the King of the Kymris, of the dethroned Emperor of the Aztecs, of the Grand Duke of Ganzeberg, of Lord Untrue, of the Marquis de Las Pesetas ey Cambio, of Jobard Pasha, of the Ambassador of Andorre, of the Fencer Spada-Blanca, of Mademoiselle Suzanne Chaste the exquisite story-teller, in short, all Paris, including the private secretary of the Ministry of Submarine Communications, who had come in a cab. The Santos-Dumont No. 17,964 floated above my head performing a thousand sublime evolutions. The King of the Air was even good enough to ask me to dinner in his boat, but the wind not being particularly favorable, after a masterly descent I decided to go home by the tram.

The self-assertion and eagerness for notoriety which made themselves felt in every line of the original are scarcely exaggerated in this clever skit.

### A NEW LIMITATION TO PRIVILEGED COMMUNICATIONS.

ON this important and knotty question the *New York Medical Journal* comments editorially as follows:

"A decision which has just been handed down in the Colorado Court of Appeals, to the effect that a nonresident physician testifying in a Colorado court, personally or by deposition, cannot seek the protection of the Colorado statutes, which say that a practitioner on the witness stand is not compelled to divulge anything which may have taken place between himself and his patient, places a limitation upon the definition of privileged communications which is, we believe, entirely new and one which, we further believe, will not be upheld by the courts in general. In the particular case in question, the physician, who was registered in the State of New Jersey, treated in that State a man who two years later applied for admission to the benevolent order known as the Woodmen of the World. Later, the applicant moved to Colorado and there died. The widow brought suit against the order to recover the amount of the benefit due her as the next of kin. The defendant sought to introduce a deposition from the physician in New Jersey to the effect that he had treated the deceased for consumption two years prior to the date of his application. This deposition was excluded from the lower court on the ground that it was based upon matter which was in the nature of a privileged communication. The Court of Appeals has now handed down a decision overruling the lower court and laying down the principle that a nonresident is not entitled to the protection of the Colorado statutes governing the matter of privileged communications.

"We have no information as to whether this case will be further appealed, and perhaps it may be looked upon as being definitely settled. It by no means follows, however, that the principle enunciated by the judge is one that will be, or should be, accepted as a precedent outside the State of Colorado, and it is much to be hoped that it will not be generally followed. It seems to us that the crux of the question lies, not in the registration of the physician in the particular

state in which his deposition or testimony is to be taken, but rather in his standing as a duly qualified physician in the state in which the acts took place between himself and his patient, in a professional capacity, which constituted the basis of the privileged communication in question. Under the ruling of the Colorado Court of Appeals, a limitation is placed upon the inviolability of professional confidence which may prove to be a serious disturbing factor in breaking up the confidential relations which must necessarily exist between the physician and his patient."

## ASBESTOS SHEATHING ON AMERICAN WARSHIPS TO PREVENT RHEUMATISM.

Quoting from the *Brooklyn Eagle* the *Philadelphia Medical Journal* says: When the navy turned to building ships of steel it was remarked that, unless some device was adopted for offsetting the effect of heat condensing on the metal, it would be only a short time before all officers would be suffering from rheumatism. The introduction of metal chairs, tables and other pieces of furniture followed, and now there is no wood of any size to be found in an officer's room on a modern warship. He sleeps in an iron berth, keeps his clothes in a steel chest, while the floor, ceiling and walls of his apartment are of the same metal. Since the adoption of solid armor for the sides of warships, a great deal of trouble has been experienced in making habitable the quarters directly next the outside covering. The heat of the room condensed on the cold metal, and in a short time the occupant was in the hospital with rheumatism. This is now guarded against by the use of a sheathing of asbestos placed next to the metal, held in place by a framework. This is found to absorb the moisture in a satisfactory manner. Care is also taken to see that the berths are not built against the outside of the vessel, but against one of the side walls, so that the sleeper will be as far as possible from the metal that comes in contact with the water.

## Obituary.

### W. W. JOHNSTON, M.D.

Dr. W. W. Johnston, of Washington, D. C., died at Atlantic City Friday, March 21, of heart disease. He graduated from St. James College, Maryland, and subsequently took his doctor's degree at the medical school of the University of Pennsylvania in 1865. He became a successful practitioner and had for many years a large and increasing practice in Washington. His position at the national capital brought him into contact with many prominent men as a professional adviser. He was professor of the theory and practice of medicine in the Columbian University, and consulting physician to the Children's, the Garfield and Emergency Hospitals. Dr. Johnston was a member of the Association of American Physicians, of which he was for many years the treasurer, and of the American Climatological Association.

## METEOROLOGICAL RECORD

For the week ending March 15, in Boston, according to observations furnished by Sergeant J. W. Smith of the United States Signal Corps:

| Date | Barometer. | Thermometer. | | Relative humidity. | | | Direction of wind. | | Velocity of wind. | | We'th'r * | | Rainfall in inches. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Daily mean. | Daily mean. | Maximum. | Minimum. | 8.00 A.M. | 8.00 P.M. | Daily mean. | 8.00 A.M. | 8.00 P.M. | 8.00 A.M. | 8.00 P.M. | 8.00 A.M. | 8.00 P.M. | |
| S....9 | 30.04 | 38 | 41 | 35 | 94 | 95 | 94 | S E | N W | 17 | 16 | R. | O. | .57 |
| M..10 | 30.14 | 40 | 46 | 35 | 67 | 60 | 64 | N W | N W | 24 | 8 | C. | C. | |
| T..11 | 30.32 | 42 | 51 | 33 | 78 | 85 | 82 | E | S W | 4 | 20 | F. | O. | |
| W.12 | 29.92 | 56 | 69 | 43 | 64 | 70 | 67 | S W | S W | 14 | 16 | O. | C. | T. |
| T..13 | 29.62 | 52 | 65 | 40 | 82 | 100 | 91 | S W | N W | 18 | 7 | R. | R. | .08 |
| F..14 | 30.32 | 38 | 41 | 34 | 55 | 60 | 58 | N E | N E | 16 | 4 | C. | C. | .05 |
| S...15 | 30.50 | 40 | 47 | 32 | 64 | 71 | 68 | W | S | 4 | 9 | C. | C. | |
| ☞ | 30.12 | | 51 | 36 | | | 75 | | | | | | | .70 |

* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow. † Indicates trace of rainfall.
☞ Mean for week.

## RECORD OF MORTALITY

For the Week ending Saturday, March 15, 1902.

| Cities. | Population * Estimated, 1902. | Reported deaths in each. | Deaths under five years. | Percentage of deaths from | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | Infectious diseases. | Acute lung diseases. | Diphtheria and croup. | Typhoid fever. | Cerebro-spinal Meningitis. |
| New York | 3,665,352 | 1,358 | 471 | 23.71 | 14.87 | 5.89 | .44 | .37 |
| Chicago | 1,852,828 | 554 | 193 | 21.84 | 20.93 | 1.98 | .72 | — |
| Philadelphia | 1,349,624 | 528 | 152 | 23.62 | 16.82 | 3.21 | 3.78 | — |
| St. Louis | 603,717 | — | — | — | — | — | — | — |
| Baltimore | 525,330 | 175 | 49 | 19.43 | 12.00 | .57 | — | — |
| Cleveland | 411,826 | — | — | — | — | — | — | — |
| Buffalo | 375,742 | — | — | — | — | — | — | — |
| Pittsburg | 341,401 | 132 | 36 | 22.72 | 20.45 | .75 | 9.09 | — |
| Cincinnati | 332,032 | — | — | — | — | — | — | — |
| Milwaukee | 304.975 | — | — | — | — | — | — | — |
| Washington | 289,537 | — | — | — | — | — | — | — |
| Providence | 185,870 | 62 | 17 | 17.71 | 17.71 | — | — | — |
| Boston | 588,736 | 255 | 77 | 21.56 | 16.85 | 1.57 | .78 | 1.17 |
| Worcester | 127.337 | 27 | 14 | 7.40 | 14.80 | — | — | 3.71 |
| Fall River | 111.872 | 32 | 19 | 25.00 | 28.12 | 3.12 | — | — |
| Lowell | 99,574 | 36 | 10 | 19.34 | 16.66 | 2.77 | — | — |
| Cambridge | 96,334 | 25 | 12 | 32.00 | 20.00 | 8.00 | — | — |
| Lynn | 71,144 | 7 | 3 | 28.60 | 42.90 | — | — | 14.30 |
| Lawrence | 67,275 | 22 | 4 | 9.09 | 13.63 | — | 4.54 | — |
| Springfield | 66,854 | 15 | 2 | 13.33 | 20.00 | — | — | — |
| Somerville | 65,882 | 15 | 4 | 20.00 | 13.33 | — | — | — |
| New Bedford | 65.574 | 21 | 7 | 14.28 | 23.80 | 4.76 | — | — |
| Holyoke | 48,065 | 13 | 3 | 46.20 | 15.40 | 7.70 | — | — |
| Brockton | 43,208 | 9 | — | 11.11 | — | — | — | — |
| Haverhill | 40,392 | 11 | — | 27.27 | 18.18 | 9.09 | — | — |
| Salem | 36,567 | 17 | 4 | 5.88 | 11.76 | — | — | — |
| Newton | 36,336 | 7 | 3 | — | 14.30 | — | — | — |
| Malden | 35,390 | 14 | 5 | 7.14 | 14.28 | — | — | — |
| Chelsea | 35,264 | 15 | — | 6.66 | — | 6.66 | — | — |
| Fitchburg | 33,848 | 4 | 2 | 25.00 | — | 25.00 | — | — |
| Taunton | 32,759 | 7 | — | 42.90 | — | — | — | — |
| Everett | 27,114 | 5 | 1 | — | — | — | — | — |
| North Adams | 26,583 | 4 | 1 | 25.00 | 25.00 | — | — | — |
| Gloucester | 26,121 | — | — | — | — | — | — | — |
| Quincy | 25,307 | 7 | 1 | 42.90 | 14.30 | — | — | — |
| Waltham | 24,612 | 9 | 2 | 11.11 | 11.11 | 11.11 | — | — |
| Pittsfield | 22,311 | 3 | — | 33.33 | — | — | — | — |
| Brookline | 21,679 | — | — | — | — | — | — | — |
| Chicopee | 20,390 | 5 | 3 | — | — | — | — | — |
| Medford | 20,014 | 4 | 2 | — | 25.00 | — | — | — |
| Newburyport | 14,478 | 8 | — | 25.00 | 12.50 | — | — | — |
| Melrose | 13,384 | — | — | — | — | — | — | — |

* The populations of the cities outside of Massachusetts were estimated on the basis of the rate of growth from 1890 to 1900. Those of the Massachusetts cities were estimated upon the rate of growth from 1895 to 1900, since the State had an intermediate census in 1895. The populations of Gloucester, Marlborough and Newburyport were allowed to stand as in 1900, they having suffered a slight decrease during the five-year period.

Deaths reported 3,443; under five years of age, 1,110; principal infectious diseases (smallpox, measles, scarlet fever, cerebrospinal meningitis, diphtheria and croup, diarrheal

diseases, whooping cough, erysipelas, fevers and consumption) 773, acute lung diseases 568, consumption 400, scarlet fever 46, erysipelas 21, typhoid fever 46, whooping cough 16, cerebrospinal meningitis 15, smallpox 24, measles 32, diarrheal diseases 73.

From whooping cough, New York 7, Chicago 3, Philadelphia, Baltimore, Boston, Worcester, Clinton and Revere 1 each. From cerebrospinal meningitis, New York 5, Providence 1, Boston 3, Marlboro 2, Worcester, Lynn, Pittfield and Hyde Park 1 each. From scarlet fever, New York 26, Chicago 11, Philadelphia 2, Baltimore 1, Pittsburg 2, Boston 2, Fall River and Westfield 1 each. From erysipelas, New York 7, Chicago 4, Philadelphia 3, Pittsburg 2, Boston 5. From smallpox, New York 11, Philadelphia 6, Baltimore 2, Boston 4, Newburyport 1. From typhoid fever, New York 6, Chicago 4, Philadelphia 20, Pittsburg 12, Boston 2, Lawrence and Holyoke 1 each.

Beginning with January, 1902, the term "great towns" as employed in the Registrar General's Weekly Return of births and deaths includes the seventy-five municipalities of England and Wales which have a population of more than 50,000 in each.

In the seventy-six great towns of England and Wales, with an estimated population of 14,862,003, for the week ending March 1, the death-rate was 23.3. Deaths reported 6,633; acute diseases of the respiratory organs (London) 733, whooping cough 122, diphtheria 90, measles 166, smallpox 84, scarlet fever 45.

The death-rate ranged from 10.6 in Aston Manor to 29.3 in Hastings; London 28.2, West Ham 22.3, Croydon 24.6, Brighton 24.3, Portsmouth 19.8, Southampton 20.3, Bristol 22.1, Birmingham 20.8, Leicester 19.5, Nottingham 16.9, Birkenhead 25.5, Liverpool 24.5, Manchester 21.8, Salford 24.4, Bradford 17.6, Leeds 21.2, Sheffield 19.1, Hull 16.5, Newcastle-on-Tyne 25.7, Cardiff 21.0.

## OFFICIAL LIST OF THE CHANGES OF STATION AND DUTIES OF COMMISSIONED AND NON-COMMISSIONED OFFICERS OF THE U. S. MARINE HOSPITAL SERVICE FOR THE SEVEN DAYS ENDING MARCH 13, 1902.

STONER, J. B., passed assistant surgeon. To proceed to Cape Charles Quarantine and assume temporary charge of the station during the absence on leave of Assistant Surgeon C. W. Wille. March 13, 1902.

HOBDY, W. C., assistant surgeon. To proceed to Savannah Quarantine and assume temporary charge of the station during the absence on leave of Acting Assistant Surgeon W. J. Linley. March 7, 1902.

BILLINGS, W. C., assistant surgeon. To proceed to Ludington, Mich., for special temporary duty. March 8, 1902. Relieved from duty at Chicago, Ill., and directed to proceed to New York, N. Y., and report to Surgeon G. W. Stoner for duty. March 7, 1902.

MOORE, DUNLOP, assistant surgeon. Relieved from duty at Honolulu, T. H., and directed to proceed to Yokohama, Japan, for duty in the office of the U. S. Consul-General. March 6, 1902.

WILLE, C. W., assistant surgeon. Granted leave of absence for 10 days from March 21. March 8, 1902.

BOGGESS, J. S., assistant surgeon. To proceed to Delaware Breakwater, Del., and assume temporary charge of the station during the absence of Assistant Surgeon C. H. Lavinder. March 7, 1902.

CAMINERO, H. S., acting assistant surgeon. Granted leave of absence for 30 days from March 5. March 11, 1902.

HOUGH, J. S., acting assistant surgeon. Relieved from duty at Yokohama, Japan, and directed to proceed to Hongkong, China, and report to Assistant Surgeon J. W. Kerr for duty in the office of the U. S. Consul-General. March 6, 1902.

LINLEY, W. J., acting assistant surgeon. Granted leave of absence for 9 days from March 15. March 12, 1902.

BECK, J. E., junior pharmacist. Upon being relieved by Junior Pharmacist G. A. Morris, to proceed to Mobile, Ala., and report to medical officer in command for duty and assignment to quarters. March 7, 1902.

MORRIS, G. A., junior pharmacist. Relieved from duty at Havana, Cuba, and directed to proceed to Fort Stanton, N. M., and report to medical officer in command for duty and assignment to quarters, relieving Junior Pharmacist J. E. Beck. March 7, 1902.

## SOCIETY NOTICES.

SUFFOLK DISTRICT MEDICAL SOCIETY. SURGICAL SECTION.— The next meeting of the Surgical Section will be held at the Medical Library, 8 The Fenway, on Wednesday evening, April 2, at 8.15 P.M.

Dr. M. C. Smith will present "Plaster Casts of Deformed Mouths"; Dr. E. W. Cushing will read a paper on "Atypical Cases of Appendicitis"; Dr. C. G. Cumston will read on "Intestinal Invagination in Children with the Report of a Case Successfully Treated by Laparotomy."

F. S. WATSON, M.D., Chairman,
F. B. Lund, M.D., Secretary,
529 Beacon Street.

AMERICAN ASSOCIATION OF PATHOLOGISTS AND BACTERIOLOGISTS.— The American Association of Pathologists and Bacteriologists will hold its second annual meeting in Cleveland, Ohio, March 28 and 29, 1902.

ASSOCIATION OF MEDICAL OFFICERS OF THE ARMY AND NAVY OF THE CONFEDERACY.— The Association of Medical Officers of the Army and Navy of the Confederacy will hold its annual meeting in the Judicial Room of the City Hall in Dallas, Texas, corner of Akard and Commerce Streets, on Tuesday, April 22, 1902, at 12 M.

DEERING J. ROBERTS, M.D., Secretary,
Nashville, Tenn.

## RECENT DEATHS.

DR. ROBERT ELLEGOOD, a prominent physician of Delaware, died at his home, near Laurel, Saturday, aged seventy-four.

DR. GEORGE W. CUSHING of Brooklyn, N. Y., died on March 21. He was graduated from the Long Island College Hospital in 1874, and was well known as a gynecologist.

DR. F. H. THOMPSON, a widely known physician in the United States service, died recently at the Seattle (Wash.) General Hospital after a lingering illness, of typhoid fever. Dr. Thompson was one of the officers of the Coast and Geodetic Survey steamer "Patterson." He was a Canadian by birth.

DR. OREN DAY POMEROY, a distinguished New York specialist in diseases of the eye and ear, died after a lingering illness on March 18, at his country home at Whitestone, Long Island. He was graduated from the College of Physicians and Surgeons, New York, in 1860, and was sixty-eight years of age. Dr. Pomeroy was the author of a systematic treatise on diseases of the ear, published by the Appletons, and of numerous other writings. He was attending surgeon to the Manhattan Eye and Ear Hospital, and consulting surgeon to the Eye and Ear Infirmary at Paterson, N. J.

DR. JOHN E. RICHARDSON, a prominent surgeon of Brooklyn, N. Y., died on March 23 at the age of fifty-one. His death was due to a malignant growth of the neck, from which he had suffered for quite a long time. During the past winter it was treated by means of the x-rays, and for a time the effects appeared to be beneficial, but about six weeks ago he became so much debilitated that the treatment had to be discontinued. Dr. Richardson was born in Albany, N. Y., and received his education at the Polytechnic Institute, Brooklyn. He engaged in commercial pursuits for a time, and then determined to study medicine. He was graduated from the College of Physicians and Surgeons in 1877, and afterwards took a post-graduate course in Berlin and Vienna. On his return to America he served on the house staff of the Brooklyn Hospital, and then established himself in private practice, in which he was eminently successful. He was at different periods a police surgeon and surgeon to the Atlantic Avenue and the Long Island Railroad Companies, and at the time of his death was attending surgeon at the Orthopedic Hospital.

## BOOKS AND PAMPHLETS RECEIVED.

"The Vexed Question of Vaccination" Again: Have we a Standard Glycerinated Virus? By F. J. Runyon, M.D., of Clarksville, Tenn. Reprint. 1902.

Transactions of the Luzerne County Medical Society, for the Year Ending Dec. 31, 1901. Vol. IX. Illustrated. Wilkesbarre, Pa.: The E. B. Yordy Co. 1902.

Gold-Blindness, or Retinal Asthenopia and its Treatment. By L. Webster Fox, A.M., M.D., Professor of Ophthalmology in the Medico-Chirurgical College, Philadelphia, Pa. Reprint. 1901.

The Technics of Nephropexy, as an Operation per se, and as Modified by Combination with Lumbar Appendicectomy and Lumbar Exploration of the Bile Passages. By George M. Edebohls, M.D., of New York, Surgeon to St. Francis's Hospital; Professor of the Diseases of Women at the New York Post-Graduate Medical School and Hospital. Illustrated. Reprint. 1902.

# Original Articles.

## ANGINA CRURIS (INTERMITTENT CLAUDICATION), AND ALLIED CONDITIONS, INCLUDING PAINFUL CRAMPS, WITH REMARKS ON THE IMPORTANCE OF EXAMINING THE PEDAL ARTERIES.

BY G. L. WALTON, M.D., AND W. E. PAUL, M.D., BOSTON.

The affection for which we venture to suggest the name "angina cruris" has been discussed under various titles since its introduction by Charcot in 1858, principally in neurological publications. It has not yet received, however, the general recognition to which it is entitled, and has practically eluded the textbooks, both those on general medicine and those on the diseases of the nervous system. It is in the hope of arousing general interest in the subject that we have chosen this comparatively simple, easily assimilable, and (as it seems to us) fairly appropriate name, in preference to such elaborate and yet inadequate terms as "myasthenia paroxysmalis angiosclerotica" (Higier), "angiosclerotische intermittirende dysbasia" (Erb), or "intermittirende Muskelparese" (Grassman). The "claudication intermittente" of Charcot and the "intermittirendes Hinken" of Erb are sufficiently simple for general use, but are misleading, in that they unduly emphasize an unessential feature of the disorder (lameness) while drawing no attention to the essential symptom, namely, intense paroxysmal pain, a symptom which takes, perhaps, the first place among the associative memories aroused by the word angina.

Most of the names previously presented, even if appropriate, are ill adapted for general use, as applied, not to a neurological curiosity, but to a set of symptoms found with more or less frequency, though not in their severest form, in the practice of every physician and surgeon.

The clinical picture of well-developed angina cruris consists of more or less frequent brief attacks of intense paroxysmal pain in the leg, affecting as a rule the same region, oftenest the calf, recurring at irregular intervals, generally when in the erect position, but not infrequently while the patient is in bed, often accompanied by local asphyxia and cyanosis, and usually in a limb in which pulsation is wanting in the dorsalis pedis or the posterior tibial artery, or both. The attack resembles in its severity that of painful facial tic. The underlying cause is probably a restricted circulation (Charcot,[1] Erb,[2] Hagelstam,[3] Goldflam,[4] Dutil and Lamy,[5] Elzholz,[6] Higier,[7] Oppenheim,[8] Marinesco,[9] and others), whether resulting from (*a*) the degenerative arterial changes incident to advancing years (atheroma), from (*b*) congenital predisposition to feeble circulation and to arteriosclerosis, or from (*c*) acquired arterial disease (obliterating arteritis, resulting, for example, from syphilis). Vasomotor spasm (common in persons of neuropathic inheritance) is generally regarded as the exciting cause of the attack, combined, perhaps (Goldflam), with sudden accession of blood pressure. We shall not undertake to contribute to the already long list of theoretical considerations bearing on the pathology of the vascular occlusion, the pathogeny of the vasomotor spasm, or the exact seat of the pain, whether in vessel, nerve or muscle. We feel impelled, however, to confess our predilection for the view of Goldflam, that the pain is of vascular origin, conveyed, perhaps, as he suggests, from the sensory corpuscles in the vessel walls. It is true that simple pressure upon blood vessels is not productive of pain, and that simple vascular contraction and distention do not result in pain, but it is also true that simple pressure upon nerve trunks and nerve endings does not necessarily produce pain. This argument by no means precludes a susceptibility to pain resulting from a definite combination of mechanical conditions (for example, vasomotor spasm combined with increased blood pressure). Pain is primarily a cry of warning, contributing to our safety, and resulting from such conditions at the periphery as may do harm to the structures concerned. As instances of pain resulting from vascular rather than from nervous disturbance we need only name that resulting from embolus, from aneurism, from the continued application of the tourniquet, and perhaps that of migraine. Nor shall we dwell on the bearing of the study upon the paresthesias and pains of Raynaud's disease, erythromelalgia, and allied disorders. The reader who would pursue this line of investigation is referred to the articles of Charcot, Erb, Goldflam, Dutil and Lamy, Higier, Hagelstam, Mariensco, Haga,[10] Sternberg,[11] Van Ordt,[12] Laveran,[13] Panas,[14] Lancreux,[15] and others. Our main endeavor is to familiarize the practitioner with the clinical aspect of the disorder, to suggest that certain familiar but unclassified pains may represent a modified form of the malady.

Higier, Goldflam and Hagelstam have recently demonstrated the comparative frequency of the disorder by reporting eighteen, twenty-four and twenty-three cases respectively. These authors concluded that certain races (for example, the Semitic) were peculiarly subject to the complaint. We have collected in the past few months fifteen cases representing, as it seems to us, a modified type of the symptom, and one typical case, none of the individuals affected being included in the race mentioned; this tends to show that while the affection in its complete form is rare, allied conditions are of wide distribution, though the only previous cases reported under this category in American periodicals, as far as we can learn, are those of Putnam,[16] of Gordon,[17] of Riesman,[18] and of Dana.[19] * In twelve of the sixteen cases pulsation was lacking in one or more pedal arteries.

It is significant that only five of these cases came to the Neurological Department of the hospital, and only one of these five for treatment of this particular symptom. Two cases were found

* The case published by Dana presents a picture of unilateral arterial obliteration in a woman of seventy-eight without paroxysmal symptoms but with pain and paresthesia.

in the Surgical Department, in a routine examination of the arteries (allowed by the courtesy of Dr. Scudder). The others were not hospital patients, but persons whose histories we investigated with this subject in mind, after learning that they were sufferers from so-called "cramps" of unusual persistence and severity and of constant seat.

Comparatively few, perhaps, of the many sufferers apply for treatment of this particular symptom, and when they so apply, the case is diagnosticated as cramp, sciatica, the result of flat-foot, internal varicose veins, or, perhaps, if the history is somewhat bizarre, as hysteria, its true nature remaining unnoted, unless indeed, as is occasionally the case, evidence of malnutrition or even local gangrene makes its appearance, in which event the minor complaints receive scant attention unless the practitioner chances to be familiar with the subject. The muscles are generally hardened during the attack, whether this hardening is the result or one of the causes of the pain; but the malady is not to be confounded with ordinary cramps of occasional occurrence and varying location. The possibility should be borne in mind, however, that the ordinary cramp, though innocuous, may be of analogous production as far as the ischemia, the vasomotor spasm and the temporary increase of blood pressure are concerned. It is significant that such cramps are practically limited to the lower extremities, in which mechanical conditions render the circulation less free than in the upper. The essential distinction in this event would be the pathological basis for continued impairment of circulation present in well developed angina cruris. In point of fact not a few sufferers from so-called simple cramps will be found on careful study to fall into the class of modified angina cruris.

The details of the following case will serve to present the picture of this distressing malady in its severest form. The patient presented himself at the Neurological Clinic of the Massachusetts General Hospital, and was recommended to the house, where he entered the service of Dr. F. C. Shattuck, through whose courtesy we were enabled to study and report the case. Material aid was furnished by the careful records of Dr. Locke.

OBSERVATION I. R. L. C., 38, married; English; a weaver.

*Family history.*— His father died of pneumonia at 54. Two sisters died in infancy; one brother and two sisters are alive and well. His mother was always morose, nervous and despondent; is now in the insane asylum. Her brother is also insane. The family is neurotic.

*Habits.*— Has not taken alcohol for four years. Before that drank one or two glasses of beer in the day.

*Patient's history.*— He had mumps and measles in infancy, scarlet fever at fourteen. As a child was nervous and was subject to frequent pains in the legs. Since eighteen years of age he has been subject, once or twice a month, to severe frontal and occipital headaches, lasting one to twenty-four hours, accompanied by nausea and vomiting (migraine). Venereal disease is denied.

Four and one-half years ago he was obliged to give up work for six months. During this time there is history of diarrhea with rectal and vesical incontinence. Three years ago discontinued work in the mill and was confined in bed seven weeks with girdle pain and pain extending into the legs, with tingling and numbness and distinct loss of power in the legs. Improvement followed, then he became worse, and two years ago entered the Fall River City Hospital. Marked improvement followed and the pain and disturbance in motion entirely disappeared. After two months he took up peddling, but this work was interrupted by sharp pains, which always began in the lower legs and feet when he was in the erect posture. He was confined to his bed for five months, after which he was up and down until he entered St. Joseph's Hospital in Rhode Island. He was there two or three months without relief.

For three years the urine has been passed frequently and he has been subject to dizzy spells. He has gained weight of late. His sleep is poor. His sexual power is unimpaired. For several years previous to the onset of these symptoms he was under great strain; his wife was very ill and two children died. He has worried for fear of becoming insane. For the past year he has taken morphia, often two or three grains daily.

There is no motor loss in the legs, but he is subject to sudden attacks of intense pain in the calf, the outer side of the thigh and back of the knee, finally involving the whole leg. The pain is accompanied by heat and prickly feeling and sometimes by changing color of the extremities. The pain is so intense that he is obliged to stand holding the leg or to sit down. The spasm passes off as rapidly as it comes, after which he can walk with freedom. The pain sometimes comes when he starts to walk, again if he has walked a distance. He may continue to walk after having an attack, for perhaps three minutes, when another will occur. Movement in bed often produces similar attacks. He has had similar pain in the left leg, but no motor or sensory trouble in the arms. Cold weather aggravates the disturbance.

*Physical examination.*— The patient is well developed and nourished. The pupils are alike and react normally. The tongue is moist and clean. There are small glands in the left axilla and in the groins. The lungs and abdomen are normal. The apex beat of the heart is in the fifth intercostal space just inside the nipple; the force of the heart is fair; no murmurs; the second aortic sound is accentuated, the first sound at the apex sharp and booming.

The pulses at the wrist are equal and synchronous, volume and tension good. The pulse can be felt in the posterior tibial arteries, though its character is thin and weak. No pulse can be felt in the dorsalis pedis of either foot. Examination of the blood shows 75% hemoglobin, white corpuscles 21,600 at the first examination, 25,000 at the second.

The blood pressure, taken in the finger and in the second toe (by Dr. James Jackson), varies from 95 to 120 mm. of mercury. The blood pressure taken in the right toe during an attack increased from 95 mm. to 140 mm. This attack, which was a typical one, lasted thirty-four seconds.

Examination is negative as regards sensation and motion. The hip and other joints are free and normal. The knee jerk is exaggerated on both sides. No continuous ankle clonus is elicited, but the Achilles tendon reflex is increased. There is Babinski reflex on both sides, more marked on the left. The cremaster reflex is sluggish, the abdominal and epigastric reflexes wanting. Gluteus clonus frequently appears on the right side when he is standing, sometimes spontaneously, generally started by a tap.

There was marked edema in the right ankle and shin when the patient first appeared at the Out-Patient Department, and a slight edema on the left. This symptom disappeared after he had remained in bed twenty-four hours. In the Out-patient Department the whole right leg was distinctly colder to the upper thigh; both legs were somewhat cool after entering

the house (temperature of dorsum of right foot 82°, of right hand 87.2°).

Urine was of normal color, acid reaction, specific gravity 1,020, with no albumin and no sugar. The sediment was slight, containing no casts.

During his stay in the hospital there has been no diminution of the severity or frequency of the attacks, even when he has remained constantly in bed. The administration in turn of strophanthus and nitroglycerin gave no relief.

This case is noteworthy in presenting a neuropathic and psycopathic tendency, a tendency which has been regarded by most students of this subject an essential factor in the production of vasomotor spasm (Erb, Hagelstam, Van Ordt, Goldflam, Oppenheim, Higier and others). It is also of interest that the reflexes were exaggerated, a condition reported in one or two previous cases, and interpreted (Erb, Goldflam) as pointing perhaps to a defective circulation in the spinal cord, allied to that in the lower extremities. The thought naturally suggests itself that the paralytic seizure through which the patient passed three years ago may have been due to spinal syphilis. This diagnosis would in no way alter the status of his present attacks, but would merely point to specific disease as an important etiological factor in the arterial changes. It should be also noted that the patient was under the usual age of atheroma, and that no tortuosity or hardening or visible pulsation was present in the arteries, either at the wrist or temple. In the early study of the disorder the arterial degeneration incident to advancing years was deemed the essential factor (except in cases of recognized local or general cause of obliteration, as aneurism or syphilis), but many cases have now been reported varying from twenty to forty years of age, and a congenital tendency to arterial fibrosis is regarded as equally important. Sänger [20] has demonstrated, by the Röntgen rays, chalky deposit in the arteries in three cases, and emphasizes the importance of utilizing this aid in diagnosis.

The histopathology of the arterial occlusion in these cases is not definitely established. In each of the conditions mentioned all the arterial coats are liable to become thickened, in whichever coat the process may commence; and in all the varieties the lumen is liable to become narrowed and eventually obliterated. Upon this purely pathological branch of the subject we shall not venture to encroach.

Another point of interest is the increase of blood pressure demonstrated by Dr. Jackson. This is a branch of investigation to which little or no attention has been paid, but the result of Dr. Jackson's observation would tend to show that increased blood pressure is a factor in the production of the paroxysm. Further study in this direction is desirable.

In view of the question whether the increased blood pressure was merely a result of the movement made by the patient on account of the pain, Mr. Quinby, at the instance of Dr. Jackson, has tested the blood pressure during short periods of violent exercise and has found no appreciable increase.

With regard to the *etiology* of claudication, diabetes, syphilis, misuse of tobacco (and perhaps alcohol), gout, and exposure to wet and cold have been in turn emphasized, but further contributions have shown that none are essential. Two factors, however, appear with great frequency throughout the literature, namely, tendency to defective circulation and constitutional neuropathic taint.

The cases hitherto reported have been very largely males, and this sex has been regarded as peculiarly susceptible to the affection (Dutil and Lamy, Goldflam, Hagelstam, *et al.*). Our experience shows that the modified form to which we call attention is quite as common among females, for out of the sixteen cases which have come under our observation, nine occurred in women. In two of these cases the attacks first appeared during the latter half of pregnancy, tending to show that the increased pressure of the fetus may be added to the mechanical causes, and the question naturally presents itself whether certain cases of so-called "cramps" occurring in pregnancy and labor may not be allied to the symptom under consideration.

The following case will serve to illustrate this phase of the subject and to demonstrate the benefit of treatment directed towards aiding the circulation. The history is also suggestive of a neuropathic tendency such as might favor vasomotor spasm, and perhaps of an inherited circulatory equipment not quite adequate to withstand the strain imposed by childbirth and other conditions.

Observation II. Patient a widow, 67; American. Her mother was subject to severe cramps at night on account of which she always wrapped the limbs in a blanket; two sisters have been subject to attacks similar to those to be described in her own case, and one sister has been through an attack of phlebitis.

She has been subject to so-called rheumatic pains, such as lumbago. She has had two children, and early in the first pregnancy had dropsy. In the latter part of each pregnancy she was subject to severe cramps of short duration, without continuous pain or disturbance of gait. After the birth of the first child, thirty-five years ago, there was considerable pain and swelling of the legs, face, hands and whole body, and loss of vision. She was confined in bed for a number of months. On trying to reach an armchair she felt something snap in the calf of the left leg and suddenly lost power in all four extremities. The paralysis lasted several days and gradually disappeared. For a month previous she had been nervous, depressed and hysterical. In the course of a week after the onset of paralysis an abscess appeared on the outside of the left shin which was later opened. Both legs remained swollen, the left discolored, flexed and rigid. Gradual convalescence followed, and in nine months she was able to walk without crutches; in a few years she could use the leg as well as ever. The legs have been liable to swelling at intervals since that time, especially if tired. She has been subject to cramps for a number of years, recurring many times in each year and always confined to the right leg, sometimes in the calf, sometimes in the groin. The pain, especially when in the latter situation, has been so severe as to cause her to faint, but has been of brief duration (about half a minute). When the pain has appeared in the calf and foot it has been less severe and has lasted perhaps five or ten minutes. The attacks have invariably come at night. She was advised by one physician to tie a cord round the leg, by another to exercise.

Fifteen months ago the legs had been swollen for several weeks and there was distress in the precordium. On starting to rise a moderate cramp and pain appeared in the back of the right leg; this pain continued and increased and two days later she was confined to the bed. The diagnosis was made of phlebitis and venus thrombosis, the clot being plainly seen and felt on the inside of the right shin. She remained in bed two weeks; gradual recovery followed. During the past year she has worn an elastic stocking and avoided excessive use of the limbs. During this time there has been no recurrence of the cramp.

There are moderate varicose veins. The heart sounds are weak. The physical examination is negative as regards motion, sensation, reflexes and other functions. No pulse is to be felt in the posterior tibial on either side, and the dorsalis pedis pulsation is faint.

No further comment is required in presenting the salient points in the following:

OBSERVATION III. Female, 40, married, of Irish parentage. Has had nine children. With each pregnancy has been subject to severe cramps with pain sufficient to make her cry out. They have appeared about the middle of the term and increased in frequency until the child was born, appearing practically every day toward the end. The severity of the attacks remained unchanged throughout, pain being extreme from the first. The attack would appear while walking or on rising from the bed. She would be compelled to stand still, to hold and rub the leg, and be unable to take another step until the pain had passed. The last child was born two years ago, since which time the same attacks have appeared at intervals of perhaps a month. She has had no miscarriages, no eruption and no loss of hair. She is rather easily startled, worries and has various phobias. Her mother was rather high strung and of a worrying disposition, but there is no history of definite nervous or mental disease in the family. Between the attacks there is no limp, no paresthesia, no pain, no numbness or other disability. The physical examination is negative excepting that the posterior tibial artery is not felt on either leg. The dorsalis pedis is felt on both sides.

The following history is of interest in connection with the study of local malnutrition. It is true that evidences of malnutrition in the extremities may, and often do, appear without the least suggestion of angina. In certain instances, however, it would seem that the right combination of circumstances may produce the characteristic pains, and the study of these cases may aid in the solution of the difficult problems connected with the obscure general subject of nutritional disturbances.

The patient came to the Neurological Clinic with a probable diagnosis of mal perforans accompanying locomotor ataxia, but it appeared that the acute attacks of pain were always limited to the left leg below the knee. This history led to the examination of the arteries of the foot, which showed absence of pulsation. As the result of this study the diagnosis of angina cruris was established without precluding the possibility of early tabes.

OBSERVATION IV. Female. For twelve years has had pain in legs and back, with swelling of the legs. She has had occasional vertigo and some headache, but no vomiting. The bladder is irritable, but there has been no incontinence of urine. An ulcer appeared under the left great toe about six months ago and has persisted. The pain has always been limited to the left leg, never extending above the knee. Sometimes she has paroxysms of intense pain, of brief duration, preventing walking, though sometimes the pain will persist several hours. She has had no children; no miscarriages; no eruption. She has lost her hair steadily for three years.

The left foot is cold and cyanotic, especially the great toe. There is no pulsation in the dorsalis pedis on either side. There is no loss of muscle sense or other form of sensation, and no loss of motion. The pupils are irregular, the right slightly larger than the left, of rather small size; reaction sluggish. The knee jerk on the left is increased, on the right very slight. There is a dry, black ulcer under the left great toe. There is no ataxia. There is very slight Romberg.

The patient was transferred to the Surgical Department, to which she was to report the next day for further examination and treatment, but has failed to reappear, so that we are limited to the above brief report of the case.

We append brief histories of a number of cases obtained with so little effort as to indicate that they represent nothing unusual. The frequent absence of pulsation in one or more of the arteries of the foot gives point to the observations.

OBSERVATION V. Female, married, 40, Irish. Two years ago she had an attack of unconsciousness lasting one hour, followed by right hemiplegia with aphasia. The condition persisted with athetoid movements and astereognosis. She has had five or six miscarriages, occurring at about the sixth month. She has had no living children. She has had no rash or sore throat. Her father had diabetes, her mother is in good health. Patient has had various paresthesias in the whole right side with loss of pain, touch, spacing and position senses. The Babinski reflex is present with increased knee jerk. Since the paralytic stroke she has been subject (up to two weeks ago) every morning, on waking and moving, to a sharp pain in the right calf lasting a few minutes without hardening of muscles, but with pain sufficiently intense to cause her to cry out, the foot becoming cold and white. No dorsalis pedis artery is to be felt on the right, the posterior tibial is normal, as also are both arteries of the left foot.

OBSERVATION VI. Female, 64, widow, American; has had three children. As long as she can remember has had cramps in both legs in bed, especially the latter half of the night; also cramps in the hands with strong flexion of the fingers. In the past year has noted in both legs, more in the left, on starting to walk that the leg feels weak from the hip down, causing her to stop for a few seconds. This trouble may occur in crossing the street or in playing the pianola. The left leg feels cold and is cold even on hot days. A crawling feeling occurs in the legs at times, and going-to-sleep feeling in both legs, more on the left. The right dorsalis pedis artery is prominent, the left is faintly perceptible; both posterior tibials are present. The knee jerk is normal. Her father was alcoholic and suffered from cramps. Her mother was subject to cramps so sudden and so severe as to cause her to drop objects from the hand.

OBSERVATION VII. Male, 69, American. Has suffered from cramps in both legs for years at night in bed. He has a weak, dilated heart. Edema of the legs is present. Dorsalis pedis arteries not perceptible. Pulsation is perceptible in both posterior tibials.

OBSERVATION VIII. Female, 36, American, of Irish parentage. Married. One brother and sister nervous. Self nervous (epileptic since sixteen years). Subject to cramps since girlhood for two or three weeks; always at night, especially if feet exposed, and always worse in cold weather. Attacks are of short duration, pain very severe. The dorsalis pedis is felt on both sides, the posterior tibial on neither. The knee jerk is active.

OBSERVATION IX. Female, 13, American, seen in Dr. Minot's clinic. Is subject to severe attacks of painful

cramps, sometimes at night, sometimes on walking. In latter event has to stop. Both feet affected, the left worse. Has these attacks several times a day. The cramp is generally in the calf. Is subject to similar attacks in the arm. The fingers are blue and cold, the right foot is very cold, the left warmer. The arteries are easily felt on the left foot, but on the right the dorsalis pedis is not felt, and the posterior tibial only faintly. The arteries of the upper extremity are rather small.

Observation X. Male, 48, American. Subject to pains at night on moving in bed. Sometimes has them a number of times in the night, especially during the latter part. Pain is extreme, generally in the calf, and lasts two or three minutes. Disappears rapidly if he straightens the leg. Dorsalis pedis on the left is very faintly felt. The other arteries are normal.

This patient complains of practically continuous fibrillary twitching in both legs, a symptom which has persisted for about three years without other objective sign (myokymia). It is suggestive that fibrillary twitching has been noted in several cases of claudication, and further study may show the connection between them. In the only other case of myokymia coming under our observation, however, the pedal arteries were apparently normal.

The following case was observed before our attention was called to the question of pulseless arteries, so that we are unable to complete the history in this respect, but the impairment of circulation is beyond question.

Observation XI. Male, American, married, died at 58 years of age. In the last months of his life general edema developed, due to a dilated heart and arteriosclerosis. The urine showed a trace of albumin and was of low specific gravity. Six years before death he first complained of cramps in the right leg, lasting from one to five minutes and subsiding slowly. These cramps always occurred in the early morning when the patient was in bed. At first the cramps occurred at intervals of some months and became more frequent though never oftener than every two weeks. Within a year of his death he was observed in one attack; he was pale, cold perspiration stood on his face and he seemed to be in agony. The pain in the calf of the left leg disappeared slowly after five or ten minutes' duration.

In addition it is only fair to insert a brief statement of several cases in which we found a history of painful cramps of varying frequency and severity, without definite signs of circulatory impairment. It is a question whether we should regard such cases as militating against the views advanced, or whether we should regard them as mild types of a similar disturbance, in some of which the functional element alone is present, while in others a physical basis perhaps exists, but is not sufficiently advanced to present marked signs at the points available for palpation.

Observation XII. Male, 41. A patient with ataxic paraplegia, seven years ago had an attack of so-called nervous prostration, since which time there has been numbness and unsteadiness of gait, with spastic tendency and increased reflexes with Babinski and clonus. He is subject to cramps of brief duration accompanied by intense pain every time he straightens the legs in bed. The pulse is felt in all four arteries of the feet, but the left radial artery is hard and tortuous.

Observation XIII. Female, 70, American, married, has been subject for some years to very severe cramps with intense pain recurring every night for long periods. Has never suffered from phlebitis. There is much lameness and stiffness of the left leg especially about the knee. All arteries are felt plainly. There is flatfoot on the left side.

Observation XIV. Female, married, 40, American. Suffered from phlebitis in the left leg 18 years ago, since which time has been subject to occasional nocturnal cramps, accompanied by intense pain. The cramps always appear in the left leg. Pulsation is felt in all arteries.

Observation XV. Male, 44, American, a physician. Has been subject for several years to cramps in the calf occurring at night, accompanied by intense pain. Flatfoot is present. Since wearing a plate for the flatfoot, has been free from cramps, excepting on one occasion, after leaving off the plate the cramps occurred with such frequency and severity as to cause him to renew its use. Pulsation is normal in all arteries.

A review of these cases suggests that there is no sharp dividing line between (*a*) simple cramps with occasional occurrence and with moderate pain, and (*b*) severe and frequent cramps of constant seat, and (*c*) the classical type of angina cruris. In Observation XV it is noteworthy that the painful cramps disappeared after the use of the footplate, and that in Observation XIII flatfoot was present on the side affected with cramps, and that in both these cases the pulse was good in all the arteries of the foot.

The question presents itself, therefore, whether the cramps in such cases are of a different kind from those accompanying signs of poor circulation. The subject of one of these observations (a physician) suggests that possibly the cramps of flatfoot are due, in part at least, to alterations in the circulation of the foot brought about by the abnormal mechanical conditions. Dr. Goldthwait assures us, in this connection, that evidence of impaired circulation, as well as hyperidrosis, not infrequently accompanies flatfoot, and that these symptoms are often relieved by the use of the plate and of appropriate exercises.

The subject of cramps in general seems obscure, and it is to be hoped that the line of thought here offered may serve as a stimulus for their future study.

If it were found an invariable rule that painful cramps are accompanied by pulseless arteries, the proposition might be regarded as practically established, but this is by no means the case. We have already cited cases in which cramps appeared without pulseless arteries, and the following observation illustrates the converse relation. In this case no pulsation was felt in the dorsalis pedis, posterior tibial or popliteal arteries, but no pain was present severe enough to suggest angina. The patient did, however, complain of troublesome paresthesia, a symptom often present in sufferers from this disorder.

Observation XVI. J. D. S. (patient of Dr. Fitz), 42, laborer, Irish; had typhoid fever two and one-half years ago, complicated by gangrene of the left leg, which was amputated above the knee. Since that time he has suffered from burning and prickling of the thighs extending up the back to the waist line. His sleep is impaired and he frequently has to change his position at night to seek comfort. The right leg has been losing power during the past year. The ra-

dial pulse is weak, the artery small. No pulsation is felt in the dorsalis pedis, the posterior tibial, or the popliteal artery of the right leg.

With a view to determining the frequency of pulseless pedal arteries in health, and in persons not complaining of painful cramps, we have examined 200 individuals of whom the majority were in good health. These individuals have varied from old age to early infancy. Our thanks are due to Dr. Morse for allowing us the privilege of his clinic at the West End Nursery; also to Miss Amy Morris Homans, the director of the Normal School of Gymnastics, for the opportunity of examining a large number of healthy young women; also to Mr. Roberts, who has kindly aided us by the examination of healthy young men in gynasiums. The results are as follows:

| | | |
|---|---|---|
| Pulsation felt in all four arteries | 181 | |
| Pulsation absent in both dorsalis pedis arteries | 10 | |
| Pulsation absent in one dorsalis pedis | 4 | |
| Pulsation absent in both posterior tibials | 3 | |
| Pulsation absent in one posterior tibial | 1 | |
| Pulsation absent in all four arteries | 1 | infant. |
| | 200 | |

It should be noted that in the majority of healthy individuals in whom certain arteries were not felt, the other arteries were well developed and pulsated strongly, showing that we had to do with a physiological anomaly. It is common, on the contrary, in angina cruris and allied conditions, with pulseless arteries, to find the pulsation in other arteries feeble. In certain cases, again, we had to do with an artery neither wanting nor obliterated, but obscured by thickened tissues. Our results are less uniform in this connection than those of Erb and of Goldflam, but they serve none the less to indicate that the occurrence of painful cramps in combination with pulseless arteries is too striking to be a mere coincidence.

Those examined were generally questioned with regard to cramps, and it is noteworthy that the only individuals (two) giving a history of cramps at all severe, frequent or fixed in location were among those in whom the pulse was not to be felt in either dorsalis pedis artery, and in one of these persons the feet showed marked signs of impoverished circulation. These two cases might equally well have been included among those probably allied to angina cruris.

With regard to the prognosis and treatment of angina cruris, the prognosis resolves itself into an estimate of the competency of the vascular system in the extremities. In some of the severe cases the nutrition of the part will become seriously compromised, but in the large majority the outlook, according to Erb and others, is fairly good if the conditions are favorable.

Prophylaxis is of signal importance. Persons with tendency to arteriosclerosis should avoid violent, continued exercise, should avoid extremes of temperature, and if tendency to flatfoot exists this should of course receive skilled attention. If angina cruris is well developed the patient should be kept in bed for a certain period, and when he is allowed to walk should do so, as Erb expresses it, with the watch in the hand, endeavoring always to keep within the amount of exercise which would produce a cramp. Strophanthus and nitro-glycerin should be tried. Iodide of potassium has been advised by all authorities and should, perhaps, be used, especially if there is reason to suspect syphilis. Bandaging the affected limb has appeared useful, and in one of the cases of modified angina reported in this paper (Observation II) the elastic stocking combined with avoidance of exercise seemed of value, since no attack occurred during the year of these precautions. Erb has recommended a galvanic footbath, the details of which may be found in his article. Riesman[18] recommends vegetable diet, avoidance of red meat, alcohol, tea and coffee, and of rich foods.

This investigation has impressed us with the importance of examining the dorsalis pedis and posterior tibial, as well as the radial and temporal arteries in all cases in which an impaired circulation may play a part in the pathological process, whether of the brain, spinal cord or other organs. It is well known that the finding of healthy arteries in one region does not preclude serious changes in the vessel walls elsewhere. In case symptoms point, for example, to vascular occlusion, or hemorrhage of the brain, we cannot assume that cerebral atheroma is present, because we find a rigid radial artery, nor can the converse be established. Our only recourse is to examine such arteries as are available for palpation, and to draw what inferences we may. It behooves us, then, in all doubtful cases, to include the pedal arteries in the examination. This is the more important, inasmuch as these arteries may well be the first to suffer, partly from their distal location, and partly from the mechanical disadvantages under which they labor. We select one from many instances showing the advantage of such examination:

Observation XVII. A lady of 61, seen in consultation with Dr. Phippen of Salem, has suffered from progressive paralysis of insidious onset, commencing in the right hand and gradually spreading during the past two months so that the entire arm is now helpless and the right leg partially so. There is no headache, no vomiting, no optic neuritis. The arteries at the wrist and temple present no notable variation from the normal, but no pulsation is felt in either posterior tibial, and none is felt in the left dorsalis pedis, though the pulsation is normal in the right dorsalis pedis. There is no history of painful cramps.

The examination of the pedal arteries was of material aid in establishing the diagnosis, already suggested by the clinical history, namely, progressive softening due to vascular occlusion. This case further shows that pulseless pedal arteries do not necessarily produce angina.

Though it leads us somewhat afield, we cannot resist alluding in this connection to the indications of spinal disease sometimes accompanying angina cruris. A review of the present pathological status of the so-called primary degenerative cord diseases shows that while the degeneration is recognized as peculiarly prone to attack those portions of the cord whose blood supply is

normally the feeblest (that is, the lateral and posterior columns), the exact part played by the circulation is not determined by those who have given the subject the most study (Marie,[21] Putnam [22] and Taylor,[23] Dana,[24] Russell, Batten and Collier,[25] and others). Even Marie, who lays special stress on the vascular origin of these degenerations, practically subscribes to the views of Ribbert, who assumes that some *irritant* must be present, thickening the vessel walls and producing diapedesis at the spots he regards as foci of inflammation. Mere local ischemia in these regions (regions whose blood supply is already naturally poor) seems nowhere accepted as sufficient cause for degeneration, though thickened arteries, collapsed arteries, arteries showing hyaline degeneration, and even signs of arterial obliteration, have appeared with more or less constancy in the pathological reports and though Osler states that the *cerebral* symptoms of arteriosclerosis embrace those of many degenerative processes, acute and chronic. If a *toxin* must be invoked for these changes, it seems remarkable that such toxin should invariably attack individuals from forty-five to sixty years of age, and sometimes more than one individual in a family, whereas this is just the age when the effects of a congenitally feeble circulation might be expected to become apparent, and the occurrence of the symptoms at this age in more than one member of a family could be explained, without stretch of imagination, by a family tendency to an inadequate circulatory system.

The following case suggests the possibility that some of the paroxysmal pains of the degenerative spinal diseases (for example, tabes) may be allied to angina cruris and have their origin at the periphery rather than in the spinal roots from which they are ordinarily supposed to be referred.

Observation XVIII. An American, 53 years old, gives a history of primary sore followed by eruption, twenty years ago. During the past year his disposition has changed, and his memory failed. He is now mentally incapacitated for his work. The speech is somewhat impaired, the pupils are unlike and the right fails to react to light. The gait is unsteady, and the ground feels unnatural to him, though no objective anesthesia is found. The knee jerks are exaggerated, without ankle clonus or Babinski reflex. There is painless enlargement of the right knee joint, with great increase of fluid.

The patient complains of frequent attacks, twenty or more daily, of paroxysmal pain in the calf, generally brought on by walking, of brief duration, and so intense that he cannot proceed till the spasm has passed. On the left foot no pulse is felt in either the dorsalis pedis or the posterior tibial artery; in the right foot pulsation is felt only in the dorsalis pedis. He complains also of sharp darting pains in various localities.

The diagnosis is obviously general paralysis, with characteristic spinal involvement, but the paroxysmal pains of which he chiefly complains conform much more readily to the type under discussion than to the type of pain ordinarily attributed to irritation of nerve roots resulting from disease of the spinal cord.

### CONCLUSIONS.

(1) The concurrence of the paroxysmal pains of angina cruris with pulseless pedal arteries is too constant to be explained by coincidence, though it is true that pulseless arteries may be found without the pains, and, conversely, that such pains may appear with apparently normal arteries.

(2) The painful paroxysms are probably of vascular origin, and result from vascular spasm coupled, perhaps, with increased blood pressure acting on vessels already partially occluded, whether from local or general disease (aneurism, syphilis), from senile changes (atheroma), or from congenital tendency to angiofibrosis.

(3) Recurring painful cramps of constant seat probably represent a modified form of angina cruris.

(4) It is important to examine the dorsalis pedis and posterior tibial, as well as the radial and temporal arteries, in all cases in which it is desirable to estimate the bearing of the vascular condition upon disease in the central nervous system or elsewhere.

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## PHYSIOLOGICAL HEART MURMURS PRODUCED BY THE ELECTRIC-LIGHT BATH.


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The readiness with which murmurs, or something which answers for them, can be produced in the heart and blood vessels was strongly impressed upon me while engaged recently in conducting a series of experiments to ascertain the physiological effects of the electric bath upon the human system. These experiments demonstrated conclusively to me how little weight should be attached to the mere presence of a murmur in making a diagnosis of heart disease. In all, fifty-two persons were examined, with special reference to the effects of the bath on the heart, and murmurs were heard in the heart or arteries, gen-

erally both, in nearly every case. In some instances these murmurs were both short and soft, while in others they were rough and long. As a rule they were evanescent, but sometimes they persisted for twenty or thirty minutes, particularly in the vessels.

Of the persons examined twenty-nine of them were women and twenty-three were men; thirteen women and one man were insane, while the others were young women and men employed as nurses and attendants. In order to eliminate the personal element, I had Dr. E. V. Scribner examine a number of the patients with me, and his findings coincided with mine.

The outfit I used in making the experiments is an octagonal box, about five feet high and about four feet in diameter. In the corners are sixty-four incandescent lamps of sixteen candle-power each, arranged in four series of sixteen each, each series having a separate switch in order that the amount of heat and light may be carefully and accurately regulated. There are eight rows with eight lamps each, running from the top of the box to within about twelve inches of the bottom. It was found that the temperature in the cabinet ran up to about 160° F. in five or ten minutes — not an excessive degree when it is recalled that the Turkish bath varies from 200° to 300° F.

The patient sits on a stool with his head protruding through an aperture in the top of the cabinet, thus enabling him to breathe cool, fresh air, while the body is being subjected to the heat and light of the lamps. During the first four or five minutes in the bath the patient feels nothing more than an agreeable sensation of warmth. After about five minutes, he begins to perspire, and in a few minutes more this becomes profuse. The bodily temperature increases, and after ten or twelve minutes may be 100° or even 102° F. In the meantime, the pulse increases its rate, and in twelve minutes, or even less, may be 170 per minute. The patient is also aware that his heart is acting more forcibly than customary. Sometimes he feels alarmed, says he is getting dizzy, that there are noises in his ears, etc. Occasionally they have become frightened, and, saying they were going to faint, asked to be removed. Ordinarily, however, these subjective symptoms were not complained of. The bath was set up in a room, and across the hall was a dormitory where the patients were examined before and after treatment. As the cabinet was being opened to let them out they were requested to pass quickly to the dormitory and take recumbent positions. This was done in order that they might be auscultated while their hearts were yet beating rapidly and forcibly, and before the more transient murmurs had disappeared. While in the bath they wore no clothing, thus allowing the radiant heat to penetrate the tissues. It has been found that the skin and other bodily tissues readily permit the transmission of the radiant heat of the electric light. It enters the body as light, but, because of the resistance it encounters, is transformed into heat. Kellogg says: "This heat is developed in the deeper tissues instead of being slowly carried in by conduction from the surface. The skin is, like glass, a poor conductor, but at the same time allows the passage of radiant energy in the form of light. This fact explains the readiness with which perspiration is induced by the electric-light bath." This also explains the rise of internal temperature, and probably the increased heart action is due, in part, to the same cause.

As previously noted, a majority of the persons treated were healthy young people between the ages of eighteen and twenty-five years. Of the insane patients, seven were under, and seven over, forty-eight years. The preliminary examination showed that five of the insane and three of the sane had what were probably organically diseased hearts. The large percentage of diseased hearts in the insane was due to the fact that a number of them were debilitated persons, and were taking the baths as a part of treatment. Of the employees, six had functional murmurs. No functional murmurs were heard in the insane before entering the bath. In the cases of organic heart disease the murmurs were made more pronounced by the bath, but in no instance were any untoward results noticed. One woman, with a to-and-fro murmur in the aortic area, remained in bed for half a day after the bath, saying she felt more comfortable there. As would be expected, however, a feeling of lassitude ordinarily existed for an hour or two after treatment. The functional murmurs present before the bath were likewise intensified, in several instances startlingly so. The examinations were made while the patients were recumbent. When standing or sitting, the murmurs were, as a usual thing, not as distinct, and sometimes could not be heard. I tried to auscult the patients while in the box, by means of a phonendoscope fitted with long tubes, but the results were unsatisfactory. The murmurs heard were generally at the base, frequently most distinctly in the aortic area, and they were well conducted into the arteries.

Bruits of this nature are best heard, as a rule, during suspended respiration, generally at the end of expiration, and these proved no exceptions. They were heard not only in the aortic and pulmonic areas, but at times in the other valve areas. As my attention was directed first to the base of the heart, the mitral and tricuspid valves were slighted, for very frequently by the time I had satisfied myself as to the condition at the base and in the arteries, the excessive heart action had subsided, and the apex murmurs had become faint or had disappeared entirely. In nearly every case, bruits were heard over the arteries, either the subclavians or carotids, generally both, and in several instances over distant arteries, the brachial being the one I listened to oftenest, and, consequently, the one where I heard the most murmurs. These arterial murmurs persisted in many cases for over thirty minutes, but those over the heart had disappeared after five or ten minutes, at which time the pulse had become nearly normal in rate. The heart would continue

to act more forcibly than customary, and the arteries to visibly pulsate, even after the normal pulse rate had been reached. In listening over the arteries I was careful not to use undue pressure, and thereby produce an abnormal sound.

Of the twenty-two men examined (they were carefully selected) only one had an organic murmur. Only one functional murmur was found, prior to the bath, and this was in a rather nervous but otherwise healthy man. Of the twenty-two there was only one in whom a murmer was not produced by the bath. This man was one of the oldest — thirty-four years. On entering the bath, his pulse was seventy-six, and at the end of thirteen minutes it had reached 125, which was less than the average. Three minutes after leaving the bath, and while he was recumbent, his pulse had dropped to 80. This man did not exhibit any nervousness, and it was noticeable at the preliminary examination that his heart sounds were not heard so distinctly as were those of the others.

Of twenty-nine females, seven had organic heart disease, and five had functional murmurs. In only one did I fail to hear a murmur after the bath. This woman is thirty years of age, appears frail, and occasionally has asthma and other nervous disturbances. Her weight is but 90 lbs. Notwithstanding her apparent frailty, she was the champion bicycle rider both in making long runs and in climbing hills, and this would indicate that her heart is a serviceable one. The duration of the bath in this case was only seven minutes, owing to a feeling of faintness. It seems probable that had she been able to remain in the usual length of time, murmurs would have been produced. On entering her pulse was 90, and at the end of five minutes it had reached 132, but her heart action was not forcible.

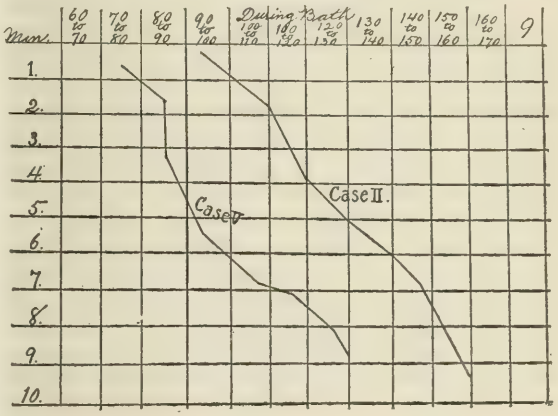
The following charts illustrate the conduct of the pulse before and after the bath, two typical cases having been chosen.

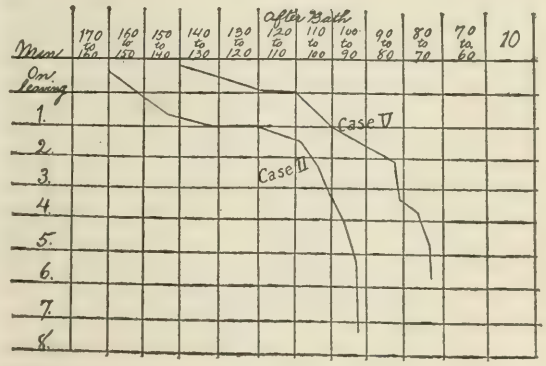
The effects produced on the heart and the arteries by the bath reminded me of those following the inhalation of amyl nitrite, that is, rapid heart action and relaxed arteries. The arterial tension was ordinarily considerably reduced, and pulsations were frequently seen in both large and small arteries. The following five are typical cases, all being healthy and free from any evidence of cardiac disease.

Case I. Miss P., age 28. On entering the cabinet her pulse was 80, increasing rapidly, until, at the end of ten minutes, it had reached 130. On leaving the bath, murmurs were heard extensively over the heart and in the arteries. Two minutes afterwards, her pulse was 84, her heart was still beating forcibly, and the murmurs were still present. Three minutes later, and five minutes after leaving the bath, her pulse was 76, her heart was acting less forcibly, and the only murmurs heard were those in the arteries and a slight one at the apex. This woman was examined subsequently, when no bath had been taken, and no murmurs were heard.

Case II. Miss H., a particularly rugged woman of 23 years. Entered the cabinet with a pulse of 76, and at the end of ten minutes it had reached 126. She was then removed and a loud systolic murmur was heard at the base of the heart. Murmurs were also heard in the arteries. Two minutes afterward her pulse had dropped to 76, and the murmurs were still heard. At the end of ten minutes the cardiac murmur had disappeared, but the arterial were still present. I have examined this woman's heart repeatedly, both before and since the bath, but at no other time have I ever heard any murmurs.

Case III. Mr. N., age 24. Pulse on entering bath, 68; on leaving, ten minutes later, 112. The heart murmur produced in this instance was extremely soft and at the base. The arterial




murmurs were loud and could be heard in such arteries as the brachials.

Case IV. Mr. M., age 20. On entering, his pulse was 88. When he had been in the bath two minutes his pulse was 120, and at the end of 12 minutes it was 170. The fact that his heart action rapidly increased after entering the bath and before any systemic effects could have been produced, is attributable to but one thing — excitement. The usual murmurs were heard in this case. At the end of two minutes after leaving the box, his pulse had dropped to 115.

Case V. Miss M., robust woman, age 27. Pulse on entering, 74; on leaving, at the end of nine minutes, 130. After the bath, murmurs were

heard in the arteries and extensively over the heart. The murmur at the apex was quite distinct, and was conducted into the axilla. At the end of six minutes no murmurs could be heard, with the exception of very faint ones over the arteries.

Functional heart murmurs have received much attention. Dr. Morton Prince, in examining candidates for the Boston Fire Department, found many transient mitral murmurs in healthy young men, and he regarded them as the result of excitement, the men being naturally extremely anxious to pass a creditable physical examination. Out of seventy-seven presumably healthy men examined by him, twenty-six presented a systolic murmur with all the characteristics of a mitral regurgitant murmur. McCollom, examining for the Boston Police Department, found twenty-seven mitral regurgitant murmurs in 200 presumably healthy men. Munro for some time had his surgical cases examined before and after operating. He found that in a fair proportion of cases murmurs were found before the operation, and these would disappear after, or if for some cause the operation was postponed for the time being. These functional murmurs were heard at the apex and base, with an accentuated pulmonic second sound. Williams and Arnold found bruits of mitral origin in their examinations of the Marathon runners, and ascribed them partly to a relaxation of the circular muscular fibres surrounding the orifice and partly to fatigue of the papillary muscles. Darling, in studying the effects of training on the Harvard University crews, obtained similar results.

According to the 1897 annual report of the surgeon-general of the army, the report of a medical examining board, convened at West Point in 1894, indicated that a considerable number of cadets had become afflicted with heart disease while at the Military Academy, and the usual character of the disease was reported to be aortic obstruction. These men were found to be "physically disqualified," but were allowed to remain at the academy on probation for six months. A careful investigation was made in each case. The findings of the investigating board, after observing these cases for a considerable time, some of them for three years, was that "The murmur heard in each individual at the time of the examination of these cadets was due to a temporary irritability of the heart, caused by the nervous excitement attending the ordeal of examination."

These observations tend to show that murmurs may be produced in apparently healthy persons by mental excitement and by vigorous muscular exercise. In the cases examined by me it would not seem that there was excessive mental perturbation, at least not in all the cases, and certainly there was no unusual muscular effort, yet in nearly every case murmurs were distinctly heard. I would have experimented with cases of advanced dementia, where there is little capability of responding to external stimuli, and where the factor of mental excitement could have been practically eliminated, at least after their first treatment, but our cabinet is so constructed that cases of this character cannot be safely treated, owing to the likelihood of injuring themselves. As it was, selecting the most easily managed insane patients, all of whom were somewhat demented, though none deeply so, the effects, on the whole, were nearly similar to those produced in the sane persons. The pulse rate of the insane, however, did not, as a rule, run so high as in the sane, and the murmurs did not seem so loud and clearly defined. This may have been due to the fact that as a rule they were somewhat debilitated, and their hearts were not capable of responding so vigorously as were those of the healthy young people. When I began to pay particular attention to the heart in the sane cases, I thought that probably when these same people came to take their second or third baths the mental excitement, whatever it might be, would have worn off and the effects on their hearts would not be so pronounced. However, I could not see that the murmurs were any less distinct or the heart acting any less rapidly or forcibly than after their first experience. Possibly, if a dozen or more baths had been given to individuals, the results might have been different, but the patience of the ordinary mortal is limited, particularly when he is being used for experimental purposes of which he knows little and cares less.

It has been long recognized that many heart and arterial bruits are not organic, and many explanations have been offered. My observations and the series of experiments made with the electric bath have led me to believe that anything which will cause the heart to act rapidly and forcibly, especially where the arterial tension is reduced, will frequently produce these murmurs. In conversation with a medical friend, connected with a large receiving hospital for the insane, I asked, "What per cent of your admission cases have valvular heart disease?" He replied: "The number is large; I should think over 60%." I do not question but that he heard murmurs in a large percentage of his cases, but I do question his diagnosis of valvular disease, and I believe that had he examined his cases carefully after they had gotten over the excitement of admission, and their vascular systems had had time to regain their tone, he would have found that many of these murmurs would have disappeared. Murmurs heard at the time of admission have, under my observation, disappeared, the patient never evidencing any symptoms of heart disease, and the autopsy revealing no evidence of valve defect.

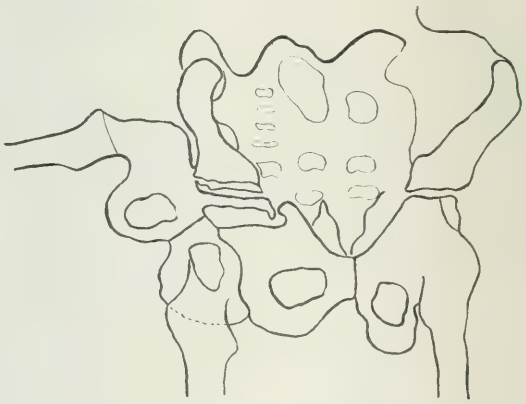
Laennec attributed cardio-arterial murmurs either to an organic or vital condition of the artery — a sort of spasm or tension. Sansom offers practically the same explanation, namely, that, under nervous (vasomotor) disturbance, the arteries may be unequally affected in their calibre, some lengths being contracted, others dilated or of normal size; so that the blood passes from narrower to wider channels. I have noth-



Front.



Third leg (showing appendage).



Tracing of skiagraph of pelvis.





ing additional to offer in explanation of the arterial murmurs produced by the electric-light bath.

As indicated above, the functional mitral murmurs have been explained, and probably correctly, as due to a temporary relaxation of the mitral sphincter, or of the papillary muscles, thus producing an actual but transient mitral regurgitation. The same causes would not be operative at the aortic valve. Providing the anatomy of the aortic valve was such that temporary relaxation might take place, the murmurs would be diastolic and not systolic, as were the murmurs of which I am speaking.

Does dilatation of the aorta assist in the productions of these abnormal sounds? Allbutt, in his "System of Practice," states that he has never heard a murmur in the aortic area accompanying dilatation of the aorta, which could not be accounted for by the condition of the valves. This is probably true of organic murmurs, but it does not necessarily follow that functional ones may not be generated in this way under unusual conditions. If murmurs can be produced in distant arteries, such as the brachial, it looks probable that they may arise in the nearby ones. As to the ability of the aorta to dilate, Cherchevsky states that in normal conditions its diameter varies at different times. He found that tapping with a percussion hammer over the region of the arch caused it to dilate, while tapping in the epigastric region caused it to shrink. The electric-light bath certainly produces a condition of relaxation of the smaller arteries, and probably the larger ones are likewise affected. The murmurs heard by me were frequently louder over the carotids and subclavians than over the heart itself, showing that they were either generated or intensified in the arteries.

Given a condition of a temporarily dilated aorta, a vigorously acting heart rapidly forcing the blood through a now relatively narrow aortic orifice, and it seems reasonable to suppose that vortices should form as the blood enters the artery, and that they in turn should produce the sounds we term murmurs.

## A CONGENITAL MALFORMATION.

BY SEABURY W. ALLEN, M.D., BOSTON.

The subject of these pictures was found in a cheap museum last spring. He was a Sicilian of fourteen years, the oldest of several normal children, and had always been in good health. Close questioning into his family history failed to discover any disease whatever. The incompleteness of the photographs is due to the fact that only a few minutes were obtainable in which to take them, as the boy was leaving the city the same afternoon as when he came to the Boston Dispensary.

The two legs used in walking or standing were perfectly formed, while the third leg, coming off the side and back of the pelvis, was also normal except for the appendage shown in the pictures, a slight atrophy (from disuse) of the calf muscles, and a little bending downward of the femur, from the weight of the lower leg. The third leg was under perfect control, having about 30° of motion at the hip joint. Although in walking, the foot belonging to this leg was carried off the ground, it could be brought backward and downward, so that with all three knees bent it could be used to support the trunk — the position of rest in this manner reminding one of a three-legged stool. The appendage of the third leg was connected with the femur by cartilage apparently, and contained what seemed to be a well-formed metatarsal bone and three phalanges. This was not under control although quite movable. As may be seen in the skiagraph the third foot was normal.

In front there was the usual set of genitalia, urine being passed in the ordinary manner; while behind, between the middle and third legs, there was a well-developed penis with a nonpatulous urethra, also two full-sized descended testicles and a cleft scrotum, the cleft running up and back for two inches and a half, and having the appearance and feel of a multiparous vagina. This cleft was separated from a normal sphincter ani, which in turn was separated from the anterior scrotum by the usual perineal raphe. Therefore, it seems probable that the anus belonged to the anterior genitals, and that the cleft, which leaked urine continuously (the amount not being altered by the voiding of urine from the anterior urethra), was a large vesical fistula, leading to a second bladder. In other respects the figure was normal.

Owing to the leaking of urine (requiring the reversing of the x-ray plate) and the backward direction of the third leg (so preventing a close approximation of the plate to the pelvis), the skiagraph of this region was not very successful, therefore only a tracing of the negative is printed.

The third leg could doubtless have been amputated at the hip joint without difficulty, but at this suggestion the boy's companions were somewhat disturbed, pertinently asking how, if that were done, they could all make a living.

# Clinical Department.

## POISONING FROM THE APPLICATION OF CARBOLIC ACID TO THE UNBROKEN SKIN.

BY J. W. WAINWRIGHT, M.D., NEW YORK.

A very interesting case of carbolic acid poisoning came to the notice of the writer a few weeks since, which he desires to briefly report as follows:

The patient, a gentleman of 50 years of age, very vigorous, weight 225 lbs., applied quite freely of a 4% solution of Calvert's carbolic acid, in water immediately following a hot bath, for the relief of pruritis. He had been using a 2% solution, but at the suggestion of his druggist, this

was increased to 4%. This solution gave temporary relief through its anesthetic effect, with no ill results following previous to this rather more free application than usual.

The bath was finished about 12 o'clock midnight; solution applied at once over the abdomen, pubis, thighs and the lumbar region, with the usual relief. While dressing at 7.30 the next morning a peculiar pain was suddenly noticed, apparently in the bladder. This was quickly followed by greater pain extending through the abdomen. The pain increased so rapidly that the gentleman could not finish his toilet, but was compelled to send servant for a nearby physician, who responded at once. The suffering was so intense that a hypodermic of morphin, ¼ gr., was administered. This, however, had seemingly no effect in controlling the pain, and as the patient was in the most intense agony another ¼ gr. of morphin was injected in half an hour. In the meantime an effort was made to discover a cause for the trouble, but the patient could suggest none. There were frequent chills of a few minutes duration each; a profuse cold, clammy perspiration, vertigo, vomiting and a desire to evacuate the bowels. The eyes were very prominent and fixed, while the writhing indicated great suffering. Hot water was applied, with chafing of the limbs, and a hypodermic of apomorphia given to assist in unloading the stomach of what might possibly have remained. At the end of an hour and a half another hypodermic of morphin, ¼ gr., was given. Vertigo increased with an appreciable paralysis of the lower extremities and complete cessation of the functions of the stomach, bowels and kidneys, no urine being secreted for eighteen hours, slight at first, gradually increased after a hot bath followed by the free application of alcohol externally by friction and compresses. Appendicitis, renal calculus and ptomain poisoning suggested themselves.

At 12 o'clock noon, or four and one-half hours after the attack began, the patient became drowsy, and would doze for a few minutes at a time to be awakened by the recurring lancinating pains. Food and drink were declined. Enemas of hot water were thrown high up into the intestines and retained; no movement of the bowels followed. The pulse was frequent and at times barely perceptible. Skin moist and cold; collapse was feared, and hot applications freely used. Relief from pain began some four hours after the attack, and with decreasing remittance gradually grew less, until at midnight the patient was comparatively comfortable.

An examination of the urine disclosed the characteristic smoky appearance of urine containing carbolic acid, while test showed an abundance of albumin. The appearance of the urine led to the discovery that the patient had applied carbolic acid solution as described, when the diagnosis was easily made.

There was great depression for three days, with evidences of highly inflamed kidneys; the left kidney felt as if it had become loosened from its fastening and was floating. When walking this kidney felt heavy and seemed to move with each step taken.

In ten days the patient was entirely recovered and has experienced no difficulty since. The carbolic acid was evidently absorbed more readily because of the ideal conditions following the hot bath.

## A CASE OF DERMATITIS MEDICAMENTOSA.

BY WILLIAM H. ROBEY, JR., M.D., BOSTON.

THE following case occurred in the service of Dr. George B. Shattuck at the Boston City Hospital:

F. B., 34 years of age; single, a waiter. Entered Oct. 24. Family history unimportant. Past history: Habits fairly good. Denied syphilis. Had an eczema when a boy and an eruption all over the body with loss of hair twelve years ago, similar to one which he had when in the Boston City Hospital in 1888. He was admitted at that time, having had chills seven days before, followed by fever and dry cough; throat dry and parched. No headache, no pain anywhere, no nausea, no vomiting. Temperature 102°, pulse 75, respirations 34. In a few hours after entrance the skin became covered with a scarlet blush, while on the backs of hands and thighs and abdomen many small vesicles appeared, some of them ruptured and some contained puriform matter. The erythematous blush disappeared on pressure. Three days later desquamation began. The diagnosis at the time was "scarlet fever and universal eczema." No history of any medication prior to entrance.

*Present history.*— Had not been out of the central portion of the city for four months. On Oct. 7 began to have chills every other day followed by fever and sweating.

The physical examination practically negative; spleen not made out.

Oct. 25: Blood examination showed simple tertian malarial infection. Urine negative. Oct. 26: Had a chill at 6.30 A.M. The temperature began to fall between 8.30 and 9 A.M., and 15 gr. of quinia were given. About noon the face and hands became quite erythematous. At 6 P.M. the trunk was red; no eruption made out. Oct. 28. The redness had largely disappeared from the trunk and extremities. Oct. 29: Had a rise of temperature at 1 P.M., but did not have any distinctive chill; was given 15 gr. of quinia at 6.30 P.M. and at 11.30 P.M. had a regular chill followed by fever. Oct. 30: In afternoon an erythematous blush began to appear on face and hands; the skin itched and burned, and there was slight ringing in the ears. No plasmodia found. Oct. 31: Leucocytes, 14,600.

Nov. 1: Face and ears covered with desquamation.

Diagnosis of dermatitis medicamentosa, confirmed by Dr. G. F. Harding. Examination of throat negative. Temperature normal.

Nov. 9: Leucocytes, 14,050. Nov. 14: Leucocytes, 11,200. Nov. 17: Desquamation almost complete. Enormous scales on the soles of both feet. General health excellent.

Nov. 20: At 7 A.M. 2 gr. of quinia given. At 10.30 A.M. a slight erythematous blush was seen on face, neck and hands, and at 11 A.M. the patient began to itch and feel uncomfortable. By 12.30 the whole body was covered with an erythematous eruption which faded on slight pressure, that on the penis and scrotum not being as intense as on trunk. The skin felt dry and hot, and the patient was so uncomfortable that at 1 o'clock he went to bed. He said he burned and itched so that he would like to tear his clothes off. At 1.50 P.M. he began to have a chill which lasted about an hour; no malarial organisms found. At 3 P.M. the skin on the back had a fine papular eruption; the color of the whole body was a brilliant scarlet. At 4 P.M. leucocytes, 14,500. At 10.30 P.M. the scarlet tint began to disappear from the face and hands. Nov. 21: Scarlet color fading. Examination of throat showed same erythematous blush as skin. Patient described the sensation in the skin as feeling as if he had been immersed in a vat of boiling water. Nov. 24: Desquamation very extensive, enormous scales falling from all parts of the body. Leucocytes, 9,400.

Discharged well Dec. 9.

## THE SIGN OF "KOPLIC" IN THE DIAGNOSIS OF MEASLES.

BY ENRICO CASTELLI, B.A., B.SC., M.D., L.M. OF DUBLIN, WASHINGTON, D. C.

I DESIRE to call attention to the importance of a special sign that "Koplic," in 1896, described as a premonitory symptom of measles. As is well known, it consists of the presence of grayish-blue patches surrounded by a pinkish-red ring that appear in the mucosæ of the cheeks of people in whom measles will develop within a few days. Such a sign is very useful in the early diagnosis of the disease, especially in adults, where measles is so rarely suspected and where the premonitory symptoms of the disease assume, very often, a more serious aspect than in children. The sudden rise of temperature and of pulse, the conditions of the heart, the appearance of stupor and the presence very often of epistaxis and vomiting make us sometimes think seriously of the possibility of some other infection. I had a case lately in which the intense rachialgia, epistaxis and vomiting made me suspect an infection of smallpox. My suspicion was strengthened by the fact that the patient had just arrived from a place in which smallpox was raging.

Koplic, in the observation of many cases of measles, was able to detect frequently the signs spoken of above, from two to four days before the eruption came out.

In six cases which I have lately seen, two in adults and four in children, I observed the sign of Koplic in one case four days before the eruption, in two cases three days, and in three cases two days before. In the case suspected as smallpox the sign manifested itself three days before the eruption. I used for the examination a frontal mirror and a side light.

# Medical Progress.

## REPORT ON MENTAL DISEASES.

BY HENRY R. STEDMAN, M.D., BROOKLINE, MASS.

### CEREBELLAR CHANGES IN GENERAL PARALYSIS.

RÆCKE[1] has studied the changes in the cerebellum in fifteen cases of general paralysis. In all cases he finds an increase of Bergmann's fibres in the molecular zone. This usually occurs in small areas, but in some places it may reach such a degree as to change the molecular layer into one single mass of fibres. The changes in the granular layer are limited to a greater or less disappearance of the granules; the nervous elements disappear and are replaced by glia tissue. The process may finally become so great that the tissue becomes a thick mass of fibres containing the remains of a few granules. The changes in the white substance are, as a rule, much less pronounced than those in the cortex and occur chiefly about the vessels. In general paralysis the molecular zone is chiefly affected, then areas of the granular zone, and last and least the medullary layer. We must, therefore, assume that the dendrites of Purkinje's cells in the molecular zone are injured in general paralysis, since every increase of the connective tissue must mean a certain loss of nervous elements. The process extends from the periphery inwards, and is more marked in the neighborhood of the vessels. The symptoms of ataxia and inco-ordination in paralysis may be due to these changes in the cerebellum, but the changes in the reflexes could not be brought into any relation with the cerebellar changes.

### ALCOHOLISM AS A CAUSE OF GENERAL PARALYSIS.

In 102 cases of general paralysis observed at Brescia by Seppilli[2] from 1894 to 1900, alcoholism was the sole and exclusive cause of the disease in sixteen. There was no substantial difference in the symptomatology of these cases from that of the ordinary cases. Six cases were of the exalted type, with delusions of grandeur followed by dementia, one of the depressive type, with hypochondriacal ideas, and the rest showed progressive mental enfeeblement. The disturbances of speech had the same characteristics as in the other cases. Diffuse tremor was comparatively rare, and tremor was usually limited to the muscles of the face and tongue. Changes in the pupils were equally common. The course was in all fatally progressive, without remissions, and

[1] Arch. f. Psychi., May, 1901, xxxiv, 523.
[2] Ann. d. Neurol., 1901, xix, 89.

lasting from two to five years. Out of twelve fatal cases five died of marasmus, four of apoplectic attacks, one from uremia, and two from pulmonary affections. In the ten autopsies which were made no changes could be found differing from those of ordinary general paralysis. The chief alterations were thickening and opacity of the meninges, adhesions between the meninges and the cortex, granulations of the ependyma, and atrophy of the brain. Seppilli admits that there are also cases which are manifested by mental enfeeblement and confusion, tremor of the lips and hands, and disturbances of speech, which are similar to the cases of general paralysis, yet which may disappear after complete abstinence from alcohol. General paralysis is an affection which may be the product of different causes, which may either act singly or be associated, giving rise to a general intoxication of the organism.

GENERAL PARALYSIS, SYPHILIS AND MERCURIALIZATION.

Stoddart,[3] in a critical digest on general paralysis and syphilis, concludes that syphilis is so frequent an antecedent of general paralysis, that the nonsyphilitic cases (if such exist) may for the present be regarded as a negligible quantity. At least, we may say for practical purposes that hardly anybody runs the risk of getting general paralysis who has not had syphilis. But the question still remains to be answered, whether general paralysis is due to syphilis *per se*, or to the subsequent mercurialization of the patient which occurs in civilized communities.

CONDITION OF THE BLOOD IN THE INSANE.

Mackie,[4] in 100 examinations, states that in looking through the grand averages one cannot help being struck by the slight departure from normal which exists in the blood of insane patients. Though in some cases slight changes are noted with some degree of constancy, yet they are so insignificant that they do not appear to throw any light on the pathology, or give any indication for treatment in any class of cases. When they do occur, there is good reason to suppose that the alteration in the blood state is quite secondary to the mental change; and further, the examination of the blood in the present state of our knowledge is not even an aid to prognosis or diagnosis, as it is in so many diseases.

THE CEREBRAL LOCALIZATION OF MELANCHOLIA.

Hollander's[5] investigations have convinced him that a certain relation exists between the central area of the parietal lobe, namely, the angular and supramarginal gyri, and melancholic states of mind.

(1) This is shown by over fifty cases of injury to the parietal tuberosity of its neighborhood, which were severe enough to affect the brain or its membranes, and from the fact that half of these cases recovered under surgical operation.

(2) This is shown by the mental symptoms accompanying tumors growing in and limited to this area.

(3) Furthermore, by the effects of inflammatory disease limited to this region.

(4) This is shown by the idiopathic hemorrhage sometimes occurring under the parietal protuberance (subsequently forming false membranes or cysts) after sudden fright, severe mental shock or other depressing emotional disturbance, or in mental diseases ushered in by an attack of melancholia.

(5) It is demonstrated that the symmetrical atrophy frequently observed to take place in the parietal protuberances, is due to a trophic change accompanying a melancholic state of the patient.

(6) Cranial disease affecting this brain area, and congenital and abnormal development thereof, may also originate melancholia.

It is argued that simple melancholia has as its basis a morbid condition of the emotion of fear. This emotion, though all-pervading, must take its start in a limited portion of the brain, which area, when fear is manifested morbidly, as in the different degrees of melancholia, must betoken some lesion. Experimental and anatomical evidence is adduced showing that:

(1) The physical expression of fear and its related states can be produced in animals by the excitation of the central parietal area.

(2) That this same area has a close connection with the sympathetic nervous system and the vasomotor nerves, which are both affected in melancholia.

(3) That in the lesions of this area rise of blood-pressure, alterations of sensibility, disturbances of vision, and cortical blindness may accompany the melancholic state.

THE PSYCHOSES OF PUBERTY.

Dr. Jules Voisin[6] of Paris includes under this heading all mental diseases making their appearance during the period of puberty, from twelve to twenty-two, that period being characterized by sexual maturity and physical and intellectual development. All varieties of psychoses may occur, for hebephrenia does not exist as a morbid entity, this term being reserved for cases of dementia. The mental states which appear at the beginning of puberty are not so serious as those occurring towards the end of that period. The first might be called the psychoses of puberty, and the second psychoses of adolescence. Hereditary predisposition seems to be the predominating cause, and this, with incomplete intellectual development, gives the hebephrenic stamp to the disease.

Melancholia frequently assumes the aspect of stupor, with impulsiveness, obsessions, and imperative hallucinations directed against the patient himself or the people surrounding him. Mania rarely presents mild features.

[3] Journal Mental Science, July, 1901, xlviii, 198.
[4] Loc. cit., January, 1901, xlvii, 146.
[5] Loc. cit., July, 1901, xlvii, 198.
[6] Proceedings of International Medical Congress at Paris, Lecture of Psychiatry.

Dementia occurring early in the period (hebephrenia), described by Kahlbaum and Hecker, has two forms, the severer one presenting symptoms of stupor, dementia, catatonia, and mental confusion (diagnosis often difficult), the milder one being a simple dementia, having to be distinguished from general paralysis, and the dementia of epilepsy. The mental confusion is of a dreamy or visionary type, and presents a great analogy to that associated with alcoholism.

Visionary mania characterizes all the psychoses of auto-intoxication, the nutritional disorder associated with adolescence apparently being the cause. In juvenile general paralysis, ideas of grandeur do not occur, and its course is slower than in the adult form.

Degenerative and neuropsychoses are the most common forms of alienation associated with puberty, and they generally recur in adult life.

### POST-INFECTIOUS AND TOXIC PSYCHOSES.

Binswanger and Berger [7] have studied the acute and subacute psychoses which can be regarded as of toxic or infectious origin. The pathological distinction between these psychoses and those from exhaustion is exceedingly difficult, as both noxious agents act in a similar fashion upon the nerve substance. In all the cases disturbances of the processes of nutrition of the nerve substance are the chief factors in producing the morbid symptoms. In the psychoses which recover without defect the reparable processes of chromatolysis may be regarded as the pathological basis of the affection, unless we wish to assume merely functional changes, but the degeneration of the achromatic substance is regarded by Binswanger and Berger as of far greater importance. The destruction of the fibrillary substance of the ganglion cells leads to severe disturbance of function. This is regarded as an irreparable process, and it may be considered as the pathological basis of the psychoses which end with permanent defect. The process is, however, not actually so schematic, since the nerve fibres, the blood vessels, and the glia cells are also involved. With the fine organization of the nerve cells definite physiological irritations may, in conditions of exhaustion, cause slight alterations of nutrition, and these may lead to extensive disturbances of functions if the irritation be long continued and affect extensive areas of the brain cortex. These disturbances of the nerve substance are at first and in the milder cases slight, and if the nutritive processes improve, there may be complete recovery. In a second group of cases there is only relative recovery with more or less permanent defect. This may result either from slight changes in the nerve substance in a defective brain, or more marked disturbances in a healthy brain. The severest type of the post-infectious and toxic psychoses is acute delirium, which Binswanger and Berger regard as a very characteristic clinical syndrome for which we cannot assume any single etiological basis. Even the pathological findings are not harmonious. They hold that in the development of this condition the individual resistance of the patient to the noxious agents is of decided significance. Although many authorities have found various bacteria in the brain in these cases, the disease is probably not due to any one definite bacterium, nor even to a localization of the infectious process in the brain as the place of least resistance, but the symptoms may be incited by the general infection of the whole body. It is probable, moreover, that acute delirium may be excited by purely toxic processes apart from any infection.

[7] Arch. f. Psychi., February, 1901, xxxiv, 107.

### INDUCED INSANITY.

Meyer [8] maintains that, in order to regard a case as one of induced insanity, the mental disturbance of the first patient must actually be the specific cause of the affection in the second, and that the second affection must present the same clinical picture as the first, and that after the second patient has been separated from the first he shall preserve the same symptoms, and develop them in typical fashion. As a rule induced insanity takes the form of paranoia, and in two cases occurring in husband and wife which the author reports, the paranoia was of the litigation type. The development of other forms of psychosis under such conditions the author does not believe to take place. Heredity seems to play only a slight part, but consanguinity is of greater importance. In one of his cases the mental inferiority of the second individual was marked, but in all cases the similarity of the character before the disease, the harmony of psychical characteristics, and the intimate relations of their inner life were regarded as favoring factors.

### MYXEDEMATOUS INSANITY AND THYROID TREATMENT OF INSANITY.

Pilcz [9] studies the mental conditions of myxedema and finds that the mental disturbances are by no means uniform, all forms of functional psychosis occurring in this condition: mania, melancholia, delusions of grandeur, delusions of hallucinations, etc. He reviews also the cases of insanity not due to myxedema which were treated by thyroid preparations, and he considers that the alleged recoveries are not due to the treatment itself, but that the mental disease itself was one susceptible of recovery independent of the treatment. Of 638 cases collected, chiefly English and American, 110 recovered, 165 improved, 348 were unaffected, 13 grew worse and 2 died.

### CIRCULAR INSANITY.

Schieber [10] divides circular insanity into three forms: First, the double form, where the phases are melancholia, mania, lucid interval; second, the true circular type, where the phases are melancholia, interval, mania, interval, melancholia,

[8] Arch. f. Psychi., February, 1901, xxxiv, 181.
[9] Jahrb. f. Psychi., 1901, xx, 77.
[10] Arch. f. Psychi., February, 1901, xxxiv, 225.

interval, etc.; and, finally, the alternating type, where the interval fails and the depressed and exalted phases alternate. The latter form is the severest and the rarest. Many writers, however, claim that in the so-called lucid interval there is not a complete recovery, but always a certain degree of mental disturbance. The duration of the different phases may vary from one to several days, weeks, months, or even years. He reports the case of a man of sixty-three, a physician who, at the age of fifty-seven, had an attack of vertigo without loss of consciousness, after which he became very irritable. A year later he had a second attack of greater severity followed by repeated slight attacks. After this he began to exhibit daily alterations of his emotional state, being one day exalted, and the next depressed. Two years later he had a third severe attack of vertigo, followed in about a month by a fourth, which resulted in complete hemiplegia. In the absence of any heredity or special nervous taint, the circular insanity in this case was regarded as the result of the second apoplectic seizure. In conclusion Schieber reviews the alleged cases of circular neurasthenia, and fails to find in neurasthenia any condition to explain the exalted mental state and the feeling of well-being observed in the so-called circular cases. These cases, therefore, should be regarded as extremely mild cases of circular insanity.

### ACUTE MENTAL DISTURBANCES.

Sander[11] has made a study of the pathological changes in various acute mental disturbances. These are chiefly cases of acute delirium, which he regards as a group of symptoms having no single etiological or anatomical basis. A large number of the acute mental disturbances which end fatally and which were formerly regarded as acute delirium are cases of general paralysis, or, more rarely, of senile mental disturbance; but in these cases, beside the more or less pronounced acute disease, we always find the characteristic chronic changes, especially in general paralysis. Periodical psychoses sometimes run their course under the form of acute delirium, as in two of fourteen cases observed by him at Frankfort. Sander has made a comparative study of the brain in the cases of various infections in which, during life, there were no marked symptoms except deep stupor toward the end of the disease. In all these cases he found a more or less advanced state of acute disease in the ganglion cells of the brain, but never by any means so universal as in acute delirium. In three cases of acute delirium he found an acute infection by bacteria. In acute delirium he believes that there is a severe toxic action upon the brain, which occurs in a similar fashion in infectious disease, especially in cases of general infection, but which is found in this severity and intensity, especially in regard to the disease of the cells, only in acute delirium. It is still uncertain whether this change is due directly to the bacteria or, secondarily, to the toxins produced by them.

[11] Arch. f. Psychi., May, 1901, xxxiv, 490.

### SPIRITUALISM AND INSANITY.

Henneberg[12] thinks that the so-called spirit writing by the aid of Planchette or similar processes is especially disposed to excite mental and nervous disturbances, in the first place, because spirit writing may be practised without any special preliminary training and at any time by a single person, so that it can be practised immoderately. Then the idea that the writer is under direct influence of the spirit may easily excite the delusion of spiritual possession. Furthermore, the production of automatic movements may also have an injurious effect upon the nervous system. Special symptoms in the arm used in the writing are often observed. Trance conditions may readily give rise to hypnosis and somnambulistic states. The disturbances produced by spiritualism are often of an hysterical nature, but persons disposed to hysteria may often, by immoderate indulgence, fall into more pronounced mental states. He reports eight cases of persons with varying mental disturbances following experiments in spiritualism. These disturbances affect not only persons of pronounced neurotic constitution, but also those in whose previous life there was no morbid predisposition.

### ALCOHOLISM AND CRIME.

Benedikt[13] expresses his dissent from the current views of the unfavorable action of moderate doses of alcohol on nervous function. Discussing the question of excess, he emphasizes the need of distinguishing the various modes of individual reaction. He considers that intemperance is more frequently a symptom than a cause of mental disease; and he insists strongly in the overwhelming importance of economic factors — wages and hours of work — in the alcoholism of the proletariat.

Regarding the attitude of the law towards alcoholic criminals, Benedikt protests against the admission of drunkenness as a ground of legal irresponsibility, except in cases of definite and persistent insanity. Otherwise he would subject the alcoholic criminal to the ordinary penal discipline, supplementing it by treatment in an inebriate asylum. He particularly advocates a classification of cases with a view to the latter treatment; curable drunkards should be dealt with in a reformatory on hospital lines: harmless invalids might be sent to the dement wards of an ordinary asylum; while incorrigible criminal alcoholics, being dangerous to the community, should be confined indefinitely in an institution similar to the criminal lunatic asylum.

### MANIC-DEPRESSIVE INSANITY.

From a critical study of Kraepelin's maniacomelancholic insanity Galdi[14] concludes that,

[12] Arch. f. Psychi., August, 1901, xxxiv, 999.
[13] Allgem. österreich, Gerichts-Zeitung, 1901.
[14] Il. manicomia fasc., 1900, I.

though there is no ground in pathology for opposing mania to melancholia, nevertheless clinically a sufficient number of cases occur in which one condition or the other does exist in well-defined and stable form, and that therefore in a classification based on symptoms it is desirable to retain the two groups, and not to merge them in a single maniaco-melancholic psychosis.

ASSOCIATIONS FOR THE HELP OF THE INSANE.

In these sheets, reprinted from the *Irrenfreund*, Nos. 11 and 12, 1898, Dr. Brosius gives us some account of the associations for the assistance of the insane which have been formed in German-speaking lands. The first of these was founded in Nassau, but was given up on the death of Lindpainterer in 1829. There is one in Vienna which has now lasted half a century, and one in Styria founded thirty-two years ago. There are now nine in the different cantons of Switzerland, some of which are well supported. Dr. Brosius mentions as many in Germany. The Westphalian Association of St. John founded in 1881 the institution for idiots at Marsberg, which now gives shelter to 329 inmates. The common objects of these associations is to help dismissed lunatics, and to give succor to the families of those who have lost their bread-winners through their being sent to asylums. Some of them also give assistance to epileptics who are not insane. Dr. Brosius mentions that Dr. Jules Morel, the physician of the State Asylum at Mons, has exerted himself to found a similar society in Belgium, and Dr. Bourneville has done the same in France. Dr. Brosius observes that, besides the charitable work done by these praiseworthy associations, they have formed a useful intermediary between the asylums and the public, and have helped to dispel the distrust with which asylums are regarded by the ignorant in Germany. The number of "after-care" associations has increased, one having been formed for the Rhine Province.

THE BOARDING-OUT OF INSANE IN GERMANY.

Paetz[15] has an interesting article on the operation of this system in Dun-sur-Auron. Full details of the housing and supervision of the patients are given, with a general description of the whole system. This has been in actual work since 1892, and in March, 1899, some 700 patients were under treatment in Dun Levet and the surrounding districts. Up to the present, women only have been thus cared for. The no-restraint system has throughout been maintained. Senile dementia is the commonest form of insanity among the patients, and with the organic dementias constitutes some 45 per cent of all the cases. Patients with epileptiform seizures, with contractures, and even with hemiplegia, are successfully cared for in this way. It is interesting to learn also that suicidal cases can also be treated on this plan, and, indeed, that the average of suicides is rather under that of ordinary asylum statistics.

[15] Psychi., Woch. No. 1, 1900.

The system of "boarding out" of patients has extended in Saxony,[16] where, mainly by the efforts of Dr. Alt of Uehtspringe, two small asylums, each for 150 cases, are to be built for the temporary reception of patients who eventually are to be boarded out with families dwelling in the neighborhood. One has already been commenced at Ferishow.

## Recent Literature.

*The Roentgen Rays in Medicine and Surgery as an Aid in Diagnosis and as a Therapeutic Agent.* Designed for the use of Practitioners and Students. By Francis H. Williams, M.D. (Harv.). Pp. 658, with 391 illustrations. New York: The Macmillan Co. 1901.

One of the latest textbooks upon the Roentgen Rays in Medicine and Surgery is this by Dr. Williams. In his preface Dr. Williams states that he intends to give a report of progress rather than a final presentation of the subject. It is unnecessary to comment upon Dr. Williams' qualifications. His extensive work with the Roentgen rays is well known to the medical public through his many excellent published articles. He was one of the first in this country to use the Roentgen rays, and by his thoroughness has become an authority.

The author intended to include a complete list of the publications on the medical and surgical uses of the x-rays, but this was omitted because of the lack of space. The book is therefore largely the recital of Dr. Williams' own experience and of his deductions from that experience. While it is to be regretted that it was not possible to give the work of other men more consideration, yet Dr. Williams' experience has been so large that even without that consideration this is a valuable textbook for the student of the x-rays. It would be of even greater value if the process by which certain conclusions were reached were more fully indicated. For instance, it would be helpful to know why, in the author's opinion, one type of machine is better for certain classes of work than another. Dr. Williams may prefer a static machine where another man would prefer a coil. In such cases it would not only be interesting but would also be a great aid in enabling one to decide which machine is the better adapted to his especial work, if the reasons for the preference were given. As a rule they are not made clear.

The scope of the book is wide and covers the whole ground of the x-rays in medicine and surgery. The subject matter divides itself into five parts: Apparatus, the medical uses, the therapeutic uses, the surgical uses and the miscellaneous uses. Each of the most important diseases is taken up in a separate chapter in which the method of using the x-rays in that disease and

[16] Report of Progress of Psychiatry in Germany to Journal Mental Science. January, 1901, p. 152.

the interpretation of the findings are fully discussed. One of the longest and also one of the most interesting parts is that devoted to the various medical uses of the x-rays, and especially interesting is the chapter on Pulmonary Tuberculosis. This part also contains chapters upon Pneumonia, Bronchitis, Pleurisy, Hydrothorax and Pneumothorax, Diseases of the Heart and Thoracic Aneurism. Numerous interesting cases and illustrations are given in each chapter. In the chapter upon the therapeutic uses of the x-rays is given a description of the method employed and a complete list of the diseases in which the x-rays have been used, with many cases and illustrations. In the section upon the surgical uses of the rays, after a preliminary chapter upon apparatus and the methods of examination and a chapter upon the skeleton, Fractures and Dislocations are considered at some length.

There are also chapters upon Foreign Bodies, Diseases of the Bones and of the Joints, Dental Surgery and Calculi. The final chapters include a brief consideration of the Medico-Legal Uses and of the Examination of Foods and Drugs.

The book is attractive in appearance, the type and paper are good and the illustrations are many and excellent. Unlike some, this book has illustrations which illustrate. Altogether, it is a work which everyone interested in the x-rays should own.

*Clinical Hematology.* A Practical Guide to the Examination of the Blood with Reference to Diagnosis. By JOHN C. DACOSTA, JR., M.D., Assistant Demonstrator of Clinical Medicine, Jefferson Medical College; Hematologist to the German Hospital, etc. Containing 8 full-page colored plates, 3 charts and 48 other illustrations. Octavo, 450 pp. Philadelphia: P. Blakiston's Son & Co. 1901.

This book represents a compilation of the knowledge of the blood in health and disease which we possess at the present time. With the exception of a certain number of clinical observations of the blood findings in special conditions, supplementing the records on these subjects already at hand, the work contains nothing new either in fact or theory or in critical consideration of the subject.

It is a question whether special textbooks upon this subject of hematology, of which we have already a considerable number, as also those upon another special branch of clinical examination having to do with the observation of diseases generally, the examination of the urine, have a legitimate place in medical literature.

To our mind, the treatment of this subject should be confined to general textbooks of medicine, where a special chapter can be given to the general subject of the technique and phenomena of the examination in health and disease, while the special findings, peculiar to separate diseased conditions, can be discussed in the articles upon these conditions.

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## A REVIVAL OF THE WATER-GAS QUESTION.

A LAW was enacted in Massachusetts about 1880 providing that no illuminating gas should be supplied to consumers containing more than 10% of carbonic oxide. By means of this provision, the manufacture of water gas was practically prohibited, since this kind of illuminant, as ordinarily made, contains about 30% of this extremely poisonous agent.

About 1883 a movement was set on foot to secure the repeal of this law, so that water gas might be made and distributed to consumers without subjecting the manufacturers to a penalty. The State Board of Health, Lunacy and Charity was ordered to report upon the question of the comparative effects of coal gas and water gas. The investigation was entrusted to Professors Sedgwick and Nichols of the Massachusetts Institute of Technology, and a series of experiments and observations was made which demonstrated conclusively the increased danger from the use of water gas as compared with that of coal gas, when either is allowed to escape unburned into an occupied apartment.

No action was taken by the legislature at that time, but the issue was renewed year after year, the repealers becoming more and more rampant, until 1890, when the prohibitory clause was practically repealed by legislative enactment. This action was taken, notwithstanding the presentation of a vigorous protest from a very large number of physicians, including members of the State and local boards of health, the president of the Massachusetts Medical Society, the surgeon-general, and from nearly every medical examiner in the State.

Works had already been completed for the manufacture of water gas in Athol, Amesbury, Worcester, Charlestown and Boston before the

repeal of the law, and in some of these places it was being distributed before the repeal had been enacted. As often occurs when financial questions are involved, the rule of the almighty dollar prevailed over the interests of life and health. In view of the experience of New York City, Baltimore and San Francisco, where no restrictions had existed, it was quite commonly predicted that the deaths from gas poisoning would suffer a tenfold increase in communities supplied with water gas. One needs only to consult the death records of Boston and cities so supplied since 1890, to find that this prediction has been more than fulfilled.

During the present session of the legislature the agitation in this direction has taken a fresh start, and has finally resulted in the passing of an order by the House of Representatives on March 24, directing the State Board of Health to reply to certain questions by March 31.

The following are the questions as presented to the board by the legislature, together with the replies of the board to the same:

1. What is the most dangerous element of illuminating gas? Carbonic oxide.

2. What per cent. of this element is contained in coal gas? About 7%. What per cent. in water gas? About 30%.

3. Is the dangerous nature of the gas increased in proportion to the increase in per cent. of this element? Yes.

4. How is death caused by inhalation of water gas? State physiological action. Death is caused by changes in the chemical composition of the blood, by the substitution of poisonous carbonic oxide gas for the oxygen which is normally contained in the blood.

5. How is death caused by inhalation of coal gas? State physiological action. While less in degree, the action is the same as in water gas.

6. Is it more difficult to detect a leaking pipe when water gas is used than when coal gas is used? No.

7. If a person is asphyxiated by illuminating gas does the danger increase in proportion to the carbonic oxide it contains? Yes.

8. What are the chances of recovery after removal from the source of poisoning of a person asphyxiated by coal gas? Water gas? Other things being equal, the experience in Massachusetts shows that the chances of recovery under exposure to escaping coal gas are many times greater than they are under similar exposure to escaping water gas.

9. Which is it easier to blow out the flame from, coal or water gas? Why? We do not know.

10. Has there been an increase or decrease in the number of deaths from gas poisoning since the introduction of water gas? A very decided increase.

11. If there has been an increase or decrease, what is the per cent. of increase or decrease? In the thirteen years previous to the introduction of water gas in Massachusetts (1876-1888), the number of deaths registered as due to poisoning from illuminating gas was 8. The foregoing deaths were, so far as can be learned, caused by the inhalation of illuminating coal gas. In the thirteen years following the introduction of water gas (1889-1901), the number of deaths registered as due to illuminating gas poisoning was 459.

12. Has the danger from broken or leaking pipes or mains increased or diminished since the introduction of water gas? It has increased.

13. What per cent. of carbonic oxide is a safe limit for illuminating gas to contain? Further than has been already said in answer to Question 3, that the danger increases with the amount of carbonic oxide present, the board does not know that there is any safe limit.

14. What is the difference in effect of carbonic acid gas and the carbonic oxide of illuminating gas? State physiological effect. Carbonic acid gas produces asphyxia by interference with respiration and with the renewal of the blood by aeration in the lungs; the carbonic oxide gas of illuminating gas effects a chemical poisoning of the blood, taking the place of the oxygen carried in the blood corpuscles and rendering the blood unfit to support life.

15. State number of deaths from gas poisoning in Boston for the last ten years. How does this number of deaths from gas poisoning in the city of Boston for the years 1898 and 1899 compare with the deaths of the last two years, 1900 and 1901? The number of deaths recorded as due to poisoning from illuminating gas in Boston in the ten years 1892-1901, was as follows: In 1892, 13; 1893, 23; 1894, 24; 1895, 23; 1896, 44; 1897, 45; 1898, 58; 1899, 52; 1900, 25; 1901, 15. Total, 322. The deaths from this cause in Boston in 1898 and 1899 were 110; those in 1900 and 1901 were 40.

16. Is there any relation between the deaths occurring in these various years, and the increased or decreased use of coal or water gas? Yes.

17. If there is, what in your opinion is the relation? That of cause and effect, the greater number of deaths corresponding to the increased use of water gas.

18. Does the continuous absorption of gas in quantities not sufficient to cause asphyxiation tend to the development of disease, such as consumption or heart disease, or may it undermine the system so that these or other diseases may find it easy of attack? In the present state of our knowledge, a definite answer to this question is not possible.

19. Is there any difference between the effect of coal gas or water gas in this regard? We do not know.

20. Can coal and water gas be mixed so as to bring the per cent. of carbonic oxide down to a safe point? We have not been able to ascertain this fact by experiment.

It seems incredible, in view of the facts shown in the foregoing reply of the State Board of Health to the Massachusetts Legislature, and especially in view of the answers to Questions 11 and 15, that such a destruction of human life should have been suffered to continue year after year without hindrance. Great excitement prevails over a few cases and deaths from smallpox, but here is a destructive agent which has caused more deaths in thirteen years in Massachusetts than smallpox has caused in twice as many years, the present epidemic included. As long as a strong protective law existed the deaths were very few, but when human greed prevailed, the law was repealed, with the inevitable result of a greatly increased death-rate from this cause.

## THE EDUCATION OF THE DENTIST.

Now that medicine is being split up into various branches, unthought of a dozen years ago, the question becomes more and more pertinent as to the present and future status of the dentist. Is he a special practitioner of medicine, and as such a just claimant for a medical education, or is his work so limited in scope that he can make no such claim? The question is becoming an increasingly important one, and surely permits of a legitimate difference of opinion.

The work of the dentist is essentially surgical; it requires a very high degree of mechanical skill, and as such may reasonably be regarded as a branch of general surgery. Particularly is this true when the palate and contiguous structures of the mouth are included within the scope of his legitimate work. It must be also generally recognized that the dentist should have a general knowledge of bacteriology and especially of the effects of putrefactive organisms; he must know something of constitutional disease in its effect upon bony or other structures in the mouth cavity; he should have a working knowledge of several neuroses, epilepsy, hysteria, hypochondriasis and like conditions, if he is to do his best by his patients. All this means a considerable general medical training, particularly if associated with clinical instruction, as it should be. At present the instruction of the dental student is rather a hybrid product. At the Harvard Medical School, for example, he is taken through many details of anatomy and experimental physiology, which no stretch of the imagination can associate with his later work, and then is denied the privilege of systematic clinical instruction which would unquestionably be of positive service to him. Either the dental student should be taught less or more, or at least less of some subjects and more of others. We respect the demand which many men in the profession of dentistry are making, that they should have more strictly medical training than is usually accorded them. Such knowledge could not in any case be regarded as a detriment, and certainly would tend to dignify the more special work which the dentist is called upon to do. Where the line of knowledge is to be drawn is naturally a matter difficult of adjustment and one which is likely to change more or less from year to year. In the meantime anatomy and physiology might well be relegated to a less conspicuous place in favor of more distinctly practical branches.

There are, on the other hand, certain dentists who regard knowledge extending beyond the mechanical treatment of the teeth as unnecessary and likely to interfere with manual dexterity. It is a subject which naturally the dentists must settle among themselves, but a friendly feeling on the part of physicians and a clearer recognition of the fact that a proper treatment of the teeth implies a certain knowledge of the rest of the body in health and disease, would do much toward placing dentistry where it rightly belongs, as a small special field of general medical practice.

## MEDICAL NOTES.

Gregory Testimonial Banquet.— Dr. A. M. Dockery, governor of Missouri, will preside at the Gregory testimonial banquet in St. Louis, April 17, and will respond to the sentiment of the State of Missouri. Dr. F. J. Lutz will act as toastmaster. Among others, the following will respond to toasts: Drs. DeForest Willard, Philadelphia; Walter Wyman, surgeon-general United States Marine Hospital Service; N. B. Carson, president St. Louis Medical Society; J. D. Griffith, president Missouri State Medical Society; Chancellor Chaplin; W. G. Moore and C. H. Hughes.

Summer School at University of Pennsylvania.— The note last week in regard to the summer arrangements of the University of Pennsylvania Medical School contained some inaccuracies. The courses at this school begin on the 28th of April, are largely practical in nature, and arranged especially with reference to their usefulness to the practising physician.

Cholera and Plague in Manila.— Cholera and plague have appeared at Manila. In three days preceding March 31, ten new cases of cholera were reported, with four deaths. Nearly 100 cases had occurred since the outbreak of the disease. Many cases of plague have also occurred in the city, chiefly among natives.

The German Congress for Internal Medicine.— This association will hold its twentieth annual session at Wiesbaden from April 10 to 15, under the presidency of Dr. Naunyn, of Strassburg.

Deaths from Cholera at Mecca and Jedda. — During the week ending March 31 there were reported 928 deaths from cholera at Mecca and 61 at Jedda.

### BOSTON AND NEW ENGLAND.

Acute Infectious Diseases in Boston.— For the week ending at noon, April 2, 1902, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: Diphtheria 48, scarlatina 11, measles 112, typhoid fever 8, smallpox 20.

Mortality Statistics of Cambridge, Mass. —According to the annual report of the Cam-

bridge Board of Health for the year 1901, just issued, the death-rate for every 1,000 living persons from all causes showed a decrease over the preceding nine years. The deaths (non-residents omitted) numbered 1,574, equally divided between males and females. On an estimated population of 94,000 this made a percentage of 16.72. In 1900 it was 16.87. During previous years it ran from 17 to 19 per cent. The mean annual death-rate for the ten years, 1892 to 1901, inclusive, was 18.35. Scarlet fever shows a decrease of 75 cases from those reported in 1900 and the cases of diphtheria reported show a falling off of 310 cases. During the year there were 607 cases of diphtheria reported to the Board of Health, but the diagnosis was confirmed by culture in only 361 cases. The fact that the clinical diagnosis was confirmed by bacteriological test in only 60% of the reported cases, shows an apparent lack of inclination on the part of the physicians of the city to avail themselves of the facilities of the laboratory. An increase is shown in the cases of measles and smallpox; in the former by 424. Up to Dec. 31 there had been 15 cases of smallpox, 3 of the patients having died. Of cases of typhoid fever there were 96 — a decrease of 15 cases. Pneumonia caused 174 deaths; accident, 59. To carry on the work of the Health Department required about $18,000, with an additional $10,000 for the maintenance of the temporary hospital for treatment of cases of diphtheria.

Crowded Condition of the Long Island Hospital, Boston Harbor.— At a recent conference of city departments, the chairman of the Board of Pauper Institution Trustees called attention to the crowded condition at the Long Island Hospital and the growing need for more room, especially for cases of consumption. To erect the necessary buildings $100,000 would be needed. The mayor is reported to have said that he thought favorably of providing accommodation for cases of consumption; that the $150,000 appropriated for a municipal hospital for consumptives was very inadequate, not being more than enough for the land and foundations alone, but that that of course could not be applied to any other purpose.

NEW YORK.

Insurance Company's Medical Examiner Cannot be Agent of Person Insured.— In an action by Mrs. George Sternaman against the Metropolitan Insurance Company, to recover on a policy on the life of her husband, the question to be determined by the New York Court of Appeals was whether, when an applicant for life insurance makes truthful answers to all questions asked by the medical examiner, who fails to record them as given, and omits an important part, stating that it is unimportant, the beneficiary could show the answers actually given, in order to defeat a forfeiture claimed by the company on account of the falsity of the answers as recorded. It was agreed in Mr. Sternahan's application that the medical examiner, who was employed and paid by the company, should not be its agent, but solely the agent of the insured. The court, in reversing the Fourth Appellate Division of the Supreme Court, holds that while the parties to the policy could agree that the person who filled out that part of the application to be signed by the insured was the latter's agent, they could not agree in this manner in regard to the blank to be used by the medical examiner. The medical examiner of an insurance company is the agent of the company, and not of the applicant. The knowledge he acquires, his interpretation of the answers given, and his errors in recording them are the knowledge, interpretation and errors of the company itself. The company is, therefore, estopped from taking advantage of what it thus knows and what it thus does, when it issues a policy and takes the premium. After stating that the power to contract is not unlimited, Judge Vann, speaking for the court, says: "Parties cannot make a binding contract in violation of law or of public policy. They cannot in the same instrument agree that a thing exists and that it does not exist, or provide that one is the agent of the other, and at the same time, and with reference to the same subject, that there is no relation of agency between them. . . . They cannot by agreement change the laws of nature or of logic, or create relations, physical, legal or moral, which cannot be created. In other words, they cannot accomplish the impossible by contract." Chief Judge Parker and Judge Gray dissented.

The Feeble Minded.— In the thirty-fifth annual report of the State Board of Charities submitted to the legislature on March 17, it is recommended that all feeble-minded children now in various private institutions, where they are supported at public expense, and in county, city and town almshouses, should have the benefit of training in the State Institution for Feeble-Minded Children. That institution is now in the city of Syracuse, but as its accommodations are inadequate, its removal is recommended to a less costly site in the country. Feeble-minded women of child-bearing age who are being supported at public expense should be transferred to the State custodial asylum at Newark, in order that they may have the protection they need, and the various localities of the State may be saved the expense of providing for them and their illegitimate, and frequently degenerate, offspring. Such

women, it is stated, cannot be properly cared for in almshouses, and their continued presence in such institutions is frequently a source of scandal. The enlargement of the Craig Colony for Epileptics is also urgently recommended. According to the latest reports received from the superintendents of the poor, there are now about 500 dependent epileptics, of whom nearly 300 are in county, city and town almshouses, awaiting admission to that institution. The board is of the opinion that no almshouse in the State is properly equipped for the care of this unfortunate class, and that they should all be provided for in the Craig Colony.

HOSPITAL SATURDAY AND SUNDAY ASSOCIATION.— The distributing committee of the Hospital Saturday and Sunday Association met in the mayor's office on March 25 and distributed among the thirty-eight hospitals belonging to the association the undesignated fund of the general collection of 1901, on the basis of free work done by each. The total collection amounted to about $80,000, and, after deducting from this the contributions for specially designated institutions, and a sum sufficient to cover expenses, there remained $60,000 for the general distribution. The hospitals receiving the five largest amounts were the following: Montefiore Home and Hospital for Chronic Invalids, $6,600; St. Luke's Hospital, $6,038; Mount Sinai, $5,351; Roosevelt, $4,346; German Hospital and Dispensary, $3,824.

TEST OF FINSEN LIGHT TREATMENT TO BE MADE.— The president of the New York Board of Health is authority for the statement that the red-light treatment for smallpox of Dr. Finsen of Copenhagen, which was tried for a short time some years ago, with very doubtful results, has recently been under the consideration of the department, and that it is probable that an arrangement will be made for giving the method a more thorough test. Dr. Finsen brought it to the attention of the profession in papers published in *La Semaine Médicale* in 1894, and the *British Medical Journal* in 1895, and in a recent article in *Chamber's Journal*, in which it is described, it is suggested that a thorough trial of the treatment should be made in England.

TENEMENT HOUSE REFORM.— During the recent session of the legislature determined efforts were made by the opponents of tenement house reform to nullify, by amendments, some of the most important requirements of the present law. Fortunately, however, they were unsuccessful, except in one particular, the permission to use as sleeping rooms certain "inside rooms" in old houses, which in the interests of health should not be so used. The attempt to restore the close, narrow airshaft, which in the past has been the cause of more preventable sickness among tenement dwellers than any other factor, failed.

MORTALITY FROM SMALLPOX.— The rate of mortality from smallpox is said to be higher than was the case ten years ago. In the opinion of Dr. S. Dana Hubbard of the Health Department, who was himself in attendance at the smallpox hospital on North Brother Island for two years, the reason for this is that the opening of the new regions in the far East has brought new virus here, and it is the malignancy of this which is responsible. He believes that the existing prevalence of the disease is due to the large amount of travel between this country and the Philippines.

NO RESTRICTIONS PLACED ON LEPERS IN NEW YORK.— In the report of the Leprosy Commission of the Marine Hospital Service, sent to the United States Senate by the Secretary of the Treasury on March 24, it is stated that out of 278 cases of the disease now in this country, seven are in the city of New York, four in Brooklyn and three in Manhattan. While formerly lepers found in New York were isolated, at present no restrictions are placed upon them, as it is held by the health authorities that in this climate the disease has no contagious element.

MINIMUM AGE OF STUDENTS ADMITTED TO STATE EXAMINATION.— Among the bills passed by the legislature and signed by the governor was one providing that medical students admitted to preliminary State examination must be at least nineteen years of age.

## Miscellany.

### HARVARD'S NEW ENDOWMENT.

*The New York Medical Journal* comments as follows on the proposed expansion of the Harvard Medical School:

"A twinge of jealousy on the part of us New Yorkers might be pardonable in view of the fact that so much New York money goes to swell the magnificent endowment of the Medical School of Harvard University, amounting to nearly $5,000,000, but we sink any such sentiment in a feeling of joy that a medical school anywhere in the country has met with such good fortune, and we feel sure that most of us would prefer that it should be Harvard if it had to be any other than a New York school. Harvard is always thought of as associated with Morton's original demonstration of the practicability of surgical anesthesia, with the delightful Holmes, with Bigelow's exposition of the mechanism of the hip joint, and with the same brilliant surgeon's elaboration of rapid lithot-

rity with evacuation. Surely there are few other teaching institutions, if there are any, whose men have so raised and sustained the prestige of our calling, and there is none that more thoroughly deserves to be furnished with all the resources that wealth can command. We are confident that our Boston colleagues realize the tremendous responsibility that has been put upon them. They must speedily make the Medical School of Harvard University the world's greatest institution in the teaching of medicine, and it must become renowned above all others for research as well as for teaching. There is nothing to hinder them; the best men can be attracted from all parts of the country,—from the world at large, for that matter,—and laboratories, libraries and clinics can readily be established on a scale hitherto hardly dreamed of. And the work of the school must not be confined to its material territory; commissions of investigation will have to be sent out from time to time as occasion may arise, tropical medicine will have to be studied and taught, military medicine will have to be highly cultivated, and publications of a high order will have to be issued regardless of the possibility of their being made to 'pay.' All these things, we feel certain, will be amply provided for."

## PATHOLOGICAL EXHIBIT OF AMERICAN MEDICAL ASSOCIATION.

THE Committee on Pathological Exhibit for the American Medical Association is anxious to secure material for the coming session at Saratoga, June 10 to 13 inclusive. This exhibit was accorded much praise and comment during the sessions at Atlantic City and St. Paul respectively, where were collected valuable contributions from all parts of the country. The material included not only pathological specimens, but some from the allied fields; bacteriology, hematology, physiology and biology were well represented. Exhibits of new apparatus, charts, etc., used by teachers of pathology and physiology in medical colleges are also desired. This exhibit has already become a permanent feature of the annual sessions of the American Medical Association, and the committee is desirous of securing its list of exhibits as early as possible, and to this end asks those having desirable material to communicate with any member of the committee. To contribute to the value of the work, it is suggested that as far as possible each contributor select material illustrative of one classification, and by such specialization enhance the usefulness of the display. Those lending their material may feel assured that good care will be given their exhibits while in the hands of the committee, and due credit will be given in the published reports. The committee consists of F. M. Jeffries, 214 East 34th Street, New York City; W. A. Evans, 103 State Street, Suite 1403, Chicago, Ill; Roger G. Perkins, Western Reserve Medical School, Cleveland, Ohio.

## METEOROLOGICAL RECORD

For the week ending March 22, in Boston, according to observations furnished by Sergeant J. W. Smith of the United States Signal Corps:

| Date | Barometer | Thermometer. | | | Relative humidity. | | | Direction of wind. | | Velocity of wind. | | We'th'r * | | Rainfall in inches. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Daily mean. | Daily mean. | Maximum. | Minimum. | 8.00 A.M. | 8.00 P.M. | Daily mean. | 8.00 A.M. | 8.00 P.M. | 8.00 A.M. | 8.00 P.M. | 8.00 A.M. | 8.00 P.M. | |
| S...16 | 30.30 | 48 | 61 | 34 | 92 | 88 | 90 | S E | S | 4 | 16 | O. | O. | T. |
| M..17 | 29.90 | 50 | 56 | 43 | 90 | 88 | 89 | W | N E | 9 | 6 | O. | O. | .79 |
| T..18 | 29.90 | 34 | 43 | 26 | 66 | 47 | 56 | N | N W | 15 | 22 | O. | C. | |
| W..19 | 29.50 | 34 | 42 | 26 | 82 | 67 | 74 | N W | N E | 30 | 26 | N. | O. | .09 |
| T..20 | 29.71 | 38 | 43 | 34 | 77 | 96 | 86 | N W | N | 12 | 5 | O. | R. | .12 |
| F..21 | 29.84 | 46 | 52 | 40 | 88 | 72 | 80 | N | N W | 12 | 6 | O. | O. | .01 |
| S...22 | 29.93 | 52 | 57 | 48 | 75 | 67 | 71 | N | N | 10 | 4 | O. | O. | T. |
| ☞ | 29.87 | | 51 | 36 | | | 78 | | | | | | | 1.01 |

* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow. † Indicates trace of rainfall. ☞ Mean for week.

## RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, MARCH 22, 1902.

| CITIES. | Population * Estimated, 1902. | Reported deaths in each. | Deaths under five years. | Percentage of deaths from | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | Infectious diseases. | Acute lung diseases. | Diphtheria and croup. | Typhoid fever. | Cerebro-spinal Meningitis. |
| New York . . | 3,665,352 | 1,396 | 457 | 24.78 | 14.47 | 2.79 | .43 | .29 |
| Chicago . . | 1,852,828 | 537 | 176 | 22.53 | 16.38 | 1.86 | .93 | — |
| Philadelphia. | 1,349,624 | 476 | 84 | 20.37 | 16.17 | 2.52 | 2.31 | — |
| St. Louis . . | 603,717 | — | — | — | — | — | — | — |
| Baltimore . . | 525,330 | 188 | 57 | 17.55 | 12.23 | 1.06 | .53 | — |
| Cleveland . . | 411,826 | — | — | — | — | — | — | — |
| Buffalo . . | 375,742 | — | — | — | — | — | — | — |
| Pittsburg . . | 341,401 | 136 | 46 | 57.33 | — | 2.94 | 35.28 | 1.47 |
| Cincinnati . | 332,032 | — | — | — | — | — | — | — |
| Milwaukee . | 304.975 | — | — | — | — | — | — | — |
| Washington . | 289,537 | — | — | — | — | — | — | — |
| Providence . | 185,870 | 64 | 12 | 20.28 | 15.60 | 4.68 | — | — |
| Boston . . . | 588,736 | 240 | 69 | 25.85 | 14.59 | 1.66 | 1.25 | .41 |
| Worcester. . | 127.337 | 19 | 12 | 21.04 | 15.78 | — | — | 5.26 |
| Fall River. . | 111.872 | 41 | 19 | 24.39 | 26.83 | — | — | — |
| Lowell . . . | 99,574 | 43 | 16 | 16.27 | 4.65 | 2.32 | — | — |
| Cambridge . | 96,334 | 29 | 7 | 24.13 | 31.03 | — | — | — |
| Lynn. . . . | 71,144 | 18 | — | 16.66 | 16.66 | — | — | — |
| Lawrence . . | 67,275 | 23 | 7 | 8.69 | 26.09 | — | — | — |
| Springfield . | 66,854 | 22 | 5 | 9.09 | 4.54 | — | 4.54 | — |
| Somerville . | 65,882 | 17 | 4 | 11.76 | 17.64 | — | — | 5.88 |
| New Bedford. | 65,574 | 22 | 6 | 13.63 | 40.90 | — | — | — |
| Holyoke . . | 48,065 | — | — | — | — | — | — | — |
| Brockton . . | 43,208 | 11 | 3 | 9.09 | — | — | — | — |
| Haverhill . . | 40,392 | 12 | — | — | — | — | — | — |
| Salem . . . | 36,567 | 11 | 2 | — | — | — | — | — |
| Newton. . . | 36,336 | 13 | 2 | — | — | — | — | — |
| Malden . . . | 35,390 | 2 | 1 | — | — | — | — | — |
| Chelsea. . . | 35,264 | 11 | — | — | — | — | — | — |
| Fitchburg. . | 33,848 | 9 | — | — | — | — | — | — |
| Taunton . . | 32,759 | 8 | — | — | — | — | — | — |
| Everett. . . | 27,114 | 7 | 1 | — | — | — | — | — |
| North Adams | 26,583 | 6 | 1 | — | — | — | — | — |
| Gloucester . | 26,121 | — | — | — | — | — | — | — |
| Quincy . . . | 25,307 | 6 | 1 | — | — | — | — | — |
| Waltham . . | 24,612 | 6 | 2 | — | — | — | — | — |
| Pittsfield . . | 22,311 | 5 | — | — | — | — | — | — |
| Brookline . . | 21,679 | 5 | 1 | — | — | — | — | — |
| Chicopee . . | 20,390 | 5 | 2 | — | — | — | — | — |
| Medford . . | 20,014 | 5 | 1 | — | — | — | — | — |
| Newburyport | 14,478 | 3 | — | — | — | — | — | — |
| Melrose . . | 13,384 | 8 | — | — | — | — | — | — |

* The populations of the cities outside of Massachusetts were estimated on the basis of the rate of growth from 1890 to 1900. Those of the Massachusetts cities were estimated upon the rate of growth from 1895 to 1900, since the State had an intermediate census in 1895. The populations of Gloucester, Marlborough and Newburyport were allowed to stand as in 1900, they having suffered a slight decrease during the five-year period.

Deaths reported 3,433; under five years of age, 999; principal infectious diseases (smallpox, measles, scarlet fever, cerebrospinal meningitis, diphtheria and croup, diarrheal

diseases, whooping cough, erysipelas, fevers and consumption) 808, acute lung diseases 502, consumption 407, scarlet fever 54, erysipelas 13, typhoid fever 76, whooping cough 26, cerebrospinal meningitis 9, smallpox 24, measles 37, diarrheal diseases 75.

From whooping cough, New York 12, Chicago 4, Philadelphia 2, Baltimore 4, Boston 2, Lawrence 1, Quincy 1. From cerebrospinal meningitis, New York 4, Pittsburg 2, Boston, Worcester and Somerville 1 each. From scarlet fever, New York 33, Chicago 13, Philadelphia 4, Pittsburg 4. From erysipelas, New York 4, Chicago 5, Philadelphia 2, Boston 2. From smallpox, New York 13, Philadelphia 3, Pittsburg 2, Boston 2, Cambridge 1, Melrose 1. From typhoid fever, New York 6, Chicago 5, Philadelphia 11, Baltimore 1, Pittsburg 48, Boston 3, Cambridge 1, Springfield 1.

Beginning with January, 1902, the term "great towns" as employed in the Registrar General's Weekly Return of births and deaths includes the seventy-five municipalities of England and Wales which have a population of more than 50,000 in each.

In the seventy-six great towns of England and Wales, with an estimated population of 14,862,003, for the week ending March 8, the death-rate was 20.5. Deaths reported 5,855; acute diseases of the respiratory organs (London) 589, whooping cough 120, diphtheria 89, measles 167, smallpox 92, scarlet fever 52.

The death-rate ranged from 10.1 in Smethwick to 30.4 in Barrow-in-Furness; London 24.6, West Ham 17.4, Croydon 15.1, Brighton 15.1, Portsmouth 20.1, Southampton 15.0, Bristol 19.6, Birmingham 21.2, Leicester 22.7, Nottingham 20.8, Birkenhead 18.6, Liverpool 21.5, Manchester 23.5, Salford 17.9, Bradford 17.2, Leeds 18.6, Sheffield 20.8, Hull 17.4, Newcastle-on-Tyne 16.9, Cardiff 16.4.

## OFFICIAL LIST OF THE CHANGES OF STATION AND DUTIES OF COMMISSIONED AND NON-COMMISSIONED OFFICERS OF THE U. S. MARINE HOSPITAL SERVICE FOR THE SEVEN DAYS ENDING MARCH 20, 1902.

BAILHACHE, PRESTON H., surgeon. Leave of absence for five days from March 13, 1902, under paragraph 179 of the regulations.

MAGRUDER, G. M., surgeon. Granted extension of leave of absence on account of sickness, for one month from Feb. 22. March 17, 1902.

WERTENBAKER, C. P., passed assistant surgeon. To proceed to Lincoln, Neb., for special temporary duty. March 19, 1902.

RUSSELL, H. C., assistant surgeon. Granted leave of absence for five days from Feb. 13, 1902, under paragraph 181 of the regulations.

PARKER, H. B., assistant surgeon. To proceed to Mobile, Ala., for special temporary duty. March 17, 1902.

WHITE, M. J., assistant surgeon. Relieved from duty at the Marine Hospital, San Francisco, Cal., and assigned to special duty at San Francisco from March 19. March 20, 1902.

HOBDY, W. C., assistant surgeon. Detailed as inspector of unserviceable property at Savannah Quarantine. March 14, 1902.

RICHARDSON, T. F., assistant surgeon. To proceed to Philadelphia, Pa., for special temporary duty. March 19, 1902.

CURRIE, D. H., assistant surgeon. Relieved from duty at Hygienic Laboratory to take effect March 29, 1901. Relieved from special temporary duty at San Francisco, and assigned to duty at San Francisco, Cal. March 20, 1902.

HOLT, J. M., assistant surgeon. Granted leave of absence for seven days from March 14. March 14, 1902.

MCCORMAC, J. F., acting assistant surgeon. Granted leave of absence for fifteen days from March 28. March 15, 1902.

WALKER, R. T., acting assistant surgeon. Granted leave of absence for five days from April 8. March 17, 1902.

WETMORE, W. O., acting assistant surgeon. Granted leave of absence for fourteen days from April 3. March 17, 1902.

MAGUIRE, E. S., senior pharmacist. Leave of absence for thirty days granted Pharmacist Maguire by department letter of Feb. 1, 1902, revoked. March 14, 1902.

GIBSON, R. H., senior pharmacist. Granted leave of absence for twenty-five days from March 29. March 17, 1902.

### APPOINTMENTS.

WALTER L. SAVAGE of New York appointed acting assistant surgeon for duty at Buffalo, N. Y., March 18, 1902.

ALBERT F. STUART of Maine appointed acting assistant surgeon for duty at Portland, Me., March 18, 1902.

## SOCIETY NOTICES.

BOSTON SOCIETY FOR MEDICAL IMPROVEMENT.—The society will meet at Sprague Hall, Medical Library Building, on Monday, April 7, at 8.15 P.M.

Papers: Dr. Edgar Garceau, "Tuberculosis of the Urinary Tract." Lantern Slides; Dr. L. R. G. Crandon, "Tuberculosis of the Prostate"; Dr. Paul Thorndike, "Remarks on Tuberculosis of the Testicle, with Report of Cases"; Dr. W. R. Brinckerhoff, "Experimental Study of Leucocytosis in Rabbits." Dr. C. J. Blake will report for the Committee on "The Establishment of an Academy of Medicine."

ARTHUR K. STONE, M.D., Secretary,
543 Boylston Street.

WESTERN OPHTHALMOLOGIC AND OTOLARYNGOLOGIC ASSOCIATION.—The seventh annual meeting will be held in Chicago, April 10, 11 and 12, 1902.

WM. L. BALLINGER, M.D., Secretary, Chicago.

## RECENT DEATHS.

DR. ALBERT HORATIO GALLATIN of New York, a grandson of Albert Gallatin, the Secretary of the Treasury under Thomas Jefferson, died from cardiac disease on March 25, at the age of sixty-three. He was born in the city of New York and was graduated from the New York University. During the Civil War he served as assistant surgeon of the 12th Regiment, and surgeon of the 23d Regiment, New York Volunteers. After the war he devoted himself to scientific pursuits, in which he attained considerable distinction, and at different times he was professor of chemistry in Cooper Union, the Rensselaer Polytechnic Institute of Troy, and the University of the City of New York.

## BOOKS AND PAMPHLETS RECEIVED.

Annual Report of the Board of Health of the City of Worcester, for the Year Ending Dec. 31, 1901. Worcester: Press of F. S. Blanchard & Co. 1902.

The Rontgen Rays in Medical Work. By David Walsh, M.D. (Edin.). Parts I and II. Third edition. Illustrated. New York: William Wood & Co. 1902.

Manual of Antenatal Pathology and Hygiene. The Fetus. By J. W. Ballantyne, M.D., F.R.C.P.E., F.R.S. (Edin.). Illustrated. Edinburgh: William Green & Sons. 1902.

Morphinism and Narcomanias from Other Drugs, their Etiology, Treatment and Medico-Legal Relations. By T. D. Crothers, M.D. Philadelphia and London: W. B. Saunders & Co. 1902.

The International Medical Annual. A Year Book of Treatment and Practitioner's Index. By many contributors. Twentieth Year. New York and Chicago: E. B. Treat & Co. 1902.

Johnson's First Aid Manual. Suggestions for Prompt Aid to the Injured in Accidents and Emergencies. Edited by Fred B. Kilmer. Illustrated. New Brunswick, N. J.: Johnson & Johnson. 1901.

Pneumonia in the Light of Modern Research. By Stephen Smith Burt, A.M., Yale; M.D., Columbia, Professor of Medicine and of Physical Diagnosis, New York Post-Graduate Medical School; Attending Physician New York Post-Graduate Hospital. Reprint. 1902.

Blood Examination Applied to Surgery. By Irving Phillips Lyon, M.D., Instructor in Clinical Medicine, University of Buffalo; Clinical Pathologist to the New York State Pathological Laboratory, University of Buffalo, and to the German Deaconess Hospital, Buffalo. Illustrated. Reprint. 1901.

Pseudomembranous Inflammation of the Mucous Membranes Caused by the Pneumococcus. Review of the Literature and Report of a Case of Pneumococcic Pseudomembranous Exudation on the Mucous Membranes of the Mouth, Tongue, Throat, Nose, Eyes, Glans Penis, Anus, Etc., Complicating Acute Lobar Pneumonia. By Charles Cary, M.D., and Irving Phillips Lyon, M.D., of Buffalo, N. Y. Illustrated. Excerpt. 1901.

The American Year Book of Medicine and Surgery, being a Yearly Digest of Scientific Progress and Authoritative Opinion in all Branches of Medicine and Surgery, drawn from Journals, Monographs and Textbooks of the Leading American and Foreign Authors and Investigators, collected and arranged, with Critical Editorial Comments. By Samuel W. Abbott, M.D., and others under the general editorial cherge of George M. Gould, M.D. Two volumes. Philadelphia and London: W. B. Saunders & Co. 1902.

# Original Articles.

## THE SCHOOL AND THE HEALTH OF SCHOOL GIRLS.

### THE SCHOOL IN ITS EFFECT UPON THE HEALTH OF GIRLS.[1]

BY E. G. BRACKETT, M.D., BOSTON.

When one sees a large number of children during the most important part of their lives, he is impressed with two facts: (1) The large number of girls who are weak, anemic and nervous, and (2) the very marked difference between the condition of the girls and that of the boys, when the procession reaches the developmental stage. At this point there are a large number of girls who are distinctly below par, who show evidences of distinct neuroses, and who are working dangerously near or beyond their fatigue limit. Of the children who apply to the hospitals in consequence of physical developmental defects hardly more than 5% are boys.

That this condition exists is a matter of observation, and to this is being given constant testimony by those who are continually being called upon to care for these conditions, occurring in so large a number of girls during this age. When we look for statistics concerning the health of children at this age we find indisputable ones taken from a large number of observations and carefully recorded. Hertel's investigation of 4,352 school children, found in 3,141 boys 31%, and in 1,211 girls 39%, who had chronic disorders. By commissions appointed in Sweden and Denmark it was found by one that of 17,595 boys 29%, and of 11,646 girls 41%, had chronic disorders. By the other it was found that of 11,210 boys 44%, and of 3,000 girls 61%, came under the same class. It is noteworthy — this report goes on to say — that one-half of the girls were chronically ill in their thirteenth year. Upon entering school 20% were chronically ill; but the curve of illness rises rapidly after entering, until in the eighth year 28% were ill.

Professor Key found that children who had less sleep than the normal amount (which he considered to be from ten to eleven hours for the young children, and eight to nine for the older) showed in the upper classes 5%, and in the lower classes 8%, more cases of illness than the other children. Out of 100,000 English school children, 8% suffered from nervous disorders of various kinds.

It is true that these statistics do not represent the actual condition here with us. They may not be paralleled by ours, but they do suggest grave questions in regard to conditions of child life, and in the minds of the medical profession naturally excite inquiry as to the causes which lead to them.

As a matter of experience and observation, we know that excessive mental exertion during the developing period interferes with the healthy and normal course of development. No special form of disease may show itself then, but the foundations may be laid and be manifested later. On physiological grounds we "know that an organism which does not receive the full share of development which was laid out for it by nature, and which it under favorable surroundings should have had, experiences during its lifetime a reduction of its achieving power and a lessening of its power to resist disease."

With these conditions, so frequently seen among our girls, of physical inability, abnormal development and mental exhaustion, with the accompanying distaste for work, and recognizing that the causes which are operative in them are, excessive mental work, with the resulting development of one part of the organism at the expense of the other; failure to adapt the training to individuals; too little sleep, and too little play out of doors, the question then naturally arises as to the responsibility for this condition. Clearly it is divided between the home and the school. Many of the conditions are beyond the reach of the school, and the co-operation of the home should be expected to supplement the training in school life, which must play so large a part, and, therefore, the home should demand for itself a proportion of the time for that development which the school cannot and is not expected to supply. I refer to family duties, recreation and social associations, without which the child is a machine, and which need not demand an unreasonable amount of time. The household duties which, from necessity, some of the children are expected to perform, are not excessive except in some instances. From a large number of children taken from among the working class there was found an average of less than three hours per week to children between the ages of ten and sixteen.

Recognizing that the school does play an important part in the life of the child we may ask: What is the school demanding of the girl at the time when the physical claims are insistent, and cannot be disregarded without injuring her health and menacing her complete development; moreover, are the demands of the school consistent with a due amount of home life, or do they encroach upon the time which belongs to the parents for the training of their children?

The regular school sessions of five hours a day and five days a week is practically a constant standard, but the amount of outside work varies with the requirements of the various schools. In some of the older schools the figures vary from forty-four to fifty-two hours of required work per week. From two to fifteen hours per week, of outside work, was required of 124 school children of between the ages of ten and sixteen who were requiring attention for their physical condition. This made the minimum five and one-half, and the maximum eight, hours of mental work per day. The question of importance is, whether this amount of work is injurious to children, and par-

[1] Read before the Boston Society for Medical Improvement Dec. 16, 1901.

ticularly is it injurious to girls. The laws of Massachusetts have restricted the working hours of minors to about eight and one-half hours per day, as it deems that amount of physical work all that the developing child should be allowed to do.

Yet we know that the recovery from mental fatigue is much slower than that from physical, but we approach dangerously near or exceed this limit with the severer tasks of mental work, and it would be but natural to expect these long hours should show their effects.

Investigations also have shown that chronic disorders are especially frequent among children whose instruction extends over the whole day, and that the percentage of disease is greater among those who go to school all day, than those who go in the morning only. Hertel found that illness was 7% higher among children who worked excessively than those who worked a usual amount.

It is a known fact that during the periods of accelerated growth there is a noticeable diminution in the power to resist fatigue, and the most important of these periods of growth — when the foundations of the health of the woman are being laid — occurs at a time when excessive demands are often made upon her mental powers. The girl needs an elastic consideration which is not necessary for the boy, for her more delicate nervous organization enables her to carry through an amount of work to a brilliant finish, leaving the results of this in her physique to manifest themselves later. Naturally the records of attendance and number of graduates do not show this most serious consequence.

We would not for a moment wish to underrate the importance nor the effects of the school, but at the same time there is the feature which must at times exert a far-reaching injurious influence, namely, that of its inelasticity. The conditions which are imposed on the whole should not be those which might with safety apply to the selected few, or to the most favored class, but to the average individual who is to make up later in life the bulk of the working force, and we must believe that the school is not accomplishing the most desirable and complete fulfilment of its highest purposes, if our educators do not recognize the necessity of making the training correspond to time and rate of development and growth of both the body and mind.

The school is responsible for much of the conditions found among our women in so far as its demands interfere with the usual and necessary amount of sleep and out-of-door play. It is responsible in so far as by a competitive or ranking system, it increases, during the periods of accelerated growth, its demands on the mental powers, and in so far as it trains the mind at the expense of the body.

It is responsible in so far as this system fails to recognize individual variations in the child, and especially between the boy and girl, and thus fail to adapt the training to the individual need, for not only is the method not adapted to girls as individuals, but not even to girls as a whole.

We can only turn to our educators with this condition which so frequently meets us, and ask if there is not some way by which the need of the individual may be provided for in our public schools.

## THE HEALTH OF SCHOOL GIRLS.[1]

BY ROBERT W. LOVETT, M.D., BOSTON.

So far as theoretical considerations bearing on overwork are concerned, there are certain well-known and well-accepted facts that must be considered.

During the periods of rapid growth, less mental work can be safely required of children than when growth is less rapid or has been finished. The size of the brain in its relation to body weight and to the other organs is much larger during the entire period of youth than at other times. It does not assume a constant relation to these organs until the eighteenth or twentieth year.

Certain physiological experiments upon the working of children's brains must be considered because they have a direct bearing upon the question of the arrangement of studies and the examination question. It was found that there was an increase of 33% in the mistakes made by children in dictation tests given early in the morning and after four or five hours of study and recitation.

In pupils from twelve to thirteen years of age it was found in boys that in the third quarter of an hour of continuous work there began a marked deterioration in their ability to apply themselves to mental work. Taking five hours of interrupted work such as the ordinary school routine furnishes, it was found in a ten-minute test taken every succeeding hour that the amount of work increases up to the third or fourth hour but diminishes in the fourth or fifth, and that the number of pupils making no mistakes decreases from the first to the fifth hour. The fact that the mental processes are impaired by continuous application in the third quarter of an hour of continuous work is too important to be set aside easily.

This bears directly on the question of examinations. Not only is the worry beforehand detrimental, but the stimulating effect of competition is undesirable apart from the well-established fact of mental exhaustion from continuous mental application. It is significant that Ignatieff found that 191 out of 242 children lost on the average three and one-half pounds during the examination period.

The relative endurance of boys and girls is of the greatest significance as bearing on the question. Christopher, in some work recently done in the Chicago schools, tested 5,636 children with the ergograph as to the conditions of fatigue. The ergograph is a machine in which a weight —

[1] Read before the Boston Society for Medical Improvement Dec. 16, 1901.

7% of the pupils' weight — is rythmically raised by the middle finger of one hand. By a recording drum the muscular contractions and their variation are recorded. Not only did he establish a definite daily curve of endurance diminishing toward noon but rising after the noon hour and diminishing again toward night, but he established the relative endurance of boys and girls. The endurance of girls beginning at five years old is slightly less than that of boys of the same age, but the curves remain parallel until about nine, when the girls' endurance diminishes somewhat in comparison to the boys'. At about fourteen a rapid change in the relation of the two takes place, and although the boys' endurance increases steadily till nineteen or twenty, the girls' endurance ceases to any extent from fifteen onward — a most significant fact.

These, to be sure, are theoretical considerations, but they show that children are easily fatigued by continuous mental effort, that frequent and long examinations must be detrimental, and that girls possess less endurance than boys, especially at, and after, the time of puberty.

These are only a few of the many facts accumulated by those who have studied the question. The practical point that concerns us is this, are the pupils, and especially the girls in the Boston schools, overworked? Theoretical considerations may have their weight in the settlement of this question, but practical facts are needed so far as they may be obtained, and I have addressed myself to some of the teachers of physical training and other teachers in Boston and the neighborhood, as persons most likely to form an accurate opinion on this subject. I am largely indebted to them for whatever facts I may have accumulated. Any figures presented relate to the Boston schools.

In the school year ending March, 1901, there were in round numbers 82,000 pupils in the schools — 4,400 in the kindergarten grade, 31,400 in the primary schools, 40,500 in the grammar schools, and only 5,600 in the high schools.

The percentage of pupils absent in each of these grades is interesting, but not, I think, of much significance so far as the question of overwork is concerned. The percentage of girls absent is always higher than that of boys.

| | Average Absence. | |
|---|---|---|
| | Boys. | Girls. |
| In the kindergarten | 22.7 | 26 |
| Primary | 11.2 | 13 |
| Grammar | 7.4 | 9 |
| High and normal | 4.6 | 5.8 |

This means apparently that the further along the pupil gets, the more important his education appears in the eyes of his parents. In the primary and grammar grades there are more boys than girls, but in the high schools the girls outnumber the boys by 700.

I next investigated the question as to how many girls left school on account of ill health, and the figures deal wholly with the normal and high school grade. In three schools of this grade where figures were obtainable, 94 girls out of 1,938 left on account of ill health during the year. These are not all the pupils who leave, however. In one of these schools where 4% of the girls are put down as leaving on account of ill health, in the above list, the total number of girls leaving for all causes was 11%.

These figures are not, I believe, impressions, but are from fairly accurate records. Only 5,600 of 82,000 pupils are in the high schools. They represent a selected class who want a good education; their average daily absence is only 5%, as contrasted with 9% in the grammar grade. The fact that in this selected class one girl in twenty leaves school on account of ill health, is not to be overlooked. But if one waits for the ill effects of overwork to be demonstrated by the breaking down of the pupils, the harm has been done. It represents the end results. If we are to do good we must investigate overwork in its earlier grades.

The next question asked of the teachers was as follows: Do the girls, on the average, in your opinion, leave the school in better or in worse condition from that in which they entered? The answers of the teachers on this point differed widely. One class of seventy-six girls were questioned on this point at graduation. Thirty-nine had been improved, twenty-six had noted no change, eleven were not so well. One teacher replied: "I think the point to be made is not that the girls graduate in a worse physical condition than when they enter, but that they are not as much better and stronger as they should have been made during the critical years from fourteen to eighteen." There is no consensus of opinion that the girls are better when they leave. Some teachers were definite in their statement that they were not as well on the average.

As to the condition of the health in school, in only one school can any accurate record be given in the case of about 200 pupils. Here the attendance was exceptionally regular, with an average absence of about two days per year for each pupil. Yet 30% had habitual headaches. Constipation, cold hands and feet, biliousness or indigestion were each present in from 5 to 15%. The average amount of home study was about four hours (it is thought by the teachers in many instances to exceed this), and the average amount of outdoor exercise sixty minutes. The trip to and from school is, as a rule, counted in this hour by the pupil. This school is, I fancy, not wholly representative, but presents the worse side of the condition.

Much of the so-called overwork, according to these teachers, lies in the home routine and outside duties — late hours, social or household demands, injudicious food, and the like. This is undoubtedly true, and it may be the sum total that is injurious rather than school work *per se*. But the remedy is none the less needed and the school should be corrective in its good effects rather than cumulative in its bad effect.

On one point the teachers of physical training and the other teachers are in accord. The remedy lies in a measure in the development

of physical training in proper school gymnasiums under proper conditions. There is no dissenting voice among them and we must bend to their opinion. Exercises given in a poorly ventilated room between the desks amount to very little but are good as far as they go. A proper gymnasium is important. They are all agreed as to the effect of one in improved health, better mental work, improved physical development, and several have insisted that such a routine induced better home condition in many pupils. The high schools in Boston without gymnasiums are: The Girls' High (1,075 pupils) has a hall, the Girls' Latin (357 pupils) has a hall, the Boston Normal (214 pupils) has not even a special room. In these schools are about 1,650 pupils, mostly over thirteen years old, representing about half of the girls attending high schools in Boston without gymnasiums or proper facilities for gymnastic work, except such gain as may be got by free standing work in an empty hall not intended for the purpose. In no one of the grammer schools, containing 40,500 children, the bulk of whom are between nine and fourteen, is there a gymnasium. Two or three have a little apparatus in the corridor.

Whatever the merits of the school curriculum may be, we must pay attention to the opinion of these teachers as to the remedial effect of proper physical exercise in combating the effects of overwork, if it exists. It seems to be the business of the medical profession to call attention to this, as the general community is not awake to the situation in any sense.

I have not dwelt on the evil effects of examinations, because there was so much to be said on the other question. The teachers are awake to it, and many are minimizing these bad effects. One teacher gives no marks on examinations except passed or failed; the anxiety to attain higher rank than one's neighbor has gone, and the girls have improved. At another school, examinations are arranged so that no girl need take all her examinations during her menstruation. Many of the teachers are awake to the importance of short periods for examinations and long intervals between them. Yet, in a neighboring city, I am told, three-hour examinations are still given to grammar-school children.

In short, the health of school girls about puberty seems to be far from what we would like to see it. It seems the result of school work plus outside demands. The school part should be corrective and not an added burden. The development of proper gymnasiums and a sufficient importance given to physical training seems one important part of the remedy.

VIENNA has lost another of its great men. The death of Kaposi was followed by the retirement of Krafft-Ebing after thirty years' incumbency of the chair of psychiatry, etc. His leave-taking was an impressive ceremony. He will make his home henceforth at Graz.—*Journal American Medical Association.*

## STATISTICS REGARDING HEALTH OF SCHOOL GIRLS.[1]

BY EDWARD MUSSEY HARTWELL, PH.D., M.D., SECRETARY BOSTON STATISTICS DEPARTMENT.

I WAS invited to speak on the statistical aspects of the question under discussion, and more particularly with regard to the number of girls who leave school on account of ill health. I must acknowledge at once that so little scientific study has been devoted to the health of the school population in the United States, that statistics relating to the effects of school life that are at once comprehensive and trustworthy are hardly to be found anywhere in this country. For the most part, the subject has been ignored. Broadly speaking, state and local boards of education render no account to the public of the number of school children who are temporarily or permanently incapacitated by disease, or of the number whose names are transferred from the school rolls to the register of deaths. The deaths of school children as such, at least in Massachusetts, are not required to be recorded by anyone.

It is useless, therefore, to attempt to determine accurately even the crude death-rate of Boston school children, not to speak of special death-rates due to particular diseases. An approximate death-rate may be computed if we assume that the age period, 5 to 15 years, covers what is termed the school age. It must not be forgotten that it is an assumption, since there are some hundreds attending school who are under 5 and several thousands between 15 and 20 years of age; — the school census is taken annually to determine the number of persons in the age period, 5 to 15. Their number in 1900 was 90,144, of whom 77% were in public schools, 16% in private schools and 7% not in school. In 1900 there were 483 deaths of persons of the age period, 5 to 15. By dividing the total deaths of persons of 5 to 15 into three classes proportionate to the number of persons of that age period found in public and private schools and not at school, and then computing the ratio of deaths to the thousand living in each class according to the school census, we find the following approximate death-rates: Pupils in public schools, 6.1 per thousand; in private schools, 5.5; children not in school, 4.9; persons 5 to 15 years of age, (1) including those not in school, 5.4; (2) excluding those not in school, 6.04 per thousand. These approximate death-rates cannot be taken as conclusive, still, they throw a little light upon our question, and suggest that the death-rate of children out of school is slightly lower than that of children in school. They throw no light whatever on the death-rate of persons between 15 and 20 years, which probably includes a relatively large proportion of the girls who suffer from overpressure, if such exists. Sufficient data for computing the approximate death-rate of this class of persons in the city or in the schools cannot be had at present.

[1] Read before the Boston Society for Medical Improvement, Dec. 16, 1901.

It does not appear that Boston's general and special death-rates compare very favorably with those of other great cities at home or abroad, though our general death-rate is lower than it was. Thus, the mortality per thousand inhabitants of all ages in Boston was 20.8 in 1900, against an average rate of 23.3 in the decade 1881 to 1890, in which decade Berlin had an average annual death-rate of 24.5, and London one of 19.1. In 1892 Boston and the London slums had identically the same death-rate, namely, 23.9.

The death-rate for the age period, 5 to 15, is of special significance, as it is the decade of human life in which children grow fastest and death-rates are lowest. Six years ago I had occasion to show that Boston's average annual death-rate for the period 1885 to 1890 per thousand among persons from 5 to 15, namely, 6.6, was high in comparison with the Berlin rate of 4.8 and the London rate of 3.9 for the same 5 years. How it compares with such rates in London and Berlin today, I cannot say, but we may note with satisfaction that in Boston the death-rate for the year 1900 among persons 5 to 15 years of age, namely, 5.4, was 1.2 per thousand less than the average for the years 1885 to 1890.

The death-rates of Boston school girls compare quite favorably with those of Boston school boys, as might be expected on general principles; but lack of time forbids my entering into any argument on the question in this connection. It is the fashion to disparage and criticize the public school system here and elsewhere, but those who aver that public school pupils are heavily and dangerously overburdened have not produced convincing evidence that it is so. In my opinion, neither the critics nor the defenders of the schools are in a position to enlighten the public on the matter, for the simple reason that no adequate investigation of the facts has been attempted hitherto.

So far as I can learn, the only states in which thoroughgoing scientific investigations of the effects of school life upon the school population have been made are Sweden and Denmark. The reports of the Swedish and Danish commissions, made more than ten years since, are most instructive, and abound in statistical tables. We have nothing to compare with them, and are not likely to have unless the medical profession shall bestir itself in ways it has not attempted as yet.

I have not been able to ascertain much that is new in reply to the question "How many girls leave the Boston public schools in the course of a year?" Many boys and girls do leave, but the reasons for their leaving (the number reported as going to work being left out of the account) cannot be stated accurately. In the *Monthly Bulletin of Statistics*, published by my department, there is a table which shows by classes of school, namely, high schools, grammar schools, etc., and by sex the total number of pupils belonging at the end of each month. Another table shows the number of employment certificates given to persons of school age by the school committee from month to month.

The school year begins in September and ends in June. I have made a table showing the number of boys and girls belonging at the end of the several months of the school year, from September, 1899, to June, 1901, 20 months in all — 10 for the year 1899-1900, and 10 for the year 1900-1901. In each year the maximum number of girls in all schools fell in November, the third month, and the least number fell in June, the tenth or last month. The difference between maximum and minimum, which we may term "loss," amounted to 4.8% of the maximum in the first year, and to 5.1% in the second.

As regards all boys, their maximum was reached in November of the first, and October of the second, year, and their minimum fell in June in both years; the loss amounted to 4.9% of the maximum in the first year and 4.6% in the second. In the first year the loss among boys and girls was practically the same; in the second year that of girls was slightly greater, namely, one-half of 1%. This does not suggest that girls as a class suffered overmuch.

As to the several classes of schools, the facts may be stated as follows:

(1) Kindergartens: Maximum enrollment in April, minimum in September, in both years, for girls and boys alike; difference between maximum and minimum, or loss, equalled 13.1% of the maximum in the first, and 13.9 in the second, year, for girls, against 11.9% the first, and 13.4 the second, year, for boys.

(2) Primary schools: Maximum in January, minimum in September, for girls and boys alike, in the first year; second year, maximum in January, minimum in September, for girls, and for boys maximum in April, minimum in September; the loss equalled 4.8% of the maximum in the first, and 3.5 in the second, year, for girls, against 5.4% in the first, and 3.6 in the second, for boys.

(3) Grammar schools: For girls, maximum in October, minimum in June, first year; maximum in November, minimum in June, second year; for boys, maximum in October, minimum in June, first year; second year, maximum in January, minimum in June; the loss was 5.9% of the maximum in the first, and 5.7 the second, year, for girls, against 6.7 in the first, and 6.3 in the second, year, for boys.

(4) High and Latin schools: For boys and girls alike in both years the maximum enrollment fell in September and the minimum in June; the difference between the maximum and minimum equalled 20.1% of the maximum in the first, and 20.9 in the second, for girls, against 20.5 in the first, and 19.8 in the second, for boys.

(5) Normal school: Pupils all females, and mostly young women over 19, the maximum enrollment was in September and minimum in June in both years; the loss amounted to 28.8% of the maximum in the first, and 42.9 in the second, year. The increase of loss in the second year is explicable on the ground that the requirements for en-

trance and continuance in the school had been raised.

The proportional losses do not vary widely in the two years under review, and the figures I have given do not justify the supposition that a disproportionate number of girls are obliged to leave the Boston public schools because of impaired health. Excepting the normal school, which should be regarded as a technical or professional school, the largest annual losses, in any class of schools, are found in the high and Latin schools. There the losses are considerably larger than in the lower schools. If overpressure exists, they are the schools in which we should expect to find evidences of it.

If any class of public schools need to be investigated with a view to determining the effects of school life upon the health of girls or boys, that class is the class of high schools.

I venture to say that the medical profession is fully as responsible as the educational authorities for the present neglect of school hygiene and the undeveloped state of vital statistics relating to the school population. At the same time, the physicians are somewhat more fully alive than the teachers to the needs of the situation.

## THE EFFECT OF PUBLIC SCHOOL EDUCATION UPON THE HEALTH OF THE COLLEGE GIRL.[1]

BY JANE KELLY SABINE, M.D., BOSTON.

Those who have preceded me in this discussion have pointed out the dangers to the health of growing girls in our public school education.

We are now to consider the effect upon the college girl. She enters with the same neurotic tendencies that she acquired in school life. These may progress to such an extent that they culminate in a breakdown. On careful questioning by the physician it will be found that the foundation of ill health was laid, in the majority of cases, during the age of puberty. Another may, by rigidly conforming to the rules of health, maintain such an equilibrium of her forces, that she leaves the institution in much the same physical condition as when she entered. Still a third, who starts with delicate health, will gain during the added years of study, and go out into the world a stronger, more robust woman.

A medical adviser today who makes a physical examination of girls, when they come to college, broadly divides them into two groups — athletic and non-athletic.

It is ten years since Dr. Sargent had modeled a statue representing the typical American student — the 50% class. Were he to have one made of the same percental grade now, the proportions would have to be changed. The type would be better because of the influence of gymnastics and athletics in the lower schools. Bicycling, golf, and increased interest in all out-of-door sports have also done much to raise the standard. Nevertheless, the faults of the American type would still be marked, namely, flat chest, hollow back and prominent abdomen.

Observation of 2,000 students in finishing schools and college, gave the following tabulated results: Thirty per cent. were either wearing glasses or ordered to have their eyes examined by a specialist; 6% showed defective hearing; 4% had flat-foot; 5% had weak lungs; 4% had heart trouble; 2% had kidney lesions. Menstrual difficulties were the most marked: 75% were found with irregularities dating from puberty; 60% had to give up from one-half to two days, and 90% had leucorrhea. Of those whose records were kept of four yearly examinations (up to the beginning of the senior year), 30% showed marked improvement, 30% were not influenced either way, while 40% were not improved.

Since these defects date to the time when menstruation first takes place, when habit neuroses are most easily formed, when morbid sensitiveness keeps the girl at work in school, the reconstruction in her education must be made in the preparatory schools. For whatever position in life she is to occupy she needs good sound health. Education at the expense of health is worthless. A sound mind in a sound body is a priceless possession. The college girl should represent that type.

[1] Read before the Boston Society for Medical Improvement, Dec. 16, 1901.

# Clinical Department.

## MASSACHUSETTS GENERAL HOSPITAL. CLINICAL MEETING OF THE MEDICAL BOARD.

Regular meeting, Dec. 20, 1901, Dr. C. B. Porter in the chair.

Dr. H. F. Vickery reported the following case:

### ATELECTASIS OF THE RIGHT LUNG, DUE TO A FOREIGN BODY IN THE RIGHT PRIMARY BRONCHUS.

A boy, age six, had a bean in his mouth when he was knocked down by a companion, and the bean was drawn into the trachea. He was admitted on the surgical side, under Dr. Harrington's care, and Dr. Harrington very kindly invited me to examine the boy. I saw him on July 5, the day after the accident. At that time the right chest was decidedly smaller than the left, and the heart drawn over toward the right side; relative dulness existed in the right lung, and respiration was nearly absent. What respiratory sound there was was of a harsh bronchovesicular character. If we had not been sure from the report of Dr. Lord, my chief house officer, that the day before the conditions had been different on that side, it would have seemed possible that the lung was in a chronic state of collapse. I agreed with Dr. Harrington as to the advisability of trying to get the bean from the right primary

bronchus. I have examined the boy tonight, and one lung is exactly as good as the other.

Dr. F. B. Harrington: This boy has come out of a condition which we recognize as an extremely dangerous one, and that is due to a method I think devised by Dr. Coolidge, certainly practised by him in one or two cases, by which it is possible to remove a foreign body from a bronchus. The boy was given some ether and the trachea opened; then this urethroscope was passed down into the trachea, and with a reflector it was possible to see the bean. It was down beyond the bifurcation, and the bean apparently filled up the entire bronchus. The bean which was removed has disappeared, but here are some beans which resemble it very much. Here is a moistened one, and this is the condition in which the original bean was when taken out. It was not difficult to accomplish, although I had to make several attempts. Before the removal of the obstruction the chest on that side was much flattened, the bean allowing air to escape on coughing, but preventing its return on inspiration. The chest on that side appeared like a chronic deformity, but this deformity disappeared at once on a removal of the obstruction.

Dr. Vickery also reported a case of

POSSIBLE GASTRIC CANCER.

The next patient I would like to speak about is a man, forty-five years old, who for four years before entrance had been cutting rubber. His family history is good, and his habits are fairly good. His previous health had been such that he had never lost a day's work up to his present illness. He had suffered from indigestion occasionally for fifteen years; within the last year there had been constipation and gradual loss of weight. There had been no loss of blood. His best weight having been 172 lbs., he weighed 125 lbs. a week before entrance. Ten days before entrance he had been nearly overcome by the heat, and had drunk excessively of ice water, and from that time his digestive symptoms had become aggravated. For five days before entrance he had vomited almost everything that he had eaten. Upon entrance he was almost moribund, and unable to receive nourishment. One could just feel his liver and spleen; he had a white count of 12,800. His stomach showed stagnation of the gastric contents, it held 76 oz., and secreted no hydrochloric acid; there was lactic acid present. I think he would have died except for rectal enemata and infusions of salt solution. After several days of daily infusions of between one and two pints each day underneath the skin he gradually improved, so that I thought he might be able to endure an operation, and asked Dr. Harrington to see him in consultation. I ought to add that we felt a mass in the right epigastrium, which we supposed to be cancerous. Dr. Harrington agreed that an operation was advisable.

After his operation the man went to the Convalescent Home at Waverley weighing 117 lbs. He now weighs 136½ lbs. I saw him again at the end of October. He looks really better today than at that time. There is still something to be felt here. There are glands in the neck and at the elbows.

Examination made Dec. 27: Six hours after an ordinary meal, the stomach was empty, the wash water returning clear, except for a very little coarse granular material. There was no blood nor mucus. The odor was slightly sour. The capacity was 60 oz. One hour after an Ewald test breakfast, there was 1 oz. of expressed contents of a sour odor, slightly acid and showing a little mucus, and much granular matter (bread). There was no lactic acid and no hydrochloric acid, either free or combined; the total acidity was .15.

Dr. F. B. Harrington: The operation was a gastro-enterostomy. The jejunum was attached to the posterior wall of the stomach by a double row of silk. He bore the operation well, and on the second day took a little water. He had nothing in the way of nourishment until the ninth day except the rectal feeding. He went to Waverley in two weeks. On opening the abdomen I found a tumor the size of a good-sized lemon near the pylorus. The omentum was studded with masses which appeared like a cancerous growth, and the transverse colon was studded with small masses apparently secondary to pyloric growth. If the disease were not cancer, I am sure I do not know what it was. The man's condition, as you can see, is remarkably good. There is a mass to be felt near the pyloric end of the stomach. I did not remove any of the glands. The man's condition was such that I did not feel justified in even removing enough for diagnostic purposes.

Dr. Vickery also reported a case of

PERNICIOUS ANEMIA WITH ALBUMOSE.

This patient, age 47, came to me in private and complained that for a year he had lost strength and that his friends told him he was pale. There was a "pumping" in the left side of his head and he easily got short of breath. The "pumping" was due to anemia and a feeble, dilated heart. The first time I saw him I tested his urine and found albumose. With nitric acid I got a very thick precipitate, and then I took some of the urine and boiled it, thinking I was going to see the contents of the test tube solidify, but as soon as it boiled very hard I only had a trace of albumin; at first I could not think what it was I had. It becomes cloudy very quickly, rather sooner than ordinary albumin, and on further heating becomes almost transparent. In this case there is some albumin along with the albumose. So far as the diagnosis of the case goes, probably it was a pernicious anemia. The blood had many of the characteristics of that. There was an excess of lymphocytes and a good many rather large red cells and there was no leucocytosis. The count was always pretty near a million and the man

looked like a case of pernicious anemia. There was no evidence of any bone disease. He had retinal hemorrhages. The x-ray showed a dilated heart.

DR. WALTON spoke on

THE BABINSKI AND SCAPULAR REFLEXES.

This case offers a good illustration of the importance of care in testing for the Babinski reflex. The patient has a typical hemiplegia of the right side. A quick stroke on the sole produces no definite result when a blunt object (knife handle) is used; even when a pointed stick is used with a quick, light stroke the only response is flexion of the small toes, and either no movement of the great toe, or a mere suggestion of extension. But when I draw the well-sharpened end of an orange stick slowly forward the entire length of the sole, using a fair degree of pressure, the great toe becomes more and more extended until, at the end of the stroke, it stands almost at a right angle with the other toes. This is the complete Babinski reflex, which, with very rare exceptions, points to organic disease of the pyramidal tract. The reflex is best brought out in this, as in most cases, by making the stroke along the outer edge of the sole. It also appears in marked degree when the stroke is made over the ball of the sole at the base of the great toe itself. In some cases the latter stroke alone brings the reflex out satisfactorily.

The scapular reflex is not yet established as an important diagnostic aid, nor have we yet become familiar with its technique or its significance. This reflex consists in contraction of the deltoid, particularly its posterior bundle, on striking the edge of the scapula with the percussion hammer. It is supposed to be best elicited by a blow upon the inner lower edge of the scapula, the arms, meantime, hanging loosely forward. In this case of hemiplegia the reflex is so active on the paralyzed side that a tap on the surface of the scapula at the root of its spine causes an active elevation of the arm. The reflex is also produced by a tap of the inner edge of the scapula, but less actively. I have often noticed this peculiarity of the reflex, and am not yet quite satisfied that it is essential to make the blow at the edge instead of the surface of the scapula. It is to be hoped that the surface blow will prove equally efficacious, for it is certainly more convenient, especially in stout persons. The reflex is also active, but less so, on the unparalyzed side, just as the knee jerk is exaggerated on the unparalyzed, though less so than on the paralyzed side. The scapular reflex is said to be practically always present in a certain degree in health, its absence pointing to relaxed condition of the parts, but I have not yet been able to satisfy myself of these facts. Its exaggeration, however, like that of all the upper extremity reflexes, has proved of value in spinal cases as indicating lesion of the pyramidal tract such as is present in amyotrophic lateral sclerosis. This is illustrated in this young man with atrophy of shoulder group muscles.

DR. WALTON also presented a case of

MYOKYMIA.

The third case may be regarded perhaps rather as a medical curiosity, but its study has a very practical bearing on the prognosis of fibrillary twitching. This man has had persistent muscular quivering for the past five years, without atrophy or loss of power. The calf muscles are most affected, but muscles in practically all parts of the body are subject to the quivering, which is identical with that of progressive muscular atrophy. There is no wasting, and the patient, as you see, can stand on heels and toes, and make every movement perfectly.

There is tendency to prolonged contraction on the application of both faradic and galvanic current, which removes the case from the psychoses. This condition has been named myokymia (from the Greek, "a wave") and has been known to persist unchanged for twenty years, and again to disappear gradually. It has followed poliomyelitis, lead poisoning and sciatica, but in this case its appearance was spontaneous. The condition is not to be confounded with paramyoclonus multiplex, in which the spasms are bilateral, symmetrical, and involve whole muscles, more particularly those connected at one or both ends with the trunk. It has nothing in common with the electric chorea of Dubini, an endemic, generally fatal disease, or with the fibrillary chorea of Morvan, a disease of childhood and early life accompanied by constitutional symptoms. Temporary quivering of this character is not uncommon in health, and those cases of myokymia show that even when persistent it is not necessarily in itself of grave import.

DR. H. H. A. BEACH reported a case of

GIANT-CELLED SARCOMA OF LOWER JAW.

I present this case simply to show what little deformity may follow some operations of the lower jaw. A boy thirteen years old, while playing football one and a half years previous to entrance, received a kick upon the jaw. Entered the hospital Oct. 11 with a purplish mass the size of a hen's egg extending from the first molar tooth on the right to the first bicuspid on the left side. A specimen excised under cocain was pronounced by Dr. Wright to be giant-cell sarcoma.

*Operation, Oct. 12.*—Patient etherized. Placed in the sitting position. Lip incised in the median line and dissected off jaw on either side. Section of the jaw, just in front of angle on right and half-way to angle on left. The mass was dissected out and the mucous membrane closed. He was discharged Oct 27, after an uneventful convalescence, with a small sinus, which soon closed. Upon close inspection, only the line of incision can be seen. The space left in front by the excision is closed by the approximation of the remaining bone, which makes a symmetrical chin and permits easy mastication.

The next case is one of general peritonitis with *streptococcus infection.* The boy is unable to be

moved to this room, but I will present his interesting chart. He was out skating on Wednesday afternoon. Upon that night pain began in the epigastric region, which became localized in the right iliac region. Abdomen was distended. On Saturday he entered with a temperature of 100.8° F., pulse 160, respiration 50, and dulness in right iliac region. Quickly prepared for operation. Laparotomy. Abscess found in the appendix region and pus as high as the stomach. Intestines deeply congested and exhibiting flakes of lymph. Cultures taken found to be numerous colonies of *streptococci*. Careful washing with large amount of salt solution; abundant drainage. His condition was critical for ten days after the operation, with high pulse and temperatures. Both have gradually lessened to the present time, when he is convalescent. At the present time he is walking about.

Dr. Beach also reported a case of

RENAL CALCULUS.

The patient a woman of 49 years, married. For five years she had suffered from frequent attacks of intense pain in the right lumbar region, radiating to the umbilicus and down the right leg, requiring morphia and chloroform. On one occasion passed blood and a stone (the size of a bean) in the urine. There was a mass to be felt in the right side, firmer than the kidney of the other side. It was somewhat tender upon deep pressure and was the seat of the pain described. An x-ray examination was made, and the plate shows fairly well the spinal column, ribs, crest of the ilium, and on the right side a few shadows that suggest the presence of calculi. The urine collected by the Harris segregator showed that the right kidney secreted only one-third as much urine as the left. Both specimens contained a very slight trace of albumin and some pus, but the urine from the right kidney contained a greater quantity of pus than that from the left.

*Operation, Nov. 21.*— Incision four inches long in the right loin down to the kidney, which appeared small and gave a grating sensation on palpation. Incision into a fluctuating spot on the surface disclosed a pocket containing two white, oblong-shaped stones, the long diameter of which was an inch and a quarter, and two ounces of pus. Further exploration discovered two other stones of similar size and some smaller fragments. The sound was then passed through the ureter to the bladder, showing that the ureter was clearly open. The wound was washed with salt solution, packed with gauze and partly closed. Recovery uneventful. All wicks out on the fifth day. The wound has healed, all but this small granulating surface, and no urine now comes through the lumbar wound. The quantity passed varied between 35 and 48 oz. after the week following operation. On Dec. 3 analysis showed a considerable quantity of pus, which by the 20th had become minute in quantity — the specimen containing only a trace of albumin.

Dr. C. A. Porter showed and reported a case of

PISTOL SHOT WOUND IN STOMACH, INTESTINES AND MESENTERY IN BOY, SUFFERING FROM TABES MESENTERICA. OPERATION; COMPLETE RECOVERY, COMPLICATED BY PNEUMONIA, EMPYEMIA, AND A SEVERE BURN.

Jacob White, colored, age six, was brought to the accident room on Nov. 22, 1901, with a history of having been shot in the belly, just above the navel, with a 32-calibre revolver, at a distance of a foot. He had eaten five hours previously, and vomited portions of this food immediately after the accident. There was no blood. On admission he suffered from considerable shock; the temperature in spite of this was 103.8°, pulse 164, respiration 38. This examination was made two and one-half hours after the accident. At this time he vomited a small amount of greenish fluid, unstained by blood. The pain, which at first had been moderate in amount, at the time of the examination was agonizing, referring to the epigastrium and abdomen. He was very restless, with knees drawn up, tip of nose cold, respiration shallow and thoracic, with grunting expiration. Heart normal, apex in fourth left interspace, mammillary line. Lungs normal, except for dulness and diminished respiratory sounds in left lower back. The abdomen was moderately distended, rigid, tympanitic, except in left loin, where there was a distinct dulness over an area the size of the palm of one's hand. Liver dulness was present. Tenderness most marked in umbilical and epigastric region, less marked in other parts of the abdomen. Just above, and to the left of the navel, was a ragged hole filled with powder grains. From it a small piece of omentum protruded. There was no wound of exit. The urine was normal. Under ether, the following operation was done four and one-half hours after the accident. The projecting piece of omentum was cleaned and cut off. A six-inch incision was made through the left rectus muscle, including the bullet wound. On opening the abdominal cavity, no gas escaped, the intestines were found moderately distended, and showed everywhere marked injection of the lacteals, evidence that intestinal digestion was not complete. In the left flank, under the dull area, a pint and a half of clotted blood was evacuated. The whole abdominal cavity was thoroughly flushed with saline solution, and a systematic examination of the intestines for perforations followed. In brief, two wounds were found about the middle of the ileum, situated half an inch from the mesenteric attachment. These were partially occluded by pouting, blood-stained mucous membrane. Three feet from the duodenum, another pair of perforations were found. There were three perforations of the mesentery, which was full of tuberculous glands, varying in size from an English walnut to a pea. One of these glands had been lacerated and cheesy pus exuded. Two perforations of the stomach existed, the anterior about two inches

from the greater curvature in the median line. The wound of exit on the posterior wall was directly opposite, immediately evident on opening the lesser peritoneal cavity, between the stomach and transverse colon. This cavity contained some clotted blood, but no stomach contents. All of the intestinal and stomach wounds were sutured with interrupted Lambert stitches. The wounded tuberculous glands were sponged with peroxide of hydrogen, and several bruised areas on the colon and in small intestine were wiped dry. After another thorough flushing with saline solution, a wick was placed behind the stomach, and the abdominal incision rapidly closed. The whole operation was completed in forty-five minutes.

To one who was watching the convalescence, its stormy course was really of great interest. I will speak, however, of only a few points which rose during it. For several days the boy did well under rectal feeding, and small doses of brandy and bicarbonate of soda solution by mouth. On the fourth day liquids were taken regularly by mouth, and the enemata stopped. It was thought at the time of operation, from the dulness in the left base, that the bullet had probably penetrated the diaphragm. This seemed more likely, as consolidation soon spread, and involved the whole left base, with fever, rapid respiration and high pulse. This proved, however, not to be the case, and it was found three weeks afterwards that the bullet, instead of lodging in the lung, had passed downwards and to the left, as was shown by an x-ray, and was situated close to the left sacroiliac synchrondosis. The pneumonia spread from the left base to the left apex, involving at one time the whole lung. This gradually cleared up, with a small amount of fluid at the base. The abdominal wound did well, wicks were not touched for two weeks, and there was at no time any evidence of intestinal leakage. At the end of three weeks, before the x-ray had been taken, bacteriological examination of the boy's sputum, of pus procured by aspiration of the empyema, pus procured from the abdominal wick, gave us relatively sure evidence that the abdominal wound did not communicate with the lung.

Dr. Smith examined the sputum, and found it loaded with pneumococci, without streptococci. Examination of the empyema pus showed the same organism, whereas examination of the pus from the abdominal wound showed an absence of pneumococci and numerous streptococci. During these three weeks the boy's high fever curve and general bad condition were undoubtedly complicated by a serious hot water burn on the left wrist, from which there was a profuse discharge of pus, the slough, on separating, leaving the tendons bare.

In addition there developed, four weeks after his operation, a tendon mass in the left iliac region, to be felt by rectum as well as abdominal examination, accompanied by high fever, a white count of 44,000, and symptoms of intestinal obstruction. Visible peristalsis, distention, diarrhea, alternating with constipation. The question of operation upon this mass arose, as the boy's condition seemed absolutely desperate. He had wasted to skin and bones, refused nourishment, and Dr. Shattuck, who saw him in consultation with me, thought that he would not live more than two days, and advised strongly against any operative interference. To this wise advice I think the boy's ultimate recovery was due, for he soon picked up under cod liver oil inunctions, naked sun baths, the temperature, pulse, etc., gradually improved, and the mass disappeared, without at any time showing evidence of having discharged itself into the intestine.

On Jan. 13, seven weeks after operation, the boy was very well, and about in a wheeled chair. On Feb. 24, three months after operation, he was discharged, the wound entirely healed, no evidence of intestinal obstruction, only a slight, not tender, mass near the left pelvic brim, the wrist burn soundly healed, the lungs normal, except in thickening of the pleura at the left base. There was a slight bulging of the somewhat stretched scar.

In short, it seems in résumé, as if all the intestinal and stomach wounds healed soundly. The boy developed a pneumonia which had nothing to do with the wound, and from which there resulted a small empyema. The bullet probably caused an abscess near the left pelvic brim, which caused the distention and intestinal obstruction. This abscess gradually was absorbed, without discharging its contents. Whether there developed in addition any tuberculous infection, from the injured glands, cannot be stated. His present condition you can see. He is perfectly well, except for an occasional slight cough, and goes to school and plays with the other boys.

DR. J. C. WARREN spoke upon

REMOVAL OF COINS FROM BRONCHI.

The case reported by Dr. Harrington suggests to my mind a case I had in my service last winter which showed this method of removing a foreign body from the right primary bronchus, devised, I think, by Dr. Coolidge, to be superior to anything for that purpose. The case that brought the idea to my notice was a man juggling with a ten-cent piece and he breathed it down into his lung. He was operated upon in another city by tracheotomy low down, and an unsuccessful attempt was made to reach the coin. The next day he was sent to the hospital; condition good; he was a strong man. I asked Dr. Coolidge to see the case with me. I was thinking over Bryant's operation, which consists in an incision through the ribs behind near the spinal column, pushing the aorta aside and making an incision into the right primary bronchus, to reach the foreign body. I do not know that this has been tried on the living subject. Dr. Coolidge thought, basing his experience on a case in the Out-Patient Department, that he could remove this coin. The man was very cool. Dr. Coolidge asked him to lie down with the head hanging over and on one side. The urethroscope was inserted and the man did not cough, the alli-

gator forceps was introduced, and coin seized, and coin and speculum drawn out together, and the man's life to me seemed to be saved, because we know how fatal those cases are if the foreign body is not dislodged from the right primary bronchus.

This last week I had a child with a five-cent piece in the esophagus. The x-ray shows it very well, shows it conclusively to be there a little to the left of the sternum. It shows clearly it was in the esophagus and not in the trachea. I suggested to Dr. Coolidge taking the urethroscope and passing it down through the mouth with the child anesthetized, the child being in the horizontal position, passing it down and taking the coin out with the forceps, but Dr. Coolidge found, when he got it parallel with the axis of the esophagus, that the mouth of the speculum dropped behind the front teeth. I therefore performed esophagotomy.

Dr. Warren also reported a case entitled

EXCISION OF THE RECTUM FOR CANCER.

The next case is a case of excision of the rectum for cancer (Kraske's operation). I have had a number of these cases in the last eighteen months, and tried different ways of treating them. The present case came in with a rectal cancer just over the prostate gland. He had this peculiarity, that he had an enormous number of little adenomatous growths over the rectum just beyond the reach of the finger. His age was 37. Disease had lasted not more than a year. Being a man of that age I felt that it was probably a very malignant type of the disease and important to do as radical an operation as we possibly could; therefore a colostomy was done in the left groin some weeks previous to the operation, the bowel cut, brought out, the proximal end stitched to the tube and the distal end sewed up and dropped in. When the artificial anus was thoroughly established and the rectum thoroughly rested and cleaned I did the ordinary Kraske operation. I decided not to try to resect a portion of the rectum, although that is a much more esthetic operation in point of view of the result, yet it does not seem to me to be sufficiently radical for a disease of this malignancy, and I therefore did the Kraske, including the anus, sphincter, etc. I removed several inches of the bowel with its perirectal tissue, after having resected the coccyx and a portion of the sacrum, and excised it and laid it aside, and I then inspected the upper portion of the bowel and found the adenomatous growth still reaching beyond the tip of my finger, and Dr. Harrington and others thought it would be wise to try to remove some more of the bowel. I separated the cylinder of mucous membrane from the perirectal tissue and found I could pull out the membrane indefinitely, and I must have taken out twelve or fourteen inches of the bowel above the rectum, leaving behind the perirectal tissue. The patient has a truss on his artificial anus. (Patient and specimem shown.)

I have tried several ways of doing this operation. I performed two Kraskes about fourteen months ago. They have some difficulty in retaining the feces. I think you can manage the Kraske with a little experience so as not to make too large an opening. If you make too large an opening you get sometimes a great pouting mouth with a little hernia, and the patients find it hard to control the movements of the bowel. If you have a small opening the patients probably get a much better control.

Dr. Harrington: The operation which Dr. Warren has done in this case I feel is preferable in many cases to the Kraske operation. The man has not worn this truss very long, and probably the opening is larger now than it will be six months hence, and his familiarity with the use of the truss will improve. It is not possible to put a truss on the Kraske opening as you can on the inguinal opening. If you make your opening for an inguinal colotomy as you make a McBurney incision for an appendix operation, the amount of muscular control is considerable.

Dr. Warren: I think it is an interesting question to decide whether one should attempt the double operation or the single operation. I was called two weeks ago to do a Kraske, and thought I would not bother about the double operation, and found I got out quite as much as I wanted to, and the patient has done perfectly well since. It might not be the case always. He certainly has done as well as this patient. It depends on the patient's power of resistance, accidental circumstances, etc. I do not feel fully convinced that an anterior anus is better than a posterior, although it may be more easily controlled. Of course the posterior anus cannot be held by a truss.

Dr. Coolidge: It is very easy, if you have a large enough opening into the trachea, to put a short, straight tube into it, and to see the bifurcation and the whole of the right bronchus and a good deal of the left; and when you have seen the foreign body through the tube, getting it out is a simple matter if you have the proper instruments. A further advance in this subject will be made when we can put tubes down through the mouth into the trachea. This has been done more than once in Killian's clinic in Berlin. In the case Dr. Warren reported, in which I did not manage to get the foreign body out of the esophagus until esophagotomy had been done, I feel sure I could have done it with proper instruments. The tube was too short. With a tube of the right size I think without question that many foreign bodies in the esophagus can be got out through the mouth. In the case of foreign bodies in the bronchi it is not so easy, but with good manipulation and proper instruments a certain proportion of them can be got out without previous tracheotomy.

(To be continued.)

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The *Philadelphia Medical Journal* is authority for the statement that Duke Carl Theodore, of Bavaria, a specialist in diseases of the eye, has done his four thousandth cataract operation.

# Reports of Societies.

## BOSTON SOCIETY FOR MEDICAL IMPROVEMENT.

ARTHUR K. STONE, M.D., SECRETARY.

REGULAR meeting Dec. 16, 1901, DR. E. H. BRADFORD in the chair.

DR. BRADFORD: It is one of the functions of our society to take up occasionally subjects of general interest and consider them from a medical point of view. Tonight one of the phases of the subject of education is before us. We physicians look upon schools as physiologically wrong in so far as they deprive the child of the freedom and activity necessary for normal development. Of course we recognize that the evil is necessary in order to gain the good. All that can be asked is that the cost of education in wear and tear, in nervous breakdown, be fully considered and that this be made as small as possible.

DR. E. G. BRACKETT read a paper on

THE SCHOOL IN ITS EFFECT UPON THE HEALTH OF GIRLS.[1]

DR. ROBERT W. LOVETT read a paper entitled

THE HEALTH OF SCHOOL GIRLS.[2]

DR. E. M. HARTWELL gave

STATISTICS REGARDING HEALTH OF SCHOOL GIRLS.[3]

DR. JANE KELLY SABINE read a paper entitled

THE EFFECT OF PUBLIC SCHOOL EDUCATION UPON THE HEALTH OF THE COLLEGE GIRL.[4]

DR. E. W. TAYLOR: I must say at the outset that my personal experience with the public school system, and my experience clinically with patients who possibly have been the victims of the system, is very small. I must therefore speak largely theoretically of the general subject.

A matter which it seems to me must be apparent, apart from those which have been mentioned by the various speakers, is the very great difficulty in the proper classification of students in the public schools, particularly where a large number are brought together under the same general conditions. Any of us who have any experience in teaching pupils of whatsoever age are impressed with the fact of the different capacities of those students. One or two we may immediately recognize as of superior mental abilities, others of extremely inferior mental powers, still others as having the average ability. The teacher either directs attention to the best or worst or attempts to meet the average. The public school teacher must have this difficulty to meet in the problems which are brought to bear in his or her work. Apparently there is small danger for the middle class which one must meet in the schools, the girls about whom we are speaking who are fairly well, fairly bright, and get along with studies without overanxiety. There is danger, it seems to me, for the overbright pupils and especially for the overdull.

These latter students, who are likely to be as conscientious as their more endowed fellows, are very apt to feel very sharply the slights brought upon them on account of their manifest inferiority in studies, and this engenders conditions important in their later development. I think all of us have been very much impressed with Dr. Prince's work on what he calls the association neuroses, a term which I believe is going to replace the much misused term of neurasthenia in many instances. Dr. Prince feels that undoubtedly from small beginnings very grave neuroses ultimately arise, and in my own experience I could cite many cases in which I feel sure that serious neuroses, or neuroses at least of great annoyance, were engendered in very simple ways, started, as we might easily imagine, in the public schools through slights, feelings engendered possibly by the superiority of their fellows, which lead to more and more disturbance of mental poise, until many years afterwards a culmination comes and the person finds herself the victim of her circumstances and more or less a physical and mental wreck. That course of events I have seen repeatedly; the analysis of these conditions is always interesting and often it leads back to some slight cause, a cause which must frequently occur in this time of strain during the school life. This, then, is one of the dangers which I should like to emphasize, this danger of the building up of false associations ultimately resulting in neuroses which at first appear trivial but later assume a wholly unlooked-for importance.

About the possible remedies for the various nervous disorders which are likely to arise as a result of the school system, the first remedy unquestionably is an improved classification. To effect such a classification it seems to me there should be a more rigid inspection of schools than at present is possible. We have at present a very skilled inspection of the schools by physicians as to whether the children have diphtheria or other infectious diseases, and there I fear too often the inspection stops. What one would like to see established is a critical analysis of the capacities of children, not merely from the psychological point of view, but from the general medical point of view as well. A man skilled in the broad lines of medicine as well as psychological analysis should inspect the schools from time to time and assist in the proper classification of pupils. That I believe would prevent a great deal of the disturbance from association of children of different abilities, and it would single out many children who are not fit to be in the public schools, but who should rather be in institutions for the feeble minded. I should, therefore, like very much to see established a more definite attempt at the prophylaxis of various nervous disorders on scientific lines in the same sense that we have an attempt at prophylaxis of the infec-

[1] See page 375 of the Journal.
[2] See page 376 of the Journal.
[3] See page 378 of the Journal.
[4] See page 380 of the Journal.

tious diseases. That it seems to me, in a measure, at least possible to do.

Dr. A. Worcester: I am glad to take part in any meeting where the health of the public school girl is under consideration, because I am one of those who believe that the school girl does not now have a fair show. From my point of view as a general practitioner, the public school girl is a little, romping, healthy creature through the primary and lower grammar grades, and then by the time she comes up into the upper grammar grades, and certainly by the time she enters the high school, that previously healthy little animal becomes a roundshouldered, thin, nervous, overconscientious, distressingly unhealthy specimen of humanity. Of course I know that there are many exceptions, and still the type forces itself upon my mind. I had the chance to see the school girl from the teacher's desk for two years, between my college and medical school courses, and I remember even then being concerned for her; and twenty years ago I tried to persuade the school committee of my native city to let me study the actual physical condition of the school girls. They objected. I perhaps was too hasty in letting it be known that I had found in the schools children who were in the last stages of phthisis.

I have no statistics to offer, and my ideas regarding the cause of the difficulty, I fear, are too crude to be of any use. But I cannot help calling attention to the fact that the school girl at the time of puberty undergoes a marked development of conscience. I think all physicians who have tried to persuade sick and weakly school girls or their parents that the school course should be interrupted even temporarily have run up against that extreme conscientiousness of the little girl that drives her on in spite of backache and headache and every form of physical suffering. It is noteworthy that at the time of the girl's overdevelopment of conscience the boy is saved physically by a distinct lessening of whatever conscience he originally possessed. He is in no such danger of being overworked in the high school as the girl. He will slight his work for any form of physical amusement; baseball, football, skating and everything of that kind has prior claim upon the school boy; but there is no form of exercise so attractive as to tempt his overconscientious sister to neglect in the afternoon and evening the pile of books that she feels obliged to carry home in order to prepare her lessons. No wonder that the girls in the upper grammar grades stand higher than the boys. It is due to their more highly developed conscience. And this physiological difference between the boy and the girl is not recognized in the schools. It seems to me, with the public school as now arranged, almost impossible to save any delicate girl. If you suggest that the girl should drop one of her studies, that causes heartache and tribulation; and any suggestion that she should drop out of the ranks for a week or a month is met with the awful consequence in her mind of losing her place in her class. To her that is everlasting disgrace, and that leads to her disguising from her parents and physician the extent of her physical suffering. The little girl will cry when finally the physician is summoned, simply through fear that she will be taken out of her class. I never knew a boy to cry because of any such fear. I wish I could formulate in words my feeling that there is frightful cruelty in the public schools in the competitive examinations, the rank list and in the tests that are applied to children, absolutely regardless of their physical condition at that time. I know later on, when the school girls come into the training school for nurses, where I have my best chance of studying the effects of studentship, it is often absolutely impossible for the woman to do herself any kind of credit at an examination held upon the first day of her menstruation. And before that function is fairly established, when it occurs perhaps only once in a few months, when it is attended by all sorts of trouble, mental and physical, it seems to me atrocious to think of little girls being forced to go through any competitive test at such times; and yet, in the public school, as it is carried on, I do not see any possible chance of arranging that an examination shall be held at other times or a second examination be given; the little girls would be unwilling that the matter should be known; they would rather lose their lives than be excused from examinations on that account.

So far as the unhygienic home conditions apply to the public school girl, that is always the teacher's defense when the fact is pointed out that public school girls wilt through the school nine months and only by extraordinary care can they be got into physical condition fit to enter the school in September. I cannot for the life of me see how that affects the question of the public school's effect. It is only by the gradual spread of better knowledge as regards general hygiene that the home conditions of the community can be improved. Perhaps we do not, as physicians, do our duty in extending that necessary knowledge. But the public school system seems to me especially within the range of well-directed, concerted medical influence. I cannot believe that the methods under which our girls are trained now in the public schools are really defended by any in the community. I know that the public school teachers themselves are distressed by the conditions which they have to meet. I know that the parents are generally dissatisfied and even angry with the effects of the public school system upon their children, and I believe that, if a crusade were started against the continued destruction of the health of our girls in the public schools, it would succeed. I believe that the public school system would be essentially modified. But physicians are not interested in the public schools in this community, in this commonwealth. A few years ago I addressed a postal card with reply to all the physicians of the commonwealth, asking particularly what offices they ever held, mentioning the school committee as one of the offices which we desired information about.

Only a handful of the physicians of Massachusetts held any position on the school committees of their different towns and cities. I do not know if it could be otherwise regulated by law; perhaps only by an awakened sense of duty on the part of the medical profession could the defect be remedied, but somehow it should be arranged that in every community there should be a physician upon the board of education. In order to bring this about the medical profession must take more interest in the public school question. I wish this subject, instead of being discussed in the Improvement Society, might be assigned for consideration at the meeting of the Massachusetts Medical Society. No subject seems to me more worthy, and if this meeting shall lead those present to a larger sense of the obligations resting upon us to do something in the matter, it will be very gratifying.

I have only this further to say: that there seems to have been on the part of educated women during later years, a marked resentment in their decided oppositions to the claim made by medical men that girls are entitled to special consideration at the time of their menstruation. But if now, as seems to be the case, the conditions are somewhat changed, and if, under the influence of our sisters in the profession, it has become possible to tackle the question more delicately than has been done in the past, and at the same time with the definite purpose of making the public school system conform to physiological facts, I think the happy time has come for moving in this direction.

DR. REYNOLDS: I did not have the advantage of hearing some of the earlier remarks this evening, but I have listened with a good deal of interest to the last two speakers. In the last twenty years it has happened that my friend, Dr. Worcester, and I have been led by our respective personalities to take opposite sides on many questions, and sometimes the trend of events has shown one to be right and sometimes the other; but I have grown to feel that when Dr. Worcester and I feel alike it strengthens my sense of the righteousness of my convictions. I have been interested in this subject during the last ten years, and have watched the women under my charge closely with regard to this point. The first thing one notes at the outset is that the educators say that the physician, and especially the gynecologist, sees only those who break down under education; that is true. But when the educator says that, he grants the whole position. Nobody claims that everyone breaks down in health. The question is, how many do so. Personally, I feel that there is quite a large percentage of women permanently the worse for their education as at present carried on. We have an opportunity of judging of it in two ways: in the first place, it has grown quite frequent of late, in practice, that mothers come to ask how they shall manage their daughters as they approach the time of puberty, and I have questioned them about what they noticed about the girl and instructed them what to watch for. My experience has been that they often say that the girl flags during each menstrual period, that she seems at that time unable to do her work easily, and consequently works harder in order to get through the appointed task. And I have said to many a mother: "Never mind what the girl thinks about it. Keep her quiet the first day of her periods, before the habit is thoroughly established. Do not let her study at home during the menstrual period even if she drops back a little in the class." Mother after mother has told me that once the home studying time was forbidden during the menstrual period the girl seemed better.

Then we have another way of judging of it: Do the college bred women whom we see come in larger proportion than would be due from the proportion of college bred women in the community in general? I have no hesitation in saying they do. I see quite an undue proportion of college educated women and I see them almost always with one particular class of ailment. The community has grown accustomed to the painter's wristdrop, writer's cramp, baseball arm, golf elbow. I personally, as a gynecologist, am very familiar with a peculiar type of nervous dysmenorrhea — that is, an underdeveloped uterus, an obstructive dysmenorrhea, and a restless, unsettled nervous system. It is difficult to describe such a thing in words, but it is a very distinct type. Granting that for the moment, is it the result of the ordinary education of women, or of the higher education of women? Again, is it the result of the excessive conscientiousness of the growing girl, of the fact that she will work harder than she need to work; or the result of something in the educational system? My feeling about it is: the world has known for a great many generations that it could get more work out of itself in six days than in seven. The world has come to know that employees must be given two weeks' vacation out of the year; and we have grown to know, of recent years, that the brain worker can do very much more work in eleven than in twelve months out of the year. I believe, when we are a little bit more civilized, we shall know that as a pure matter of economics we can drive more work out of women in twenty-five days than we can in twenty-eight, and I believe that is the whole question.

DR. SARGENT: I have been exceedingly interested in the papers that have just been read, and I feel that enough subject matter has been presented for two or three evening discussions. I would like to confirm by practical experience the deductions of the two last speakers in regard to some of the remedies of this condition. I want to say that I had the first opportunity of anyone in this country of really learning the condition of our women in colleges, as the reports of something like ten thousand individuals came into my hands fifteen to twenty years ago, and if the medical practitioner could know the wretched condition represented by some of those women at that time, he would feel like rejoicing at the improvement

that has since been made. It is one of the gratifying things in connection with my work to note the improvement in the physical condition of women, but there is a great deal of improvement yet to be made. I have had an opportunity to observe also the condition of women in my normal school of physical training. Many of these teachers come to me having been advised by their physicians to give up school work and take up physical training instead. Many of these pupils have taken a common-sense view of the situation, and decided, if they must make a business of gymnastics for life, that they might as well make it pay. Very early in my experience I came across this overconscientiousness on the part of the women as compared with men, and that is one of the things I had to contend with. The woman who most needs physical training is the one most loath to take it. I have had teachers enter the course and been obliged to have them dismiss from their minds altogether any thought of mental examination on account of the overanxiety caused thereby, and it was surprising to see the improvement under those conditions. I also found that the best way to get the greatest amount of work out of women was to give them frequent intervals of rest, not necessarily three days out of every month, but frequent intervals during the day, interspersing the mental work with the physical work. I cannot think of anything I could say to this audience that has impressed me more than the duty of those who have women in charge in our schools to intersperse the periods of mental activity with more frequent periods of rest. It is not absolutely necessary to have a gymnasium. If the girls are even marched up and down stairs now and then it improves their condition. I think one of the greatest mistakes we are making as a community is through the overstriving after what we *term* an education. I maintain that just as much of mental discipline could be acquired, if not of knowledge attained, if but two-thirds of the time were devoted to the regular routine in schools. We should seek to impress upon the community the value of physical training from the mental point of view. Educators have too often lost sight of this point, for only four or five years ago I heard a prominent teacher, who had suddenly ascertained the fact that by improving the condition of the bodies of the children their minds could be improved, admit that that to him was a new fact.

Miss Irwin: I came rather to learn from others than to say anything. I do see a great deal of young women and have seen a great deal of school girls, and my own decided impression is that a great deal of harm is done by the ignorance of parents and perhaps by the ignorance of teachers, but I think the main difficulty is always that the teachers and the parents do not quite get together and discuss the question as they should do when the girls are young and their habits of life are making. I say girls rather than boys, because I have had more to do with the young women in the community. With the girls whom I knew best I found that periods of a few minutes were enough for little children; they could not fix their attention for a longer time; thirty to forty minutes were enough for the older ones; these shorter hours, with three minutes' recess between periods, and shorter school hours, really achieved as much as was achieved in other schools where the hours were much longer and much more occupation nominally through the thirty-five weeks of the school year. I think that will be the experience of anyone who has the courage to resist the demands of the parents, and sometimes the demands of the children, for rather more work. I think the difficulty is to believe that our young people can really do as much in six days as in seven. We all know it in theory, but very few of us recognize it in practice, and it is very difficult to believe that the twenty-five days for women will do more than the twenty-eight.

In our gymnasium of the 450 women in Radcliffe, many of whom are older women occupied with teaching and unwilling to do anything in the gymnasium, we have 225 who take gymnastic exercises, and who I think feel the benefit from it, and my impression is that their health has gained regularly and steadily and that they show it even to the casual observer.

Dr. E. M. Greene: It has been my experience for the last eight years to spend an hour every morning of the school week in looking over the sick members of some 2,000 school children. About one-half are girls whose age ranges from that of the kindergarten through the grammar school grades. Dr. Taylor said one thing that interested me in regard to medical inspection of schools, which was, that it ought to embrace other things than the discovery of contagious diseases. More than three-fourths of my work is concerned with the general health of children, advising them how to improve their physical condition and trying to ascertain their peculiar needs rather than determining whether they have scarlet fever or measles. The work of excluding children with contagious diseases is probably not so important as that of deciding such questions as which children have chronic nasal obstructions due to adenoids, and who have anemia and chronic indigestion from poor food or bad habits. I spend a great deal of time in giving instruction in regard to such matters. In the kindergarten, inspectors sometimes give instruction to the mothers of the children in regard to foods, habits, clothing, exercise and sleep.

Looking at these children I am impressed with what a very large amount of defective material the schools have to work on from the very start. My schools have to do largely with children from one of the poorer quarters of the city, the West End. The fathers are sometimes drinking men and the mothers ignorant of cooking, dressing and caring for the children. Under these circumstances, among children with chronic nasal discharges, enlarged glands, and generally lacking in vigor as they develop, quite a large number are bound to break down even under the best school

régime. The only way to save them is to take them out of the city and keep them in the open air and under careful medical supervision, which parents are unable to afford. The question is how much of the breakdown is really due to compulsory school work. It seems to me, in following these children along, as I have followed many of them, from the age of four to that of thirteen or fourteen years, that the pupils in the higher classes of the grammar school are on the whole a pretty healthy lot compared with those below, and that most of their defects can be accounted for by their home life. One bad feature of the latter is irregular hours of sleep. The children sit up until they are so tired that they have to go to bed. These children go to many evening entertainments, the girls take music lessons, and some are taking dancing lessons.

A good many children who are ill or defective in one way or another I advise to stay in school, because it is really better there than at home, so that it is the best thing they can do, and if they break down in health it is not the fault of the school.

In the grammar schools it is difficult to get a teacher to say she is overworking the girls. There are a few things, however, by which we can judge for ourselves. In one room the teacher makes the girls write out on slips of paper what they complain of. Within a week girls wrote that they were troubled with "sour eyes," "sore trot," etc. Now, I do not believe the defects of those children were due to studying too hard. These were girls twelve to fourteen years of age. I am told that no girl fails to graduate for lack of mental ability. Shall we make the standard any lower?

There are some objectionable features about the schoolroom, and foremost I should say was bad ventilation. The ventilation in the best of the buildings is defective. Within one hour after the school has begun the air in the entries is close and lifeless and that in the schoolrooms is worse. The buildings are almost invariably overheated. Another thing is poor light resulting in defective vision with its host of nervous ailments. Some of the schools are surrounded by high buildings, which interferes to a certain extent also with proper air.

It is possible that more might be done in the way of providing special courses for defective children. It seems to me, however, that the present standards are not too high for the average healthy child.

## Recent Literature.

*Human Embryology and Morphology.* By ARTHUR KEITH. Pp. 324; 8vo. London: Edward Arnold. 1902.

This work is designed to meet the peculiar requirements of the British Educational System, and is well adapted for this purpose, which is to enable a student to pass the so-called advanced examination in embryology as a basis for adult anatomy, without ever having seen an embryo or any microscopical preparations of any phase of embryonic development. The student who wishes to study embryology as it is studied in other countries will find this work very inadequate. One can only condemn the educational system which makes such works as the present possible. The book is, however, by no means without substantial merit, for it is very clearly written, is quite concise, and makes a direct and very instructive connection between the data of embryology and the adult anatomy. For those who seek in embryology only anatomical clues, the book may be recommended. The author appears to have only a reading knowledge of embryology, and the work is replete with errors which would be impossible to anyone who had a practical acquaintance with the science. For examples: On page 86 the polar body is said to arise by extrusion from the nucleus of the ovum. In Fig. 77 the allantois is represented as extending in the human embryo over the surface of the placenta, a condition which would make the formation of the human placenta impossible. On page 105 it is stated that a glomerulus is developed in each pronephric tubule, the absence of the glomerulus being in reality the fundamental characteristic of such tubules. On page 109 it is stated that the tubules of the kidney are at first straight, "but as they grow each tubule becomes convoluted," the fact being that the tubule is convoluted from the start, and that subsequently part of it becomes straight.

The illustrations are entirely diagrams, rather coarsely drawn, but as diagrams they may be commended for their clearness. The book is attractively printed and has an extensive index.

*Practice of Medicine.* By Eminent Medical Specialists and Authorities. Edited by GEORGE ALEXANDER GIBSON, M.D., D.Sc., F.R.C.P. (Ed.), Physician to the Royal Infirmary, Edinburgh. Philadelphia: J. B. Lippincott Co.; Edinburgh and London: Young J. Pentland. 1901.

This "Practice of Medicine" is in two octavo volumes of about 800 and 900 pages respectively. A large number of the most prominent names among teachers in the medical schools and physicians to the hospitals of Scotland and England are found among the collaborators. The editor states as a *raison d'être* for this work the considerable lapse of time which has occurred since the publication in the United Kingdom (this country) of a textbook similar to this, and the want of a work reflecting modern English teaching, created by the advances in every branch of medicine during this interval. This statement may be correct as applied to the United Kingdom, and may be a sufficient justification there for fathering another textbook on the practice of medicine, but it certainly would not apply to the United States, where we are being flooded with this kind of medical literature.

The first volume opens with an introductory chapter on the General Pathology of Disease; Section I is devoted to General (Constitutional) Diseases; Section II, Diseases Caused by Animal Parasites; Section III, Diseases Caused by Chemical Substances; Section IV, Diseases of the Alimentary System; Section V, Diseases of the Hemopoietic System; Section VI, Circulatory System; Section VII, Respiratory System; Section VIII, Diseases of the Kidney; Section IX, Integumentary System; Section X, The Nervous System.

The book is a good book of its kind, but in this country there would certainly be no suffering if it were not available. It naturally exhibits in a measure that want of unity and continuity inseparable from all such books upon which a large number of writers have collaborated. On the other hand, something is gained by a method which allows special subjects to be assigned to individuals with special qualifications — and thus, for example, tropical and subtropical diseases are dealt with by Dr. Patrick Manson.

In the matter of illustrations an unusual restraint has been shown; this book has not been turned into a picture book for the medical nursery.

*A Manual of Clinical Laboratory Methods.* By John Benjamin Nichols, M.D., in charge of Clinical Laboratory, Garfield Hospital; Hematologist to Columbian University Hospital; Professor of Normal Histology in Medical Department of Columbian University, Washington, D. C. Illustrated. New York: William Wood & Co. 1902.

This book is useful though not remarkable. It duplicates many others on the same subject. If the time required in its composition had been devoted to original research, American medicine might have been advanced.

The description of methods is detailed, and meets the need of the average young physician.

This is the book's best quality. A lack of perspective in the allotment of space to the various laboratory procedures and the mediocre plates (those alone being good which advertise apparatus) are its chief faults.

The following suggestions occur to us: A description of the method for the estimation of ammonia would be desirable; cirrhosis of the liver might well be regarded as a contra-indication to the passage of a stomach tube; twenty-nine different chemical tests are prescribed in the schedule for the examination of gastric contents; such schedules do harm because they lead physicians to believe that the study of gastric contents is difficult when in reality it is easy; more space might well be devoted to the microscopical examination of such fluids which yields far more return than is often thought and taught; the possibility or, rather, probability of an error of 100% (more or less) in urea determinations in diabetes is not mentioned; it is not so well known as it should be that acetone, diacetic acid and B-oxy-butyric acid contribute to this error as well as ammonia. It would be well to explain why the urine should be boiled in performing the ferric chloride test for diacetic acid. Williamson's method for the detection of small amounts of sugar in the urine is excellent; if the test with Fehling's solution is doubtful, ferment the urine; if the reaction appears on again applying Fehling's test, it shows that glucose is not the cause.

*Syphilis.* A Symposium. Contributions by Seventeen Distinguished Authorities. New York: E. B. Treat & Co. 1902.

The little volume with the above title contains thirteen short essays upon certain features of syphilis, to which are added at the end of the book, the replies of several syphilographers to some questions in regard to some of the more doubtful points of the malady.

In view of the already existing admirable works upon the subject that are available, we cannot think that this work is a very valuable contribution to its literature. The essays are certainly not without interest, and would serve excellently as preludes to discussions at the meetings of a club of specialists, but we have already a plethora of writings of all sorts upon syphilis, and this new one seems to us a rather unnecessary addition to the accumulation of such material.

It is interesting to note the divergence of opinion of the authors, which is shown in some of the replies to the six questions at the end of the volume. One of these questions is the following: "Has the range of remedies in syphilis increased in recent years?"

*Replies.*— (1) Duhring: "The range of remedies has certainly increased of late," etc. (2) Lydston: "It is an undisputed fact that our armamentarium therapeuticum has not been enriched by the introduction of any remedies which can be relied upon for the cure of syphilis since our old standbys mercury and iodin. There have been, however, certain additions to and modifications of our orthodox treatment which have proved of great value. . . . The hypodermic use of mercury, . . . potassium chlorate in full doses," etc. (3) Horwitz: "No. Many new remedies have been recommended, none of which have proved of value." (4) Morton: "Not materially." (5) Keyes: "Yes."

Of the essays, that of Fournier, "On the Clinical Characteristics of the Chancre," is perhaps the best.

*Studies in Heterogenesis.* By Dr. H. Charlton Bastian. First part; 8vo, pp. x-61. London: Williams & Norgate. 1901.

Dr. Bastian maintains in this work that one form of protozoa may spontaneously give rise to another form, and that protozoa may arise spontaneously from certain low vegetables. The phenomenon he calls heterogenesis. As proof he puts specimens of one sort or another in an earthenware pot, apparently not sterilized or even clean, and allows them to stand for some

days exposed to the air. He then finds that the water contains other organisms than those which he himself put in. This method seems to us to sufficiently account for the absurd conclusions which the author has reached. His work is not one which calls for any comment or even for any attention from scientific workers.

*Simon's Clinical Diagnosis.* A Manual of Clinical Diagnosis by means of Microscopical and Chemical Methods, for Students, Hospital Physicians and Practitioners. By CHAS. E. SIMON, M.D., author of Simon's Physiological Chemistry, etc. New (4th) edition, thoroughly revised and enlarged. One octavo volume of 608 pages, illustrated with 139 engravings and 19 plates in colors. Philadelphia and New York: Lea Brothers & Co. 1902.

This book is really an excellent textbook on laboratory diagnostic methods. These methods are of great importance but have been much underrated solely, it is true, by those clinicians whose early training in this line has been unfortunately neglected.

Such a book furnishes an excellent opportunity for the clinician who is uneducated in laboratory methods to get an insight as to the laboratory manner of procedure and to interpret correctly the importance of the findings.

This last, or fourth, edition is well up to date and contains a most valuable list of references to the original literature on the various subjects treated.

*History of Medicine.* A Brief Outline of Medical History and Sects of Physicians, from the earliest Historic Period; with an Extended Account of the New Schools of the Healing Art in the Nineteenth Century, and especially a History of the American Eclectic Practice of Medicine, never before published. By ALEXANDER WILDER, M.D. New Sharon, Me.: New England Eclectic Publishing Co. 1901.

This book of 946 pages, with a copious index, is an attempt to review the history of medicine, both in ancient and modern times. A large part of the volume is taken up with a discussion of more or less irregular schools of medicine, their quarrels and difficulties. Much of this is too trivial to merit the recognition it receives. It is natural, in consideration of the author's affiliations, that he should give much space to the so-called eclectic school of medicine. The book is cheaply printed and bound.

A LIGHT INSTITUTE IN VIENNA.—According to the *New York Medical Journal* a subscription is being raised in Vienna for the establishment of a light institute there for the treatment of lupus, similar to Finsen's Institute at Copenhagen. It is estimated that the establishment will cost 300,000 crowns. The list has been headed with a subscription from the Emperor Francis Joseph of 10,000 crowns.

THE BOSTON

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## THE DEVELOPMENT OF PSYCHIATRY.

IT is a source of gratification that psychiatry is gradually taking the place in this country which it would long since have occupied had not its study, through force of circumstances, been so largely divorced from general medicine. When mental disorders could only be studied at institutions, usually located at a considerable distance from medical schools, and no clinical facilities near at hand were provided, it is natural that the subject should have received little attention. The difficulties still remain to a very great extent, though there are distinct signs of a change for the better, in which New York appears likely to be a pioneer. The movement for the establishment of retention and observation hospitals for acute cases, and the wider work about to be undertaken by the reorganized Pathological Institute under the direction of Dr. Adolf Meyer, bid fair to open the way for a more intelligent treatment and study of an exceedingly important class of cases. Not only New York, but the entire country, will observe the work about to be inaugurated with extreme interest, and also, we hope, with a proper sense of the difficulties to be met and surmounted if the outlined plans are to succeed. No other field approaches this in the subtlety of the problems to be solved, and in no other is accuracy of observation and untiring patience so urgently needed. The microscope has as yet accomplished little in the solution of the fundamental questions, and the pathological laboratory, of which so much was hoped a few years ago, has not justified expectations. This is not in the least surprising; the laboratory is an essential adjunct of any hospital, but the problems to be solved do not emanate from the laboratory, but rather from the patients, for whom the laboratory exists. It has been evident for several years that those psychiatrists to whom we must

look for progress have been turning their attention more and more into clinical channels and lines of clinical study. They are attempting to reduce to some semblance of order the chaos of symptoms which go to make up the picture of a disordered mental state. They are looking for essentials and characteristic features of disease, to the end that they may find a field of application for their pathological and chemical methods. In other words, they are busily framing problems from clinical observation, which offer some hope of practical solution.

Among this relatively small class of psychiatrists in this country Dr. Meyer must certainly be given a foremost place. He has recently accepted a position of trust and great responsibility in connection with the New York State hospitals. That he realizes to the full how difficult his work is likely to be is evident from much that he has written. He is not a violent enthusiast; his experience has been wide and varied, but he believes thoroughly in the possibilities of the work he has undertaken, and which we are confident he will do much to further. In a recent paper before the New York Neurological Society, Dr. Meyer pointed out the shortcomings of present methods and suggested many lines of improvement. In his opinion the central institute in New York City should offer advanced instruction in clinical psychiatry, but should not abandon original research in the process. He insisted that the safest starting point was actual experience, that difficulties in the way of good work were hospital routine, insufficiency of physicians in institutions, and consequent carelessness in clinical observation. Psychiatry as yet knew little of diseases in the sense of pathological entities, hence the greater necessity of accurate records of cases, which were, at present, rarely to be found. The prevalent "impressionist method" he deprecated, and finally urged that the new movement must be a natural outgrowth of the present conditions.

There will be many prejudices to be overcome and many misunderstandings to be adjusted before this apparently simple plan can be carried out as Dr. Meyer designs. It is, therefore, fitting that he should have the support of the profession everywhere, which must be interested in this great social and economic as well as medical problem.

## THE GROWTH OF OSTEOPATHY.

The so-called practice of osteopathy is apparently gradually gaining for itself recognition in various parts of the country. It is never surprising that the people at large take up anything which holds out a promise of relief for human ills; this is altogether to be expected, and is productive of harm only to the individual who permits himself to be gulled. A somewhat different face, however, is put upon the matter when this or any other irregular mode of practice is legalized by legislative action. The osteopaths, with persistency worthy of a better cause, have brought bills year after year looking to the recognition of their preposterous claims by various state governments. In some instances their efforts have succeeded and in some they have failed, but it is sufficiently evident that they are gradually gaining adherents, which means ultimately the influencing of legislatures. As published in another part of this issue the osteopaths have gained a point in Iowa, so that hereafter they are to be recognized not only as legitimate practitioners, but are also likely to be represented on the Board of Health. In Virginia, within a short time, the Senate Committee has voted against a bill requiring osteopaths to submit to an examination before the Board of Medical Examiners. It is reported that another bill is to be presented to provide for an Examining Board of Osteopaths. Another bill is to be presented this year before a committee of the Massachusetts Legislature looking toward similar privileges in this State.

The *New York Medical Journal*, in its issue of April 5, presents a summary of state medical laws which is being prepared by the secretary of the board, for the Board of Health of the State of Illinois. The following details are of interest:

"Osteopathy is legalized and its practice is regulated by legislative enactments in the following states: California, Connecticut, Indiana, Iowa, Kansas, Michigan, Missouri, Montana, Nebraska, North Dakota, Ohio, South Dakota, Tennessee, Vermont and Wisconsin. In Massachusetts and Texas osteopaths are exempted from the provisions of the medical law of the State. Under the provisions of the medical law of Illinois, enacted in 1899, the State Board of Health is empowered to examine and license persons who desire to practise any certain 'system or science of treating human ailments, who do not use medicines internally or externally and who do not practise operative surgery,' the said examination to 'be of a character sufficiently strict to test their qualification as practitioners.' Any person is eligible to this examination, which embraces the following subjects, in each of which ten questions are asked: Anatomy, chemistry, histology and pathology, hygiene, physiology, and symptomatology. An applicant receiving an average rating of 75% in this examination is issued a certificate by the State Board of Health. All persons thus licensed are prohibited by the statutes of

Illinois from calling or advertising themselves as physicians or doctors.

"In addition to the states mentioned, the practice of osteopathy is seemingly permitted in the following, although technically prohibited by law: Alabama, Arizona, Arkansas, Colorado, Delaware, District of Columbia, Florida, Georgia, Idaho, Kentucky, Louisiana, Maryland, Minnesota, Mississippi, New Jersey, New Mexico, New York, North Carolina, Oklahoma, Oregon, Pennsylvania, Rhode Island, Utah, Virginia, Washington, West Virginia and Wyoming. The laws of Maine and New Hampshire permit the practice of magnetic healing, mind cure, massage, Christian Science, or other methods of treatment in which no drugs are used. Prosecutions have been attempted in Arkansas, Georgia, Kentucky, Louisiana, Minnesota, Mississippi, New Mexico, Pennsylvania, Utah, and possibly others, with varying results."

Osteopathy, like many other kindred "systems" which have preceded it, will undoubtedly pass into oblivion before many decades have passed. It presents nothing new excepting certain clear misrepresentations of facts and false theories, an originality which in the natural course of events is doomed to a short span of life. In the meantime, however, it would be well for communities everywhere to be on their guard against the encroachments of "schools" which claim new and revolutionary discoveries in the field of applied medicine.

## THE ARMY MEDICAL SCHOOL.

A LARGE and distinguished company attended the closing exercises of the Army Medical School, session of 1901-1902, at the National Museum, Washington, D. C., on April 4. The diplomas were presented to the twenty-three graduating medical officers by the Secretary of War, while addresses were made by Lieutenant-General Miles, head of the army, and Surgeon-General Sternberg, the founder of the school. Music was furnished by the U. S. Engineer Band. A feature of the program was the presentation of the Hoff Memorial Medal, awarded, for the highest average attained during the session, to Assistant Surgeon James M. Phalen. In addition to Dr. Phalen, there were three other "honor graduates" who had attained an average of 90% or higher during the course. These were Assistant Surgeons Conrad E. Koerper, Roderic P. O'Connor and Robert U. Patterson. Immediately after graduation, the young medical officers of the class left for the Philippines, to which they have been ordered for duty.

The course at the Army Medical School extends over a period of five months, and is so planned as to supplement the usual course of instruction given at the medical schools of the country. Military hygiene, military medicine, military surgery, sanitary chemistry and sanitary microscopy are all thoroughly taught. Much attention is given to instruction in the special duties of army medical officers, hospital management, and first aid and transportation of wounded. A full course of lessons on military law is also given. On graduation, the newly appointed assistant surgeon is well qualified to undertake his new duties, many of which, from the nature of military service, are quite dissimilar from those of a practitioner in civil life, but which are, nevertheless, of the highest importance. It is in the prevention of disease that the army surgeon finds his field of greatest opportunity, and this is a subject which is, unfortunately, practically ignored by the majority of medical schools in this country.

## MEDICAL NOTES.

AN OPENING FOR INTERNES IN THE NEW YORK STATE HOSPITALS.— Students about to graduate who are unable to secure positions in general hospitals, or young physicians whose terms are about to expire in general hospitals and who wish to enlarge their experience, are now offered an opportunity to enter the New York State hospitals as internes or clinical assistants. These positions provide lodging and board. Appointments are made for a year. Some twenty-eight positions will be opened in the fourteen State hospitals situated in the following places in New York State: Utica; Buffalo; Gowanda (homeopathic); Binghamton; Kings Park, L. I.; Flatbush, Brooklyn; Central Islip, L. I.; Wards Island, New York City (two hospitals); Rochester; Ogdensburg; Poughkeepsie; Willard; Middletown (homeopathic). Although these are hospitals for the insane, yet they are so large that opportunities for experience in general medicine are abundant. Each hospital is well equipped with clinico-pathological laboratory and apparatus, operating rooms, trained nurses, hydrotherapeutic and electrical devices and good medical libraries. The field for study in general medicine is excellent, and surgical operations of all kinds are frequently performed, either by resident or consulting surgeons. It is thought that many students who wish hospital experience and are unable to obtain it because of the relatively few places available in general hospitals may be glad to learn that positions of this kind have been thrown open to them. It is believed that young physicians wishing hospital experience will profit by a year's residence in one of these hospitals, and such as desire to continue in special work

would be eligible for appointments subsequently to salaried positions in the same service. No examinations will be necessary, but application must be made in person, with good references, directly to the medical superintendent of any of the above named hospitals or to Dr. Frederick Peterson, president of the Commission in Lunacy, 4 West 50th Street, New York City.

Passage of an Osteopathy Bill.— It is reported from Des Moines, Ia., that the House has passed the Senate bill in recognition of the Osteopathic School of Physicians, authorizing the State Board of Medical Examiners to issue certificates to graduates of so-called osteopathic colleges and to others who pass examination, and authorizing the choice by the governor of an osteopathic physician to become a member of the State Board of Health and State Board of Medical Examiners.

BOSTON AND NEW ENGLAND.

Acute Infectious Diseases in Boston.— For the week ending at noon, April 9, 1902, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: Diphtheria 42, scarlatina 9, measles 176, typhoid fever 13, smallpox 17.

Boston Mortality Statistics.— For the week ending Saturday, April 5, the total number of deaths reported to the Board of Health was 233, against 211 the corresponding week last year, showing an increase of 22 deaths, and making the death-rate for the week 21.2. Of this number 112 were males and 121 were females; 224 were white and 9 colored; 148 were born in the United States, 82 in foreign countries and 3 unknown; 51 were of American parentage, 146 of foreign parentage and 36 unknown. The number of cases and deaths from infectious diseases reported was as follows: Diphtheria, 41 cases and 4 deaths; scarlatina, 13 cases and no deaths; typhoid fever, 9 cases and 1 death; measles, 147 cases and 2 deaths; tuberculosis, 11 cases and 23 deaths; smallpox, 23 cases and no deaths. The deaths from pneumonia were 48, whooping cough, 2, heart disease, 25, bronchitis, 4. There were 9 deaths from violent causes. The number of children who died under 1 year was 29, the number under 5 years, 66. The number of persons who died over 60 years of age was 55. The deaths in public institutions were 79. This is the first week since Oct. 26, 1901, that no deaths from smallpox have been reported by the Health Department.

Smallpox at Everett, Mass.— Five new cases of smallpox have appeared in the town of Everett. They are in four families living in the same general neighborhood. Although quite a number of cases have occurred in the town during the winter, none have as yet proved fatal.

A Centenarian.— William Gilliam of Orr's Island, Maine, said to have been 102 years old, died last week. He was born on the island and had lived there all his life as fisherman and farmer.

NEW YORK.

Mortality Statistics.— The reports of the Health Department for the month of March show a gratifying reduction in the death-rate of the city. The mortality given represents an annual death-rate of 19.76, against 21.79 in February, and 21.39 in March, 1901. Among the diseases in which the mortality declined were the following: The weekly average of deaths from diphtheria and croup decreased from 47.75 in February to 38.75 in March; the weekly average of deaths from scarlet fever, from 34 to 25.5; from measles, from 34.75 to 23.5; from smallpox, from 12 to 9.5; from pneumonia, from 218.75 to 161.25; from phthisis, from 184.25 to 170.5; from bronchitis, from 61 to 45; and from diseases of the urinary system, from 129.5 to 119. Among the few diseases which showed an increased mortality were typhoid fever, in which the weekly average of deaths rose from 5.75 to 6.5, and cancer, in which the weekly average rose from 44 to 47. In the month of March the mortality lists are generally among the heaviest of the year, and the unexpectedly favorable results this year are no doubt to be attributed, to a very considerable extent, to the weather, which was unusually mild and pleasant for the season. The deaths from pneumonia have fallen below those from pulmonary tuberculosis unusually early this year, and this is probably to be explained largely by the fact that there has been an exceptionally small prevalence of influenza. Aside from the deaths from pneumonia, in which it so commonly constitutes a factor, the weekly average of deaths from influenza was only 6 in December, 7.25 in January, 8.75 in February, and 8 in March. Smallpox appears to be again on the wane, and in the week ending March 29 there were but 4 deaths from it, the lowest mortality from this disease in any one week since early in January. It may be mentioned as an exceptional circumstance that during the last week of March no less than 12 deaths were reported from aneurism.

Violation of Liquor Tax Law.— For more than a month past State excise agents have been at work in and about New York, getting evidence against druggists violating the liquor tax law, and within the past week more than 200 druggists have been notified that they had violated the con-

ditions of their license and would be required to pay a forfeit of $500. As a consequence, there is much indignation among the druggists, who claim that the liquor had been obtained by false representations, in every instance, on the part of the detectives, who declared they were physicians or represented the supposed case to be one of extreme emergency. On April 4 the Manhattan Pharmaceutical Association, comprising about 250 of the leading druggists in the borough, held a meeting at the College of Pharmacy, and passed resolutions condemning the action of the State authorities. All the druggists who have received notices from the Excise Department at Albany are licensed to sell liquor under certain restrictions, and they will resist by legal measures the payment of the fines imposed upon them.

BOARD OF MANAGERS DECLINES TO SERVE.— At the final meeting of the old Board of Managers of the St. Lawrence State Hospital for the Insane, at Ogdensburg, N. Y., held March 27, it was announced that the five members of the board whom Governor Odell had appointed on the Board of Visitation of the hospital, under authority of the new law, would decline to serve. A memorandum was unanimously adopted to the effect that the Board of Managers had conducted their office honorably and energetically, and that they believe it would be injudicious to continue service under the new law, which deprives them of all power in the management of the institution.

A GIFT FOR ANOTHER HOSPITAL.— Mr. J. Pierpont Morgan has given $60,000 for a Deaconess' Home and Hospital, to occupy two city lots, in connection with St. George's Church. In the upper part of the building will be a completely equipped convalescent hospital, with a solarium.

WASHINGTON.

PURE FOOD LEGISLATION.— An earnest effort is being made to secure the passage of a bill introduced by Mr. Hepburn into the House, regulating the adulteration and misbranding of articles of food and medicines. It is believed that the bill can be passed if its proper consideration can be secured, in spite of powerful opposition to it on the part of some commercial interests. This bill has in the past been reported nine times to the House and eight times to the Senate, having passed the Senate once as the Paddock bill. While it has been amended, the essential features remain the same. While many states have local laws regulating the sale of adulterated foods prepared within their own limits, these laws have been found highly ineffective, since articles of this character sold within one state are usually manufactured in another. The Hepburn bill renders effective the local laws on this subject, since it regulates interstate commerce in adulterated foods, and enables the authorities of a state to prevent the sale of food of impure or poor quality which has been shipped in from outside. The passage of this bill is of the greatest personal importance to every citizen of the United States. Public indifference to the question of adulterated foods, and the influence exerted by powerful commercial interests upon Congress, is nevertheless responsible for the many successful attempts to defeat the passage of this bill in the past. It remains to be seen if commercial greed will again be allowed to rise superior to the public welfare.

## Miscellany.

### THE PATRICK CASE FROM A MEDICO-LEGAL POINT OF VIEW.

FROM a medico-legal point of view the verdict of guilty in the notorious Patrick trial recently completed was not a little surprising, and a medical writer has now reviewed the case in the *New York Times*. In his charge to the jury Recorder Goff said: "The one point on which the whole case rests is — Did the giving of chloroform cause death? You have the testimony of Jones (the alleged tool of Patrick) that it did. You have the testimony of the doctors who performed the autopsy that death was the result of inhaling an irritant poison. The evidence of Jones is from a self-confessed murderer, but that does not make him an incompetent witness." He then went on to state that such evidence should be received with great caution and must be corroborated by other evidence, which, however, need not be sufficient in itself to prove guilt. The statement by Jones that he placed a towel made into a cone and saturated with chloroform over Rice's face, the writer points out, is contradicted by the fact that the movements on the part of the subject of such a procedure would inevitably throw off the towel if he were in a natural sleep, and not either insensible or dead. In administering chloroform it is well known that before there is any considerable anesthetic effect the interfered-with natural respiration invariably gives rise to more or less muscular resistance, which would certainly dislodge a cone simply put over the respiratory openings and not forcibly held in place. (Jones testified that after putting the cone over Rice's face he immediately left the room.) If it remained there for many minutes, as stated, Rice was either dead at the time of the application or in a state of coma immediately preceding death; which latter could be satisfactorily accounted for by the condition of the lungs found on post-mortem examination. There was no evidence of the characteristic odor of chloroform about the person of the deceased or in the room, and the very competent expert chemist of the prosecution

(Dr. Witthaus) did not testify to any evidence of chloroform in his examinations, although positive evidence is easily obtainable many days after death from chloroform inhalation. It is a matter of common professional knowledge that when death occurs from chloroform inhalation it is not due to any irritating effects of the vapor upon the respiratory passages. The proposition submitted in the charge to the jury, "Did Rice die from the effect of that chloroform and from no other cause?" is contradicted absolutely by the absence of all evidence of death from chloroform and the existence of edema of the lungs in sufficient degree to cause death, and not attributable to chloroform inhalation. The medical attendant (a reputable physician whom the prosecution itself was careful to acquit of the slightest collusion in the alleged murder) gave a certificate that death was due to natural causes. (The deceased was eighty-four years old and had been feeble for a long time.) At the autopsy made by the coroner's physicians extensive and presumably fatal congestion and edema of the lungs were found, and no evidence of any other cause of death, and the assumption that death was due to pulmonary irritation produced by the inhalation of the vapor of chloroform — which is notoriously but very slightly irritating when inhaled — is scientifically untenable.

The only theory of the manner of the murder was one presented in the last of several confessions by Jones. In order to secure a verdict of guilty the jury was asked to believe the unsupported testimony of this discreditable and discredited witness, an assumed accomplice to the assumed conspiracy to murder, to the incredible story that he killed Rice by roughly and hastily giving him chloroform during sleep. Of the many attempts that have been made to chloroform a person while asleep the very great majority have failed, and the few that have succeeded have been in the most skilful hands and were conducted with the greatest care and deliberation. It is certainly extraordinary that the defense, instead of wasting time and energy in combating evidence as to motive, did not seriously attempt to establish, by their own experts and by cross-examination of the experts for the prosecution, certain facts which belong to common professional knowledge: (1) That chloroform administered in the manner and under the conditions testified to by Jones could not have killed Rice unless he was at the time practically insensible; (2) that chloroform vapor is very slightly irritating to the respiratory passages, and that chloroform never kills by irritation of the lungs; (3) that the pulmonary congestion and edema testified to by the physicians who made the autopsy was a sufficient cause, and a natural cause, of death. That Patrick desired and plotted the death of Rice may be true, but that Rice's taking off was accomplished in the manner alleged is entirely without adequate proof. Whether he is guilty or not, he is entitled, under the law, to his constitutional rights, and should have been convicted only in strict accordance with law and evidence.

## METEOROLOGICAL RECORD

For the week ending March 29, in Boston, according to observations furnished by Sergeant J. W. Smith of the United States Signal Corps:

| Date | Barometer | Thermometer. | | | Relative humidity. | | | Direction of wind. | | Velocity of wind. | | We'th'r * | | Rainfall in inches. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Daily mean. | Daily mean. | Maximum. | Minimum. | 8.00 A.M. | 8.00 P.M. | Daily mean. | 8.00 A.M. | 8.00 P.M. | 8.00 A.M. | 8.00 P.M. | 8.00 A.M. | 8.00 P.M. | |
| S...23 | 30.00 | 50 | 58 | 43 | 79 | 60 | 70 | N | N W | 6 | 10 | O. | O. | |
| M..24 | 30.04 | 40 | 44 | 36 | 60 | 63 | 62 | N | N E | 6 | 8 | C. | O. | T. |
| T..25 | 30.17 | 40 | 46 | 34 | 64 | 75 | 70 | N | E | 17 | 7 | F. | C. | T. |
| W.26 | 30.36 | 37 | 42 | 22 | 75 | 71 | 73 | N E | S | 8 | 10 | C. | C. | |
| T..27 | 30.21 | 46 | 57 | 34 | 52 | 53 | 52 | S W | S | 9 | 20 | C. | F. | |
| F..28 | 30.01 | 49 | 57 | 41 | 78 | 96 | 87 | S W | S W | 11 | 8 | O. | R. | .07 |
| S...29 | 29.67 | 53 | 56 | 50 | 94 | 97 | 96 | S | S | 18 | 9 | R. | O. | 1.13 |
| ☞ | 30.07 | | 51 | 39 | | | 73 | | | | | | | 1.20 |

*O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow. † Indicates trace of rainfall. ☞ Mean for week.

## RECORD OF MORTALITY

For the Week ending Saturday, March 29, 1902.

| Cities. | Population * Estimated, 1902. | Reported deaths in each. | Deaths under five years. | Percentage of deaths from | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | Infectious diseases. | Acute lung diseases. | Diphtheria and croup. | Typhoid fever. | Cerebro-spinal Meningitis. |
| New York | 3,665,352 | 1,344 | 483 | 25.29 | 14.21 | 3.42 | .67 | .45 |
| Chicago | 1,852,828 | 544 | 167 | 21.32 | 16.17 | 3.67 | .55 | — |
| Philadelphia | 1,349,624 | 500 | 135 | 20.40 | 12.60 | 2.80 | 4.00 | .20 |
| St. Louis | 603,717 | — | — | — | — | — | — | — |
| Baltimore | 525,330 | 192 | 61 | 16.67 | 14.06 | 1.04 | 1.04 | — |
| Cleveland | 411,826 | — | — | — | — | — | — | — |
| Buffalo | 376,742 | — | — | — | — | — | — | — |
| Pittsburg | 341,401 | 136 | 50 | 30.14 | 25.00 | 2.94 | 7.35 | — |
| Cincinnati | 332,032 | — | — | — | — | — | — | — |
| Milwaukee | 304,975 | — | — | — | — | — | — | — |
| Washington | 289,537 | — | — | — | — | — | — | — |
| Providence | 185,870 | 57 | 15 | 8.77 | 19.30 | 1.75 | 1.75 | 1.75 |
| Boston | 588,736 | 203 | 47 | 22.63 | 16.73 | .98 | 1.97 | .49 |
| Worcester | 127,337 | 28 | 18 | 17.85 | 17.85 | — | — | 11.71 |
| Fall River | 111,872 | 35 | 16 | 11.43 | 48.48 | — | — | — |
| Lowell | 99,574 | 29 | 7 | 10.34 | 27.58 | — | — | — |
| Cambridge | 96,334 | 19 | 3 | 36.82 | 15.78 | 5.26 | 5.26 | — |
| Lynn | 71,144 | 9 | 1 | — | — | — | — | — |
| Lawrence | 67,275 | 19 | 7 | 21.04 | 31.56 | — | — | — |
| Springfield | 66,854 | 20 | 5 | 25.00 | 5.00 | — | 5.00 | — |
| Somerville | 65,882 | 17 | 6 | 11.76 | 17.64 | — | — | — |
| New Bedford | 65,574 | 30 | 10 | 10.00 | 30.00 | 33.33 | — | — |
| Holyoke | 48,065 | 16 | 9 | 31.25 | — | — | — | — |
| Brockton | 43,208 | 9 | 1 | 33.33 | — | — | — | 11.11 |
| Haverhill | 40,392 | 6 | 1 | — | — | — | — | — |
| Salem | 36,567 | 14 | 4 | 7.14 | 21.42 | — | — | — |
| Newton | 36,336 | 7 | 3 | — | 14.30 | — | — | — |
| Malden | 35,390 | 13 | 4 | 77.00 | — | 7.70 | — | — |
| Chelsea | 35,264 | 9 | — | — | — | — | — | — |
| Fitchburg | 33,848 | 10 | 3 | — | 10.00 | — | — | — |
| Taunton | 32,759 | 6 | 2 | 50.00 | 16.67 | — | — | — |
| Everett | 27,114 | 6 | 2 | 16.67 | — | — | 16.67 | — |
| North Adams | 26,583 | 4 | 2 | — | 25.00 | — | — | — |
| Gloucester | 26,121 | 6 | 1 | 33.33 | — | — | — | — |
| Quincy | 25,307 | 5 | 2 | — | 20.00 | — | — | — |
| Waltham | 24,612 | 8 | — | 12.50 | 25.00 | — | — | — |
| Pittsfield | 22,311 | 5 | — | 20.00 | — | — | — | 20.00 |
| Brookline | 21,679 | — | — | — | — | — | — | — |
| Chicopee | 20,390 | 7 | 1 | 28.60 | — | — | — | — |
| Medford | 20,014 | 2 | — | 50.00 | — | — | — | — |
| Newburyport | 14,478 | 2 | 1 | — | — | — | — | — |
| Melrose | 13,384 | 3 | 1 | — | 33.33 | — | — | — |

* The populations of the cities outside of Massachusetts were estimated on the basis of the rate of growth from 1890 to 1900. Those of the Massachusetts cities were estimated upon the rate of growth from 1895 to 1900, since the State had an intermediate census in 1895. The populations of Gloucester, Marlborough and Newburyport were allowed to stand as in 1900, they having suffered a slight decrease during the five-year period.

Deaths reported 3,348; under five years of age, 1,075; principal infectious diseases (smallpox, measles, scarlet fever,

cerebrospinal meningitis, diphtheria and croup, diarrheal diseases, whooping cough, erysipelas, fevers and consumption) 753, acute lung diseases 514, consumption 367, scarlet fever 38, erysipelas 10, typhoid fever 51, whooping cough 29, cerebrospinal meningitis 14, smallpox 12, measles 47, diarrheal diseases 73.

From whooping cough, New York 13, Chicago 6, Philadelphia 1, Baltimore 3, Pittsburg 4, Boston 1, Gloucester 1. From cerebrospinal meningitis, New York 6, Philadelphia 1, Providence 1, Boston 1, Worcester 3, Brockton 1, Pittsfield 1. From scarlet fever, New York 22, Chicago 7, Philadelphia 1, Pittsburg 3, Springfield 2, Worcester, Fall River and Lawrence 1 each. From erysipelas, New York 2, Chicago 2, Philadelphia 3, Pittsburg 2, Boston 1. From smallpox, New York 4, Philadelphia 3, Boston 4, Cambridge 1. From typhoid fever, New York 9, Chicago 3, Philadelphia 20, Baltimore 2, Pittsburg 10, Boston 4, Cambridge, Springfield and Everett 1 each.

Beginning with January, 1902, the term "great towns" as employed in the Registrar General's Weekly Return of births and deaths includes the seventy-five municipalities of England and Wales which have a population of more than 50,000 in each.

In the seventy-six great towns of England and Wales, with an estimated population of 14,862,003, for the week ending March 15, the death-rate was 19.6. Deaths reported 5,573; acute diseases of the respiratory organs (London) 498, whooping cough 136, diphtheria 71, measles 187, smallpox 100, scarlet fever 50.

The death-rate ranged from 6.6 in Handsworth to 29.6 in Merthyr Tydfil; London 22.0, West Ham 19.9, Croydon 18.5, Brighton 20.5, Portsmouth 17.1, Southampton 18.9, Bristol 19.8, Birmingham 18.8, Leicester 18.6, Nottingham 17.2, Birkenhead 15.8, Liverpool 21.6, Manchester 22.4, Salford 14.0, Bradford 15.5, Leeds 20.8, Sheffield 16.7, Hull 17.2, Newcastle-on-Tyne 20.0, Cardiff 19.1.

## CHANGES IN THE MEDICAL CORPS OF THE NAVY FOR THE WEEK ENDING MARCH 15, 1902.

L. W. SPRATLING, surgeon. Detached from the Naval Recruiting Station, Buffalo, N. Y., and ordered to the Naval Hospital, Portsmouth, N. H.

O. D. NORTON, surgeon. Ordered to the "Richmond" as relief of Surgeon E. H. Marsteller.

E. H. MARSTELLER, surgeon. Detached from the "Richmond" and ordered to the "Lancaster."

E. S. BOGERT, JR., surgeon. Detached from the "Lancaster" and ordered to Buffalo, N. Y., for duty at the Naval and Marine Recruiting Rendezvous.

J. C. PRYOR, passed assistant surgeon. Detached from the Naval Hospital, Newport, R. I., and to hold himself in readiness for duty on the "Massachusetts."

B. R. WARD, passed assistant surgeon. Detached from the "Constellation" and ordered to the Navy Yard, Boston, Mass.

P. E. MCDONNOLD, assistant surgeon. Detached from the Naval Academy, and ordered to the "Olympia."

C. M. OMAN, assistant surgeon. Detached from the Naval Hospital, New York, and ordered to the "Constellation."

W. E. GRIFFIN, assistant surgeon. Ordered to the Naval Hospital, Newport, R. I.

H. A. DUNN, assistant surgeon. Detached from the "Frolic" and ordered to duty with the Marine Brigade.

J. M. BRISTER, assistant surgeon. Detached from duty with the Marine Brigade and ordered to the "Frolic."

U. R. WEBB, assistant surgeon. Detached from the "Kentucky" and ordered to the "Iris."

E. V. ARMSTRONG, passed assistant surgeon. Detached from the "Olympia" and ordered to Washington, D. C., and home to wait orders.

FOR SEVEN DAYS ENDING MARCH 22, 1902.

N. M. FEREBEE, medical director. Commissioned a medical director from Jan. 26, 1902.

S. H. DICKSON, medical inspector. Commissioned a medical inspector from Jan. 26, 1902.

E. J. GROW, passed assistant surgeon. Commissioned a passed assistant surgeon from June 8, 1901.

E. G. PARKER, passed assistant surgeon. Commissioned a passed assistant surgeon from Jan. 10, 1902.

C. M. OMAN, assistant surgeon. Detached from the "Constellation" and ordered to report to the commandant of the Marine Corps, Washington, D. C., to accompany a detachment of marines to the Asiatic Station.

FOR THE WEEK ENDING MARCH 29, 1902.

W. R. DE BOSE, surgeon. Ordered to the "Wisconsin" and to report to the Commander-in-Chief of the Pacific Station as fleet surgeon.

## SOCIETY NOTICES.

SUFFOLK DISTRICT MEDICAL SOCIETY.— The Section for Clinical Medicine, Pathology and Hygiene will meet in Sprague Hall, Medical Library Building, Wednesday, April 16, at 8 P.M.

Dr. R. C. Larrabee will present a paper entitled "The Effect of Exercise upon the Heart." Discussion by Dr. Allen Cleghorn. Dr. E. G. Cutler will report "A Case of Typhoid Spine"; Dr. J. M. Jackson will present a paper upon "Some Cases of Malaria Accompanied by Acute Abdominal Symptoms." Dr. H. F. Hewes will speak of the "Diagnosis of Malaria by the new Leischman-Jenner Method of Blood Staining."

H. F. HEWES, M.D., Secretary.

ASSOCIATION OF AMERICAN PHYSICIANS.— The seventeenth annual meeting of the association of American Physicians will be held in Washington, D. C., April 29 and 30 and May 1. The meetings of the Association and the annual dinner will be held at Willard's Hotel.

## RECENT DEATH.

DR. MOSES T. BABCOCK of Hammondsport, N. Y., died on March 31 at the age of seventy-seven. He was Assistant Surgeon of Volunteers during the Civil War, but had practised at Hammondsport altogether for about fifty years.

## BOOKS AND PAMPHLETS RECEIVED.

Appendicitis. A Symposium by the Cuyahoga County Medical Society of Cleveland, Ohio. Reprint. 1900.

Seventeenth Annual Report of the Adirondack Cottage Sanitarium. Illustrated. Saranac Lake, N. Y. 1901.

Transactions of the Chicago Pathological Society. Illustrated. Chicago: American Medical Association Press. 1902.

The Pennsylvania Society for the Prevention of Tuberculosis. Report for the Year Ending March 1, 1902. Illustrated.

Tuberculosis of the Heart. By H. Newton Heineman, M.D., Bad Nauheim, formerly of New York. Illustrated. Reprint. 1902.

Market Milk: A Plan for its Improvement. By R. A. Pearson, M.S., Assistant Chief of Dairy Division. Illustrated. Reprint. 1900.

Sixteenth Annual Report of the State Board of Health and Vital Statistics of the Commonwealth of Pennsylvania. Vols. I and II. 1901.

An Ephemeris of Materia Medica, Pharmacy, Therapeutics and Collateral Information. Alphabetically Arranged by E. H. Squibb, M.D. Brooklyn, N. Y. 1902.

Third Annual Report of the New York State Pathological Laboratory of the University of Buffalo. For the Year 1900. Illustrated. Albany: James B. Lyon, State Printer. 1901.

Contributions to Practical Medicine. By Sir James Sawyer, Knt., M.D. (Lond.), F.R.C.P. (Lond.), F.R.S. (Edin.), F.S.A. Third edition, revised and enlarged. Birmingham: Cornish Brothers. 1902.

The Causes of Death among the Assured in the Scottish Widows' Fund and Life Assurance Society from 1874 to 1894 inclusive. Reported by Claud Muirhead, M.D., F.R.C.P.E. Edinburgh: R. & R. Clark (Ltd.).

Smallpox. An Inquiry into its Real Nature and its Possible Prevention, showing the Extent and Duration of the Protection Afforded by Vaccination. By C. Godfrey Gümpel. London: Swan, Sonnenschein & Co. (Ltd.). 1902.

A Practical Manual of Insanity for the Medical Student and General Practitioner. By Daniel R. Brower, A.M., M.D., LL.D., and Henry M. Bannister, A.M., M.D. Illustrated. Philadelphia and London: W. B. Saunders & Co. 1902.

Experimentelle Untersuchung am Menschen über den Einfluss der Muskelarbeit auf den Stoffverbrauch und die Bedeutung der einzelnen Nährstoffe, als Quelle der Muskelkraft. von Prof. H. Newton Heineman, M.D., aus New York (Abdruck von Pflüger's Arch. 1901, mit Addendum). 1901.

The Practical Medicine Series of Year Books, comprising Ten Volumes on the Year's Progress in Medicine and Surgery. Issued monthly under the general editorial charge of Gustavus P. Head, M.D. Vol. IV. Gynecology. Edited by Emilius C. Dudley, A.B., M.D. March, 1902. Chicago: The Year Book Publishers. 1902.

# Original Articles.

## PAPERS ON THE DIAGNOSIS OF APPENDICITIS.

BY MAURICE H. RICHARDSON, M.D., BOSTON.

### II. REMARKS ON THE DIAGNOSIS BETWEEN ACUTE APPENDICITIS AND ACUTE INTRATHORACIC DISEASE.

That there should be any difficulty in discriminating between acute thoracic and acute abdominal lesions seems, on the face of it, absurd; yet in an experience of between two and three thousand cases of acute abdominal disease the question has arisen often enough to make a deep impression upon me. At first thought it would seem that acute abdominal symptoms occurring in the course of acute intrathoracic disease must indicate an abdominal complication of that disease; that there must be either an abdominal complication of intrathoracic disease or an intrathoracic complication of abdominal disease. Such complications are by no means unusual, as every experienced observer will admit. A right-sided pleurisy or empyema, following in the course of an undoubted appendicitis — and especially in the cases of appendicitis operated upon — is conspicuously a complication of the original disease, and directly dependent upon it, by the extension of the septic process through various channels — anatomical, lymphatic or vascular. So, in the course of an acute pneumonia there is no reason why there should not be at the same time an infection — diplococcal or other — of the appendix. Such complications are to be expected; they are easy of explanation; they can hardly cause an error in diagnosis.

The following remarks apply rather to cases in which acute sudden pain in the abdomen, with or without other symptoms, suggests appendicitis strongly enough to have a surgeon called. In some of these cases thoracic symptoms are prominent, in others they are not. In some the discovery of thoracic signs will establish at once the diagnosis, the abdominal pain and other symptoms of appendicitis being then regarded as physiological rather than as pathological. Not that an acute pathological process may not start in the appendix at the same time that one starts in the lungs; but such a combination, though possible, is so unusual as to justify, by its very rarity, elimination from the probabilities.

That confusion may arise between certain unusual forms of typhoid fever and acute appendicitis is not to be wondered at, for typhoid fever is, in its local manifestations at least, an abdominal disease; and yet in cases of atypical typhoid in which abdominal pain is a prominent symptom, the diagnosis of appendicitis is seldom made clear and indisputable.

In acute right-sided disease of the thorax, on the other hand, the symptoms of appendicitis may be so typical that unless the surgeon makes thoracic examinations an invariable rule, he may be completely deceived, and, in a beginning pneumonia or pleurisy, explore a normal appendix.

It would seem hardly possible that such an error could be made. It must be remembered, however, that in every calling mistakes of the most glaring and inexplicable character are at times made, even by the most experienced. For a true perception of the normal relations of things to be temporarily suspended, it is only necessary that the mind for a moment be dominated by a fixed idea. Who has not, at some time of life, become completely turned around, so that, for example, the sun seemed to rise in the west? Who, even though familiar with the sea, has not entirely miscalculated his bearings — not necessarily in a fog, but when everything was clear — and struck a rock which perhaps he knew even better than the most experienced physician knows a pneumonia or an appendicitis? In every walk in life occasions may arise when one is off his guard — when he forgets that one little thing essential for the safe conduct of his enterprise.

So long as the essential thing is under the observation of a single mind mistakes cannot but occur, even if that mind usually is clear and logical. Influenced by a single suggestion or by a chain of suggestive circumstances, the mind may become so possessed of a certain idea that the result will necessarily be distorted and incorrect. History in general is filled with examples of such errors; and the history of medicine and surgery — could it be truly written — would also be filled with them. It is the object of this paper to record a few in connection with that great topic, appendicitis.

Case I.[1] On Wednesday, June 7, 1893, I saw, with Dr. Morrison of East Boston, Fred A. R., a boy of six, with the following history, which I give in some detail from my shorthand notes:

On the previous Saturday morning he complained of pain in the side. (The father indicated the right lumbar region.) He vomited; he could retain nothing. He complained a good deal of headache. The next day he still complained of pain in the side. On Monday the symptoms were the same. The pain and vomiting continued. On Tuesday Dr. Morrison saw the boy for the first time. The pain was in the right iliac fossa, between the umbilicus and the anterior superior spine of the ilium. Dr. Morrison thought that there might be *some trouble in the chest.* (Even with this suggestion, our ideas had already leaped toward acute appendicitis.) There had been no vomiting since Monday. The boy complained of the right iliac fossa — that one spot, and that alone. The left side was not tender. The abdomen was tense; the temperature 104.5°.

On Wednesday, by physical examination, I found the following condition: The pulse was 120; the respiration 40. The temperature was not given. The abdomen was distended and everywhere tender; the tongue was clean; the legs were drawn up; the respiration was noisy and rattling; the cheeks were flushed and the eyes sunken. The general appearance was bad. My notes conclude: "I do not think that he can stand operation as he is."

I made the diagnosis of acute appendicitis with probable general peritonitis, and sent the boy directly to the Massachusetts General Hospital.

[1] This case, numbered 184, has been published in a table of cases of appendicitis in the American Journal of Medical Sciences for January, 1894.

The foregoing record is taken almost verbatim from my notes. In the light of my present experience I should say that two or three symptoms were suspicious: (1) The temperature of 104.5°, which is very unusual in acute appendicitis; (2) the wheezy respiration, which should at least have suggested a pulmonary complication, and which did suggest it to Dr. Morrison; (3) a respiration of 40. At that time I knew less of the significance of rigidity and of exquisite tenderness than I do now, and absolutely nothing of acute abdominal pain in pneumonia and pleurisy. Today the temperature alone would have excited suspicion that the lesion was not acute appendicitis. The least thoracic symptom would have confirmed this suspicion. Furthermore, today I should never omit, especially in children, an examination of the thorax. Had one been made it is safe to say that the patient would not have been operated upon.

On Thursday, June 8, the surgeon on duty, accepting our diagnosis without question, removed an appendix which was thought to be the seat of a "catarrhal inflammation." The boy did well, but after the operation had dyspnea and cough. On June 29 the right thorax was aspirated and pus was withdrawn. On July 3 I resected a rib and drained the thorax. On Aug. 1 he was discharged, fat and well.

It was but natural for the attending surgeon to agree with my diagnosis, for the idea of acute appendicitis, preconceived by myself, was simply transferred to him, emphasized by the very conspicuous abdominal symptoms present. The thoracic symptoms, far from being interpreted rightly by me, were looked upon merely as serious constitutional symptoms secondary to the principal lesion in the appendix.

This case made so profound an impression upon me that I have ever since been on my guard, and have been able in the following cases to avoid the disaster of an unnecessary — not to say deplorable — abdominal operation in the case of a pneumonia or a pleurisy, though I should have withheld, for a few hours, at least, in Case VI, an imperative operation.

CASE II. Malcolm B. E., age four, I saw on Monday, Jan. 1, 1894, with Dr. Fanny Berlin.

This boy had always been delicate. Two years before he had had a severe attack of whooping cough. He was subject every winter to tonsillitis and to bronchitis. On the preceding Wednesday the boy seemed ill. The temperature was, however, normal. On Thursday Dr. Berlin saw the boy. He complained of "stomachache." Though the abdomen was flat, Dr. Berlin immediately thought of appendicitis. The only symptom was pain — at one time in the right side, at another in the left. He was coughing badly. The temperature was 101°. The bowels were moving freely. On Friday he was about the same. The lungs had râles, and Dr. Berlin "thought that it was the beginning of pneumonia." There was no complaint of pain and no local tenderness. He remained comfortable until 4 o'clock Friday morning, when he had a temperature of 105° and complained of pain in the left shoulder. There was decided crepitation in the left lung. Every time he coughed he said that his stomach hurt him. He had a great deal of pain in the side (indicating the epigastrium). The temperature was 104° to 106°; respiration, 42. There was a frequent and hard cough.

On Sunday the temperature was 105° and down to 104°, 103° and 102°. The symptoms were more suggestive of pneumonia than of anything else. There was no distention. The amount of urine was sufficient. At 5 P.M. Sunday he was at his best: temperature 102.2°, pulse 120, respiration 36.

At 4 o'clock on Monday morning there was acute abdominal pain. The abdomen was somewhat distended. There was in the appendicular region pain all the time. Dr. Berlin feared appendicitis as well as trouble in the lungs.

I saw the boy for the first time on this day. My notes say: "Cheeks flushed; dulness in right iliac fossa; abdomen full — somewhat prominent — not hard; intestinal sounds heard with stethoscope. Tenderness about as great in one place as another; no dulness; pulse 120. I do not think operation advisable, for I am sure there is no trouble with the appendix. I should think there was some trouble in the appendix if I had not seen the East Boston case (Case I)."

In this case no mention is made of rigidity, except that its absence is implied by the words "not hard." The high temperature was accounted for by the pneumonia, which in this case was early recognized. The only evidence of appendicitis was the pain in the right iliac fossa. This evidence was weakened by its existence at times elsewhere. Tenderness was nowhere exquisite. The abdomen was full, it is true, and everywhere tender, but it was soft. The temperature was in the beginning very high; there was no tumor; the bowels were acting.

The conclusion that the abdominal symptoms were secondary to an acute process in the thorax was inevitable, even though that process was left-sided. The thoracic symptoms were much more pronounced than in Case I, and they were at once recognized and correctly interpreted. The symptoms, making strong the fear of appendicitis, were not characteristic of that disease. The supposition that an acute appendicitis was complicating an acute pneumonia was therefore untenable. It is hardly supposable that one could have operated in such a case, even at that time when clinical experience in appendicitis was comparatively limited.

Dr. Berlin has recently sent me the following note regarding the subsequent course in this case:

"M. E. recovered from the pneumonia from which he was then suffering. For several days after you saw him he continued to refer the pain to the region of the appendix vermiformis. The pain then gradually disappeared. The pneumonia left him in a very delicate condition, so that his parents have ever since been taking him for the winters to different places in California. When I saw him last summer he had improved wonderfully, and looked and felt perfectly well."

CASE III. In this case there was no suspicion of thoracic disease, until in suspected appendicitis I happened to discover dulness in the course of a routine examination of the lungs.

Alice A., age five, I saw Thursday, April 19, 1894, at Lawrence, Mass., with Drs. Dow and Chamberlain of Lawrence and Dr. Conn of Concord, N. H.

A week ago Sunday, while eating dinner, this girl was taken with pain in the abdomen. She left the table and lay down. The pain continued into the afternoon and through the night. On Monday Dr. Dow saw her. She complained of pain and tenderness in the right iliac fossa. The temperature was 104.4° (first suspicious circumstance). The cheeks were not flushed, but pale. She complained of a little head-

ache. The tongue was coated; the bowels were active. The temperature kept up for two days, when the temperature and pain began to subside. She still had a little tenderness, which soon passed away. The temperature went to normal, and she seemed to be convalescing. On Tuesday, after a bad night, she began to have pain again, and the temperature began to rise. Dr. Chamberlain was called in, but could discover nothing abnormal. It was thought possibly an appendicitis, and I was called.

*Physical examination.*— The bowels were tender in the right side along the course of the lower intercostal nerves. There was no dulness or tumor in the abdomen; and no tenderness except in the right side. The right thorax was flat, with tubular respiration and bronchophony.

The diagnosis of appendicitis in this case was clearly unwarrantable. The attending physicians looked upon it not as a likely, but as a possible explanation of the abdominal pain. There was nothing whatever in the case to call attention to the lungs, and I should have discovered the pulmonary lesion only in the course of the routine examination of the thorax. The subsidence of the pain and its disappearance for two days, with sudden reappearance, was characteristic of appendicitis, and, as far as it went, was suggestive of that disease.

Had nothing been found in the lungs, I should have regarded the case as a possible appendicitis. It would have been necessary, however, to assume that there was a rapid absorption from the inside of the appendix, for there were no signs whatever of a localized peritonitis.

The patient made a rapid and satisfactory recovery.

The possible quick infection of the pleura from an appendicular lesion must be considered in connection with a case like this. That a severe intrathoracic infection may follow absorption from a comparatively insignificant focus in the appendix must be admitted. I have seen a large encapsulated abscess between the liver and the diaphragm, accompanying an appendicitis that was progressing very favorably at the seat of the appendix itself. In this case, however, there was no doubt whatever about the existence of an acute infection of the appendix. The earliest and most important suggestion of appendicitis in Case III, as well as in other cases, was pain, and that pain was of such a character as to alarm the attending physician, and to cause not a little disquietude to the consulting surgeon, who ruled out appendicitis. Even with an experience of hundreds of cases of appendicitis of all kinds, he is a bold man who, in such cases, is willing, without careful study and the most searching examinations, to exclude appendicitis, even when the thoracic symptoms have been well recognized.

Case IV was a boy of four, seen Monday, March 12, 1900, with Dr. Dow of Cambridge. In the years between the last case and this one I had had no occasion to suspect infection of the lungs or pleura as the source of abdominal pain attributed to appendicitis.

This boy had been taken sick on Sunday, March 4, with cough and restlessness. There was a slight laryngeal irritation. The next day he was feeling better — not very sick — simply ailing. On Tuesday he had a temperature of 103°. Dr. Dow could find no trouble in the lungs to account for the temperature, the only thoracic symptom being rapid respiration. The abdomen was slightly distended, but the bowels had been somewhat constipated. On Wednesday the temperature was normal, and the boy was feeling well. That night the temperature went to 101.5°. Thursday night he was very ill and restless. The bowels were free. Micturition was painful. There seemed to be no especial cause for the illness.

On Sunday, March 11, the boy began to complain of pain in the abdomen when he coughed. Dr. Dow made repeated examinations of the lungs. He could, however, find no explanation for the rapid respiration, "but at the slightest touch over McBurney's point," Dr. Dow said, "the boy complained most vehemently that I hurt him. The bowels seemed rigid." Dr. Dow, from these symptoms, naturally suspected appendicitis, and sent at once for a surgeon.

I saw this boy on Monday, the day following the onset of pain. The pain seemed severe, and was complained of a great deal. The abdomen hurt him when he moved or when he was turned. The temperature was 101.6°. There had been vomiting. Gas had been passed freely. The boy had never had an attack like this before.

On physical examination I found the abdomen moderately distended and tender. The tenderness was general, and rather more marked in the right iliac fossa than elsewhere. There was no rigidity or other evidence of localized peritonitis. The lungs contained abundant râles.

It seemed to me wise to wait either for the complete subsidence of the thoracic symptoms or for the more marked appearance of the abdominal. To operate upon so mild a case of appendicitis with such ominous signs of lung disease would have seemed absolutely indefensible. Indeed, to operate for the abdominal symptoms, even had the respiratory symptoms been absent, would have been, in my opinion, unwise. There was every indication in favor of delay. I therefore advised against operation. On the following day Dr. Dow found a beginning pneumonia, which soon became typical. The abdominal symptom disappeared entirely in two days. The boy made a rapid convalescence from what proved to be a typical pneumonia.

Case V. The patient, a man of 35, was brought to the Accident Room of the Massachusetts General Hospital on Oct. 7, 1901, as an abdominal emergency. The symptoms were apparently urgent, and the man was prepared for immediate operation.

The history was as follows: "Three weeks ago the patient was suddenly taken with abdominal pain and chills, accompanied by sweating. He vomited and had to go to bed. He was better next day, but had some cough and raised considerable foul-tasting material. During the three weeks which followed he has had chills and fever almost every night, sometimes with vomiting. Most of the time he has been in bed. Has had considerable pain in chest, and cough. This morning he was seized with sudden and very severe pain just in front of the right scapula. This was intense, sharp and shooting in character. The vomiting was quite profuse, and he raised a great deal of phlegm. At no time has he been jaundiced, and he has noticed nothing wrong with stools or urine. The bowels have been regular."

*Physical examination.*— Well developed and nourished. Nothing definite made out in chest. Medical house officer finds no signs. Patient evidently in great distress. Abdomen very rigid, but not tender anywhere; urine negative; blood count 21,000; no tenderness by rectum.

I was asked to see this patient, who had been admitted to the care of Dr. Warren. The abdominal symptoms were marked, but there was something about the physical examination which suggested that the explanation for them might be found in the chest. The most suspicious thing about the case was the absence of tenderness. There was abdominal pain and rigidity without tenderness. I advised deferring the operation, and in this opinion Dr. Warren concurred.

On the following day Dr. Vickery made the diagnosis of pneumonia.

Several suspicious circumstances were conspicuous in this case: The history, from the beginning, pointed toward the chest, though it pointed also toward the abdomen; the sudden seizure, on Oct. 7, of pain in the region of the right scapula indicated a thoracic lesion, or possibly a lesion of the gall bladder. The absence of vomiting was a significant feature, though vomiting is frequently absent in severe cases of appendicitis. The rapid respiration was significant of intrathoracic disease, though this symptom may be present in extreme abdominal pain with tenderness and rigidity. The absence of tenderness was, however, the most significant fact of all. Rigidity without tenderness, even if abdominal pain is severe, should always excite suspicion.

The absence of dulness or tumor was important, for if there had been a localized peritonitis of three weeks' standing, I could hardly have failed to detect a tumor or cake; my inability to detect a tumor, though explicable if the appendix was deeply seated, added materially to the incredulity with which I regarded the diagnosis of appendicitis. Had rectal tenderness been present, with deep pelvic tumor, the diagnosis of appendicitis would have been almost certain, even under the suspicious circumstances already mentioned.

It is quite possible that there was an acute lesion in the abdomen as well as in the thorax. Indeed, the possibility of perforated gastric ulcer or of acute cholecystitis was seriously considered.

The patient, after the development of pneumonia, was transferred to the medical service. On Oct. 13 the sputum became purulent, and contained many pneumococci and influenza bacilli. On the 15th he raised 10 oz. of foul-smelling pus. From this time he gradually improved until his discharge, Nov. 25. His illness was extremely severe. In four weeks he lost some 40 or 50 lbs. in weight.

This case was the most alarming one of all here reported. The abdominal symptoms seemed to demand immediate operation. I do not hesitate to say that I should have advised exploration had it not been for the experience gained in the preceding cases. The possibility of a thoracic origin for acute abdominal symptoms must always be borne in mind when the least sign points toward the thorax. Whenever the history of onset is unusual, or whenever the abdominal examination fails to give the usual combination of cardinal symptoms, it is well to look for the commoner complicating lesions. It is still better in all cases, however plain, to make examinations of the thorax, as a matter of routine.

An illustration of the danger of going too far in conservatism when the symptoms do not quite satisfy the surgeon that his art is demanded, is the following case, which came at a time when my mind was filled with the importance of not opening the abdomen for pneumonia or for typhoid fever.

CASE VI. At the close of Dr. Warren's clinic at the Massachusetts General Hospital on Monday, Jan. 13, 1902, a man was brought in from the accident room as an "emergency abdominal case." The hour had expired, and Dr. Warren gave the history somewhat as follows:

Man of thirty. Sudden pain in epigastrium Saturday night. Pain shifted to right iliac fossa. Temperature 100°, pulse 100; white count 11,000. General rigidity and tenderness, but tenderness most marked in right iliac fossa. Diagnosis: Acute appendicitis. Immediate operation necessary.

I was asked to examine. By a brief examination in the minute given me, I was satisfied that the case was acute appendicitis.

On careful examination, after the class had been dismissed, Dr. Warren's attention was drawn to the coated tongue, to sordes on the teeth, and to a general typhoidal look which the patient presented. Careful inquiry into the history showed a two weeks' malaise and headache. The white count was not reassuring. Repeated palpation showed but slight tenderness, and that deeply situated in the right iliac fossa; there was a general muscular resistance rather than a muscular rigidity — a doughy feeling not uncommon in moderate distention. The spleen seemed to me enlarged. The white count was against appendicitis, though not unusual in an overwhelming general peritonitis.

Drs. Warren, Mixter, Brewster and Greenough said "appendicitis" and advised operation at once. Dr. Fitz, too, made the diagnosis of appendicitis. I was opposed both to this diagnosis and to operation. My opinion being based upon the belief that there was no lesion calling for operation, I should have kept the man under observation for a few hours, and should have had a Widal test made. If there was any abdominal lesion, however, it was a beginning general infection, for that alone would explain the blood count, the general muscular resistance and the tenderness.

Operation showed free pus in the abdomen and a perforated appendix. A good recovery followed.

While the patient was being etherized I wrote the following opinion:

"The significance of a general doughy tenderness may be completely misunderstood, especially if it follows an attack of sharp pain in the abdomen — no matter where. Increased general resistance, a white count of 11,000, pulse 100, temperature 100°, without exquisite tenderness, raises a suspicion that the abdominal symptoms may not be dependent upon a peritonitis, localized or general. In this case here today the initial pain was on Saturday night, in the epigastrium. The patient, a man of thirty, had been "going it" for two weeks, with occasional headache. The tongue was furred; the teeth had sordes. There were no rose spots. The spleen was enlarged. Deep pressure was not quite so easy on the right side as on the left. I do not think operation necessary."

Here was an instance in which the diagnosis made, as it were, instantly, was correct, but in which a careful study of the case, continued an hour or more, led me to a wrong conclusion.

It is safe to say that operation gave the man his only chance, and that moments were precious.

Cases like the foregoing, far from adding to the equanimity with which the surgeon decides for or against operation, in an obscure abdominal case, add rather to his feelings of doubt and apprehension.

A similar case occurred several years ago in the town of Holliston. The attending physician, Dr. Haviland, called me to a case in which, he said, "the merest tyro could not but make a sure diagnosis of appendicitis." The history and symptoms suggested to me so strongly an extrauterine pregnancy that I delayed operation long

enough to make the most thorough preparations for operation — several hours. Under the knife the case proved to be one of acute appendicitis with general peritonitis, and the patient did not recover.

A good rule to follow would be to explore in all cases in which the patient's local condition can be explained as well by a general infection as by any other lesion; — in other words, whenever, on the assumption that the abdominal symptoms are real, the patient without operation will die. If there is no immediate danger — whatever the diagnosis — await in doubtful cases further developments; and finally, never operate when the general condition is so bad that operation cannot but prove fatal.

Applying these rules to another and final case, it will be seen, I think, that the advice against operation was conservative and wise.

Case VII. Lillian C., age seven years, a patient of Dr. William L. Richardson, I saw on Saturday morning, Jan. 11. She had been sick since the preceding Tuesday morning. She had complained of pain over a single spot in the abdomen. This pain disappeared. She then had very high temperature, with rapid respiration and high pulse, and she had been coughing for two days. The cough then disappeared. In the middle of Friday night she was seized with pain in the abdomen, and complained of suffering very severely. This pain disappeared, and she then complained of an abdominal tenderness which was severe enough to arouse serious apprehension as to the probability of an appendicitis and beginning peritonitis.

Although the case seemed to be mainly thoracic, yet Dr. Richardson felt not a little disquieted by the history of abdominal pain and tenderness. Indeed, there was only too much reason to suspect a beginning appendicitis, perhaps complicating some acute process in the lungs.

On Saturday morning I had the opportunity of examining this child. The abdomen was full, but not especially distended. There was no rigidity. The tenderness was unmistakable and definitely localized in the right side of the abdomen, and especially marked directly over the appendix. The temperature was from 104° to 105°, respiration 40. Although the respiration was not incompatible with acute abdominal disease, and, although the tenderness was, on repeated examinations, unmistakable, it seemed to me probable that the process was entirely thoracic. The whole aspect of the case was such as to make me extremely anxious for the next few hours, during which I was expecting every moment to be called to operate. The most reassuring facts were the high temperature and respiration, which, however disquieting in a pneumonia, were positively welcome in a suspected general peritonitis.

On Saturday evening Dr. Richardson found a suspicious dulness over the lower lobe of the right lung behind, and the next morning there was a well-marked pneumonia of that lobe. The area was circumscribed, and so remained. The crisis came Tuesday morning, when the temperature dropped from 105° to 99°. The respiration and pulse dropped that same evening (Tuesday). Wednesday morning everything was normal, and the child was fast convalescing.

These symptoms might well suggest an acute appendicitis, even in the presence of a pneumonia or a threatening pneumonia. This case resembles very much some of the preceding ones. I have, however, known the abdomen to be opened many times on less evidence of appendicitis than there was in this case, and the appendix found gangrenous and perforated. On the other hand, I have never seen a case presenting obscure abdominal symptoms of appendicitis with plain symptoms of acute thoracic disease, in which the latter have not been the chief and only cause for the former.

After all, however, it may be asked whether it is well always to be so much on one's guard when acute abdominal lesions are suspected, and especially lesions in which time is of the utmost importance. I can recall a few cases in which my incredulity has been costly — when, for instance, in the fear of finding no lesion, precious time has been lost. One may err too often on the side of conservatism. May not too many patients have lost their best chance of safety for the fear of an unnecessary exploration? He takes a heavy responsibility who advises delay when the symptoms point to a general peritonitis, even if those symptoms are not quite what in typical cases they should be. Furthermore, judging by chances alone, the atypical cases which are really serious abdominal lesions vastly outnumber those which are not. The real cases of appendicitis and of general peritonitis, as compared with those of an atypical typhoid, of a latent pneumonia, or of some other unusual simulating lesion, are a hundred to one. If in cases of doubt the rule is to operate, more lives will be saved than if the rule is not to operate. Skill in diagnosis must be indeed great to omit an unnecessary operation in the one case, and to perform the necessary one in the other ninety-nine.

The diagnosis between acute thoracic and acute abdominal disease is always easy as soon as the characteristic signs of either are apparent. The chief difficulty in making a distinction is to recognize that the necessity for that distinction exists, for the thoracic symptoms are always masked by the more conspicuous and distressing abdominal ones. Once the attention is drawn to the possibility of a thoracic cause, not only for the thoracic but for the abdominal symptoms, an accurate diagnosis is perfectly easy.

## VAGINAL HYSTERECTOMY FOR CARCINOMA OF THE UTERUS.[1]

BY WILLIAM R. PRYOR, M.D., NEW YORK.

It seems to me that in our study and discussion of the minute details of the various operations devised for the removal of cancerous growths we have lost sight of certain essentials (if I may so term them) requisite to success. The most important of these is a consideration of the manner in which unchecked cancer of the uterus tends naturally to extend, together with a knowledge of the localities in which recurrence is most frequently found. It is significant that the localities of natural invasion and of recurrence are the same, namely, parametrium first and vagina second. We must also bear in mind that cancer of

[1] Read before the Suffolk District Medical Society, Section for Obstetrics and Diseases of Women, Jan. 22, 1902.

the uterus has a marked tendency to remain localized in the pelvis.

The second essential consideration is found in the surgical rule: that no trauma or section should be inflicted upon the involved field during its removal, lest hitherto uninvaded absorbents be opened up for the reception of the cancer elements, and lest severe trauma upon the cancerous growth result in the projection of the cancer elements along the absorbents directly in connection with the cancerous mass.

While operative mortality is not of prime importance in operations upon cancer, a condition in which we operate, not so much for the mere presence of growth, as because of the tendency which cancer has to extend and to recur after removal, any material increase in the death-rate accompanying a chosen operation must be compensated for by such an immunity from recurrence which the survivors enjoy as to warrant the operation.

Lastly, all of these considerations are modified in our choice of operation by very many extraneous circumstances, particularly those relating to the general bodily condition of the patient. In discussing the choice of operation in the light of these so-called essentials, I will dismiss from consideration all those cases of cancer in whom the disease has extended outside the uterus, excepting, perhaps, those with a limited involvement of the vagina. It were manifestly unfair to do otherwise, though the tendency certainly is to apply the vaginal method to the early cases and the abdominal method to those further advanced.

Guided by these important and essential factors, I shall state in what regard I think the vaginal method fails and in what respect it is satisfactory. In order to do this it will be unnecessary for me to enter into any elaborate statistical review of the subject. You all have the recent and rather voluminous literature at hand.

I. The first essential requires that the parametrium be removed together with the upper third of the vagina, in all cases of cancer of the cervix; and in cases of cancer of the body, the parametrium only. In operating upon cancer of the cervix through the vagina there are two great dangers facing the surgeon: he either keeps too close to the cancer in avoiding a wound of the ureter, and is therefore not thorough, or, in trying to obey this first essential to success, he hazards wounding the ureter in his attempts to keep away from the cancer. For it must be remembered that, in dealing with the disease in this locality, hemisection of the uterus and its morcellation, which so nicely enables us to escape ureter wounds, can not be applied.

No incision should be made through the cancer, and such would be necessary in morcellation. We must therefore remove the organs *en masse*. The very great importance of the removal of even fractional portions of tissue away from the cancerous field is shown in the difference between the statistics following the operation in cases in which the diagnosis is made by the microscope and those following the operation in which the diagnosis is made from even very early clinical signs. In both classes we find apparently absolutely no involvement of the tissues about the cervix, and even the external portions of the cervix may seem to us entirely normal; and yet, after three years, nearly 40% of the first class are free from recurrence, and of the second, few of us believe that 15% are free. It is therefore a question whether or not, in cases of cancer of the cervix, even these earliest, the good statistics can not be improved upon, as well as the very bad, by the routine application of the abdominal operation, which would secure the removal of all the parametric tissue, and during the performance of which the anatomical section would proceed through tissues absolutely normal. But our cases must be somewhat further analyzed.

We find that carcinoma of the cervix in young women has a great tendency to proceed rapidly and to recur promptly. In older women this progress is slower and recurrence less sure. Young women stand prolonged and severe surgical operations better than the aged, for they are not so likely to succumb to complications. For instance, I have lost three cases after my abdominal operation for cancer, one in the third week, from angina pectoris, and two in three days, from nephritis. Such accidents do not follow the vaginal operation, because the tax upon kidneys and heart is not so great. It would seem, therefore, that the abdominal operation which proceeds through uninvolved tissue, which secures preliminary hemastosis, which cuts off the lymphatics before any injury is inflicted upon the uterus itself, and which admits of a broad dissection, is the indicated procedure in young women. The mortality and recurrence are to be here considered. Although not prepared to make a complete report of my abdominal operations for cancer, I may say that I have lost but one woman under fifty years of age from preventive ligation of the internal iliacs and abdominal ablation, and that in no case has recurrence been found in one year. This latter observation is important, because in the vaginal operation from 60 to 80% of all recurrences take place within one year.

On the contrary, the aged, with degenerate vessels and a tendency to less active progress in the disease, owing to degeneration in the lymphatics and epithelial atrophy, are better treated through the vagina. For instance, Janvrin, who performs vaginal hysterectomy only, had 33% free after five years; but only one of his cases was under forty, and only one other under fifty.

When we consider the disease as involving the body of the uterus, the statistics from vaginal hysterectomy are sufficiently good. There are several reasons for this: these cases come for treatment, because of unpleasant symptoms, earlier than do the cervical cancers; they are usually advanced in years, with the tendency to slow progress which age brings; and the operator, not

being embarrassed by the ureters opposite the seat of the cancer, can go far outside the uterus and remove the tissues in which recurrence is likely to take place. But it is a question if it be not advisable to approach cancer of the corpus in the younger women through the abdomen; for we find that although most of these cases occur in women past the menopause, yet in a few it is found in younger individuals, and in them recurrence is apt to be most rapid. You see, gentlemen, that I consider this element of age and the natural history of the cancer as of great importance. Vaginal hysterectomy for cancer of the body of the uterus, for the reasons which I have just given, furnishes an immunity against recurrence after three years, of about 70%.

II. The second requisite is in a way met equally well by both operations, for the cleansing curettage which precedes them can be accompanied by such deep charring of the tissue as will prevent an inoculation of the raw surfaces; but the vaginal operation does not prevent the projection by pressure of cancer elements into the adjoining absorbents, inasmuch as in the vaginal operation much squeezing and handling of the uterus is done. But in the abdominal operation the absorbents are cut off before any force is applied to the organs to be removed.

III. I think I have referred sufficiently in detail to those extraneous circumstances which influence us in the choice of operation. Having entered into somewhat of a philosophical discussion of the subject rather than of the mechanical, I may briefly allude to the technique of the vaginal operation.

In cases of cancer of the cervix, all sloughing and granular material is removed by curette and scissors. I then burn the cancer field with the galvano-cautery until it becomes of a dull gray color. The vaginal membrane is then picked up an inch below the cervix and the vaginal tube incised entirely around its circumference. For this I use scissors and have never employed Mackenrodts cautery method. I peel up the bladder in front and enter the peritoneum behind, until I can grasp the cervix, together with the vaginal cuff I have formed, with Péan's blunt forceps. The dissection of the bladder is still further continued until the peritoneal sac is entered. The uterus is now anteverted through the vagina and the adnexa delivered. Forceps are applied to the ovarian artery of the left side and the tissues cut to their points. I then attempt to strip the left ureter away from the uterus and secure the uterine artery on the left side. The uterus is now cut away on the left and swung out of the vagina. The above maneuvres upon the right side are now more easily carried out. One method of operating embraces the progressive hemastosis by ligatures. It is seen that I never employ these.

When ligatures are used those portions of the stumps which are left to hold the ligatures become organized. When forceps are employed, not only all tissue internal to the forceps sloughs, but that within their grasp, and some outside also, comes away. With the forceps at least a half-inch of parametric tissue ultimately comes away which would remain were ligatures used. The forceps are thus more thorough, and I always employ them in vaginal hysterectomy.

In vaginal hysterectomy for cancer of the corpus uteri, the technique is somewhat different. Here it is not necessary to remove a vaginal cuff. The uterus is curetted, and by means of a probe-shaped electrode I cauterize the body of the organ. The operation then proceeds as in cases of cervical cancer.

I find that there is a distinct indication for vaginal hysterectomy in cancer of the cervix, but in a limited percentage of cases. I believe that vaginal hysterectomy is the operation of choice in cancer of the body of the uterus in nearly all of the cases, the exceptions being few. These are the young women — those with pus foci and those with cancer associated with fibroids.

I have, Mr. President and gentlemen, been asked to read a paper upon vaginal hysterectomy for cancer of the uterus. I presume I have been selected to present this side of the question because I am so avowedly in favor of the abdominal method; possibly upon the theory that sometimes a just critic is the most convincing advocate.

## PATHOLOGY AND PATHOLOGICAL DIAGNOSIS OF CARCINOMA OF THE UTERUS.[1]

BY T. LEARY, M.D., BOSTON.

It is with a great deal of trepidation that I stand before a body of specialists, all of whom are familiar with the splendid work of Cullen on uterine cancer, in an attempt to cover in twenty minutes the pathology and pathological diagnosis of cancer of the uterus.

Three types of epithelial structures are found in the uterus, and each type gives rise to a more or less distinct form of uterine cancer.

The vaginal cervix is covered with a many-layered, stratified, squamous epithelium which is often continued for a considerable distance into the cervical canal. This layer is set almost directly on the uterine muscle.

The epithelium of the cervical mucosa consists of a single layer of cylindrical cells which dips down into the underlying muscle to form deep, tortuous, branching glands. These glands are marked under the microscope by their mucous contents, which stain peculiarly with nuclear dyes, notably hematoxylin, and by the location of their nuclei, which lie close to the basement membrane. There is no sharp line of demarcation between the stratified squamous and cylindrical epithelium, the lower cervical glands emptying into the canal through a surface layer of squamous epithelium. The cervical mucosa is set almost directly on the muscle.

The third type of epithelium is found lining the canal of the body of the uterus. It consists,

[1] Read before the Suffolk District Medical Society, Section for Obstetrics and Diseases of Women, Jan. 22, 1902.

like the cervical mucosa, of a single layer of cylindrical cells which dips down into a cellular connective tissue overlying the muscle, to form glands, often tortuous, but rarely showing branching. These glands do not produce a markedly mucous secretion, and the nuclei of the cells tend to take a central position in the protoplasm. Normally, the gland layer here does not penetrate the muscle.

I shall consider the forms of cancer which appear in the order of the types of epithelium which produce them.

The squamous epithelium which covers the vaginal cervix corresponds exactly to the epithelial covering of the vagina, bladder, mouth and pharynx. The tumors to which it gives rise appear as nodular outgrowths, which present on vaginal inspection as cauliflower-like masses. Examination of the papillary structures making up these masses will show them to consist of a central stem of connective tissue carrying vessels and covered by a thickened layer of epithelium. Coincident with the outgrowth there is penetration of the underlying muscle substance by finger-like projections of the epithelium which grow in length and breadth and finally coalesce, destroying the muscle as they advance.

On cross-section such a tumor is distinguished by its homogeneity and its rather opaque light yellow color, contrasting with the reddish gray color and fibrous character of the uterine muscle. It is usually possible to mark the limits of the growth almost as exactly with the naked eye as with the microscope.

This tumor, as it progresses, grows in upon its own blood supply,—the internal portions of the growth crowding the blood vessels as they expand until the supply to the surface portion becomes very limited,—so that necrosis and ulcerations appear early. It is this form of growth which fulfils the clinician's requirements in being soft, pultaceous and easily broken down with the finger. The necrosis and ulceration is of course accompanied by hemorrhage and the typical foul discharge. Lymphatic extension is more rapid in this form than in either of the other forms of uterine cancer.

In Cullen's series of 176 cases, which may be considered representative of uterine cancer, there were 123, or about 70% of cases of squamous-celled carcinoma of the cervix.

The form of cancer which arises from the cylindrical layer of the cervical mucosa produces also cauliflower-like growths which may be hidden within the cervical canal or may be present in the vagina. Examination of such a growth shows it to be made up of a series of branching stems of connective tissue covered by a rather thick layer of epithelial cells. These cells no longer resemble the cells found lining the cervical glands; they do not produce much mucus and their nuclei tend to occupy a central position in the cell. The picture suggests that seen in cross-section of the tubal mucosa, the branching processes enclosing gland-like spaces being analagous to those found in the normal tube.

The bulk of the growth is made up of the connective tissue stems, therefore it is firm and breaks with a brittle fracture. Its blood supply is not encroached upon, therefore it does not tend to become necrotic and ulcerate. Its vessels are well protected, so that hemorrhage does not occur early, unless the growth blocks the canal or is accompanied by hyperplasia of the mucosa at the fundus. This form made up 18 cases of 10% of Cullen's group of 176.

From its character it should be the most benign form of uterine cancer; growth should be local, by expansion, for a long period before metastases appear. The late appearance of hemorrhage, necrosis and odor may be responsible for the failure to make an early diagnosis, and may account for the fact which appears in Cullen's group, that it was the most malignant form of uterine cancer which he met.

Cancer of the body of the uterus takes the form of an adenoma, the gland layer penetrating the muscle tissue and growing in the form of atypical glands, which often show branching or may consist of a series of single glands emptying into a large branching duct. The layers of cells lining these gland structures are usually increased, although almost perfect reproduction of normal uterine glands may occur, the diagnosis of malignancy sometimes depending wholly upon evidence of penetration of the muscle layer.

The more malignant type of adenoma of the body deserve the title of adenocarcinoma, since they tend to produce solid masses of cells in which gland arrangement is scarcely suggested. If the growth occupies the fundus there is usually uniform enlargement; if it arises near the cervix, the greatest enlargement is at that point.

The interglandular septa are slight and the amount of epithelial tissue is great, particularly in those cases in which the epithelial layers are many—the more malignant type. Therefore the growth is soft and the surface layers suffer early from an insufficient blood supply, so that necrosis and hemorrhage occur. In the milder, simpler forms (adenoma) the hemorrhage and necrosis may be more slow in appearing. The mild forms grow by expansion and do not tend to produce metastases early. The malignant forms give rise to early metastases.

The forms of cancer found in the uterus, with the possible exception of squamous celled cancer of the cervix, would be considered only mildly malignant if found elsewhere in the body. The common forms of adenoma arising in the cervix and body closely resemble tubular adenomata occurring in the rectum and ovary. These grow by expansion without lymphatic metastases, oftentimes even to the point when they rupture into the peritoneal cavity. The enormous lymphatic connections of the uterus, as compared, for instance, with the ovary, may account for the apparently earlier metastases in uterine growths.

The most important factor, however, is not early metastases, but late diagnosis.

DIAGNOSIS.

*Growths from cervix.*—If the growth is small, a piece from its edge, together with some of the neighboring normal tissue, should be cut out and sent in moist gauze to the pathologist. If the pathologist can not be reached within a few hours, the piece of tissue should be dropped into 80% or 95% alcohol. Most of the failures to diagnosticate readily cervical growths arise from the fact that too small a piece of tissue is taken or because the tissue has macerated in 30 to 40% alcohol and will not stain.

Curettings should be sent immediately upon a moist gauze sponge, or should be heaped upon a piece of blotting paper and dropped into 80 to 95% alcohol. Be sure to obtain enough material. The diagnosis depends, in most cases, not upon finding a thickened epithelial or gland layer, but rather upon invasion of the underlying muscle.

## ABDOMINAL HYSTERECTOMY FOR UTERINE CANCER.[1]

BY J. C. IRISH, M.D., LOWELL, MASS.

When I received the invitation from your secretary to read before this society a paper entitled "Abdominal Hysterectomy for Uterine Cancer," I was much gratified by the honor done me, but somewhat aghast at the proposition that anything remained to be said about abdominal hysterectomy. Upon second thought, however, it occurred to me that there was a great deal to be said upon this subject, not especially new things, but that we might stop and take account of stock, and see how valuable an asset had been bequeathed to us by the closing years of the last century. We may also consider in what way we can improve our inheritance.

Abdominal hysterectomy, as applied to the treatment of uterine cancer, is a very recent operation, but yet sufficiently established and already employed in a large enough number of cases, to show quite accurately its value, in both the immediate and remote results.

Fifteen years ago this operation, done in the main for fibroid tumors, was formidable, difficult, unsurgical, and attended with a fatality of at least 40%, but by a gradually improved technique all this has been changed, and abdominal hysterectomy has become, in ordinary cases, a simple operation with a very low rate of mortality.

This statement will not apply to abdominal hysterectomy, of course, in the removal of fibroid tumors that pack the pelvis and extend between the broad ligaments or distort in various directions the pelvic viscera; nor in some cases of extensive inflammation of the pelvic structures, with widespread adhesions; neither will it apply in cases of cancer of the uterus in which the disease has invaded the parametric tissues and pelvic glands; but in those cases of cancer involving the uterus alone, whether of the body or cervix, it is a very simple and attractive operation. There is simply spread out, under our fingers and before our eyes, with unvarying precision, precisely those structures which we wish to remove and those which we must avoid. It is absolutely free from any unexpected difficulties, and every detail of the operation is so simple and precise that any sort of accident or false step is practically impossible.

From such an operation we would logically expect uniformly successful results so far as the immediate outcome of the case is concerned; and, barring a few out-of-the-way accidents, with cancer simply confined to the uterus, the immediate recovery of the patient always follows.

Under the conditions I have laid down, I believe the operation is attended with less than 5% fatality. Therefore, in the radical treatment of uterine cancer, our one surgical resource in an operative way leaves very little to be desired. It is more precise and more competent to meet the indications than are the operative procedures for cancer in most other parts of the body.

In doing abdominal hysterectomy for cancer of the cervix, there are certain modifications of the details of technique that I have found very useful and have presented on another occasion. They make the operation somewhat easier and more complete, and I feel warranted in giving a repeated description of them at this time. The vagina having been rendered as aseptic as possible, in the preparation of the patient, as a preliminary step of the operation, I amputate the neck of the uterus close to the vaginal attachment; this is done in all cases, whether the disease of the os is extensive or slight; then, if infection has extended along the mucous membrane above the amputation, the uterus is packed; if not, the packing of the cervical canal is unnecessary. Then a thick roll of gauze, to absorb and check any hemorrhage, is applied to the cut cervix, and protrudes from the vulva. This is removed before the vagina is opened from above.

This, you will note, is an entirely different procedure from the so-called combined vaginal and abdominal operation; for in the latter the vagina is separated from the cervix and the uterine arteries are ligated. In my own experience, this preliminary amputation of the cervix has in several ways seemed to be of great advantage.

In the first place, the procedure occupies but two or three minutes, and we are able to remove rapidly and thoroughly the whole or a larger portion of the infected tissues. Then, by packing the cervix, if necessary, we avoid all danger of infection in removing the uterus through the abdominal incision.

The great advantage, however, of this step is in simplifying and shortening the time of the abdominal operation that is to follow. The time required in dissecting out the uterine neck is

[1] Read before the Suffolk District Medical Society, Section for Obstetrics and Diseases of Women, Jan. 22, 1902.

saved, and this very often is much the most difficult part of the operation.

The advantages of this procedure are very great, especially in those cases where the cervix has become enlarged and fills the whole vagina. After the broad ligaments on each side have been divided and the uterine arteries ligated, the dissection closely hugging the vaginal walls on all sides should be extended down for a considerable distance; then, by a steady and forcible traction upon the uterus, one can draw the vagina well up within the pelvis, and in this way we can remove a large portion of the vagina. The importance of the free removal of the vagina at once occurs to us when we recall the frequency with which recurrence first shows itself in the vaginal scar.

Three years ago I reported twenty-five cases of abdominal hysterectomy for cancer of the cervix, my entire experience from Oct. 1, 1893, to May 1, 1898; to that list I have now ten cases to add, making the whole number thirty-five. Of this number the operation was not completed in three cases, on account of the extent of the disease. There were three deaths from the operation; in two cases death followed an extensive dissection of parametric tissue and infected glands up to the pelvic walls on both sides. In the third case the patient died suddenly of acute mania at the end of seven days after the operation, which was a simple and early one. It was one of those accidental deaths which occur occasionally in abdominal surgery, and for which the operation does not in any way seem responsible.

Counting in this death, which ought to be omitted, the rate of fatality is about 9%. As to the immediate result, this is a somewhat higher percentage of deaths than vaginal hysterectomy would give. But, on the other hand, the list includes at least a half-dozen cases in which the latter operation would not have been undertaken, and two of the three deaths occurred in patients with very advanced disease; therefore, we may correctly claim, so far as this small number goes, that the death-rate by the abdominal operation is no higher than that which attends the vaginal.

It was formerly claimed that in cancer of the cervix the disease very rarely invaded the pelvic lymphatics or glands, except in its last stages.

Out of the thirty-five cases in this report, I found cancerous infection of the parametrium or pelvic glands, or both, in thirteen instances, and my experience in this matter is entirely in accord with the recent investigations of other observers. I suppose we find the explanation of this error in the fact that, when vaginal hysterectomy was the only radical operation done for cancer of the cervix, these infections extending out toward the pelvis were rarely discovered, as they were in the main hidden from view. In seven of these cases of infection of the pelvic glands, the disease of the os and cervix was not apparently extensive or of long duration; in fact, both their history and clinical aspect would have classed them in the list of early operations.

Oftentimes, in cancer of the breast, with a small, movable bunch, without any distinctive characteristics of malignancy, the axillary lymphatics and glands will be found to be involved.

In cancer of the cervix, the invasion of the pelvic lymphatics and glands is analogous; this extension of malignancy may occur in the early as well as in the later stages of the disease. In over one-third of my thirty-five operative cases, parametric tissues, lymphatics and glands were involved, and in seven of these the disease of the cervix, as judged by the history of the patient and clinically, had been of short duration and apparently of very limited extent. In these seven cases it was absolutely impossible to determine before operation whether or not the disease had extended beyond the cervix.

Now, if the pathological conditions of my cases in miniature represent the conditions that exist in general in this disease, it is at once apparent that vaginal hysterectomy is an operation entirely inadequate to deal radically with cancer of the cervix. I believe, therefore, in this connection, that vaginal hysterectomy should be entirely discarded, and that abdominal hysterectomy is the only logical resource left to us.

Of the thirty-five cases, in three the operation was not completed and there were three immediate deaths, leaving twenty-nine who recovered. The after-history of these patients, only in a very imperfect manner have I been able to follow; still, I know enough of the ultimate results to positively deny that cancer of the cervix is such a hopeless disease with regard to permanent cure as several distinguished surgeons are now claiming. From some of the papers and discussions before medical societies within the last year or two, one would be almost led to believe that cancer of the cervix was practically incurable; in fact, Dr. Baldy says this, and attempts to show by statistics that the permanent cures are less than 5%, and affirms that 2% would come nearer the truth. While the after-history of these patients is discouraging enough, it certainly is not so bad as that, unless my small personal experience is exceptionally fortunate. What success I have had may not be entirely due to good luck, either, for I very carefully and laboriously dissected out the parametric tissues and pelvic glands along the internal iliac and ureter when they were perceptibly involved. In two or three cases the invasion was so extensive that I was unable to complete the dissection. Although I have never ligated the internal iliac arteries, I have still done a pretty radical operation; but it has been criticised by Dr. Pryor as not being sufficiently so.

Of these twenty-nine cases, there are four that I know are now living and well, who were operated upon from five to eight years ago. Ten cases were operated upon between Jan. 1, 1896, and May 31, 1898, that is, from four and one-half to six and one-half years ago. Two of these I know are living and well today, with no recurrence. Three have died from recurrence of the

disease. Present condition of the others is not known.

Now, of the ten cases done between May 1, 1898, and Jan. 1, 1902, the after-history, so far as I have been able to obtain it, stands as follows: One case done Feb. 5, 1899, no return March 1, 1901. No report from the patient since that time. Recurrence has taken place in four cases. After-history of one unknown. No recurrence as yet in four cases. These instances, however, are too recent to be of any value as to the remote results of the operation. Of the entire twenty-nine cases we have six that have lived from five and one-half to eight and one-half years, without any recurrence. That is, we have about 21% cured, that we may fairly claim as permanent recoveries. Now, if all the remaining twenty-three had died of recurring cancer, our percentage of permanent cures would still be 21; but, as a matter of fact, during this period of eight and one-half years, some of these patients have died of other diseases without any recurrence of cancer; the after-history of others is unknown, and in ten of them the operation was done so recently that we take no account of the result. Now, would it be unreasonable to presume that one, two or three of this number may have been permanently cured so far as cancer is concerned? If such were the case, this percentage of permanent recoveries would be very considerably increased to the credit of abdominal hysterectomy for cervical cancer.

I am presenting these statistics in as favorable a light as I can, in protest against the pessimistic trend of much authoritative teaching today, that cervical cancer, with rare exceptions, is an incurable disease. This remonstrance is the one main object of my paper tonight. This teaching, I believe, is seriously erroneous, and I know it is very unfortunate. If the profession at large become persuaded that cervical cancer is practically incurable, all radical operations would be discouraged. Physicians will even forget the months and years of comfortable life that a radical operation affords these unfortunates, even when it fails as a permanent cure. Thus, the progress in the treatment of cervical cancer that abdominal hysterectomy has already attained, and all that it gives promise of for the future, will get a serious set-back. During the same period of time (namely, from Oct. 1, 1893, to Jan. 1, 1902), which includes the thirty-five operations for cancer of the cervix, I beg to call your attention to fifteen cases of abdominal hysterectomy for cancer of the body. Thus, of the fifty operative cases for malignant uterine disease, fifteen, or nearly one-third, were instances of cancer of the uterine body. In one case the cancer was associated with fibroid tumors. In four cases fibroid tumors themselves had become malignant. One of the five died from the operation. One, two years after, from recurrence. One, about one year later, from recurrence. One died five years after operation from some brain disease; no recurrence. One, well four years after operation. Of the remaining ten, one died from operation. One died of cancer of the cecum six years after operation. One died two years later from recurrence of disease. One, subsequent history unknown. Six now well; no recurrence. Therefore, in the ten uncomplicated cases of carcinoma of the body of the uterus, there was no return of the disease in 80%. This ratio of recovery corresponds closely with the experience of other surgeons; but adding those five cases complicated by uterine fibroids, the percentage without recurrence would be sixty-six.

Hence, in uncomplicated carcinoma of the body, there is given about 75% of permanent cures. These results, so exceptionally favorable when compared with operations for cancer in other parts of the body, are due to the anatomical relations of the uterus, and to the fact, except when the malignancy begins in an existing fibroid, that it attacks the endometrium, which is isolated from everything else by the thick uterine muscle.

The disease, therefore, is at first very much localized and only extends its infections late in its course. The relative frequency of cancer of the body as compared with cancer of the cervix is much greater than has been supposed, if my own experience indicates generally the ratio that obtains between the two. That is, in fifty operable cases of uterine cancer, the disease in fifteen instances was located in the body.

Now, from the standpoint of our results in the treatment of uterine cancer of the body, abdominal hysterectomy fulfils all operative requirements, and whatever advance we make in treatment must be in some direction outside of operative procedures. And I believe the same may be said, too, of this one radical resource of ours when applied to the treatment of cervical cancer. Certainly the only improvement we can hope for in an operative way will be in a wider dissection of pelvic lymphatics and glands than many surgeons, including myself, now make.

Therefore, any increased success in the permanent cure of uterine cancer will come from earlier diagnoses and earlier operation, rather than from any improvement in surgical procedure.

## THE SURGICAL ASPECTS OF CARCINOMA UTERI, COMPLICATING PREGNANCY, LABOR AND THE PUERPERIUM.[1]

BY CHARLES GREENE CUMSTON, M.D., BOSTON,

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Obstetricians have in the past formulated the rule that a pregnant woman afflicted with carcinoma of the cervix was practically lost to all resources of medical art, and they argued that as the pregnancy would in most cases go on to

[1] Abstract of paper read before the Suffolk District Medical Society, Section for Obstetrics and Diseases of Women, Jan. 22, 1902.

term, everything should be sacrificed to save the offspring, and that an operation on the mother was out of the question. But as a surgeon I would reason as one, and I believe that carcinoma of the cervix, when diagnosed and operated on in time, that is to say, before any extension beyond the uterine tissues has occurred, will give a long survival and a prolonged, if not to say complete, cure, and in this paper I shall endeavor to demonstrate that radical operations are indicated in a very large per cent. of these cases, thus reversing the obstetrical ruling.

A pregnancy complicated by carcinoma of the uterus is an eventuality of far less frequent occurrence than that produced by fibroid tumors of the uterus or ovarian cystoma. Generally speaking, carcinoma of the cervix occurs at a late date, when the genital destiny of woman is near its close.

Out of 15,000 labors Winckel met with carcinoma of the cervix 8 times, while Stratz, out of 17,900 labors, met with this complication 5 times during pregnancy and 7 times during labor. Of 9,000 labors occurring in the Moscow clinic, Sutugin met with carcinoma of the cervix in 2 patients.

Cohnstein collected 127 cases of pregnancy complicated by carcinoma uteri, in 21 of which the malignant growth had been present from several months to a year before pregnancy had taken place, and the same author gives the following table relative to the age of the patients: Patients from 27 to 33 years of age, 16 cases; from 34 to 37 years of age, 19 cases, and from 38 to 49 years of age, 23 cases. In some of these cases the commencement of the malignant growth coincided with a pregnancy that was already under way.

Out of 157 cases which I have collected, 16 patients were under the age of 30 years, the youngest being 21, 75 were between 30 and 40 years of age, while 18 were over 40 years of age.

In a considerable number of reported cases where nothing surgical was done, and where delivery occurred spontaneously or with the aid of forceps, the mothers have died septic, some presenting metastases in the joints, etc. When left alone the gravity of the prognosis in these cases is self-evident, both for the mother and child. The maternal mortality is greater when labor occurs at term, and out of 60 cases collected by Chantreuil, 25 of the mothers died, while in West's collection, amounting to 75 labors complicated with carcinoma uteri, 41 of the mothers died. For some authorities the maternal mortality exceeds 48%, and in 126 cases Cohnstein found it to be as high as 57%. In the more recent statistics due to Herman, the maternal mortality was not quite so large, it being 30% out of a total of 137 cases.

The prognosis for the child is still more unfavorable, and according to Herman, 50% died out of a total of 128, while Cohnstein's tables show an infantile death-rate of 63.8%. Of the children born alive 50% died during the first 24 hours, and 8 of the remainder died within the first 9 days following delivery.

According to Passeroro, carcinoma of the uterus will give rise to miscarriage in 40% of the cases, while Sutugin estimates that it only arises in 12%.

I now desire to direct your attention to the methods which the surgeon should follow when an operation has been decided upon, and in the first place we would put the question as to whether we should operate in cases of carcinoma of the uterus complicated by pregnancy. It is to be understood that in this paper I only have in mind the radical operations, that is to say, those which sacrifice the child in order to give the mother all the possible opportunity for a cure, and I will leave aside all partial operations which have the pretension of removing the neoplasm, and at the same time not interfering with fetal life. As far as I am able to see they usually utterly fail in their end, they are harmful to the fetus, and the mother derives little or no benefit from them. Stratz, it is true, has mentioned some cases where a cure has apparently been obtained by these procedures, but in every instance miscarriage took place, so that it would appear to me more reasonable to interrupt pregnancy in the first place and then perform a radical operation, which will, at least, give the mother a chance to obtain a more permanent cure.

Given a case of carcinoma of the uterus complicated with a pregnancy in its early stages, that is to say, with a fetus still non-viable, what shall be done? Should the child be sacrificed, and the patient operated on, or should we allow the pregnancy to continue? All cases are certainly not alike, and, in the first place, we should make a distinction and divide them into two classes, in the first of which we will place those cases where the neoplasm is of slight extent and limited, while in the second class the carcinomatous infiltration is already considerable, and there is little hope that the growth can be removed *in toto*.

In those cases of operable carcinoma the neoplasm may be limited to the cervix or have only slightly invaded the culs-de-sac without involving the broad ligaments; in this case there is no doubt in my mind but what an immediate and radical operation should be performed. From a large number of statistics of total vaginal hysterectomy compiled by Richelot, Olenine, Pozzi, Bouilly, and Routier, it is self-evident that carcinoma of the uterus may be radically cured. The problem that we have to consider is that, if total hysterectomy is performed the child will be lost, but we may hope to save the mother; but if, on the contrary, we allow pregnancy to continue, we may hope to have a living child, but it practically means that we abandon the mother to a very rapid death, and I believe that, under these circumstances, no matter what age the pregnancy may be, total extirpation should immediately be resorted to. I believe that as long as there is any chance of curing the mother we should not

hesitate to sacrifice the fetus, whose life is, for that matter, very problematic.

This has been, I believe, the action followed by all recent operators, no matter what affection may have complicated a pregnancy, and when gestation is a danger for the mother under any circumstances, the sacrifice of the child is never a consideration. And even when the result of the operation is only problematical, as in the case of women under twenty-five years of age, I think, nevertheless, that we are in the right to interrupt pregnancy and operate on operable cases as early as possible. With such a fearful disease for the patient, it is certainly humiliating to be obliged to admit that we are vanquished, and the happy results that have been obtained, certainly will allow one to hope that the enterprising surgeon will in the end become master of this disease.

We will now consider those cases where carcinomatous infiltration is so extensive that there is no hope of removing it completely. What should be the proper surgical action to take under these circumstances? In reply to this I would say that I think if an operation is undertaken, the child is of necessity sacrificed and the mother will not receive at the most the benefit of several months of life. If, on the contrary, pregnancy is allowed to continue, the possibility of a living child may be hoped for, but the neoplasm will rapidly extend and soon kill the mother. Under these circumstances I believe the interests of the child are alone to be considered; but this implies that we abandon the mother to her fate. A radical operation performed under these conditions would be of benefit to the patient because I believe that it is fully established that pregnancy is a very serious complication of carcinoma of the uterus.

I would add and reiterate the statement that, when there is the slightest chance of radically removing the growth and giving the mother a new lease of life, it is the duty of the surgeon to interrupt pregnancy; but it appears to me that in those cases where only a few months of life are left to the mother, the balance should be entirely in favor of the child's life, even although this may be most uncertain.

Woman has a social rôle to fulfill, and it carries with it very serious dangers, from which she cannot withdraw unless it is a question of life or death to her. I consequently believe that a greater rapidity in the increase in the carcinoma is not a sufficient reason to sacrifice the life of the child. Now, it has been fairly well demonstrated in a general manner that in carcinoma of the pregnant uterus the child has a certain number of chances to be born alive; it will also be noticed, if each reported case is examined separately, that there are cases in which the neoplastic infiltration, with all its attending complications, becomes established so promptly that the mother will die before the end of her pregnancy, and also the fetus often dies during labor. In this case, whether or not an operation is undertaken, the child is lost, and, on the other hand, if the surgeon interferes the mother may be very greatly relieved. It is true that the intervention will be incomplete, but it should be undertaken because the carcinoma, on account of its special malignancy in pregnancy, should naturally be treated as a complication in order to keep the patient alive as long as possible.

Now, on what basis can we affirm that a malignant growth of the cervix is operable or inoperable, and that the child may or may not live? We are here dealing with a problem which is impossible to answer in a general way, because each case will present its special indications and the treatment to follow is of a necessity left entirely to the clinical good sense of the surgeon.

Every operation undertaken for carcinoma of the uterus should fulfill the two following conditions, namely, to be easy of execution and devoid of as much danger as possible, and, secondly, it must remove the entire neoplasm. I will now examine what is, of all the operations, the one which best fulfills these two conditions, taking, in the first place, the one adapted to patients who have not exceeded the sixth month of gestation, and, secondly, those who are from six to eight months pregnant.

During the first six months I have no hesitancy in making this statement, that total vaginal hysterectomy is the operation of choice. I have pointed out that this operation presents few dangers, because in every reported case the patient recovered. I also found that in several recorded cases the patients have remained alive, in good condition, for a number of years.

I am perfectly willing to admit that vaginal extirpation of the uterus does not always give a sufficiently large field of operation to allow the surgeon to remove all the tissues invaded by the neoplasm freely. Consequently, abdominal extirpation may be preferred by some; but the operative difficulties and the danger to which the patient is exposed are certainly far greater by this method, and I believe that usually total vaginal hysterectomy should be selected during the first six months of pregnancy.

When pregnancy has gone beyond the sixth month, the uterus has attained such a size that it can only be removed with difficulty per vaginum, and under these circumstances an artificial extraction of the fetus, immediately followed by vaginal or abdominal hysterectomy, must be resorted to, or Durhssen's operation may be selected. From a study of a large number of reported cases it will be found that vaginal hysterectomy preceded by an induced miscarriage is a source of danger for the mother during the expulsion of the fetus, and that much precious time is lost while awaiting involution of the uterus to take place; and in spite of the weighty opinion of Olshausen, I believe that this procedure should be completely rejected. It would appear to me that total abdominal hysterectomy performed with care may give excellent results, and it also gives a sufficiently broad field of operation, so that the surgeon may make a very complete extirpation of the neoplasm.

Vaginal sectio cæsarea, followed immediately by hysterectomy, may be resorted to, although this

operation certainly offers much less ease for the surgeon to remove all the infiltrated tissues, but it certainly presents fewer operative dangers. The cases which have been published up to date are too few in number to allow us to draw any exact conclusions.

In my case of carcinoma complicated by pregnancy, I resorted to Kraske's operation for the extirpation of the growth, and I did so because the upper third of the vagina being involved in the pathologic processes, I desired to freely extirpate the canal. I am not an enthusiast concerning Kraske's operation, nor am I greatly in favor of the parasacral route, and I fully realize their limited field of usefulness, but both of these methods are generally overlooked, and still they may, in some few instances, register a success where vaginal or abdominal hysterectomy would prove a decided failure. On two occasions I have attacked the uterus by the sacral route, and I have never regretted having done the operation, but on several occasions I have been sorry that I did not employ it. The sacral route is particularly useful for complete resection of the vagina and also in those cases where a slight amount of neoplastic infiltration has already extended into the broad ligaments. I should advise those operators who are not versed in general surgical technique to avoid this operation, as it will prove both difficult and unsatisfactory in their hands, but to the general surgeon it is not, as has been upheld by some, a formidable procedure.

In conclusion I would sum up as follows:

If the carcinoma can be radically removed the life of the mother alone is to be considered. Up to the beginning of the sixth month of pregnancy vaginal hysterectomy is the operation of choice, but after this period is passed, abdominal hysterectomy or Duhrssen's vaginal Cæsarean section, followed by hysterectomy, are indicated.

When the neoplasm is inoperable the life of the child must be considered, but if the progress of the growth is such that the mother rapidly becomes cachetic, thus compromising the fetal vitality, pregnancy should be interrupted. Paliative treatment only should be instituted, because partial operations on the neoplasm usually produce miscarriage and the mother is not materially benefited by them. Cæsarean section at term may be done, but when the uterus is left there is danger of septicemia, and consequently Porro's operation is the one of choice if the periuterine tissues are not infiltrated to such an extent as to render this procedure dangerous.

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The President has returned to the Senate the bill recently passed by Congress providing that medical schools in the District of Columbia be given the bodies which have been interred in Potters' Field, for anatomical research. Under the bill, the Army Medical Corps was allowed the same rights as the medical colleges of the District, but no provision was made for the navy. The Secretary of the Navy has requested that this be corrected.— *Philadelphia Medical Journal.*

## THE TREATMENT OF CASES OF CARCINOMA UTERI NOT JUSTIFIABLY TREATED BY RADICAL OPERATION.[1]

BY ALBERT H. TUTTLE, M.D., CAMBRIDGE, MASS.

What a picture this title recalls to one who has had much experience in the care of uterine cancer — the long-drawn-out suffering, racking pains, foul discharges, alarming hemorrhages; the unceasing irritation and discomfort that follows urinary fistulæ, the rectal distress — almost unbearable at times — when certain complications of that organ arises; the weakness, emaciation and cachexia; steadily progressive, with no means at our disposal to stay a termination of the disease which, before it arrives, is usually looked forward to as the only goal of relief for this earthly suffering!

Our indications for treatment are presented in this clinical picture of the disease. When we have a hopeless case to deal with, it is obviously our first duty to relieve suffering. The means at our disposal are medical and surgical. We must rely principally on the judicious use of opiates to combat the pain and irritation. Small doses should be used as required, and in order to obtain the longest continued effect from a given dose it should be administered by the rectum. Other drugs, such as phenacetine and the coal-tar products, may be tried, although I must admit that personally I have not obtained satisfactory results from the same.

By surgical means and local treatment we can keep down cauliflower growths and painful granulations, purify the secretions, prevent autoinfections and allay the irritation of neighboring parts that have been soiled by the acrid discharges. The intention of the local treatment is to maintain, as far as possible, a clean granulating condition of the ulcerated surface. If the patient's strength will admit it, she should be curetted under ether, with a sharp instrument, when the excrescences attain any size of prominence, and as a part of the operation the base of the growth should be treated with a caustic, such as tincture of iodin and carbolic acid, or a saturated solution of chloride of zinc, applied on a pledget of cotton, and packed into the cavity of the ulcer. This application may be repeated several times. The vaginal walls should be protected by vaseline and gauze. Considerable hemorrhage usually accompanies the curettement, but ceases spontaneously. The ulcer can usually be kept clean by the use of dilute hydrogen peroxide, injected slowly,—the patient lying with the hips elevated,— and followed by a suppository of cocoa butter containing a couple of grains of iodoform. By the use of cocoa butter suppositories the irritation of the vagina and tissues about the itroitus is prevented or allayed.

Hemorrhage is an early as well as late manifestation. It may arise early from the uterine mucosa, in the form of a semi-menstrual disorder,

[1] Read before the Suffolk District Medical Society, Section for Obstetrics and Diseases of Women, Jan. 22, 1902.

similar to the metrorrhagia frequently associated with uterine fibroids and retrodisplacements. Again, it may come from broken-down granulations, and, finally, from ulcerations of the uterine vessels. I have had no experience with this latter form. The first two varieties are of frequent occurrence, and, as a rule, are practically treated with the curette and cautery. Rarely, it may be necessary to resort to packing or chemical hemostatics.

The complications of the bladder are often of the most distressing nature, as well as the most difficult to relieve,—in fact, in many instances treatment seems to avail us little. A fistula may form between the cervix or vaginal wall and the base of the bladder. There is absolutely no surgical means, at present known, for the closure of this opening, and the urine continues to dribble through it as long as the patient lives. The mucous membrane of the vagina and the skin about the buttocks are liable to become ulcerated from the continuous maceration. The parts become more painful, until just before death the life of the patient is one of abject misery. Artificial drainage of the bladder through the urethra or fistulous tract is impractical. The patient lies huddled up and dislikes to move, owing to the pain and discomfort it produces. Examinations and local treatment, except under ether, are imperfect and productive of great suffering. Under these circumstances, one can do little more than to keep the patient half-way dry, grease the skin and parts exposed to irritation with a soothing ointment, and administer opiates sufficient to control or modify the pain.

The rectal complications are often of a distressing nature. The bowels should be kept open by saline cathartics. Stricture of the bowel with complete occlusion, though frequent in cancer originating in the bowel, is very rarely a complication of uterine cancer.

As the disease extends into the vaginal tissues, a marked infiltration follows, often reaching to the perineum and tissues about the rectum. The thickened parts are engorged with blood, often crack and become extremely sensitive. The condition is treated with cleansing solutions, hot fomentations and bland unguents.

Such, in brief, is practically all we can do at the present time for the relief of this class of patients.

Before closing my remarks, I would like to say a few words in regard to a line of investigation which seems to me to open up the principal route for advancement in the treatment of this disease: I refer to the hypodermic treatment with various chemicals, such as oils, alcohols, etc.

With our advancement in the knowledge of micro-organisms, there has been an attempt to associate the origin of malignant growths with these causes of disease, and could it be shown that they took an active part in the production of this disorder, a local antiseptic or constitutional method of treatment would be a simple, logical and rational conclusion. The history of cancer does not admit of such a conclusion, however; neither has microscopical research disclosed any such cause, and, in matter of fact, we know very little more today than did our ancestors in regard to the active influences productive of this disorder.

Some years ago, while working in the marine laboratory of Professor Agassiz at Newport, on a study of the life history of *lunatia heros*, I had a chance to observe changes in growth and development produced by strange and unfavorable environments.

Affected by abnormal temperatures, aëration, etc., the eggs of *lunatia*, instead of undergoing their normal cleavage and development, broke up into erratic forms, hardly any two of which appeared alike. The cells, in part, were wanting in all power of cohesion, and floated about in the nidus either singly or in bunches of variable size. In other instances, double monsters were formed or the individual took on unnatural shapes. The law by which like produces like was completely broken and a state of anarchy prevailed which ended in the early destruction of the animal or its reduction to a primitive form. At the time, I believed the cause of these changes was due to unhealthy surroundings, and I am still inclined toward this belief. Whether or not the depressed vitality of the embryo allowed the introduction of other elements which would act as secondary causes to these changes, such as the ingrowth of fungi, I am not prepared to say. In certain of the egg cases *mycelium* was found.

My observations on *lunatia* embryos has inclined me toward the theory that cancer is the result of a change in the environments of a cell or group of cells by which their normal nutrition is affected, and which results in their active proliferation, contrary to the natural laws of growth. By this abnormal multiplication they become a band of outlaws that war upon their neighbors, and finally end in the complete annihilation of the body. Once a cell, or group of cells, has broken loose from the laws that bind it to the animal whole, the progeny inherit the ban of its parent and continue to work out the war of destruction. Such a theory of the origin of cancer harmonizes well with facts, namely, that the growth arises in certain organs at a time when their functional activity is diminishing or has already ceased; that it often starts at a point subjected to continued irritation; and, finally, that hereditary influences play an important part in their causation. If we adopt such a theory of the origin of carcinoma, we must look upon the individual cells making up the neoplasm as foreign bodies and hold them singly in the same relation to the body as foreign elements introduced from without, such as bacterial or amœboid forms of life.

A close study of the natural history of the disease shows that it simulates in many ways the progress and development of certain types of bacterial infections, that is, it travels along the lymphatic vessels, affects glandular enlargements,

destroys parenchymatous tissues, and is rapidly reproductive.

There are many other clinical and pathological facts that might be brought forward in this comparison of the cancer cell and protoplasmic monads, but what I have mentioned is sufficient to show that a method of treatment by hypodermic injections of antiseptic fluids is of possible value.

Today the operation for cancer of the fundus uteri by total hysterectomy is of positive value, the number of recurrences of the disease elsewhere being about 50%, or less if the operation is performed early; but this does not hold true for the cervical form, and I doubt very much if there is over 10% of recoveries without future recurrence. Under these circumstances, we have very little to hope for in the advance of treatment for carcinoma uteri unless it comes from constitutional or local medical methods. The outlook is discouraging, and we should, therefore, encourage in every way possible investigation and experiments along this line.

## Clinical Department.

### MASSACHUSETTS GENERAL HOSPITAL. CLINICAL MEETING OF THE MEDICAL BOARD.

(Concluded from No. 15, p. 385.)

REGULAR meeting, Dec. 20, 1901, DR. C. B. PORTER in the chair.

DR. C. B. PORTER presented photographs of a case of what he would call

OLD-FASHIONED OVARIAN TUMOR,

having reference to the size which it had been allowed to reach before seeking surgical relief. Before operation the patient turned the scales at 305 lbs., and after she had been convalescent some weeks she weighed 167 lbs., a difference of 138 lbs. (Figs. 1 and 2.)

DR. F. C. SHATTUCK reported a case of

CAISSON DISEASE.

I have to present a man who came in yesterday morning (a case of caisson disease) from the East Boston tunnel. He is a healthy young man, and this was his first experience in working in compressed air. He went on at 8 o'clock in the evening and came out at 5 o'clock the next morning. He had food at 12 o'clock. He was ten minutes in coming out. At least five minutes for each atmosphere should be allowed in the change. Within fifteen minutes of the time he got out he had horrible pains in his knees and ankles, and could not stand up. He was brought into the hospital very much prostrated, suffering a good deal. There was no true paralysis. He could make every motion. His legs were so weak that he could not stand. He had a hypodermic of morphia and is doing very well.

I am not familiar with these cases and I have to refresh my memory about them. I see that Osler says the symptoms never come on under three atmospheres. Herter says rarely under two.[1] He was the only new man in the gang; all the rest stood it perfectly well. He had never done such work before, and he was on duty too long. Prognosis is good. It is one of the milder cases.

DR. WARREN: What is the theory of this affection?



FIG. 1. Old-fashioned, large ovarian tumor. Before operation.



FIG. 2 (same as FIG. 1). After operation.

DR. SHATTUCK: The theory is, that under the compressed air the blood absorbs gas, perhaps nitrogen, which is released on coming out and perhaps damages the nervous tissue. In fatal cases myelitis has been found.

DR. HARRINGTON: Do all men suffer who work there?

DR. SHATTUCK: No, I think not. They ought to start in gradually. This is the first time he ever worked there, and he worked eight hours and was too quick in coming out.

DR. SHATTUCK also reported a case of

NEPHRITIS WITH ORBITAL HEMORRHAGE.

[1] I am informed that the pressure in the East Boston tunnel varies from 24 to 28 lbs. with low and high tide. This is, of course, less than two atmospheres.

I want to mention briefly two cases, one of which I cannot show because he is dead, and the other because he is too sick. One of them was a case of nephritis, apparently an acute exacerbation of a chronic nephritis. The only remarkable thing about him was that he had orbital hemorrhage, the hemorrhage extending under the conjunctivæ and under the cornea. It was in one orbit when he came in and afterwards extended into the other. I have never happened to see that before in cases of nephritis. Dr. Cutler said he had never seen it. Dr. Cheney said he had seen it once.

Dr. Shattuck also reported a case of

PNEUMOCOCCUS JOINT INFECTION.

Another case of which I wish to speak, and the chart of which is on the board, is also one which to me, at all events, presents a new feature. A man of seventy-two, who did gardening work, came in on Dec. 5, with a temperature of 102° F. and pulse of 90 odd, with a consolidation in his lung, evidently a pneumonia. He had also an exudate on one tonsil, the culture from which showed pneumococci. In the course of two or three days the process started up in the other lung. The first lung cleared. The sputum had been characteristic, rusty, tenacious, with plenty of pneumococci. As the process started in the other lung there was jaundice, which is not anything very remarkable. On the 12th of December there was swelling about his shoulder, which rapidly increased. The white count went up, and on the 13th of December Dr. Porter incised the shoulder, letting out about a quart of pus full of pneumococci. Then pus containing pneumococci was obtained from one parotid, and later from the other. Then slight swelling appeared in the right knee, which has gone. Here is the man still alive, with this tremendously extended pneumococcus infection. His temperature has ranged from 101° to 102°; the pulse from 110 to 120. He is a man of seventy-two, with degenerated arteries.

This pneumococcus infection of the joint I have never recognized before. Dr. Smith looked up the literature, and Cave collected thirty-one cases of pneumococcus arthritis up to January, 1901, and the arthritis followed the pneumonia at intervals of a few days to a fortnight; in two it is said to have preceded the pneumonia. It is commoner in the upper than in the lower extremity.

Dr. Porter: There was no pus from the right parotid. A culture was made from the serum that oozed out; from the left parotid there was only serum at first, but later pus came.

Dr. Shattuck also reported a case of

TUMOR OF THYROID.

This young girl of twenty-one came into my ward Dec. 12. She had been living in Wisconsin. There was no goitre in the family. While in Wisconsin last March she noticed a swelling in the front of her neck which gradually increased in size without pain. She had some dysphagia and some dyspnea before she came east in April. Recently the dyspnea had been greater, and the night before entrance she had had a choking spell in which she thought she was going to die. We found this lump in her neck, with stridor and dulness over the upper part of the sternum. The growth evidently extended below the sternum. I assumed that it was a thyroid, and nothing but an enlarged thyroid. She had been taking thyroid gland six months or so without benefit, and I asked Dr. Porter to see her, and he has made a careful study of the case.

Dr. C. B. Porter described a

TUMOR OF NECK AND UPPER PART OF THORAX.

I have not made up my mind what the exact condition here is. The first thing noticed in inspection is the apparent enlargement of the thyroid and an asymmetrical mass on the left and behind the trachea. Upon careful palpation the trachea can be made out down to the sternal notch; the apparent enlargement of the thyroid seems due more to congestion and enlarged veins from growth in anterior mediastium. Upon feeling behind trachea and thyroid on right side there is a hard tumor to be felt, extending about three inches above clavicle, dipping down behind it, extending some inches below it, as evidenced by the large dark veins ramifying on the right upper quadrant of the chest wall; dulness on percussion over same region. The diagnosis seems to be be-



Fig. 3. Carbuncle of neck. Before operation.

tween solid tumor, which lifts the trachea and esophagus forward, a dermoid cyst and lymphosarcoma, most probably the last. The trachea is pressed upon by the growth, and there is some dysphagia. A Kœnig's tracheotomy tube has been ordered, fearing that it might be needed sooner or later. This tube has an upper and lower section solid tube, and the middle section a spiral wire to fit the tortuosity of the displaced trachea. To sum up the condition, there seems to be a hard tumor on lower right side of neck, pulling the trachea and esophagus forward and to the left, extending behind to clavicle and upper ribs, causing congestive enlargement of thyroid and large veins in neck and to outer chest wall.

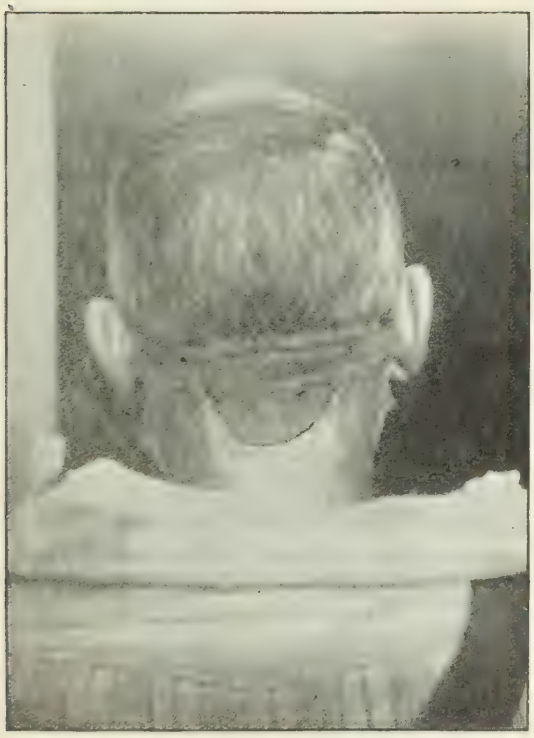


FIG. 4 same as Fig. 3. After operation and partial healing.

EXTENSIVE CARBUNCLE.

DR. C. B. PORTER showed photographs (Figs. 3 and 4) and a man who had a large carbuncle extending practically from ear to ear and from just above vertebra, prominent nearly to occipital protuberance. The whole thing was cut out, and these photographs show the condition which he was in at the time, the result of the operation for removal of the diseased mass. He came to the Out-Patient Department with this carbuncle with the limitations as described above. The whole disease was cut down to healthy tissue, leaving a great gap, which has now closed in until the cicatrix is not larger than a quarter of a dollar. He had some skin grafts which helped to narrow it up. The operation was done Oct. 14. I have had a number of experiences in private practice in cutting out a carbuncle entirely with as rapid recovery as this. During recovery he developed an abscess in the scrotum that proved to be a staphylococcus infection. He has recovered from that.

DR. WARREN: One of the striking things about these operations is immediate relief from pain, fever and rapid convalescence, healing of the wound, which seems quite gigantic at the time of the operation.

DR. C. B. PORTER described a

SIMPLE FRACTURE OF BOTH PATELLÆ.

This is not shown as anything new, but interesting, especially to the older surgeons, showing an excellent result considering the condition.

This patient fractured both patellæ by muscular contraction as she jumped from a carriage to the ground. There has been a successful wiring of the fragments on both sides at the same operation. She now has a certain amount of motion of the knees and the patella on each side is freely movable. This operation cuts short the old method of treatment by many months. I have had some cases walk about with a cane in five weeks after the operation. I was brought to the operation first by the pleading on the part of a laborer to have something done to get him to work as soon as possible. I think the first person I operated on was a boy of seventeen, a clerk in a store, whose family and mother were dependent on him and he was willing to accept the possibilities of an operation.

DR. R. H. FITZ showed a

CHRONIC OBSTRUCTION OF THE INFERIOR VENA CAVA.

He showed a male patient, eighty-one years of age, who had been under observation from time to time during the past three years, throughout which period there had existed a widespread elongation and dilatation of the cutaneous veins of the adbomen, hips and thighs. The veins were also markedly tortuous and in the inguinal regions were as large as a lead pencil. Varicocele of the left spermatic vein and hydrocele of the right tunica vaginalis were present. There was no caput medusæ, and the liver was not diminished, nor was the spleen increased in size. The urine gave no evidence of passive congestion.

At no time has palpation of the abdomen been satisfactory, on account of reflex tension of the abdominal wall. On one occasion there was the suggestion of a resistant mass to the left of the spine, in the region of the kidney.

There have been no prolonged disturbances attributable to the venous obstruction. Three months ago a fall from the steps of a street car was followed by pain in the right hypochondrium, and at present, for the first time since he has been under observation, there is free fluid in the abdomen. At the outset there was edema of the legs below the knees, but this has long since disappeared. The cause of the obstruction is obscure, but attributable rather to pressure from without than to thrombosis.

# Reports of Societies.

## SUFFOLK DISTRICT MEDICAL SOCIETY. SECTION FOR OBSTETRICS AND DISEASES OF WOMEN.

W. H. GRANT, M.D., SECRETARY.

Regular meeting Jan. 22, 1902, Dr. E. S. Boland in the chair.

Dr. T. Leary read a paper on the

PATHOLOGY AND PATHOLOGICAL DIAGNOSIS OF CARCINOMA OF THE UTERUS.[1]

Dr. William R. Pryor read a paper on

VAGINAL HYSTERECTOMY FOR CARCINOMA OF THE UTERUS.[2]

Dr. J. C. Irish read a paper entitled

ABDOMINAL HYSTERECTOMY FOR UTERINE CANCER.[3]

Dr. Albert H. Tuttle presented a paper on

THE TREATMENT OF CASES OF CARCINOMA UTERI NOT JUSTIFIABLY TREATED BY RADICAL OPERATION.[4]

Dr. C. G. Cumston read a paper on

THE SURGICAL ASPECTS OF CARCINOMA UTERI, COMPLICATING PREGNANCY, LABOR AND THE PUERPERIUM.[5]

Dr. W. H. Baker: It is most gratifying to one who can look back thirty years and see the change of opinion on this subject in this city. Some thirty years ago, when I dared say at one of our medical societies that I thought certain cases of cancer of the uterus could be cured, it was accepted with a great deal of hesitancy. I think that I was looked upon almost as expressing rather quackish views, and yet to live to see the day when that is an accepted opinion, expressed by so many here tonight, and I know entertained by you all, that certain cases of this kind can by our work be cured, is certainly a great triumph.

In this discussion, which has been so complete and so interesting to me, two main points have been brought out which seem to call for special discussion: first, as to the route to be decided upon through which to do this operation. The vaginal route, the abdominal route — each has had its strong advocates. I think I was the first operator who removed the cancerous uterus through the vagina in this city, and reported the case to the Obstetrical Society nearly twenty years ago. Since that time I think I have done about an equal number by each route. I can only say that personally I grow more and more each year to favor the abdominal route, because I believe, as shown by Dr. Irish's cases, that we can follow out more perfectly any extension of the disease by the abdominal route than by the vaginal; but, I would not overlook those cases where it seems to me that the operator may do well to combine both the vaginal and the abdominal route in one operation. I think we must decide this question in regard to the preference of route, first, by the skill, or familiarity of the operator with the operation. I would not, if a patient, desire the operator to perform a vaginal hysterectomy on me if he were more familiar with the abdominal route, or vice versa.

Again, I think that the location of the disease would have some influence in deciding him as to the route, if he had as much skill with one as with the other. If, for instance, it were a case of adenocarcinoma of the body of the uterus, I should say that he might prefer the abdominal route. If the disease began in the cervix and extended laterally, he might perhaps prefer the combination of the two or the vaginal route alone.

The second point of especial interest is as to the treatment of the inoperable cases, and here at once we are met with rather a conflicting view of what shall constitute an operable and what an inoperable case. The case that might be, in the opinion of one surgeon, an absolutely inoperable case, might in the opinion of another surgeon be perfectly operable. I should say that the absolute fixation of the uterus, the destructive process having gone so far as to have shelled out the uterus, as it were, the necrosis having gone on to such an extent as to make a shell of the uterus, and that shell having been fixed, we might classify that as inoperable; still, we have seen cases where the process of induration has not advanced correspondingly with the necrosis and there is very little indurated tissue, and such a case, in the hands of some, might be an operable case.

Although I have great respect for the opinion of Dr. Tuttle, I should hardly be content with the soothing influences to which he has referred in the treatment of inoperable cases. Radical treatment having been decided against, to my mind the treatment should be as thorough and as rapidly destructive of that disease from within, as possible. Such a case — for I have one in mind, the mother of a physician in this city, where it seemed an inoperable case and had to be treated from within — would to my mind call for the most vigorous treatment by the curette, by the scissors, the removal of as much of that disease as possible, not being satisfied with the curette alone thus removing a superficial portion of the disease causing hemorrhage and necrotic discharge, but cutting away with the scissors and the scalpel as much indurated tissue as possible, and following that, by the most destructive agents known — the chloride of zinc, the cautery, or, in my later experience, that which has proved of great efficacy, the solutions of formaldehyde, for I have found that applications on cotton and, as our secretary knows, the injection of this fluid into the substance of the indurated tissue, a most useful remedy.

Some of us remember the reports of Dr. Van de Walker's cases treated with chloride of zinc,

[1] See page 405 of the Journal.
[2] See page 403 of the Journal.
[3] See page 407 of the Journal.
[4] See page 412 of the Journal.
[5] See page 409 of the Journal.

and the sloughs one-fourth inch thick that have come away through the use of solutions of this substance; and in my experience I have seen that the comfort of the patient, the prolongation of her life, relief from foul discharges and hemorrhages will go on correspondingly as you destroy this disease. Then, why wait, and why be content with the soothing influences of the washes, opiates and the like? Go at it with as much vigor as you would in the radical operation, persist in it, get slough after slough to come away, and in rare instances you will find that by so doing you will prolong your patient's life by many years, and once in a great while, as I have reason to know, in the race that you are running in the destruction of that disease, you will get ahead of it and destroy it faster than it advances, and thus get cicatrization, after which you may effect a cure.

DR. LUCE of Portsmouth, N. H.: My object in coming to this meeting tonight was more that I might listen to these papers and the discussion, and so learn all that I could, not that I have much to offer myself. However, I can truthfully say I have been very much interested in the consideration your society has given to what, from my standpoint, is a rather uninteresting disease. I am very sure I treat no other diseased condition with so little satisfaction to myself and patient as cancer of the uterus. I am reluctantly forced to agree with the recent statement of Dr. Baldy, which has been referred to by Dr. Irish, that practically all patients suffering from cancer of the uterus, at least by far the larger proportion, eventually die of cancer, either primary or secondary, and this in spite of all that can be done for them both medically and surgically. We have passed through the various stages of vaginal and abdominal hysterectomy, and now we are doing the so-called radical operations, and yet there is a question if after all we have made any great progress. It is not the immediate results we care to know about, but the long-drawn-out, subsequent histories after a verified diagnosis, and certainly, if the most recent statistics are correct, we have mighty little to boast of. Cullen's reports show that less than 5% of all patients applying for treatment for carcinoma of the uterus are cured by operation. Unfortunately, at this time we have no other plan of treatment to suggest except operation, and the hope of the future seems to be more in early diagnosis and prompt surgery than in any radical method of operating. Granting this to be true, it becomes our duty to urge upon the profession and the laity the enormous importance of early recognition. I think most men who have been in practice twenty years, or perhaps less, were taught that the symptoms of uterine cancer were pain, foul-smelling discharge, loss of flesh, and cachexia; and a good many first recognize the disease from these symptoms, or a combination of these symptoms today, any one of which, if present in a pronounced manner, means death to the patient.

Within a week a woman came to my office and asked me to procure her a new abdominal supporter. She was a visitor in Portsmouth, and said this supporter had been advised by her family physician to help a weakness from which she suffered, due to the fact that she was then undergoing the change of life. She was fifty-one years old, had stopped regular menstrual periods at forty-eight, but for the last year had been flowing off and on, and for the last part of the year had more or less watery discharge. She said she consulted her physician at the beginning of the trouble and had seen him several times since. He had never examined her, but advised this belt and prescribed medicine. On examination, I ascertained that she had cancer of the cervix, well advanced and probably inoperable.

This is not a unique case, but belongs to a type all too common. Now, I think when all physicians in general practice fully realize that in the beginning this disease is essentially local and that everything depends on prompt interference, we may then expect a larger percentage of cures and better results than we have today. My own experience, which is small, coincides with that of most men who do surgery more or less for cancer of the uterus, in that my most successful cases seem to come from my own family practice and not from the class referred to me for operation. Roswell Park has made the statement that, if the present rate of increase of cancer and decrease in consumption continues, in ten years cancer will kill more people than consumption. Let us hope that a better knowledge of the pathology of this disease and more effective methods of treatment in the near future will prevent this from becoming a fact.

DR. WOOD of Waltham: I am pleased to hear statistics presented of so favorable a character, especially when there has been some pessimism expressed in literature of late. The last speaker has mentioned the point that has been passing through my mind, especially that of the early diagnosis, which was mentioned but slightly in the paper on the pathological diagnosis and by Dr. Pryor. I almost wish we had had a paper this evening, to round out the list, on the causes and clinical diagnosis of cancer. It seems to me it is not possible to improve this rate of mortality in any other way than getting back of the operative procedure, back of the present means of diagnosis, by larger and more general discussion among the physicians, especially obstetricians, and the intelligent laity. The one thought that came to my mind was the close relationship between trauma and cancer, and the very large proportion of cases of cancer occurring in those who have borne children or gone through some mechanical procedure of such a nature as to inflict injury on the uterus, and at a later date have presented symptoms of malignant growth, developing, if not exactly in the scar, certainly near it. I believe that it is a disputed point whether the cancer does actually develop in the scar of trauma or not. But that being the case, it seems to me the only practical way that an early diagnosis can be made is by some more thorough examination of women than

is done at present. The examination of those who have borne children, especially after thirty years of age, the examination of those who have any abnormal form of hemorrhage or discharge of any nature, should be made. The symptoms may be very obscure, the clinical evidence is often so vague and uncertain as to be practically *nil*, and yet it is the best early means we have at hand. Then, if there is any suspicion of malignant disease or any abnormality, the court of last resort is the laboratory of the pathologist.

Dr. E. W. Cushing: I thought the vaginal method was the best operation at a time when the abdominal method was not perfectly developed. With the completion of the abdominal procedure I have given up any special advocacy of the vaginal method. I certainly was one of the early introducers, in 1888, of vaginal hysterectomy for cancer. I think I reported twenty-two cases in that year. Afterwards the French thought they had made great improvements in vaginal hysterectomy. I took the trouble to go over in 1895 and see them work. Segond was the great apostle of the vaginal method. I invited him to come over and see our abdominal work. He came over and went back converted. Jacobs of Brussels came over to show us how to do vaginal hysterectomy and went back converted. Segond published an article on the American operation for abdominal hysterectomy, praising it highly. One point not brought out tonight, on which I should like to somewhat disagree with Dr. Irish, was as to the method of making the combined operation. In my experience, I think it is better to go in above, tie the arteries, dissect down, separate all connections round the vagina, close the abdomen, and pull down the uterus from below before you cut through the vagina. In that way you have various advantages, particularly in less liability to cancerous infection of the vaginal incision.

In what Dr. Cumston said I should quite seriously doubt the wisdom of vaginal hysterectomy in the pregnant uterus during the first six months. I think it would be found a very difficult thing to finish the operation in a surgical manner without clamps. In three cases I have amputated the pregnant uterus in the first six months, owing to the complication of a fibroid. The size of the vessels is something wonderful, and, except in the most expert hands, there is danger of a very serious catastrophe by the vaginal method, whereas, after opening the abdomen and tying off the vessels, it is a perfectly simple operation from above.

I was interested in what Dr. Tuttle was reading in regard to the treatment of inoperable cases and the treatment with oils, etc. I would like to ask him if he refers to the Alexander treatment, which I believe he has tried and uses, and whether he thinks that is good treatment.

It is too late tonight to express my opinion of the Alexander treatment, but I will at an early date present a paper to this society, explaining how by a trick my name has been used by the promoters of this nostrum, and giving my opinion of the methods employed by these *homines trium litterarum*.

Dr. G. J. Engelmann: I came here this evening to listen to the discussion, which practically is a reply to a series of questions proposed by the Vienna Academy in 1810: I came curious to know the response of 1902 to questions put nearly 100 years ago. Precisely those questions were then put which are the important questions of today.

At that time it was, of course, asked whether cancer of the uterus is operable, is a subject for the consideration of the surgeon, if so, what were the methods of operation, what the dangers to be avoided, and, finally, the pertinent question was asked, when the operation has been successfully performed, is the case closed, or is anything more to be done?

An answer was given by Sauter in 1822 more in accord with the facts as I take them to be, more in accord with our present knowledge, than were the generally accepted views of the past decades: complete removal was urged, and that with a searching for every bit of infiltrated tissue, every glandule and every nodule; and again and again he emphasizes the importance of a better education of the general practitioner, of early diagnosis, of early operation, and the avoidance of meddlesome or partial operation.

I must here confess that my experience has not been a satisfactory one as regards permanent relief or cure; it has been more like that of Dr. Tuttle. I have myself not had the success which so many have claimed in former years, nor have I seen it in the practice of others, and I note with much satisfaction that at the present day the percentage of cures reported is growing decidedly less, the reports now given are of a very different character and much less favorable than those of ten or more years ago.

Our knowledge of the disease is as yet so limited and cures so rare that these always appear to me as a most interesting study, and two such cases stand out prominently in my experience: one was the success of a high amputation in an unquestioned cancer of the cervix, of which I still have sections which verify the diagnosis. The operation was performed some thirteen years ago on a lady of fifty, whose health was completely restored, and who has had no recurrence. I may incidentally recall the preference given by some, such as Reamy of Cincinnati, and Byrns of Brooklyn, to high amputation over total extirpation. The other is one of *self-limitation*, to which I desire to call attention, because it may afford some indication as to the nature of the disease and because similiar cases have not been reported, to my knowledge at least.

I have been called to operate, and found conditions such that I felt obliged to refuse, as the case was too far advanced; the attending physician had termed it carcinoma uteri, and such I found it to be, in an advanced stage, the patient a comparatively young woman with extreme cachexia, profuse offensive discharge with the characteristic odor, the cervix destroyed, a great funnel-shaped

opening into the uterus, which left no doubt as to the condition. Removal seemed out of the question, and my suggestion of curettage, which promised only temporary relief, was not accepted. It was evident that the case would continue to progress rapidly and must soon lead to a fatal termination. I so informed the attendant, and advised frequent antiseptic injections, with removal of the detritus and the free use of iodoform; finally, morphin when suffering became excessive. I heard nothing more from my patient, and presumed the disease to have terminated as I predicted. To my surprise I was informed that the patient had recovered. The discharge had gradually ceased after continuing for some time in extreme profusion, and health had been completely restored; she was strong and vigorous, though not so fleshy as she had been before the beginning of the disease. I followed the case for years and heard only continued good reports, but I have now lost sight of her.

I will admit that the diagnosis may be questioned, as no microscopic examination was made; but this seemed needless, as all the clinical evidences of uterine cancer were present, typical and unmistakable. The case is one that I have frequently mentioned in my desire to elicit corroborative information, but once only have I heard of a similar one, and that was spoken of as a "*self-curettage*," a term which might well be applied to the one reported, as the discharge was so profuse that it appeared like a cutting away of the diseased tissue.

These two cases I always recall when tempted to condemn the removal of the carcinomatous uterus with a view to permanent relief, and they have served to stimulate me to further efforts in the face of the recurrence I so frequently see and the unfavorable results recorded by others, so much so as to lead to the expressed unwillingness of able and experienced surgeons to operate for the cure of uterine cancer.

I am almost tempted to believe that we will yet discover *two forms of neoplasm*, differing decidedly in characteristics and malignancy, which present the same histological structure, so diverging are the reports we receive as to results; but whatever the future may bring, I am convinced that immunity from recurrence is far less frequent than enthusiastic operators would have it appear.

DR. PRYOR: The importance of early diagnosis is well shown in the fact that of 100 women with cancer, we get but seven in a condition fit for a radical operation; and of these seven only 10% are cases of cancer of the body of the uterus, cases that give such good results from vaginal hysterectomy. My endeavor has been to develop an operation which will give these other women suffering from cancer of the cervix an immunity against recurrence equal to that now secured by operating through the vagina upon cancer of the body of the uterus, and I have met with most flattering success. The cases are selected for this operation only as they are selected for the vaginal operation, with the exception that I do not apply the radical abdominal operation where I feel sure death will result because of the depreciated condition.

But, after all, it hinges on early diagnosis. Women come to us who have had cancer six months. Now, is there not a symptom between the time that cancer begins and the time they come to us which if they knew they could be taught to dread? I believe there is. Frommel, from *a priori* reasoning, supposed that inasmuch as this disease was a multiplication of secretion-producing cells, he ought to get in his cases early an increase in that amount of leucorrhea which nearly every woman has, and which we call her normal leucorrhea, and this is the fact. Clinically, women will observe, four to six months before there is an intermenstrual bloody discharge, that there is a marked increase in the amount of leucorrhea. My interest being excited by the statement of Frommel and substantiated by Walstein, I began questioning in regard to this point, and found that the long-ago-forgotten leucorrhea returns as the first sign of the woman past the menopause. She hails it as the sign of rejuvenation, and I know it now to be a very early symptom of beginning cancer of the cervix. That is my contribution to the early diagnosis of cancer of the cervix.

DR. TUTTLE: As I say in the treatment of cancer of the fundus, I think we get a large per cent. of recoveries which remain permanent, but I have only one case of cancer of the cervix that has lived over three years, and I felt when I made the statement, that we have got to consider a good deal the question brought up tonight, and that is, what is operable cancer? We can take out a cancer by combining our methods when it is very extensive, and practically get rid of the bulk of the growth. I remember last winter having one where there was extensive infiltration into the vagina, so much so it was refused operation in one of the large hospitals. The patient insisted on removal. I removed all the cancerous material from the vagina, taking out nearly half the vagina in one operation. I let her rest about three weeks, and then went ahead and took out from the uterus above, that is, by the abdominal route. The operation was successful as far as the patient getting over the operation. She lived some months afterwards, but it is questionable whether that would be called a justifiable operation. It was done in this case at the request of the patient. If we bring up the subject when an operation is justifiable, that is a pretty hard subject at the present time. If we have not over 10% of recoveries, and I do not pretend to have that amount from cervical cancer, an operation would not be justifiable except in the very beginning, and we see very few cases at that time. As a rule, those are seen mostly by accident. A woman will go until the whole cervix is eaten away before she comes to the physician. That has been my experience; so that we really get an operable case very rarely if we have to consider the question of recoveries in regard to the justifiability.

THE BOSTON

# Medical and Surgical Journal.

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## THE SMOKE NUISANCE.

Boston has finally awakened to the necessity of a public protest against the smoke nuisance in and about the city. A hearing on a bill which provides for the abatement of the smoke nuisance in the city of Boston and the vicinity was held before the Committee on Cities on April 10. This bill provides for the suppression of the smoke nuisance over the metropolitan area, including all cities and towns situated within a radius of ten miles of the State House, and also that the boards of health of the respective cities and towns shall be charged with the enforcement of the law. The hope is that through moral suasion and education the intelligent portion of the community will gradually recognize the necessity of a cleanly and economical use of fuel and proper method of firing furnaces.

It is furthermore thought that boards of health, with authority to enforce a reasonable law, may be relied upon to bring about the desired reform. A brief statement of the situation has been widely circulated signed by a number of our most influential and public-spirited citizens, urging all individuals interested in the maintenance of Boston as a clean and healthful city to take a personal interest in the proposed reform. It is stated with reason that, if our metropolitan district is not to be kept free from smoke and soot, it is useless to provide beautiful buildings, elaborate parks and gardens. The promoters of the bill maintain that the reform may be accomplished not only without danger, but with positive benefit to the commercial interests of the city. Just how this is to be brought about must be learned from personal experience and from a study of the experience of other cities.

Recently Professor C. H. Benjamin, supervising engineer of Cleveland, Ohio, gave a lecture in Boston on the control of the smoke nuisance. After commenting on the relative purity of the atmosphere of Boston in comparison with that of cities in the soft coal belt further west, he remarked, with much justice, that, inasmuch as the evil had made so little progress in Boston, there was all the more reason for immediate action to prevent its further encroachments. If things were allowed to go on unchecked, it is altogether probable that the conditions here in a relatively few years would approach those of Cleveland or Chicago.

The lecturer pointed out that bituminous coal owes its offensive character to the presence of hydrocarbons, whereas anthracite and semibituminous coals, being relatively free from hydrogen, cause little offense. The necessity of supplying sufficient air in using coal and keeping up a constant temperature was pointed out, if we are to escape the well-known soot and dense black smoke. In general, it is true that black smoke indicates imperfect combustion, and the immediate cause of smoke, therefore, from hand-fired furnaces, is due to the fact that large quantities of fresh coal thrown on the fire, by clogging up the air passages, leads to a scarcity of oxygen when it is most needed. If sufficient air can be supplied to complete the burning of both the gaseous and solid parts of the fuel we should have practically no annoyance from smoke. It is now a generally accepted fact that from ten to twenty-five per cent. more work may be obtained from fuel by preventing excessive smoke.

When one comes to consider the problem of the railroads, the matter assumes a somewhat different aspect. Mechanical contrivances for the prevention of smoke in the way of mechanical stokers have not as yet been applied to locomotives with any degree of success. There are, therefore, two alternatives, either to use smokeless fuel, or, by exceedingly careful firing, to reduce to a minimum the smoke from soft coal.

From a practical point of view, the method of instituting a reform may be carried out somewhat as follows: First, a census of the furnaces of a city and also of the locomotives may be made. Thereafter, careful observations are made of each chimney or engine, sufficient in number to base an intelligent report upon. When this has been done the subject is presented to persons in authority and suggestions made as to remedies. In very many cases the co-operation of the manufacturers and railroad men has been obtained and progress in a reduction of the nuisance has been evident. This method, it was pointed out by Professor Benjamin, has been followed at Cleveland, and he was already able to report a decided improvement in a period of eighteen months.

In concluding his remarks, Professor Benjamin said that the smoke from soft coal is a great damage to property and to health; that it is entirely practicable to prevent the greater part of the smoke coming from this class of fuel; that such prevention will not only result in good to the community at large, but in direct personal profit to the individual most interested.

It is certainly to be hoped that this very reasonable agitation, begun in time, may have a definite effect upon the conditions existing in Boston. These conditions are admittedly not as yet particularly threatening, and therefore the prospect of complete relief may be the more confidently expected. We shall also observe with much interest the success of the plan to intrust the enforcement of laws that may be made to various boards of health.

## A FOREIGN VIEW OF AMERICAN METHODS.

NOT many years ago it caused no special surprise to hear from our English cousins' lips that they supposed Indians were common denizens of our city streets, and that gold was to be had for the asking. We had supposed, however, that all this was in the past, and that we were now regarded as quite up to the average in civilization and common sense. It was, therefore, with a certain shock that we read the following apparently serious statement in a recent number of our much esteemed contemporary, *The Medical Press:*

"The inhabitants of Plymouth, U. S. A., have been having a lively time of it of late in consequence of a campaign undertaken by the Board of Health for the extermination of stray dogs and cats, which are suspected to be the means of disseminating smallpox and other infectious diseases. In the abstract the campaign must command approbation, but for parties of volunteers to march through the town armed with shot-guns for the purpose of destroying stray animals is a proceeding which has its drawbacks, in that the wandering and homeless animals were not the only recipients of the leaden shower, sundry wandering inhabitants having received a share, as well as some who merely looked out to see what was going on."

Of course, this may all be true, but it appears a little remarkable that news of it should not yet have reached us except via England. We are not responsible for what may be done in Plymouth, or for what conception of its duties the Plymouth Board of Health may have, but we confess to a rising sense of the humor of the situation, when we contemplate the "leaden showers" and the "wandering inhabitants" and onlookers who apparently stood around calmly waiting to be shot. We believe most fully in the extermination of infectious diseases by any legitimate means, but the shooting of harmless inhabitants is too drastic a remedy even for us to look upon with complacency. We trust the facts have been misinterpreted in their long passage across the water.

## MEETING OF THE AMERICAN CLIMATOLOGICAL ASSOCIATION.

THE element of originality is usually sadly lacking in the meetings of medical societies. Such a charge certainly cannot be made this year against the American Climatological Association, which has planned an extensive tour of the far West from May 26 to July 3, for the purpose of study primarily, we presume, and secondarily for pleasure. Such a plan is peculiarly fitting for an association of this character, whose members, no doubt, are, one and all, interested in the possibilities of our Western climate for various classes of disorders. It is proposed to make the journey West by one of the great transcontinental routes, returning by another, the arrangements of travel being as comfortable as foresight and modern methods can make them. A large number of places of interest will be visited *en route*, in New Mexico, Colorado and California, for the purpose of investigating at first hand the climatic conditions and advantages of various health and pleasure resorts. The society will remain four days at Los Angeles, during which the formal annual meeting will be held. The association has invited a few representative physicians, who are not members, to take part in the trip.

It has long since been conceded that annual medical gatherings should combine as great a degree of pleasure with their purely scientific proceedings as is compatible with the dignified presentation of papers or other communications. By this means science does not materially suffer and good fellowship is enormously increased. We congratulate the Climatological Association on its plan, which, we have no doubt, will work out practically in as satisfactory a fashion as it does in contemplation. Other societies have not so good an excuse for such an extensive tour as this promises to be, but anxious program-arrangers should bear in mind the example which is being set by this progressive and energetic association.

## MEDICAL NOTES.

THE FOURTEENTH INTERNATIONAL MEDICAL CONGRESS.— The officers of this congress, which is to be held in Madrid, Spain, from April 23 to April 30, 1903, have requested Dr. Abraham Jacobi of New York to form the American committee.

The same general plan will be followed as that devised by Dr. Osler for the preceding congress. Invitations to accept places on the committee have therefore been sent to the president of the American Congress of Physicians and Surgeons and the presidents of the constituent societies, the president of the American Medical Association and various other presidents of prominent medical organizations.

Chicago Health Statistics.— As compared with the week previous there was an increased mortality last week in Chicago from all the chief causes of death except scarlet fever, pneumonia and violence. The total, 562 deaths, reported to the Health Department represent an annual rate of 16.10 per thousand of population as against 14.19 and 13.18 respectively for the previous week and the corresponding week of 1901, or more than one-seventh and more than one-fifth increase respectively. Of the 16 new cases of smallpox discovered and removed to the Isolation Hospital during the week one was imported from Iowa and one from Springfield, Ill.; five others were cases contracted from exposure to a man at the Zion College, discovered March 26. At the close of the week 42 cases remained under treatment in the hospital, 10 had been discharged, recovered, and no death had occurred. Since Jan. 1 there have been 128 cases treated, with one death and 84 recoveries. As illustrative of the unusual prevalence and fatality of the contagious diseases 10 deaths from puerperal fever are noted — the greatest number in any one week since weekly records were begun. Scarlet fever still prevails as an epidemic and the effect of the water pollution following the March rains is reflected in the increase of typhoid fever deaths.

Appointment of Dr. J. J. Kinyoun.— Dr. J. J. Kinyoun, late surgeon of the Marine Hospital Service, and director of the Hygienic Laboratory of the Marine Hospital Service at Washington, well known as a bacteriologist, has accepted the directorship of the Biological Laboratories of the H. K. Mulford Company.

A Centenarian.— Mrs. Hannah Bartow is dead at her home in New Brunswick, N. J. It is reported that she would have been 106 years old May 1.

### boston and new england.

Acute Infectious Diseases in Boston.— For the week ending at noon, April 16, 1902, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: Diphtheria 40, scarlatina 15, measles 141, typhoid fever 6, smallpox 9.

Bequest for Nurses' Building at Elliot Hospital, Keene, N. H.— The sum of $12,000 has been given to the Elliot City Hospital at Keene, N. H., for the construction of a nurses' building, to be known as the Edward Joslin Home for Nurses. The donors are the children and grandchildren of the late Mr. Joslin. The building will be a three-story structure of brick, similar in style to the present hospital building, which it will adjoin.

Graduation of Nurses at Vincent Memorial Hospital.— Three nurses were recently graduated from the Vincent Memorial Hospital, Boston. Addresses were made by Dr. C. J. Blake, Dr. Alfred Worcester of Waltham, and others.

### new york.

Right of a City to Appropriate a Water Supply.— In the United States Supreme Court, on April 7, an opinion was delivered by Justice Brewer in the case of Pine and others against the City of New York and ex-Controller Coler, involving the right of the city to appropriate the water of the Byram River, along which the complainants resided. The case was decided against the city by the Circuit Court of Appeals for the second circuit, but the opinion now rendered at Washington reverses that finding and remands the case for further hearing, with instructions to consider the question of damages. This decision, it is thought, settles the right of a state to divert for its own uses streams of water running through its territory, whether they later pour into another state or not. The Byram River is a small stream with two branches, one of which rises in New York and the other in Connecticut. For a portion of its course it is entirely in the latter state, but afterwards forms the boundary between the two states until it empties into Long Island Sound. For the purpose of increasing its water supply the city of New York was building a dam on the west branch of the river, near the Connecticut line. Mill owners had already been paid $379,000, and offers of settlement had been made to all who considered themselves damaged by the diversion. Two or three Connecticut farmers, however, with property on the line of the river, raised the point that the city, although acting under legislative authority, had no right to divert the water. They claimed that it was not a question of damages, and that the only way the city could get the water would be to buy up all the land in Connecticut abutting the river. They then succeeded in securing from the Federal Court a perpetual injunction against the city, which was afterwards endorsed by the Circuit Court of Appeals. Ex-Controller Coler expresses the opinion that the decision of the Supreme Court will save the city millions of dollars. By it the city's right is also established to utilize the waters

of the Ten Mile River in Dutchess County, N. Y., considered by many engineers to be the best source for increasing the water supply of New York at present available.

SUMMARY DISPOSITION OF A SUIT AGAINST PHYSICIANS.— Justice Leventritt, of the New York Supreme Court, has just disposed of a case in a summary manner which it is to be hoped will have the effect of deterring to a considerable extent the bringing of annoying and groundless suits for damages against reputable physicians. A claim for $100,000 damages was made against Drs. Austin Flint, Allen Fitch and O. J. Wilsey, on the charge that they had conspired to secure the false imprisonment of a patient who had been committed to a private asylum for the insane at Amityville, Long Island, on the examination of the two former, and who had been received by the latter; all acting in the course of regular legal proceedings and in accordance with their obligations, duly defined by law. Instead of endeavoring to compromise and avoid a trial, the defendants made every preparation for a complete and conclusive adjudication. When the suit came up for trial, on the mere statement of his case by the counsel for the plaintiff, the court ordered a dismissal, with costs for the defendants.

PROCEEDINGS AGAINST VENDORS OF IMPURE MILK.— The Health Department is displaying commendable activity in proceeding against the vendors of impure milk, and in the Court of Special Sessions on April 7, a wholesale dealer of Orange County, N. Y., against whom charges had been brought by its inspectors, was fined $600. There were two fines, one of $100 and one of $500, for a repetition of the offense, and they are said to have been among the heaviest ever imposed in such cases. In passing sentence Presiding Justice Mayer said: "I am going to make an example of this case, and I trust that it will gain the widest publicity. The justices of this court, where these cases are brought, believe that the Health Department is doing a great work, and we mean to stand by it. The babies of this big city must not die, that the up-state farmer may profit by villainous adulteration of their food — a few cents premium on the head of every little one."

APPROPRIATION FOR NEW YORK HEALTH DEPARTMENT.— The president of the Health Department, backed by the hearty support of the Medical Advisory Board of the department, has applied to the Board of Estimate and Apportionment for an appropriation of $1,025,000, with which to improve the condition of the existing hospitals for contagious diseases in the city and to provide new hospitals in the boroughs of Queens, Richmond and the Bronx. In proof of the need of increased facilities for the treatment of such diseases, he cites the fact that one day during the past week two cases of smallpox were discovered in remote parts of Staten Island (borough of Richmond), and a department diagnostician had to travel forty miles, and the department steamboat Franklin Edson sixty miles, in securing the removal of the patients to the hospital on North Brother's Island in the East River.

THE WATER SUPPLY OF NEW YORK CITY.— In accordance with a request from Controller Grout, the commissioner of the Department of Water Supply has submitted a communication containing his estimates of bonds necessary for the maintenance of his department. In the course of it he says: "It is an astonishing fact that while Greater New York contains 45% of the population of the state, the watershed it lays under tribute covers but 1% of the entire area of the state. That the growth of population is fast encroaching upon the maximum supply which can with certainty be counted upon, is a truth which has been made plain to every expert who has studied the subject."

PRIZE OF CAROLINE AND OLIVIA STOKES FUND.— The first of the annual prizes supplied by the Caroline and Olivia Stokes Fund of the New York Botanical Garden in Bronx Park, has been awarded to Dr. F. H. Knowlton, of the National Museum, for an essay entitled "Suggestions for the Preservation of Native Plants."

APPOINTMENT OF DR. W. F. DREYFUS.— Dr. W. F. Dreyfus, for the past two years assistant in chemistry at Columbia University, has been appointed chemist in charge of the drug department of the Department of Public Charities, in place of Dr. Rice of Bellevue Hospital, who died in May, 1901.

### WASHINGTON.

CONFERENCE OF LEGISLATIVE COMMITTEES OF THE AMERICAN MEDICAL ASSOCIATION AND STATE SOCIETIES.— A conference was recently held in Washington of the Legislative Committee of the American Medical Association and the chairmen of the Legislative Committees of the State Societies. Reports were made of the results accomplished during the past year in national and state legislation affecting the interests of physicians. The conference adopted a committee report having as its object the securing of suitable state legislation and the creation of a national board of medical examiners, license from which would enable the holder to practise medicine in any state in the Union. The conference favored the conversion of the Marine Hospital Service into a bureau of public health; it also passed resolutions strongly opposing the Gallinger bill to

regulate vivisection in the District of Columbia. It favored the passage of an act by which the medical expenses of sick officers and enlisted men, while absent from duty, should be paid by the government. A memorial was prepared for submission by the committee to Congress urging the promotion of Surgeon-General Sternberg to the grade of major general before his coming retirement for age. A committee was also appointed to wait upon the Secretary of War and protest against the discrimination in pay and promotion existing against physicians entering the army as surgeons, as compared with the pay and promotion given to appointees in the line of the army. The secretary was informed that unless existing conditions were remedied, the medical profession could not regard the Medical Department of the Army as offering sufficient inducements to attract well-qualified young physicians.

Promotion of the Surgeon General of the United States Army.—On June 7, 1899, the American Medical Association approved the following resolution: "*Whereas*, The position of Surgeon General of the United States Army involves great and grave responsibility, the direction of vast interests, the highest order of professional skill and learning, and executive ability; and *Whereas*, The number of officers and soldiers under the direction of the surgeon general in an army organized as is the Army of the United States is greater than the command of a division commander, *Be it Resolved* . . . That it is the sense of this body that the Surgeon General of the Army should have the rank, pay and allowances of a major general." In accordance with this resolution a bill has been submitted to Congress as follows: "*Be it enacted by the Senate and House of Representatives of the United States of America in Congress Assembled*, That the President of the United States is hereby authorized to select one from the medical officers of the army who have served forty-one years or more, nine years of which as surgeon general, and, by and with the advice and consent of the Senate, appoint him a major general of the United States Army, for the purpose of placing him on the retired list." This applies to Surgeon-General Sternberg, and is signed by Dr. H. L. E. Johnson of Washington, Dr. Wm. H. Welch of Baltimore and Dr. Wm. L. Rodman of Philadelphia.

Sanitary Conditions in Manila.—Mail reports from Manila, dated Feb. 23, go to show a very satisfactory condition of affairs in that city, from a sanitary point of view, the city being freer from communicable disease than at any previous time in the three years of American occupation. There had been only two cases of plague in the present year up to the time the report was written. No cases of plague occurred in January of this year, as compared with 22, 18 and 30 cases occurring during the same month in previous years. While the health authorities are doing everything in their power to place Manila in a sanitary condition, they find much to contend against in native ignorance and indifference. Many native householders object strongly to catching and turning over to the Board of Health the rats on their premises, for fear lest a plague-affected rat should be found among them and they be put to expense and their domestic quiet be disturbed by the board's cleansing and disinfecting operations. Others object to vaccination and inoculation, and waste half the time of the public vaccinators in arguing the question of submission to the operation. The Chinese are the best patients in this respect, looking upon vaccination and preventive inoculation as a joke arranged for their special benefit. All the worst of the buildings in the old walled city have now been removed, and the work of inspection and cleaning up is continued daily. The report says that the condition of the city is much improved, even as regards conditions existing a year ago. The report of the Board of Health says, however, that until many radical sanitary defects are remedied the mortality among the lower classes will remain greater than necessary. The damp and humid habitations of this class contribute largely to the death-rate, the lower floors of dwellings in Manila being too damp for human habitation. The board says that before a satisfactory sanitary condition is reached the expenditure of large sums of money on permanent municipal improvements will be necessary. Among the improvements most needed are a modern sewerage system, better drainage, increased water supply and filtration beds, and suitable public parks.

## METEOROLOGICAL RECORD

For the week ending April 5, in Boston, according to observations furnished by Sergeant J. W. Smith of the United States Signal Corps:

| Date | Barometer. | Thermometer. | | | Relative humidity. | | | Direction of wind. | | Velocity of wind. | | We'th'r * | | Rainfall in inches. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Daily mean. | Daily mean. | Maximum. | Minimum. | 8.00 A.M. | 8.00 P.M. | Daily mean. | 8.00 A.M. | 8.00 P.M. | 8.00 A.M. | 8.00 P.M. | 8.00 A.M. | 8.00 P.M. | |
| S...30 | 29.60 | 54 | 61 | 48 | 75 | 73 | 74 | N W | W | 8 | 13 | C. | O. | O. |
| M..31 | 29.38 | 46 | 55 | 38 | 66 | 70 | 68 | W | S W | 15 | 10 | F. | C. | T. |
| T...1 | 29.30 | 43 | 52 | 34 | 75 | 61 | 68 | N W | W | 8 | 16 | F. | F. | T. |
| W..2 | 29.48 | 43 | 47 | 39 | 62 | 59 | 62 | S W | W | 19 | 16 | O. | C. | O. |
| T...3 | 29.80 | 43 | 51 | 35 | 60 | 54 | 57 | W | N | 14 | 9 | C. | C. | O. |
| F...4 | 30.02 | 40 | 45 | 34 | 61 | 69 | 65 | N | S | 4 | 8 | C. | F. | O. |
| S....5 | 29.90 | 41 | 45 | 37 | 83 | 79 | 81 | W | N E | 19 | 9 | O. | O. | T. |
| ☞ | 29.64 | | 51 | 38 | | | 68 | | | | | | | 0.00 |

*O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow. †Indicates trace of rainfall.
☞ Mean for week.

## RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, APRIL 5, 1902.

| CITIES. | Population* Estimated, 1902. | Reported deaths in each. | Deaths under five years. | Percentage of deaths from | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | Infectious diseases. | Acute lung diseases. | Diphtheria and croup. | Typhoid fever. | Diarrheal Diseases. |
| New York . . | 3,665,352 | 1,366 | 438 | 17.05 | 13.76 | 3.81 | .15 | 2.20 |
| Chicago . . | 1,852,828 | 496 | 155 | 19.20 | 22.40 | 2.00 | .10 | 3.20 |
| Philadelphia. | 1,349,624 | 506 | 121 | 23.00 | 14.80 | 3.40 | 3.00 | — |
| St. Louis . . | 603,717 | — | — | — | — | — | — | — |
| Baltimore . . | 525,330 | 224 | 48 | 23.63 | 17.39 | .89 | 1.70 | 2.23 |
| Cleveland . . | 411,826 | — | — | — | — | — | — | — |
| Buffalo . . . | 375,742 | — | — | — | — | — | — | — |
| Pittsburg . . | 341,401 | 138 | 47 | 21.02 | 31.17 | — | 7.97 | 2.90 |
| Cincinnati . | 332,032 | — | — | — | — | — | — | — |
| Milwaukee . . | 304,975 | — | — | — | — | — | — | — |
| Washington . | 289,537 | — | — | — | — | — | — | — |
| Providence . | 185,870 | 59 | 15 | 18.70 | 13.60 | 3.40 | — | 5.10 |
| Boston . . . | 588,736 | 233 | 66 | 17.59 | 22.31 | 1.71 | .43 | 1.28 |
| Worcester. . | 127,337 | 30 | 12 | 6.67 | 16.67 | 3.33 | — | — |
| Fall River. . | 111,872 | 39 | — | 17.90 | 30.72 | 5.12 | — | 5.12 |
| Lowell . . . | 99,574 | 35 | 6 | 22.85 | 8.57 | 5.71 | — | — |
| Cambridge . | 96,334 | 34 | 8 | 20.58 | 17.64 | 5.88 | — | — |
| Lynn. . . . | 71,144 | 22 | 9 | 13.62 | 9.08 | — | — | — |
| Lawrence . . | 67,275 | 19 | 8 | 15.78 | 26.30 | — | 5.26 | — |
| Springfield . | 66,854 | 15 | 7 | 6.67 | 20.00 | — | — | — |
| Somerville . | 65,882 | 15 | 4 | 13.33 | — | — | — | — |
| New Bedford. | 65,574 | 20 | 6 | 25.00 | 25.00 | 10.00 | — | — |
| Holyoke . . | 48,065 | 15 | 7 | 13.33 | 13.33 | — | — | — |
| Brockton . . | 43,208 | 7 | 3 | 42.90 | — | — | 14.30 | — |
| Haverhill . . | 40,392 | 12 | 3 | 8.33 | 33.33 | — | — | — |
| Salem . . . | 36,567 | 9 | 2 | — | — | — | — | — |
| Newton. . . | 36,336 | 10 | 2 | 30.00 | — | 10.00 | — | — |
| Malden . . . | 35,390 | 11 | 4 | 27.27 | 27.27 | — | — | — |
| Chelsea. . . | 35,264 | 8 | — | 37.50 | — | — | — | — |
| Fitchburg. . | 33,848 | 7 | 2 | 28.60 | 28.60 | — | — | — |
| Taunton . . | 32,759 | 16 | 2 | 25.00 | 12.50 | — | — | 6.25 |
| Everett. . . | 27,114 | 7 | 3 | — | — | — | — | — |
| North Adams | 26,583 | 6 | — | — | 50.00 | — | — | — |
| Gloucester . | 26,121 | 3 | 1 | — | 33.33 | — | — | — |
| Quincy . . . | 25,307 | 6 | — | 16.67 | — | — | — | — |
| Waltham . . | 24,612 | 8 | 2 | 50.00 | 25.00 | 12.50 | 12.50 | — |
| Pittsfield . . | 22,311 | 3 | — | — | 33.33 | — | — | — |
| Brookline. . | 21,679 | — | — | — | — | — | — | — |
| Chicopee . . | 20,390 | 6 | 1 | 16.67 | 16.67 | — | — | — |
| Medford . . | 20,014 | 4 | 3 | — | 25.00 | — | — | — |
| Newburyport | 14,478 | 9 | 0 | 22.22 | — | — | — | — |
| Melrose . . | 13,384 | 4 | 1 | — | — | — | — | — |

* The populations of the cities outside of Massachusetts were estimated on the basis of the rate of growth from 1890 to 1900. Those of the Massachusetts cities were estimated upon the rate of growth from 1895 to 1900, since the State had an intermediate census in 1895. The populations of Gloucester, Marlborough and Newburyport were allowed to stand as in 1900, they having suffered a slight decrease during the five-year period.

Deaths reported 3,442; under five years of age, 993; principal infectious diseases (smallpox, measles, scarlet fever, cerebrospinal meningitis, diphtheria and croup, diarrheal diseases, whooping cough, erysipelas, fevers and consumption) 658, acute lung diseases 580, consumption 382, scarlet fever 50, erysipelas 14, typhoid fever 39, whooping cough 22, cerebrospinal meningitis 8, smallpox 28, measles 32, diarrheal diseases 65, diphtheria and croup 100.

From whooping cough, New York 13, Chicago 2, Philadelphia 2, Pittsburg 1, Boston 2, Lawrence and Springfield 1 each. From cerebrospinal meningitis, New York 2, Baltimore 1, Pittsburg 1, Boston 4. From scarlet fever, New York 28, Chicago 17, Philadelphia 2, Pittsburg, Providence and Fall River 1 each. From erysipelas, New York 5, Chicago 3, Baltimore 2, Pittsburg, Boston, Somerville and Framingham 1 each. From smallpox, New York 20, Philadelphia 6, Baltimore and Cambridge 1 each.

Beginning with January, 1902, the term "great towns" as employed in the Registrar General's Weekly Return of births and deaths includes the seventy-five municipalities of England and Wales which have a population of more than 50,000 in each.

In the seventy-six great towns of England and Wales, with an estimated population of 14,862,003, for the week ending March 22, the death-rate was 17.6. Deaths reported 5,015; acute diseases of the respiratory organs (London) 588, whooping cough 116, diphtheria 93, measles 149, smallpox 68, scarlet fever 50.

The death-rate ranged from 7.5 in Handsworth to 27.0 in Devenport; London 18.8, West Ham 18.6, Croydon 20.4, Brighton 16.3, Portsmouth 19.3, Southampton 19.3, Bristol 14.6, Birmingham 17.3, Leicester 18.3, Nottingham 15.9, Birkenhead 19.9, Liverpool 19.4, Manchester 18.5, Salford 17.0, Bradford 15.2, Leeds 16.1, Sheffield 17.1, Hull 17.6, Newcastle-on-Tyne 17.9, Cardiff 11.7.

## OFFICIAL LIST OF THE CHANGES OF STATION AND DUTIES OF COMMISSIONED AND NON-COMMISSIONED OFFICERS OF THE U. S. MARINE HOSPITAL SERVICE FOR THE SEVEN DAYS ENDING MARCH 27, 1902.

WHITE, J. H., surgeon. To proceed to Baltimore, Md., for special temporary duty. March 21, 1902.

CARRINGTON, P. M., surgeon. To proceed to Fort Bayard, East Las Vegas and Santa Fe, New Mexico, for special temporary duty. March 17, 1902.

GEDDINGS, H. D., passed assistant surgeon. To proceed to Baltimore, Md., for special temporary duty. March 21, 1902.

GREENE, J. B., passed assistant surgeon. Granted leave of absence for seven days from March 18, 1902, under paragraph 181 of the regulations.

ADAMS, F. B., acting assistant surgeon. Granted leave of absence for twenty days from April 1. March 26, 1902.

KINSELL, B., acting assistant surgeon. Granted leave of absence for ten days from Feb. 10. March 21, 1902.

RODMAN, J. C., acting assistant surgeon. Granted leave of absence for three days from March 27. March 26, 1902.

TOWNSEND, F., acting assistant surgeon. Granted leave of absence for one month from March 15, 1902. March 24, 1902.

WETMORE, W. O., acting assistant surgeon. Leave of absence for fourteen days granted Acting Assistant Surgeon Wetmore, revoked. March 26, 1902.

BOARD CONVENED.

Board convened to meet at the Bureau March 24, 1902, for the physical examination of candidates for admission to the engineer corps, R.C.S. Detail for the Board — Passed Assistant Surgeon H. D. Geddings, chairman; Assistant Surgeon B. S. Warren, recorder.

APPOINTMENT.

W. E. RICE of Maine, appointed acting assistant surgeon for duty at Bath, Me., March 21, 1902.

## SOCIETY NOTICES.

MAINE MEDICAL ASSOCIATION.— The annual meeting of this association will be held at Portland, Me., June 4, 5 and 6, 1902, under the presidency of Dr. F. H. Gerrish.

SUFFOLK DISTRICT MEDICAL SOCIETY.— There will be a regular meeting of the Section for Obstetrics and Diseases of Women in Sprague Hall, Boston Medical Library Building, 8 The Fenway, Wednesday, April 23, 1902, at 8.15 P.M.

Papers: Dr. S. Breck, "The Mechanics of the Uterine Ligaments and its Practical Application"; Dr. Charles F. Painter, "Some Congenital Conditions Demanding Orthopedic Treatment"; Dr. F. B. Lund, "Congenital Deformities of the Hand."

W. H. GRANT, Secretary.

## RECENT DEATHS.

DR. SANFORD J. MURRAY of New York, a graduate of the Medical Department of the University of Vermont in 1878, died recently at Glens Falls, N. Y.

DR. A. A. NOUEL of New York, a graduate of Bellevue Hospital Medical College in 1876, died on April 9, at the age of fifty-six.

DR. JOSEPH H. GALLAGHER of Brooklyn, N. Y., died on April 9, from pneumonia. He received his academic education at the Augustinian College of Villanova in Pennsylvania, and was graduated in 1898 from the Long Island Medical College Hospital, Brooklyn, after which he served on the house staff of St. Catharine's Hospital.

## BOOKS AND PAMPHLETS RECEIVED.

Manual of Childbed Nursing with Notes on Infant Feeding. By Charles Jewett, A.M., M.D., Sc.D. Fifth edition, revised and enlarged. New York: E. B. Treat & Co. 1902.

Gallertkrebs des Magens und des Omentums. Diagnose durch Paracentese. von Stephan Smith Burt, A.M., M.D., Professor der Medizin und physikalischen Diagnose an der New York Post-Graduate Medical School, konsultierender Arzt des New York Post-Graduate Hospital. Ins Deutsche für die "Deutsche Praxis" übertragen von Herrn Prof. Dr. A. Rose, New York. (Mit 2 Abbildungen.) Illustrated. München: Druck von Franz X. Seitz. 1902.

# Original Articles.

## THE SERUM TEST FOR BLOOD.[1]

BY E. S. WOOD, M.D., BOSTON,
*Professor of Chemistry, Harvard Medical School.*

During the past ten years the immense amount of work which has been done upon the blood, in the study of various questions concerning antitoxins and immunity, has resulted in the discovery of the formation in the blood of various specific antibodies, such as the antitoxins, and also of certain specific precipitins, which will produce precipitates in different bacteriological products, in different kinds of milk and in different kinds of blood. The study of these bodies is still in its infancy, and offers a vast field for special investigations.

I need not go into the details of previous work done upon these bodies. The investigations of Krause, in 1897, first demonstrated the presence in the blood of the specific precipitins in the antisera of the cholera, plague and typhoid. Those of Bordet, in 1899, showed the formation in the blood of the rabbit of the specific antibodies which act upon milk. The antibodies formed acted only upon the special kind of milk with which the rabbit was treated. If the rabbit was injected with human milk, its serum precipitated the casein from human milk only; its serum would not precipitate the casein from cow's milk or goat's milk. Later, these results were confirmed and the investigations extended, so as to demonstrate the formation in the blood of antisera, which acted upon the different kinds of blood or blood serum. The first discovery of blood antisera was made by Tchistovitch in 1899, and his work has been confirmed and extended since then by Uhlenhuth, Wassermann and Schütze, Myers and Nuttall.

It has been found that rabbits are the animals which are best suited for this kind of experimentation. If a rabbit is prepared by injecting into the peritoneal cavity, several times, at intervals of a few days, about 10 cc. of any kind of blood or blood serum, there will be formed in the blood of that rabbit a peculiar body, called by Myers and Nuttall a specific *precipitin*, which will produce a precipitate, called by them the *precipitum*, in the diluted blood or blood serum of an animal of the same kind as the one with which the rabbit was prepared. It will not produce a precipitum in the diluted blood or blood serum of an animal of any other kind unless it be very closely allied generically, nor will it produce a precipitate with the dilute blood or blood serum of a normal rabbit. A rabbit may also be treated with any pathological fluid containing human blood serum, such as pleuritic exudation and, as Dr. Whitney has determined, hydrocele fluid, instead of blood serum, when the precipitin will be formed which will produce the precipitum in diluted human blood.

[1] Read before the Massachusetts Medico-Legal Society, Jan. 4, 1902.

Uhlenhuth, in February, 1901, prepared rabbits both with human blood and ox blood, producing in the rabbit human antiserum in one case and ox antiserum in the other. His comparative tests were made with the blood of man, ox, horse, donkey, pig, sheep, dog, cat, deer, fallow-deer, hare, guinea pig, rat, mouse, rabbit, chicken, goose, turkey and pigeon. No precipitum was formed in the diluted blood solution of any of these animals except the one with which the animal was prepared.

Uhlenhuth made the important discovery that the precipitate was produced in clear solutions made by treating dried blood stains with normal salt solution, just as well as in diluted fresh blood.

Wassermann and Schütze, also in February, 1901, found that it was not necessary to treat the rabbit with blood, but only with the blood serum. The hemolysins obtained by treating the rabbit with the red blood cells, and the agglutinins formed by the action by the hemolysins upon the red blood cells, have no importance from a medico-legal point of view, since the red blood cells may be completely destroyed in blood stains which have been exposed to various conditions. For this reaction it is necessary that some red blood cells should be in suspension. These authors made comparative experiments with the blood of man, horse, donkey, goat, cow, ox, sheep, pig, dog, cat, baboon, guinea pig, rabbit, mouse, rat, goose, duck, chicken, sparrow, eel, pike and tench. They found that the antiserum from the rabbit prepared with human blood reacted also with the blood of the baboon, but much more slowly and less strongly than it did with diluted human blood.

Stern, February, 1901, found also that the blood of the humanized rabbit reacted feebly with the diluted blood of three different kinds of monkeys, a species of *cercopithecus*, *macacus cynomolgus*, *L.* ("Java-Ape"), and the "Crown-Ape."

Nuttall, July, 1901, made comparative experiments with thirty-six different kinds of blood; the bloods being those of man, four species of monkey: *Cercopithecus campbelli*, Waterh., *cercopithecus patas*, west coast of Africa; *cercopithecus lalandii*, Is. Geoffr., South Africa; *macacus rhesus*, India; the rufous rat-kangaroo (*hypsiprymnus rufescens* [Gray], New South Wales), the capybara (*hydrochoerus capybara*, South America); the polecat (*mustela putorius*), suricate (*suricata tetradactyla*), South Africa; squirrel (*sciurus vulgaris*), guinea pig, tame and wild rabbit (*lepus cumiculus*), white rat, black rat (*mus rattus*), horse, ox, sheep, white-tailed gnu (*connochætes gnu*), South Africa; gazelle (*gazella arabica*), deer (*gervus axis* Erxl, India); dog, cat, pig, bat (*plecotus auritus*), pigeon, chicken, pheasant, swan (*cygnus olor*), duck, chaffinch (*fringilla cœlebs*), cross-bill (*nucifraga caryocatactes*), rook (*corvus frugilegus*), swallow (*hirundo urbica*), corn-crake (*crex pratensis*), frog (*rana temporaria*), newt (*molge cristata*), and snake (*tropidonotus natrix*). The

serum of the rabbit, which was prepared with sheep's blood, gave a slight reaction with the blood of the gazelle and axis deer, and there was very slight clouding in the blood of the ox, squirrel and swan. The serum of the rabbit treated with ox blood gave a distinct reaction with the blood of the gazelle and axis deer, and slight cloudiness in the blood of the sheep, gnu, squirrel and swan. The serum of the rabbit prepared with human blood gave a slight reaction with the blood of the four kinds of monkeys tested. He found that it gave a very faint cloudiness in solutions of the blood of the horse, ox and sheep. The serum of the humanized rabbit gave positive reactions with diluted human serum, pleuritic exudation, both fresh and putrid, with blood which has undergone putrefaction for two months, with serum from a blister, and a slight reaction with both nasal and lachrymal secretions.

The method of humanizing a rabbit is to inject into the peritoneal cavity about 10 cc. of human blood serum at intervals of two or three days, until the rabbit has received six or eight injections. The details of this operation will be described to you by Dr. Whitney. The rabbit should be allowed to rest about a week after the last injection. The blood serum for performing the test may then be obtained either by killing the animal, by bleeding it from one of the large vessels, or, without killing the animal, by removing a little blood from one of the large veins of the ear. The blood thus collected should be placed in a cool place and allowed to coagulate. The serum which separates from the clot may be used for performing the test.

The blood to be tested should be prepared as follows: If it be fresh blood, it should be diluted about 1:100 with normal salt solution. Thus diluted it should have a light pink color, and this diluted solution, if not perfectly clear, should be allowed to settle until it is clear, and the clear supernatant fluid decanted into another test tube. If the blood to be tested is a dry blood stain, a little of it may be scraped off with the point of a knife on to a watch glass, if the stain be upon some hard surface so that the blood has not penetrated into the substance of the material. If the blood stain be upon cloth into which the blood has soaked, it is necessary to cut out a few threads and transfer them to a watch glass. These fragments of dried blood should then be treated with two or three drops of distilled water, until the soluble portion of the dried blood has been dissolved. The clear solution is then transferred carefully to a very narrow test tube, and to this should be added an equal volume of double normal salt solution. The clear fluid thus obtained, either by diluting fresh blood or by dissolving the blood serum from the dried blood stain, is then tested by adding to it a few drops of the serum obtained, as above described, from the humanized rabbit. If the solution contains human blood serum, there will occur an immediate cloudiness which gradually increases, so that there is a distinct precipitation within one-half hour after the addition of the serum from the humanized rabbit. It is better to allow the antiserum to flow down the side of the test tube, so as to form a separate layer under the solution to be tested, in the same way that we add nitric acid to urine in testing for albumin. In this case the cloudiness and precipitate may be seen very distinctly in the zone at the point of contact of the two fluids. The precipitate occurs best when the mixture is kept at a temperature of about 37° C.

It has also been found that the antiserum obtained from the humanized rabbit can be kept in dried form by soaking filter paper or blotting paper with it and allowing it to dry. In this way it is said to preserve its activity for forty-two days more or less (Dr. Nuttall). When it is desired to use this for a test, it may be dissolved from the filter paper by means of a little normal salt solution and filtered if necessary. This clear solution, added to the diluted blood, or solution from a dried blood stain, will give the cloudiness and precipitation the same as the orignal antiserum obtained from the humanized rabbit.

I have recently applied this serum test in a murder case, which is now being tried in New Hampshire. The test was applied separately to the following stains: One about one-quarter of an inch in diameter on the right elbow of a brown jacket; another about one-half inch in diameter on the lower left front of the same garment. One-half of the stain on the elbow was cut out and soaked with a few drops of distilled water. The material from the other stain was obtained by scraping the surface of one-half of the stain with a knife on to a watch glass, and the powder thus obtained was treated with a few drops of distilled water. As mentioned above, this distilled water solution was transferred to a small test tube and treated with an equal volume of a double normal salt solution. Four small spatters on one leg of a pair of overalls were scraped off with a knife and treated in a similar manner; also one stain, about one-fourth inch in diameter, on the other leg of the same garment. A few threads from two blood stains on the towel were cut out, and a solution made as above described. Also some clotted blood found on a stone which weighed about three pounds, this being the implement with which the murder was committed, the victim being killed by blows upon the head with the stone; a solution of this blood was made in a similar way. These solutions were placed in small test tubes side by side, and, for purposes of comparison, several other test tubes containing solutions of dried human blood, of that of a dog, ox, pig and sheep. All of these solutions being thus prepared, there was added to each one two or three drops of the test serum obtained from the humanized rabbit. A distinct precipitate occurred within one-half hour in the test tubes containing the fluid obtained from both stains on the jacket, those obtained from both legs of the overalls, from the stain on the towel, from the

blood on the stone, and in the test tube containing the solution of known human blood. No precipitate or cloudiness occurred in the test tubes containing the solution of blood from the dog, pig, ox or sheep.

## NOTES ON THE PRODUCTION OF THE TEST SERUM IN RABBITS.[1]

W. F. WHITNEY, M.D., BOSTON.

As a rule, with moderate care there is little danger of infection of the rabbits by the injection. The abdomen should be shaved and the skin thoroughly scrubbed with strong alcohol. The rabbit is held out straight by an assistant taking his ears in one hand and his hind legs in the other. The skin is pinched up with the left hand and the needle introduced by a steady thrust with the right. The only chance is that the point may not be inserted into the peritoneal cavity, but under the loose skin when liability of an abscess forming seems to be greater. Such has been the experience in two of our cases. After withdrawing the needle the abdomen should be again scrubbed with alcohol.

Any syringe that can hold 10 cc. and can be properly sterilized is all that is required. The one we have used is a glass antitoxin syringe with a long, relatively large needle.

The serum which can be most readily procured is hydrocele fluid (in any large hospital several are tapped every week, and each one gives about 200 to 250 cc. of fluid). Ascitic and pleuritic fluid are not quite so common, but the amount is so much larger that it can be used for more rabbits.

Serum can be kept for a long time if collected in a sterilized bottle under aseptic precautions, and a little chloroform poured in and allowed to remain at the bottom of the flask. The mouth can be plugged with sterilized cotton.

These sera have the advantage over those obtained from blood, that they are perfectly clear and do not have to be separated from the blood clot and corpuscles. Human blood serum is most readily obtained by squeezing a freshly delivered placenta and then allowing the serum to separate by clotting. The centrifuge is often needed to clear the serum of any stray corpuscles. About 6 to 8 cc. can be thus obtained from each placenta.

As to the relative advantage of the serum from one source or another, our experiments, as yet, are not conclusive. Krause says that hydrocele fluid does not develop as strong a reaction in the rabbit as the serum obtained directly from the blood. On the other hand, Uhlenhuth says there is great difference in the susceptibility of rabbits.

In our experience in two parallel series, the hydrocele rabbit gave the better reaction in one and the blood serum rabbit in the other. Further experiments are necessary before this can be regarded as settled.

Is there any indication by which it can be known beforehand whether a rabbit will yield a strong antiserum? The only indication which we have on this point is that in both of those which gave the best reaction, the blood did not coagulate so quickly as in those which gave a poorer reaction. Whether this is a condition which is developed by the formation of the antiserum, or whether it pre-existed, we have no knowledge. If it pre-existed and is more than a coincidence it might be used in selecting the animals for injection.

In two cases a single large dose (100 cc.) of hydrocele fluid was injected at once, but no reaction was obtained either the next day or at the end of a week. So that in this way at least the process cannot be shortened.

It was thought that the antiserum might possibly be secreted by the kidneys, and the urine of a highly sensitized rabbit was collected for this purpose. But no characteristic reaction was obtained.

While the operations and reactions are so simple that they can be performed by anyone, still they require care and exactness, and considerable previous practice should be obtained before one would be qualified to testify in a capital case.

In every case of death by violence, where murder is suspected, and there is a possibility of a blood stain having to be examined, a strip of filter paper should be soaked in the blood of the individual at the autopsy. This should be sent to the expert who makes the examination of the suspected blood stain in order that any doubt as to this individual's blood giving a serum reaction can be set at rest.

[1] Read before the Massachusetts Medico-Legal Society, Jan. 4, 1902.

## NOTES ON X-LIGHT.

BY WILLIAM ROLLINS, BOSTON.

### VACUUM TUBE REGULATORS FOR X-LIGHT TUBES.

*The transformer type.*— A chemical capable of yielding a vapor on heating, reabsorbing it again on cooling, is placed on a suitable shaped receptable, usually a cylinder of glass one centimetre in diameter, which is connected with the x-light tube. A wire is laid from each pole of the generator to a coil of fine wire surrounding the cylinder containing the chemical. The secondary of this coil is a few turns of coarse wire, within or without the cylinder. In either case, the arrangement forms a stepdown transformer, in which the high potential current used to excite the x-light tube is transformed into a heating current, the effect of which is to liberate vapor from the chemical. The duration of the heat depends upon the length of time the current passes in the fine wire of the transformer, being determined by the length of the variable spark gap in the circuit containing the fine wire coil. The action is auto-

matic, as in some of the other regulators I have designed. When the resistance of the tube is higher than that of the regulator circuit, a current passes through the fine wire of the transformer, heating the coarse wire of the primary, liberating the gas, which, going into the tube, lowers its resistance until the current no longer passes through the transformer, until by use the resistance of the tube has risen. Thus the vacuum of the tube is maintained at any desired point.

*The high potential bridge regulator.*— A similar glass cylinder to the one already described, or any other suitable receptacle, contains, in addition to the chemical, a piece of fine platinum wire whose ends are connected with proper terminals sealed into the glass, serving as attachments to the wires from a source of current of low voltage. When a current passes through this wire it is heated. A suitable current may be obtained from four cells of Mesco dry battery. The circuit composed of the fine wire and the battery contains a minute spark gap which prevents the current from the battery from heating the wire. The high potential current is used as an automatic drawbridge on which the low voltage current can cross, enabling it to heat the wire of the regulator, thus lowering the vacuum. To compel the high voltage current to bridge the gap instead of going through the battery, a choking coil or other suitable device is used. The action of this regulator is also automatic. These regulators are described in a general way, as I wish to claim the principles broadly, to prevent patents being taken, for we already have too many of these on x-light apparatus, a considerable number being unjust.

For examples, two are mentioned. In 1896[1] Pupin and others recommended the use of fluorescent screens for diminishing the exposures for photography by x-light. Such screens are essential at the present time for taking instantaneous pictures of the organs of the chest, which are of great importance, as they give us permanent, instead of fleeting, images, yet the method has been made the subject of a patent. Another case of importance is that of automatic regulators for x-light tubes. These have been in use since 1896, and with powerful apparatus they are often of much importance, yet the patent office has granted patents on these old devices. Our patent laws are in need of revision. No patents should be allowed on any device that has been described in print, and none on any methods or apparatus that may be used in medicine.

## SOME CONCLUSIONS FROM EXPERIMENTS ON GUINEA PIGS WHICH ARE OF IMPORTANCE IN THE TREATMENT OF DISEASE BY X-LIGHT.

I have made several series of experiments on guinea pigs with x-light. A few of the results have been reported in this journal. In the present note will be given some conclusions from the experiments which are of importance in treating disease by x-light.

[1] Electricity, Feb. 12, 1896.

Rœntgen showed that the visual and photographic intensity of x-light varied as the square of the distance. Before x-light could be used intelligently as a therapeutic agent it was necessary to learn by experiments on animals whether its effect upon the tissues varied in the same way. My experiments showed it did. The bearing of this observation on the treatment of internal disease is more important than at first appears. It shows that the source of x-light should be at a distance, not within a few centimetres, as is the universal custom now when using x-light for therapeutic work. Unless the distance between the exterior of the patient and the seat of the internal disease is small relatively to the distance between the nearest surface of the patient and the tube, the healthy skin and superficial tissues will be subjected to a much stronger radiation than the internal diseased organs. This observation points to the necessity of using much more powerful apparatus than is generally employed, because with the source of x-light at a distance the strength of the radiation striking the diseased tissue is little; the length of exposure must, therefore, be long.

The next matter is the kind of x-light to be employed. General opinion considers the proper radiation for therapeutic purposes to be that from a tube of low resistance, because that is the kind that burns. My experiments on guinea pigs showed that all forms of radiation from vacuum tubes which could be classed as x-light could burn, produce abortion and death. Therefore, as we can produce injurious effects with any form of x-light, we should learn to use, without injurious effect, the kind best suited for the purpose. The kind must depend upon the seat of the disease to be treated. For superficial diseases we should use the radiation from a tube of low resistance. There are two reasons. This kind of x-light is most absorbed by these tissues; therefore we are using the energy to the best advantage while subjecting the underlying healthy tissues to less stress. Second, with any given generator the amount of electrical energy we can convert into x-light in a tube of low resistance is far greater than the amount we can convert into x-light in a tube of high resistance. This is hard to believe, for a high resistance tube appears to be giving a light many times as brilliant, but my experiments in pumping tubes prove that as the exhaustion goes on the amount of electricity which any given generator can send through a tube diminishes. One reason why I have always advocated describing a tube as having a high resistance rather than as having a high vacuum has been to keep this fact in mind. Because it has not been recognized, we have gone astray, supposing the light that burnt was that from a low tube, and in consequence thought that this was the light required to produce therapeutic effects. It is a question of quantity as well as quality.

If we wish to treat internal diseases, we should use the radiation from a tube of high resistance, because this light being less absorbed by the su-

perficial tissues, they are less affected relatively than with a radiation which they absorb to a greater extent; also, because this radiation is less absorbed by the superficial tissues more is available for affecting the internal organs.

Perhaps as important a conclusion as any from the experiments is this: We need powerful apparatus, and experimenters who are working hard to design such apparatus should be encouraged. Their results should not be condemned because the photographic results obtained with them in the hands of a few have been uncertain and less satisfactory than those obtained with old-fashioned coils and static machines. An investigation showed me that the fault was not in new and powerful types of generators, but with the tube makers. I have, therefore, published in the *Electrical Review* simple directions for pumping x-light tubes for powerful apparatus.

ON THE NEED OF AN INSTRUMENT FOR MEASURING THE INTENSITY OF X-LIGHT.

I have suggested that the greatest need in x-light tubes was a means of restoring the pristine brilliancy. Though this difficulty is not completely removed, it is no longer of first importance, because a fairly good solution has been found to be the use of more powerful apparatus of the type shown in Note 112.[2] If a generator has sufficient power we can afford to let this initial brilliancy die out and use the light yielded by an old tube with a proper regulator. At the present time the problem of greatest importance is to find instruments for measuring the intensity of x-light. When these instruments are discovered and a standard fixed, I hope the x-light unit will be called a Lenard, after the physicist who first showed that a vacuum tube yielded a radiation which, though generally invisible to the eyes, would photograph through opaque substances. At the present time an observer in reporting his results with x-light usually considers he has described its quality and intensity sufficiently when he has stated that the tube was "hard" or "soft," has given the spark-length of his coil and the amperage of the current used in the primary. Consequently, the results of one man cannot be compared with those of another, for the amount and intensity of the light, as well as its quality, can vary greatly, the stated terms being alike. One of the required instruments should quickly show to the eyes the therapeutic power of the x-light, and another, as suggested by Mr. Heinze, should tell its photographic intensity. This need is well seen in using large coils of the type mentioned, because it is possible, with the arrangements of condensers and spark-gaps of these coils, for the light to appear brilliant when we look in the fluoroscope and yet to have little actinic power. Until we get an actinometer, the photographic intensity of x-light should be judged by a tungsdate of calcium screen and not by one of platinocyanide of barium. Skilled observers who use these powerful coils are able to make good photographs of the hips (the most difficult joints) with certainty in a reasonable time, as compared with the long exposures required to get inferior results with large static machines. But others have condemned powerful apparatus, stating that it was not so good as ordinary static machines or small coils, and have said that the amount of x-light did not depend upon the power of the apparatus. Such reasoning is illogical. To get a powerful x-light we must use a powerful generator. There is nothing in the nature of x-light whereby it differs in this respect from ordinary light. We do not expect to get 1600-candle power from a 16-candle power incandescent vacuum lamp. If we want more light of the same kind than we can obtain from the latter, there is no way to get it except by using more current, in a suitable lamp. Until we get x-light powerful enough to take instantaneous photographs of the heart and other organs (which could be done if money were provided for experiments) we should not slacken our endeavors to construct and learn to use more powerful apparatus. We are at present only in the dim light of an x-light dawn. Few can see clearly what the day will be. Until we get convenient measuring instruments we should, in attempting to describe the amount and kind of x-light used in any case we are reporting, abandon the words hard and soft as applied to a tube, for if we were to shuffle all the words in our vocabulary and take any two at random they would be more suitable than these. Nor is it sufficient to say that the vacuum was equal to so many inches of air, for I have shown that the vacuum is but one factor in determining the quality of the light. Nor will the resistance answer as a standard, for two tubes may have the same resistance and yet the light may be entirely different, as I have already proved. At present it is necessary to know not only the resistance, but the size of the terminals, their distance apart, the material of which they are made and the current passing. So simple a change as having the anode in one tube a target and in another having the target separate from the anode, will greatly change the character of the light, for the subatoms of the cathode stream move more rapidly toward a target that is an anode, and, consequently, we get more x-light in this case, for the heat of impact is higher.[3] We must also know the kind of break used, the kind of current, as well as its amount, and whether condensers are used in the primary or secondary, their capacity in microfarads or in square centimetres of coated surface, when they take the form of Leyden jars in the secondary. Yet, with all these data to aid him, an observer cannot at present expect to accurately know the amount and quality of the x-light used in another man's experiment. As this retards progress, it must be overcome.

[2] Electrical Review, Dec. 26, 1900.

[3] Note 66, Electrical Review, Oct. 25, 1899.

The New Jersey Legislature, through the efforts of the governor, has appropriated $50,000 for a state sanatorium for tuberculosis.

## Clinical Department.

### CONTRIBUTIONS FROM THE ORTHOPEDIC DEPARTMENT OF THE CARNEY HOSPITAL.

### OSTEOSARCOMA OF THE ELBOW.

BY ROBERT B. OSGOOD, M.D., BOSTON.

THE patient was a pale, slender woman, 29 years old; married at twenty and the mother of six children. The family history and the past history were negative. She came to the Out-Patient Department on Sept. 21, 1900, because of pain and swelling over the outer side of her right elbow. This had been of one year's duration, and the condition had varied in severity. There had been periods when there was superficial inflammation, the swelling greater and the pain worse. The only constant symptom had been a certain limitation of motion. No other joints had at any time been involved. There was no definite history of injury.



FIG. I.

The examination showed an elbow slightly swollen over the outer condyle but without acute inflammation. Flexion was possible to a little beyond a right angle, and extension to within 45° of straight. Rotation was limited. The axillary glands were slightly enlarged. No positive diagnosis was made. A rheumatoid condition with the atrophic changes taking place was considered, as were also a tubercular lesion and an osteomyelitis. The only sign suggesting malignancy was the slight enlargement of the axillary glands.

An x-ray to further establish the diagnosis, was taken and is shown in Fig. I. The negative was a surprise, and showed a definite bone lesion; evidently there was a myelitis of some sort, with either a bone cyst or abscess cavity communicating with the joint.

The patient could enter only on a free bed. The hospital was full, and there being no acute symptoms, she was placed on the waiting list of applicants. The diagnosis of a low grade osteomyelitis with suppuration was suggested; immobilization applied and tonic treatment advised. When the chance for entrance came, either the notification was never sent, or the patient failed to respond, for nothing was heard from her until she appeared at the Out-Patient on March 8, 1901, six months after she had first been seen. The mobility was practically the same as at the first examination. There was no swelling or tenderness, and pain only on extremes of motion. A bony spur could be felt about a half an inch above the external condyle. The patient reported simply for observation, and her only discomfort was in using the right arm for feeding herself and dressing her hair.

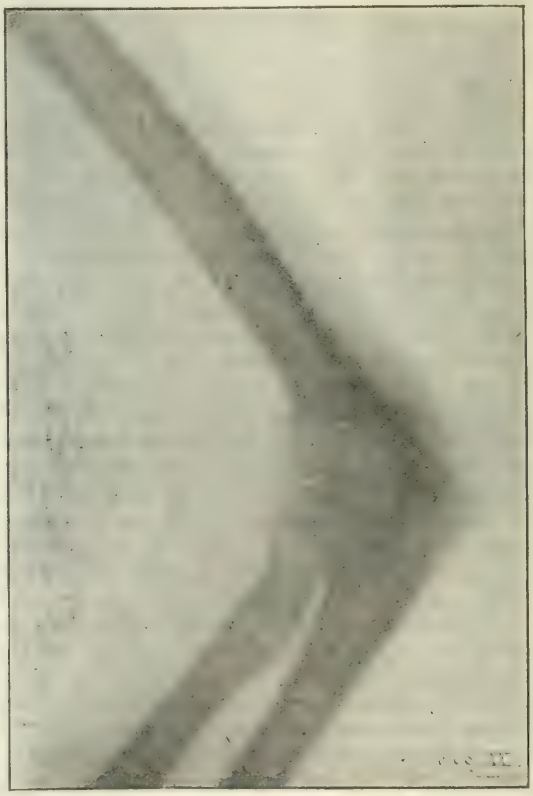


FIG. II.

The case becomes somewhat humiliating at this point, for a greater experience in interpretation of x-ray plates might have suggested the correct final diagnosis. The skiagraph (Fig. II) now taken showed what was thought to be a partial

healing of the old cavity, but enough attention was not paid to a rarification of the bone structure in the condyles. She was advised to report at short intervals, but the next note of her appearance is on May 27, 1901, eight months after the first examination, two months after the last note and x-ray. She reported because of pain and swelling over the inner condyle. The elbow had continued to cause her slight inconvenience, until one day she had wrenched her arm in hanging out clothes, and the acute symptoms had followed almost immediately upon the trauma. The motion of the elbow was much less free than at any previous observation; there was more swelling and the skin had a somewhat angry look. The process still seemed wholly local. An x-ray at



this time (Fig. III) was at once suggestive of the real condition. There had been a spontaneous fracture above the condyles and the more general involvement of the bone by the process was evident.

In the hospital an exploratory incision by Dr. Goldthwait revealed a highly vascular neoplastic growth. The report of the microscopical examination of the tissue by Dr. Pratt of the Pathological Department of the Harvard Medical School is subjoined.

*Gross examination.*—Two small pieces of soft, grayish, homogeneous, translucent tissue, each about 4 mm. in diameter.

*Microscopic examination.*—The tissue consists of closely packed cells, with round and oval vesicular neuclei; the cell outlines are not distinct. There is but little intercellular substance. Numerous thin-walled blood vessels pass among the tumor cells. Mitotic figures are common, hence the tumor is growing with considerable rapidity.

*Diagnosis.*—Round-celled sarcoma.

The patient was transferred to the Surgical Service, and by the courtesy of Dr. E. A. Pease I am enabled to report the short subsequent history.

The arm was amputated at the point of election on June 25, 1901. The patient insisted upon having the arm interred in the family lot, and examination of the gross specimen was permitted only so far as to show the marked bony involvement which the x-ray indicated. The patient was discharged relieved on July 7, after an uneventful convalescence with a firmly healed first intention stump. I have seen the patient on Jan. 23, 1902. She is in excellent health; no axillary glands or other signs of recurrence could be discovered. The scar is soft and without nodules. She is caring for six children, and about to be confined with a seventh.

The case has seemed to me worth reporting for three reasons: (1) Because it teaches the necessity of more careful and experienced interpretation of x-ray negatives, and their great value when so interpreted; (2) because the history and subjective symptoms are not those we usually associate with a neoplasm as malignant and rapidly growing as the pathological examination revealed this to be; (3) because in the light of recent experiments it seems possible that the application of the x-ray, while perhaps not materially retarding the growth, exercised an analgesic effect, and may have been partially responsible for the few symptoms. Thus, without accurate interpretation and good technique, this method of examination and valuable therapeutic measure may actually obscure the diagnosis.

## AN UNUSUAL FAMILY HISTORY OF TUBERCULOSIS.

BY A. H. WILLIAMS, M.D., BOSTON.

Howard C. and Frances C., ages respectively 23 and 21, a brother and sister, are both suffering with tubercular bone disease. Howard has a lesion of the knee, two and one-half years in duration, which has been doing well since excision, eighteen months ago. He injured his knee in boyhood. Frances had tuberculosis of the hip joint, following a fall from a carriage when she was three years old. This lesion seems to be quiescent, but she developed an acute tuberculosis of the shoulder three months ago, and has had it excised. Her shoulder has been lame from an injury for many years.

Their mother, Mrs. C., nearly died twenty years ago from pulmonary tuberculosis, but recovered and now seems well. Her family history is of some interest. Her mother was one of three sis-

ters, Sullivan, who came to Maine from Ireland. Their parents died in Ireland: Mrs. Sullivan in childbirth, Mr. Sullivan of some unknown disease, and two Sullivan children died in Ireland of unknown diseases. Of these sisters, Ellen Sullivan died at the age of 90, her husband at 60. They had thirteen children, six of whom lived to be over 20. All thirteen died of pulmonary tuberculosis. The second sister, Julia, is living, aged 70; has had four children and two grandchildren, all non-tubercular. The third sister, Katherine, is living, over 71, her husband 73. They have had twelve children; eight are dead, five in infancy and *two*, at the ages of 27 and 22, of *pulmonary tuberculosis*. Of the four living, *two* have had pulmonary tuberculosis and recovered; one of these is Mrs. C. There are two grandchildren besides those in the C. family, and both are well.

Mrs. C. has had nine children; one has died of pulmonary tuberculosis at the age of 6, one of symptoms resembling tubercular meningitis; of her six living children, two have tubercular bone disease and a girl of fifteen is beginning to have enlarged cervical lymph nodes.

In the second generation, then, of these sisters, seventeen out of twenty-nine children were tubercular; in the third, three, or probably five, out of thirteen.

No tubercular history on any father's side can be found, except that Mr. C. has a nephew with pulmonary tuberculosis. His parents both lived to be 88.

This history is of interest because of the longevity of the survivors, and because of the distinct history of trauma in the only cases where the lesion was in the bones and not in the lungs.

DIAGRAMMATICALLY REPRESENTED.

| GENERATION. | | | | |
|---|---|---|---|---|
| I. | Sullivans. | | | TOTALS. |
| II. | Ellen. | Julia. | Katherine. | 3 |
| III. | 13 children. (13 tubercular) | 4 children. (None tubercular) | 12 children. (4 tubercular) | 29 (17 tubercular) |
| | Mrs. C. | | | |
| IV. | 2 children. (None tubercular) | 9 children. (3 or 5 tubercular) | 2 children. (Non-tubercular) | 13 (3 or 5 tubercular) |
| | Howard C. and Frances C. | | | |

The virulence of the tuberculous inheritance in this family has apparently been attenuated by the good blood brought into the family through the males who have united themselves to it by marriage.

DR. WILLIAM W. KEEN of Philadelphia has recently been elected an honorary member of the German Surgical Association at the recently held thirty-first annual session. He has also been appointed honorary president of the first Egyptian Medical Congress which will be held in Cairo, in December.— *Medical Record.*

## A CASE TO ILLUSTRATE THE ADVANTAGES OF THE CORRECTION OF THE DEFORMITY OF POTTS' DISEASE.

BY H. S. WARREN, M.D., BOSTON.

J. B., 15 years of age, came to the Orthopedic Department of the Carney Hospital Aug. 23, 1901, with a history of having had Potts' disease for ten years. At entrance he was in very poor physical condition. He stood with the body deflected to the right side so that the lower ribs overlapped the crest of the ilium. A discharging sinus was present in the median line over the sacrum, and the boy complained much of pain and discomfort in going about.

An x-ray showed extensive tubercular disease of the lower lumbar vertebræ. Fig. I shows the patient at entrance.

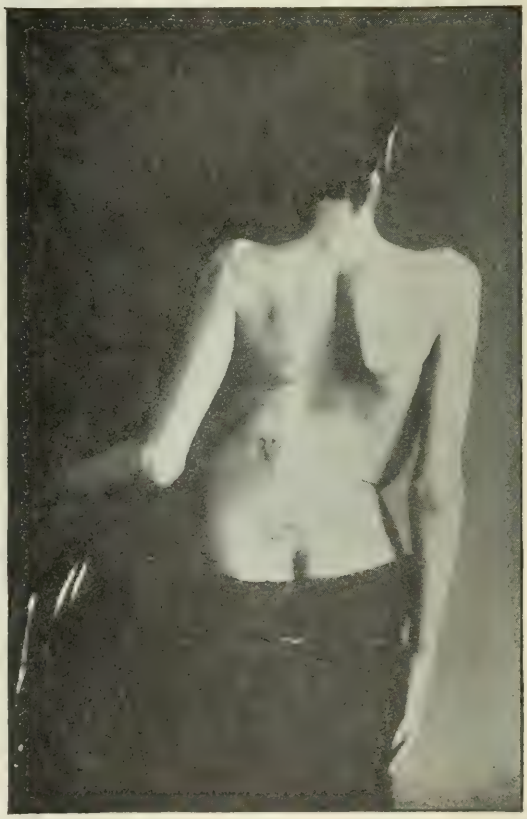


FIG. I.

He was admitted to the wards and a series of plaster jackets were applied with the patient on his back on the frame, each time correcting the position, but without the use of force, with the result that his general condition improved, discharge from the sinus became much less, and his height was increased three and one-half inches.

From Fig. II, taken four months after treatment was begun, it is seen that he stands with only a very slight deviation of the spine at the seat of the disease.

He now wears a leather jacket, and his general health continues to improve.

A study of the x-ray in this case shows that the maximum yielding of the spine is somewhat above the seat of the disease, and is not dependent upon the loss of the substance in the bodies of the vertebræ.

In the forcible correction of deformity at the point of disease, as practised by Calot and others, it has been shown pathologically that the material thrown out in the process of repair does not contain enough calcium salts and other bone-producing material to give it a consistency anywhere near that of the bone which it replaces. As a result relapses are very common, which, together with the danger of dissemination of the disease, outweigh the advantages to be gained.

Under these conditions one must look to the gradual correction of faulty compensatory curves, as in the above case, in order to reduce the deformity to a minimum. A second and no less important advantage to be gained by correction of position in these cases is the effect of the improved position upon the mental and physical condition of the individual; a feeling of hopefulness is inspired, and a marked improvement in the general health is commonly noted.

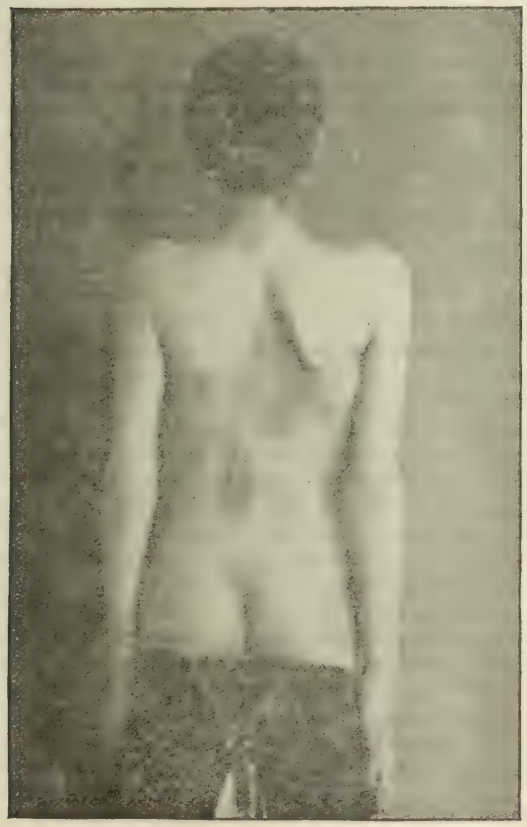


Fig. II.

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The Royal Infirmary at Aberdeen is the recipient of a gift of $150,000 from Lord Mount-Stephen, who previously cleared the institution from a debt of $125,000.— *American Medicine.*

## EXCISION OF THE HIP FOR CONGENITAL DISLOCATION.

BY W. E. BLODGETT, M.D., BOSTON.

Geneva H., age 12, entered Out-Patient Department Sept. 27, 1901. Deformity and disability of right hip noticed as long as the family can remember.

Healthy girl. Characteristic lunging gait. Head of right femur felt dislocated upwards and backwards on the dorsum. Trochanter much above Nélaton's line; cannot be pulled down. Actual shortening of leg, two inches. Atrophy of thigh, two inches; of calf, one-half inch. Permanent flexion, 25°; permanent adduction, 15°; permanent internal rotation, 40°. Correction of the permanent deformity appears not to be resisted by muscle or fascia. Motion in flexion and in adduction, normal; in internal rotation, abnormally free.

Oct. 16. Admitted into house.

Oct. 18. Bloodless reduction under ether was tried, but the full strength of six men, variously applied for half an hour, forced the trochanter downwards only half an inch. The child was put to bed, and 15 lbs. traction applied. This application of traction was continued until the open operation.

Nov. 11. Oblique incision over trochanter To expose the neck of the femur freely, the gluteus medius had to be divided in the direction of its fibres at its trochanteric insertion. The neck was not over three-fourths of an inch long, and extended inwards, backwards and downwards (extreme coxa vara). There was no head. The neck was chiseled off, and the capsule and gluteus medius were sutured with silk, leaving a small wick. Light extension and sand-bags, with limb in corrected position. Healing was by first intention, and Dec. 1 patient was discharged with crutches, and plaster spica holding the limb extended, 15° to 20° abducted, and somewhat externally rotated.

Dec. 20. Out-Patient Department. Plaster removed. Motion in flexion free; in abduction, to 20°; in external rotation, slight; in internal rotation, abnormally free. No permanent flexion. Great improvement in the gait. Plaster not reapplied. To continue crutches and to use the limb a little.

Jan. 3. High sole ordered, but the sole is to compensate for only a part of the shortening, in order to encourage abduction.

Jan. 13. Gait has become worse than immediately after removal of plaster — marked return of the former lunging. Shortening, two inches; trochanter can be pulled down one-half inch. Motion in flexion, adduction and internal rotation, as before. Permanent flexion, 10°; permanent adduction, 5°; permanent internal rotation, 5°. By continued pressure, the permanent adduction can be overcome, and the leg forced into a slightly abducted position; further abduction is resisted by marked tenseness of the adductors. Directions given for massage and for active and pas-

sive exercises designed to stretch the adductors.[1] As the patient is going home to the western part of New York, she is not to return till the latter part of the spring. Goes out with high sole and with crutches, which are to be gradually omitted.

The experience of Continental operators has condemned excision of the hip for treatment of congenital dislocation.[2] In this case, however, radical cure was believed impossible, and excision was performed to diminish the postural deformity, especially the permanent internal rotation, which appeared due chiefly to impingement of the femoral head on the iliac dorsum, posterior to the trochanter. No increase of shortening has yet resulted, and, although flexion and adduction have already recurred to a degree sufficient to make ultimate recurrence of the original amount not improbable, the internal rotation is so well corrected as to warrant hope of permanent improvement.

## Medical Progress.

### RECENT PROGRESS IN LARYNGOLOGY.

BY A. COOLIDGE, JR., M.D., BOSTON.

#### THE TREATMENT OF NASAL POLYPI.

In a discussion by the Laryngological Society of London,[1] Dr. Lambert Lack reviews the etiology of nasal polypi and describes his radical treatment based upon this etiology. To Woakes is due the credit of first suggesting that disease of the bone is the primary cause of polypi, although his theory of necrosing ethmoiditis has been abandoned. The bone changes in many cases are now commonly described as rarefying osteitis. The process commences as a proliferation of the cells in the deeper layers of the periosteum. The bone, especially of the middle turbinate, ultimately becomes disintegrated, and the fragments are slowly eaten away and absorbed. There is no true necrosis. The outlines of the bone may ultimately be lost, the middle turbinate can no longer be recognized, and the whole ethmoid may become affected. The polypi themselves are merely hypertrophies of the edematous mucous membrane covering the affected bone. In some cases the disease is arrested, especially when there are but one or two polypi present, which after removal do not recur. Where the disease is extensive the removal of the polypi does not help the original disease; treatment must then be directed towards the eradication of the bone disease. When the disease of the bone is limited to a small area, this may be clipped away with a good prospect that it will not recur. In cases of extensive bone disease, with many polypi involving an extensive part of the ethmoid, or where there has been recurrence after other operations, the author advocates a more radical operation under a general anesthetic.

The patient is turned well over on to his side and the whole ethmoid region examined with the finger, both through the nose and through the post-nasal space. The middle turbinate may be removed with a spokeshave, and any large polypi with forceps. Then the lateral mass of the ethmoid should be thoroughly scraped away by means of a large ring knife; for this sharp spoons are quite useless. In this way large masses of polypi, degenerated mucous membrane and fragments of bone are removed. Healthy parts of the ethmoid are easily distinguished by the finger, and even by the curette. To complete the operation a small ring knife may be used, but this must be employed with the greatest care. Great caution must be used in the vicinity of the cribriform plate, but the whole inner wall of the orbit may be scraped away with impunity. (!) During the operation the post-nasal space may be plugged with a cotton sponge; and after the operation the nasal cavity is packed with gauze, which is renewed every two or three days for a fortnight. After five to eight weeks a large dry cavity lined with healthy mucous membrane will be seen. The author has operated fifty or sixty times, and has seen no serious results following the operation.

#### TREATMENT OF COLLAPSE OF THE ALA NASI.

Walsham[2] has devised an operation for preventing collapse of the ala during inspiration. Normally the lower lateral cartilage is doubled on itself like the letter U, the inner part being in contact with the septum while the outer part holds the ala away from the septum during inspiration. If the resiliency of the cartilage is lost the ala draws inward and prevents the entrance of air into the nose. Various rings and expanders for holding the alæ open have been recommended, but these are seldom tolerated for any length of time. Having noticed that a small ball of cotton pushed into the little pit at the angle of bending of the lower lateral cartilage was sufficient to keep the ala from drawing in during inspiration, the author made a roll from a strip of mucous membrane dissected from the vestibule, and rolled this into the angle. The epithelial lining was removed from the strip, which was left attached at its base. The epithelium was also removed from the little pit, the strip of tissue rolled up like a bandage and inserted into the pit, where it was held by a suture. Great care must be taken to preserve the vitality of the strip. In this way the angle of the bend of the lateral cartilage is filled and the ala held away from the septum.

#### CORRECTION OF SADDLEBACK NOSE BY SUBCUTANEOUS INJECTION OF PARAFFIN.

At a recent meeting of the Laryngological Section of the New York Academy of Medicine,[3] Dr. Harmon Smith presented three cases to illustrate

[1] Section of the adductors may later be advisable.

[2] Hoffa. Sur l'Operation Sanglante de la Luxation Congenitale de la Hanche. Report Thirteenth International Medical Congress, Paris, 1900. Sect. de Chir. de l'Enf., p. 1.

[1] See Laryngoscope, March, 1901

[2] Lancet, March 30, 1901.

[3] Jan. 22, 1902; see Laryngoscope, February.

the effect of subcutaneous injections of paraffin for the correction of nasal deformities. This had been tried by Gersumy of Vienna, in 1900, and there have been two reports of such cases in this country. Dr. Smith had begun his work in this field by experiments on the cadaver, having raised the temperature of the tissues to the normal temperature of the human body. It was found that the paraffin spread itself out over the nose, forming a perfect cast of the nasal bones beneath. An experiment on a rabbit showed that the paraffin was inert even in the peritoneal cavity, and no reaction resulted. There was a tendency towards encapsulation on the part of nasal tissues. A paraffin having a melting point of 110° F. was used. After sterilization it was again melted and the bubbles of air allowed to escape, and then an aspirating syringe with a large needle was filled with the paraffin, and submerged in hot sterile water until ready to make the injection. The point of the needle was carried into the tissues well beyond the point of greatest deformity. It was found that the paraffin remained plastic for about half a minute, and during this time could be molded.

### THE ANATOMY OF THE ACCESSORY SINUSES.

The difference in size, in shape and in position of the accessory sinuses in different skulls, and even in the opposite sides of the same skull, have become familiar by the works of Zuckerkandl, Hajek, Lothrop and Hartman. These relationships are not only interesting from an anatomical point of view, but they are also of great importance in the understanding and treatment of disease in this region. The relation between the antrum and the sphenoidal sinus and the ethmoid cells has been farther studied by Onodi [4] of Budapest.

The maxillary and sphenoidal sinuses may extend towards each other, so that there is only a thin plate of bone separating them. There is often in the sphenoidal sinus a recess, extending in the direction of the antrum, which may be so developed as to narrow the posterior nasal choana, and if there happens to be a correspondingly large recess in the antrum, to come into the closest relationship with it. The sphenoidal sinus may also extend towards and even communicate with the posterior ethmoid cells, and in this way form a part of the roof of the antrum. The anterior ethmoid cells may communicate directly with the antrum. The relative positions of the ostium maxillare and the opening of the frontal duct is a varying one. The antral opening may be in front or directly below the other. This explains the frequent extension of empyema from one sinus to another, and the possibility of treating one through another.

### AN OPERATION FOR REACHING THE NASAL CAVITIES.

In order to reach new growths in the nasal cavities or the accessory sinuses, such as fibrous tumors growing from the base of the skull, Loewe [5] cuts through the whole length of the septum, beginning under the lip, then opens the antra through the canine fossa, and cuts through the internal and external antral walls on each side. The floor of the nose can then be forced down upon the tongue, giving an extensive means of access to the nasal cavities under the upper lip. After the growth is removed the palate is pushed back into place, without any resulting deformity.

### THE TUNING FORK FOR DIAGNOSIS OF SINUS DISEASE.

Dr. D. A. Kuyk of Richmond [6] suggests the use of the tuning fork as an aid to the diagnosis of fluid in the maxillary and frontal sinuses. He has found that a patient hears a tuning fork over the antrum and molar teeth much more distinctly through a normal cavity than through one containing fluid. On the other hand, increased thickness of bone increases the sound, thus acting as a control to transillumination.

### ILL EFFECTS FROM BANDAGING A BROKEN NOSE.

Although hardly coming under the head of recent progress, the following from Dr. Jonathan Wright's recent sketch of "The Nose and Throat in the History of Medicine" [7] may not be entirely out of place.

Hippocrates indulges in some satirical and still instructive remarks concerning bandages for a fractured nose: "Those who put great store by a senseless dexterity rejoice to meet with a fracture of the nose in order to apply a bandage. For a day or two the physician takes great pride in himself, and the patient rejoices; but the latter soon tires of wearing the bandage, which is annoying; as for the doctor, it is enough for him to have shown that he understands how to put on various bandages on the nose. Such a bandage does, however, quite the contrary to what is desired; on the one hand, in those in whom the nose had been sunken, it becomes markedly more sunken if pressure is exerted over it; on the other hand, those in whom the nose has been dislocated to the right or to the left, either in the cartilaginous or in the upper part, these evidently, far from deriving any advantage from a bandage placed on it, suffer harm from it."

### THE RELATION BETWEEN TONSILLITIS AND RHEUMATISM.

The view is generally accepted that there is some connection between tonsillitis and rheumatism, but the relation between the two is not now considered as intimate as it was ten years ago. At that time peritonsillar abscess and acute tonsillitis were, in many of our textbooks, looked upon as manifestations of rheumatism; now the former is generally thought to have nothing to do with it, and the latter only occasionally. A recent paper on the subject by St. Clair Thomson [8] re-

[4] Fränkel's Arch., 3, xi, 1901.

[5] Monats. f Ohrenheilk., 1900.
[6] Laryngoscope, February, 1901.
[7] Loc. cit., July to November, 1901.
[8] Practitioner, January, 1901.

views the literature of the subject and draws concise and judicial conclusions on our present knowledge. The association between tonsillitis and rheumatism is expressed from two points of view: one, that the rheumatic poison enters the system through the tonsil, the inflammation of which is the first local expression of the disease; the other, that the tonsillitis, in certain cases, is one of the manifestations of the rheumatic diathesis. Further knowledge is required as to the nature of rheumatism itself, and also to the various causes and forms of tonsillitis associated with it. It is understood that a certain number of cases of acute rheumatism are preceded by a faucial angina in a proportion varying from 30 to 80%. Both have many etiological points in common — seasons of the year, cold, wet, fatigue, vitiated air, etc. The connection between the two, though undoubted in a number of cases, is not yet clearly established, neither is the particular affection of the throat which is associated with rheumatism. Apparently it is not peritonsillar abscess. The tonsil may be the port of entry of the rheumatic virus, even though the appearance of the throat gives no indication of its being affected. Many cases of tonsillitis are considerably benefited by the administration of salicin or salicylate of soda, but this does not prove the rheumatic nature of the disease.

In order to understand the subject properly we should endeavor both to differentiate the different forms of angina and to discover the true nature of rheumatism.

### THE REMOVAL OF THE TONSILS IN ADULTS.

The removal of tonsils in adults is not the simple matter that it is in children. In a short paper on this subject Lack [9] advises caution on two accounts, hemorrhage and the effect on the voice. In the large fibrous pear-shaped tonsils sometimes met with he believes that serious hemorrhage may be expected in one out of three or four cases, if cutting instruments are used. With small tonsils the danger is much less. The method to be employed for removal depends upon the case. The galvano cautery may safely be used for reducing the size of the tonsil, but it will not remove it. Tonsillotomy should not be done in adults with very large tonsils because of the danger of hemorrhage. The removal with the cautery snare has no advantages over other methods and leaves a bad wound, with danger of secondary bleeding. The cold wire snare, or ecraseur, has great advantages in cases of much enlarged tonsils. It is more painful than cutting, but can often be done under cocain. Lastly, enucleation is done by making an incision through the mucous membrane between the anterior pillar and the anterior border of the tonsil, through which the finger or blunt instrument is introduced and the tonsil shelled out of its bed. It is important to keep outside the tonsil capsule, this being but loosely attached to the surrounding areolar tissue. A general anesthetic is advisable. There is no risk of hemorrhage, the vessels being torn across outside the tonsils, where they are healthy. The tonsil is completely removed — an important point in cases of frequently recurring tonsillitis or peritonsillar abscess.

In regard to the effect of the removal of the tonsils on the voice, the author has repeatedly met with cases in which a singing voice has been lost or the speaking voice weakened. The greater the enlargement and the longer the patient has accommodated himself to the condition, that is, the older he is, the greater the risk.

[9] Journal of Laryngology, October, 1901.

### INFECTION OF THE LARYNGEAL VENTRICLES.

A light on the question of non-diphtheritic membranous laryngitis appears in two cases reported by Harne.[10] In both, the children developed a croupy cough, dyspnea quickly followed, and tracheotomy was done. Repeated cultures from the surface and from pieces of membrane coughed up from the larynx failed to show any diphtheria bacilli. After death, cultures from the laryngeal ventricles showed the presence of these organisms, while cultures directly from the freshly exposed surfaces of the larynx and trachea were negative.

### SINGER'S NODULES.

Chiari,[11] in a careful study of nine typical nodules, imbedded and cut serially, found that three were formed by simple hypertrophy of the epithelium, and the connective tissue immediately beneath it, the remaining six showed a structure not unlike that of papilloma. In none of them was there the least indication of glands. Frankel and Alexander have demonstrated remnants of glands in simular nodules, and have been led to believe that these glands had some casual relation to the nodes. Chiari, however, has come to the conclusion that the nodules are circumscribed hypertrophies of the edge of the cord, due to long-continued irritation. If a gland happens to be at this spot, which seldom occurs, it may become involved in the structure, but it is not the cause of it.

In the last International Medical Congress, in a discussion on the subject of "Singer's Nodes," the prevailing opinion as to treatment was that, if rest and vocal hygiene were not sufficient, removal with fine forceps is indicated.

### THE DISINFECTION AND CLOUDING OF LARYNGEAL MIRRORS.

The common custom of disinfecting laryngoscopic mirrors by immersion in a 5% solution of carbolic acid, which necessitates drying, warming and testing the temperature on the back of the hand, is not ideal from a standpoint of cleanliness. A well-made mirror should stand boiling in a weak solution of bicarbonate of soda. Kirstein recommends coating the surface of the mirror with soap, to prevent clouding with the breath. This requires time, and is only practical when

[10] Journal of Laryngology, June, 1901.
[11] Arch. f. Laryngol. and Rhinol., Bd. xi, H. 3.

there is not at hand an easy means of warming the glass.

Baurowicz[12] recommends the method of Ruprecht, who uses a one-half per cent. solution of lysol. By dipping the mirror into this solution it is covered with a film, which, without further preparation, prevents clouding.

Kassell[13] uses a 5% solution of bicarbonate of soda for the same purpose.

### PAPILLOMA OF THE LARYNX IN CHILDREN.

The treatment of papilloma of the larynx in children is an important subject and one in which there is still much difference of opinion. An interesting paper on this subject by G. Hunter Mackenzie[14] advocates tracheotomy, without attempting removal of the growths, the tracheotomy tube to be worn until the disappearance of the papilloma, generally a year or two. Concerning thyrotomy the author believes that a more unsatisfactory method of treatment could hardly be devised. Apart from the risks attendant upon its performance, it is invariably followed by recurrence.

There is not the same objection to endolaryngeal operations in regard to immediate and remote risks. The most serious objections are the difficulty of performing them in very young children, and the impossibility of carrying them out thoroughly and radically in those of any age. If thyrotomy, even with thorough cauterization or removal of the vocal cord or other portions of the larynx from which they grew, fails to prevent recurrences, it is most unlikely that such an uncertain operation as endolaryngeal removal will succeed. In some instances recurrence or recrudescence may ensue almost immediately after operation; in others, after a few months; rarely, after a year.

In some cases tracheotomy may be a matter of urgency; in others it may be preliminary to other operations; or, again, it may be performed with a curative object. "Virgin" cases are more rapidly benefited by tracheotomy than those which have undergone either thyrotomy or endolaryngeal operations. A point of some importance for determination is as to the period when tracheotomy should be done. As children with laryngeal papillomata occasionally indicate a tendency to develop sudden and intense dyspnea, a safe rule to follow would be to open the trachea whenever complete and permanent aphonia is present, without waiting for the onset of dyspnea. It is right, however, to bear in mind that infraglottic papillomata may be present without much vocal alteration, but with considerable respiratory disturbance.

Intubation has been made use of, but, upon the whole, the general opinion is that it is unsuitable.

### LARYNGEAL PARALYSES IN TABES DORSALIS.

A good review of this subject, with the results of his own investigations, is given by Sendziak.[15] This analysis includes statistics from 124 cases of laryngeal paralysis in tabes dorsalis. These paralyses almost exclusively affect the abductors. Besides the abductors, paralysis of the adductors also was diagnosed in a few cases, principally the thyro-arytenoid muscles. Complete paralysis of the recurrent occurred sixteen times, in a few cases of which there existed posticus paralysis of the other side. Partial recurrent paralysis, that is, paralysis of the circo-arytenoid muscles (paralysis postici), was observed in eighty-seven cases, bilateral fifty-three, unilateral thirty-four. In nineteen cases, only paralysis of the vocal cords in general was noted. From this analysis one is compelled to regard the posticus paralysis as a special symptom of tabes, concerning which Burger for the first time called attention. This can for years remain as such without going over into complete recurrent paralysis. Laryngeal paralysis may for a long time precede the other objective symptoms of tabes dorsalis. The symptoms commonly characterizing paralysis of the larynx are in the majority of cases absent; in unilateral paralysis of the postici neither hoarseness nor disturbances of breathing are present. Hoarseness is observed only in bilateral paralysis and principally in the extremely rare bilateral paralysis of the recurrent nerves; in the bilateral posticus paralysis, however, we have to do with symptoms of stenosis which sometimes necessitate tracheotomy. The posticus paralysis is characterized by the position of phonation of the vocal cords, the paralysis of the recurrent nerves by the cadaveric position. The prognosis of laryngeal disturbance in the course of tabes dorsalis is, with the exception of bilateral posticus paralysis, which brings with it the danger of suffocation, not bad. Treatment is in the majority of cases useless, in the absence of pronounced subjective symptoms. Tracheotomy may be necessary where dyspnea endangers life.

### EXTRACTION OF FOREIGN BODIES FROM THE BRONCHI.

The extraction of foreign bodies from the bronchi under direct illumination has been studied by Killian during the last few years. Two additional cases are reported by Wild,[16] assistant in Killian's clinic. In the first case, an adult, a long speculum passed through the mouth and larynx showed a piece of bone in a bronchus. On account of secretion and coughing it could not be extracted, and it was necessary to do tracheotomy and use the shorter tracheal tube. In the second case, a child of six, a bean was successfully removed from the right bronchus by the long tube through the mouth, under chloroform anesthesia. In the latter case, from lack of suitable forceps, the bean was broken and had to be removed in fragments. The author concludes from the experience furnished by this clinic that perfection in technique will make it possible to

[12] Fränkel's Archiv., Bd. xi, H. 3.
[13] Ibid, Bd. xii, H. 2.
[14] Journal of Laryngology, September, 1901.
[15] Annals Otology, Rhinology and Laryngology, 1901.
[16] Arch. f. Laryngol., Bd. xii, H. 2.

extract an increasing proportion of foreign bodies in the bronchi without the necessity of a previous tracheotomy. Reflex coughing can be reduced by morphin subcutaneously and cocain locally. Different kinds of hooks and forceps should be at hand, so that friable bodies may not be broken and hard ones securely held. If a foreign body is being rattled about in the trachea, immediate tracheotomy is indicated; but if it is probably impacted in a bronchus, it may sometimes be reached through the mouth. The latter is always difficult, and requires special preparation, whereas bronchoscopy through a tracheal wound is very easy and simple.

## Reports of Societies.

### MASSACHUSETTS MEDICO-LEGAL SOCIETY.

F. E. JONES, M.D., SECRETARY.

MEETING held Feb. 4, 1902.

DR. E. S. WOOD: I should like to say just a word in connection with the title. At the meeting last June I spoke of this test very briefly as the "Agglutination Test." That term I have found by recent study to be improper. The term "Serum Test" is more appropriate. The agglutination test resulted from the experiments of preparing animals by injecting into the peritoneal cavity defibrinated blood, including the red blood cells, which produce in the blood a substance which will agglutinate the red blood cells; but for that test to work it is necessary that there be red blood cells in the suspected stain. That is impossible in testing a great many dry blood stains. I have changed the title of the test, therefore, for the purposes of this society, to the "Serum Test for Blood."[1]

DR. JULIAN A. MEAD: I should like to ask if this test adds anything to the power of the examiner to detect crime? If there might not have been cases that would have been differently decided, if we had known of this test?

DR. E. S. WOOD: It is a very important addition to our means of distinguishing between human and animal blood. At the present time, by the old tests, no hematologist would venture to testify in court positively as to whether a certain blood stain was due to human blood or the blood of certain animals whose red blood cells average the same in size as human blood cells. Take, for instance, the domestic animals; the dog comes nearest to the human in the size of the red blood cells. I have never testified in any case that a given blood stain could not have been that of some animal; of course, the burden of proof is on the defense. By our old methods (without this recent test) we were able to testify that a certain blood stain gave results, on measuring the red blood cells obtained from the stain, which showed that the blood stain was consistent with its having been made by human blood, and further than that I do not know that any expert has ever testified. But now, if we obtain a positive result by this serum test, we can say that the stain contains human blood serum and does not contain that of any other animal except some species of monkey. There are certain wild animals, the seal for instance, whose red blood cells measure the same as human blood cells, but the comparison is usually made only between human blood and that of domestic animals.

The rule has been not to testify to a certainty as between human blood and that of any animal whose red blood cells average more than $\frac{1}{4000}$ of an inch in diameter. Human blood averages $\frac{1}{3250}$, and that of the dog $\frac{1}{3500}$, which is too near to distinguish with certainty between them, some of the smaller human cells coming within the limits of the dog, and the larger cells of the dog coming within the limits of the human.

DR. W. F. WHITNEY read a paper entitled

NOTES ON THE PRODUCTION OF THE TEST SERUM IN RABBITS.[2]

DR. B. H. HARTWELL: I have nothing to say in discussion of this question. I wish to move a vote of thanks to the eminent gentlemen who have presented the papers this afternoon, and in doing so, express my thorough appreciation of what they have said, not only of interest to us, as from a scientific aspect of the case, but from the practical good to the commonwealth. We are interested, with the prosecuting officers, in the maintenance of peace, law and order, and this will enable the prosecuting attorney to present to the court the fact whether or not it is human blood, not as they have done heretofore, that it is not inconsistent with human blood; and I offer my congratulations to Dr. Wood as being the first, as he stated, to go before the courts and state positively that a certain blood stain was produced by human blood, and I move, Mr. President, that a vote of thanks of this society be extended Professors Wood and Whitney for their papers.

Above unanimously voted, and meeting adjourned.

### THE AMERICAN ASSOCIATION OF PATHOLOGISTS AND BACTERIOLOGISTS.

SECOND ANNUAL MEETING HELD IN CLEVELAND, MARCH 28 AND 29, 1902.

THE sessions were held in the medical school, the lecture room of the physics laboratory and in the laboratory of clinical microscopy at Lakeside Hospital, all of which are departments of Western Reserve University. The meetings were held under the presidency of Dr. William T. Howard, Jr., of Cleveland; Dr. Ludwig Hektoen of Chicago, vice-president; Dr. Harold C. Ernst of Boston, secretary; and Dr. Eugene Hodenpyl of New York, treasurer. A good representation of the

[1] See page 427 of the Journal.

[2] See page 429 of the Journal.

membership of the association was present, and the papers presented were of unusual interest.

FIRST DAY.

A DEMONSTRATION OF SMALLPOX LESIONS IN THE SKIN AND OTHER ORGANS.

Dr. G. B. Magrath and Dr. W. R. Brinckerhoff of Boston demonstrated a series of twenty-five very interesting preparations, preserved in Kaiserling's fluid, showing the lesions of variola. The typical, and to some extent the atypical, lesions as found in the skin were shown, also lesions from the internal organs and tissues of the body, particularly those of the testicle, larynx and kidney.

ON CERTAIN TUMORS OF THE KIDNEY — HYPERNEPHROMAS, ADENOMAS, CARCINOMAS, EPITHELIOMAS, MULTIPLE FIBROLIPOMAS, ETC.; REPORT OF THIRTEEN ADDITIONAL CASES, WITH DEMONSTRATIONS UNDER THE MICROSCOPE.

Dr. A. O. J. Kelley of Philadelphia made this report. In reporting three cases of aberrant adrenal tissue in the kidney he said that the occurrence of such tissue is most common at the upper pole of the kidney, but illustrations of its occurrence at other regions were given; also of the occurrence of cysts of renal origin in such aberrant adrenal tissue and at the junction of adrenal and kidney tissue. A report of six cases of hypernephromas of the kidney, describing their structural peculiarities with especial reference to the occurrence of cysts and pseudo-cysts; many of the true cysts are to be ascribed to the proliferation of kidney tissue in aberrant adrenal tissue. A report of two cases of tubular and papillary adenoma, describing the differences they exhibit to hypernephromas; also reports of one case of adenocarcinoma of the kidney developing from true kidney tissue; of one case of papillary epithelioma of the kidney developing from the mucous membrane of the pelvis of the kidney, and of one case of multiple fibrolipoma of the kidney.

A CONTRIBUTION TO THE STUDY OF SUBMAXILLARY GLAND TUBERCULOSIS,— EXPERIMENTAL STUDIES, WITH THE REPORT OF A HUMAN CASE.

Dr. A. J. Lartigau of New York said that the literature relating to any form of tuberculosis of the salivary glands is not abundant, and that relating specifically to tuberculosis of the submaxillary glands is limited to less than half a dozen contributions. The writer was unable to find in the literature more than one authentic case in addition to the one which he reported, of submaxillary gland tuberculosis in the human subject. His case was that of a male, sixty-eight years old. From a study of the tuberculous lesion the author concludes that the infection was an ascending one from the ducts of the mouth. From experimental studies he concludes that localization of the infection in the submaxillar glands in cases of general miliary tuberculosis is uncommon. Trauma, however, predisposes the glands to tuberculous infection in such cases.

THE RELATION OF TETANUS TO VACCINATION.

Dr. Joseph McFarland of Philadelphia read a paper on this subject. The occurrence of several epidemic outbreaks of tetanus following vaccination in Cleveland, Camden and Philadelphia during the year 1901 suggested an analytic study of as many cases as could be collected in order to determine whether their relationship to the operation of vaccination was accidental or referable to the virus. Although vaccination has now been practised for 100 years, tetanus has been observed to follow it with great rarity, so that it is not mentioned as a complication in any of the textbooks except the most recent edition of "Osler's Practice." After careful investigation the following cases were brought together: Cases reported in literature, 14; recent cases with full details 53; recent cases with partial details, 3; rumors — well-founded cases without any details,— 24. Total cases, 94. Of these 94 cases 48 were fatal, 10 recovered, the rest were not determined. Of the patients, 13 were adults and 39 were children, the remainder were not determined; 35 were males and 24 females. The chronological distribution of the cases is very interesting, as follows: 1854, 1 case; 1878, 1 case; 1882, 3 cases; 1886, 1 case; 1889, 1 rumored case; 1891, 1 case; 1892, 6 rumored cases; 1893, 1 case; 1898, 3 cases, 2 rumored cases; 1899, 3 cases; 1900, 1 case; 1901, 44 cases, 17 rumored cases; 1902, 5 cases, 3 rumored cases — giving a total of 64 cases and 30 rumored cases.

The cases are, with few exceptions, American, their geographical distribution being: England, 1 case, 1 rumored case; Scotland, 1 case; Cuba, 3 cases; Porto Rico, 1 case, 2 rumored cases; Philippine Islands, 1 case; Canada, 2 cases. United States: Connecticut, 1 case; Illinois, 1 rumored case; Louisiana, 1 case; Maine, 1 case; Maryland, 1 case; Massachusetts, 3 cases, 1 rumored case; Michigan, 1 case; Minnesota, 2 cases; Missouri, 1 rumored case; New Jersey, 17 cases, 2 rumored cases; New York, 4 cases; Ohio, 4 cases, 1 rumored case; Pennsylvania, 16 cases, 14 rumored cases; South Carolina, 1 case; Tennessee, 1 case; Virginia, 1 case; Wisconsin, 1 case; Pacific Ocean, 1 case; Unknown, 6 rumored cases — giving a total of 65 cases and 29 rumored cases.

In order to determine whether in Philadelphia and Camden, in which cities the cases had been most numerous, there was any particular climatic, telluric or atmospheric condition predisposing to the disease, tables were shown on which were displayed all the fatal cases in each city for five years, given by months. When the vaccination cases were deducted from these figures it was found that there were fewer cases of tetanus remaining than had occurred in the previous years. The incubation period was shown to vary from 6 days, the shortest, to 39 days, the longest, averaging 22 days. The average incubation period of traumatic tetanus was shown to be about 10 days. The difference might be explained as depending.

upon the superficial inoculation of the tetanus bacilli in the vaccine, and the probable necessity for sufficient time to elapse during which the vaccine disease should prepare the way for the accompanying organisms to develop. In every case there was a good, rarely a bad, "take" of the vaccination. Other accompanying infections were occasionally reported as associated. The social condition varied, some of the patients being dirty children, others being refined and cleanly adults. A few wore shields to protect the arm; the majority did not. The following table shows what relationship existed between the occurrence of cases and the particular brand and form of virus employed:

| Virus. | Dry Points. | | Glycerinized. | | | | Total. |
|---|---|---|---|---|---|---|---|
| | | | Points. | | Tubes. | | |
| | Cases. | Rumored Cases. | Cases. | Rumored Cases. | Cases. | Rumored Cases. | |
| E ..... | 8 (3) | 1 | 7 | 0 | 16 | 8 | 40 |
| A ..... | 1 | 1 | | | | | 2 |
| M .... | | | | | 3 | | 3 |
| S ..... | | | | | 5 | | 5 |
| W .... | | | 1 | | | | 1 |
| M. L.. | 1 | | | | | | 1 |
| | | | | | | | 52 |

From this it is evident that virus E is extremely disproportionate in the number of cases attributable to its influence. It appears probable that of viruses E, A and M about an equal quantity is sold, these producers being the largest in the country. When the cases occurring near the home of virus E, where it can be presumed to have the greatest sale, are deducted from the total charged against it, it is found that the scattered cases are still in far greater number than of any other virus.

A study of the epidemics is of the greatest interest. In the Philadelphia Almshouse and Hospital (Blockley) it became necessary to vaccinate every inmate because of a smallpox outbreak. With viruses on hand about four-fifths of the institution (there are about 4,500 inmates) were vaccinated, the remaining fifth being compelled to wait for a few days until a new consignment of virus arrived. The wards thus excepted were the men's insane wards. With the newly secured virus the inmates of this department were vaccinated a few days later, with the result that in this department sixteen cases of tetanus developed. There was no tetanus in the women's insane wards, and there had not been a case of spontaneous traumatic tetanus in either insane ward for twelve years previously. From these data it seems evident that there is a very intimate relationship between vaccine virus and tetanus, and that at times tetanus bacilli are contained in the virus.

### THE PATHOLOGICAL ANATOMY OF A CASE OF POLIENCEPHALOMYELITIS.

DR. ALICE HAMILTON of Chicago read a paper on this subject. Poliencephalomyelitis (Wernicke) is an extremely rare disease. The cases reported are mostly old alcoholics. The disease is fatal in ten to fourteen days. The anatomical lesions are those of hemorrhagic inflammation of the gray matter of the cord, medulla and pons. The case in question was a child of five and one-half years; the symptoms consisted in paralysis of the sixth and seventh nerves on the right, inco-ordination of the right hand; death from respiratory failure. Examination showed no hemorrhages, but an inflammation of the gray matter of the cervical cord, medulla and pons, with degeneration of the nerve cells of the anterior horns of the gray matter of the cord, of the greater part of the nucleus of the seventh on the right and part of the nucleus of the sixth. Hyaline bodies, which gave the reaction for mucin but not for amyloid, were present in the neuroglia, perivascular spaces, and in the smaller vessels, formed probably by the post-mortem coagulation of an exudate.

### MIXED TUMORS OF THE PAROTID REGION.

DR. FRANCIS C. WOOD of New York said that while carcinoma, sarcoma, and possibly adenoma occur in these glands occasionally, the great majority of these tumors belonged to a group characterized by their complex structure, the stroma containing cartilage, mucous and embryonic connective tissue, while the parenchyma was made up of alveoli and strands of cells resembling endothelial cells. While it is possible that some of these stroma cells are due to the proliferation of the endothelium, there are many reasons for considering the parenchyma portions of these complex growths as epithelial in origin. The chief reason for this belief is the fact that epithelial pearls can be found in about 10% of the tumors examined by the writer, and glandular alveoli with cylindrical epithelium in another 10%. The lack of definite morphological characteristics in the remainder of the tumors the writer was inclined to explain by the early embryonic stage at which these tumors were left as remnants from the epiblast lining the buccal cavity, together with portions of mesoblastic tissue from the region of the branchial arches.

### THE HISTOLOGIC AND HISTOGENETIC FEATURES OF A MALIGNANT MEDULLARY HYPERNEPHROMA OF THE KIDNEY.

DR. JOSEPH C. OHLMACHER reported on the pathological findings in a case of renal tumor. The patient, a woman forty-nine years of age, had suffered from renal pain and hematuria five years before death, with extensive metastases. A medullary origin was ascribed to this tumor because of the arrangement of the reticulum, which precisely resembles that of the dog's adrenal, as shown by Flint. The component cells were like those of the adrenal as was also the widening of

the venules and the blood sinuses as deeper portions of the tumor were reached. Embryonic medullary cells were present in the capsule and permeating into the deeper substances quite like those in the developing adrenal. Cortical cells, cylindrical in shape and arranged as U- or S-shaped cords, were occasionally found in the blood sinuses. The resemblance of these glomerular structures to those in the zona glomerulosa of the horse or dog suggests a support for Kelley's views, that they are reversional in nature. Occasional epithelial-clad tubules in the tumor capsule strongly indicate that they might be remnants of the Wolffian body.

REMARKS BASED ON THE BACTERIOLOGIC EXAMINATION OF A CASE OF PARACOLON INFECTION.

Dr. E. Libman of New York said the clinical picture was that of a cholecystitis possibly typhoidal in origin. The paracolon bacillus was isolated from the gall bladder, the blood and the urine during life. The blood gave a reaction with the bacillus in a dilution of 1 to 50. A very marked reaction (1-250) was present for the typhoid bacillus. The autopsy showed healing ulcers in the ileum. Dr. Libman thought the case might be one of secondary infection in a case of typhoid fever. He made some remarks on agglutination tests for paracolon bacilli, and showed that the serum reactions were much more complicated in nature than were those made with typhoid bacillus.

UPON AN EXTENSIVE OUTBREAK OF FOOD INTOXICATION AND INFECTION OF UNIQUE ORIGIN.

Dr. A. P. Ohlmacher of Chicago made a report of a wholesale food poisoning, in which 228 inmates of the Ohio Hospital for Epileptics were severely affected, although no fatal cases occurred. By a process of exclusion, the trouble was traced to a particular batch of oatmeal, which became contaminated with plaster dust arising during the repair of a ceiling in the room in which the oatmeal was cooling after being cooked. The ceiling had been exposed to moisture from the vapor of a steam table, and also to clouds of dust from a nearby road. On the surface of the ceiling bacillus coli communis and bacillus proteus vulgaris were found to be abundant. It is believed that these bacteria in the plaster dust rendered the oatmeal toxic and infectious. Experiments showed the bacteria from the surface of the ceiling to be pathogenic, and toxic substances were isolated from some oatmeal artificially contaminated with the plaster dust.

ON THE CHANGES PRODUCED IN THE BLOOD AND THE BLOOD-FORMING ORGANS BY THE SAPOTOXINS.

Dr. A. A. Bruere of Montreal read this paper by title.

THE MODE OF ACTION OF CERTAIN HEMOLYTIC AGENTS.

Dr. G. N. Stewart of Cleveland gave the conclusions based on a series of experiments on this subject, which may be stated as follows: (1) Laking action of saponin or sapotoxin, sodium taurocholate, amyl alcohol, ethyl alcohol, ether, foreign serum, heating to 62° to 64° C., is not an action of the same nature as water laking, or at any rate the primary action is not of the same nature; for (*a*) it is not prevented, although in certain cases it may be delayed, by the addition of sodium chloride and cane sugar, which do not penetrate the corpuscle even when the blood or blood mixture is half saturated with sodium chloride or saturated with cane sugar; and (*b*) laking by all these agents is obtained in the sediment of blood, from which nearly all the serum is removed by prolonged centrifugation, even when the amount of serum, as estimated by the electrical method, has been reduced to 7 to 8 % of the total volume. In this case there is not enough serum between the corpuscles to cause watery laking, even if it were all to enter the corpuscles. (2) At the same time a marked increase of permeability to electrolytes can be demonstrated in formaldehyde hardened corpuscles acted on by certain of the laking agents, as, for instance, saponin, sapotoxin and sodium glycocholate. Although, as has been shown above, the increase of permeability cannot be the primary cause of laking, it may yet contribute to it. (3) The behavior of nucleated corpuscles, including the corpuscles of adult fowls, the nucleated corpuscles of embryo rabbits, and the nucleated hemoglobin-containing elements in the bone marrow of adult rabbits and dogs, to the laking agents mentioned is the same as that of non-nucleated mammalian corpuscles. The nucleated corpuscles also exhibit the same behavior as the non-nucleated in regard to their permeability by ammonium chloride and urea, and their non-permeability by sodium chloride. (4) Sodium taurocholate causes marked leucocytosis, the leucocytes succumbing about the same time as the erythrocytes. The nuclei of the leucocytes resist the action of the bile-salt longer than the cell-substance, the granules in which disappear rapidly. The lymphocytes appear to resist longer than the larger varieties of leucocytes. Saprotoxin may also cause some leucocytosis, but its action is not so pronounced as that of sodium glycocholate, and numerous leucocytes may still be seen after the erythrocytes have been laked.

LESIONS PRODUCED BY THE BLASTOMYCETES (TORULÆ) OF SAN FELICE AND PLIMMER.

Dr. Edward H. Nichols of Boston described with lantern slides the pathological findings in eighteen animals inoculated with the organisms of San Felice, and of twelve with those of Plimmer. There was found local reaction, abcesses and myxomatous nodules. These nodules consisted of a peculiar granulation tissue, of connective tissue, many endothelial cells and few blood vessels. The blastomycetes, usually surrounded by a gelatinous capsule, were found free and in phagocytes. There was little acute inflammatory exudate as a rule, but practically always a few lymphoid, plasma and eosinophile cells. The

reaction in glandular organs is almost entirely confined to the interglandular connective tissue, the basement membrane is resistant, but when broken through the epidermis is destroyed; it does not proliferate. Lymph nodes are always large, myxomatous or necrotic. The blasts may be free in sinuses or in endothelial cells; the lymphoid tissue is finally destroyed and is replaced by proliferated connective tissue and endothelial cells. Lungs: Organisms in the alveolar walls cause proliferation of connective tissue and endothelial cells; this encroaches on and obliterates the alveoli. We have a desquamative pneumonia and atelectasis. The liver is generally free. In the spleen it causes a proliferation of connective tissue and of endothelial cells in the follicles, and destroys them. In the kidney the process is in the glomeruli or intertubular. It destroys the tubules by pressure, with no proliferation of epithelium and very little reaction. The morphology of cancer bodies and yeasts is not identical.

BLASTOMYCETIC LUNG LESION IN THE HORSE.

Dr. Langdon Frothingham of Boston showed lantern slides, and spoke of a blastomycetic lung lesion in a horse, which is, so far as he knows, the only recorded case. The structure of the lesion consists of a delicate connective tissue reticulum or mesh-work in which are numerous nuclei, probably of endothelial origin, and large numbers of blastomycetes. The organism was obtained in pure culture, and probably was a torula. Inoculation of rabbits and guinea pigs with pure cultures result in the production of similar lesions. The pathological lesions in this case seem to be identical with those caused by the torula, with which Dr. Nichols has experimented and described at this meeting. Lantern slides and paintings were exhibited, showing the gross lesion and its histologic appearances, cultures of the organism, and the lesions produced in inoculated animals.

XANTHOMA AND XANTHOMATOID LIPOMA.

Dr. W. W. Williams of Boston reported the histologic appearances, with lantern slides, of one case of each of these tumors. The xanthoma was made up of variously sized groups of faintly staining cells, with round, large, vesicular nuclei surrounded by dense connective tissue. This is separated from the epidermis by a thin layer of practically normal connective tissue. Above the groups of cells, in the connective tissue and in the lower layers of the epidermis, are found pigmented cells. The process is thought to be a proliferative one, probably caused by some soluble irritant in the circulation. Macroscopically the xanthomatoid lipoma was found to be of a light brown color and of granular appearance. It consisted of variously sized cells in fibrous trabeculæ penetrating the tumor from a dense fibrous capsule. It was thought to be a true new growth and closely related to the simple lipomata.

(To be continued.)

## Recent Literature.

*The Practical Medicine Series of Year Books.* Vol. III: The Eye, Ear, Nose and Throat. One of a series of ten volumes, issued at monthly intervals and covering the entire field of medicine and surgery. Chicago: The Year Book Publishers. 1902.

In this volume the entire field of the subjects above noted has been carefully covered for the year 1901. Extracts from the most important articles published during the year are given, and the arrangement testifies to much painstaking care on the part of the editors.

*A Textbook on Diseases of the Ear, Nose and Throat.* By Charles H. Burnett, M.D., E. Fletcher Ingals, M.D., and James E. Newcomb, M.D. Illustrated. Philadelphia: J. B. Lippincott Company. 1901.

The first third of the book, by Burnett, is devoted to the ear, the second, by Ingals, to the nose, and the third, by Newcomb, to the pharynx and larynx.

A tripartite book labors under certain disadvantages. It is practically impossible to make it homogeneous. Its title is necessarily cumbersome, which again threatens its individuality. When both subjects are by the same author, it may be convenient to bind up the ear and the throat together; when they are by different authors why can they not appear as different books? The names of the first two authors are already well known in connection with textbooks, nevertheless, of the three parts, although all are well done, the third by Newcomb is perhaps on the whole the best.

The section on the ear is treated simply, intelligently and conservatively. It makes a very good textbook, both for the student and for the general practitioner who is obliged to treat any cases which arise in his practice. The section on the nose gives proof of the good judgment and experience of the author. The arrangement of subjects is confusing. Some subjects are better described than others. Hay fever, diseases of the antrum and of the nasopharynx, treatment of septal deviations, and many others are excellent. The third section, including the pharynx and larynx, is well balanced, clear and concise. The chapter on tonsils is good; it begins with the anatomy of the tonsillar region, a subject which has heretofore been omitted from our manuals, and continues with good descriptions of tonsillar diseases, giving due credit to Boston. In the larynx, tuberculosis and malignant disease are well done; it would have been better to have given more space to papilloma in children.

As a whole, the book is simple and straightforward, and as satisfactory for the student as any textbook that we have which covers this field.

THE BOSTON

# Medical and Surgical Journal.

THURSDAY, APRIL 24, 1902.

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## REFORM IN DEATH CERTIFICATION.

RECENT developments in connection with the Toppan case are of such a character as to call attention to the necessity of decided action to prevent the occurrence of similar cases in the future. The Robinson cases are still fresh in mind, and as a consequence of those murders Mrs. Robinson has been confined in jail for about fifteen years at the public expense. These deaths, together with those which have been attributed to the acts of Miss Toppan, make nearly a score of Massachusetts citizens who have at some time or other lost their lives in consequence of the acts, whether criminal or otherwise, of these two women, and have given to the State an unenviable notoriety, which demands investigation to determine whether there is not something wrong in the present system of death certification which may, in part at least, constitute a contributing cause.

The following extract from a Western paper calls attention to this subject: "We note a dispatch in the daily press from Boston relative to twelve deaths that occurred in Massachusetts under the attendance of a nurse, now under arrest for murder. In no less than *three* of these cases, all in Cataumet, Barnstable County, Mass., the report says that there was 'no death certificate.' In the nine deaths recorded, the causes, 'heart failure,' 'complication of diseases,' etc., accepted by the registrars of even such places as Cambridge, Lowell, etc., argue a very low standard of practical registration methods."

What are the objects of a certificate of death, and how are these objects secured in Massachusetts? And what are the defects of the present system?

The following may be stated as the chief objects of a system of death certification:

(1) The individual certificates constitute a definite record which often has great economic value in the settlement of claims for life insurance, pensions, property rights in families, and especially in cases of disputed survivorship.

(2) They are of much value to the genealogist, who is in search of questions pertaining to family history.

(3) Taken collectively, they constitute an extremely valuable source of knowledge in the study of the causes, prevalence and distribution of diseases.

(4) They often furnish valuable aid in the detection of crime.

It is to this latter object alone that we desire to call attention. The subject has attracted the notice of the British Parliament, and in 1893 an investigation was made at which Sir Henry Thompson, Dr. Ogle of the registrar general's office, and other noted physicians testified, and urged the necessity of improved methods. The following quotation from the report of the committee shows that the necessity for reform existed:

"Among the class of certified deaths are to be found many deaths attended by unqualified assistants and certified by qualified practitioners who may never have seen the cases; deaths certified by medical practitioners who have not seen the patient for weeks or months prior to death, and who only know by hearsay of death having occurred; and deaths in which the true cause is suppressed in deference to the feelings of survivors. Such cases are numerous, but in addition evidence was given as to cases accidentally brought to light of deaths registered, with a view to insurance or other frauds, of persons afterward discovered in some cases to have been murdered, and in other cases to be still alive; deaths registered under circumstances suggestive of fraud, regarding which it was not known whether the subjects had or had not died, and coffins buried alleged to contain corpses, the deaths of which had not been registered, and concerning which all that is known is that no such persons as those alleged to have been buried had died at the address given to the burial authorities."[1]

Sir Henry Thompson, in testifying before the Parliamentary Committee, urged the necessity for greater precautions to prevent the concealment of crime, and Dr. Ogle stated that one of the chief objects of the death certificate was to prevent foul play and murder.

It is evident that, so far as the certificate of death is concerned, every possible guarantee of protection to the community should be given, by surrounding the certificate with the proper safeguards for making it as definite and as accurate as possible.

[1] Report of Select Committee on Death Certification, British Parliament, 1893.

What, then, are the defects of the system as at present employed in Massachusetts? Other states have already taken action and made much improvement in this direction, and we may profit by their experience.

(1) The method of collecting the death returns is practically the same as it was in 1842. That is to say, all the returns for a single year are forwarded to the central office in a lump after the close of the year, by provision of statute. For a large part of the State these returns are not due at the central office till March 1 of the year following that in which the deaths occurred and were certified; for the cities of Fall River and Worcester, not until April 1, and for the city of Boston, not until May 1. By such a system the central office must necessarily be crowded with work in the collection and compilation of these returns through a part of the year, while another part of the year must be spent in comparative idleness. Under the present system in Massachusetts information in regard to the deaths which occur in January of any given year does not usually reach the central office until at least thirteen months after their occurrence, and those of the city of Boston may not arrive until fifteen months afterward.

How much preferable is a system requiring returns from municipalities at least once a month throughout the year, as has been adopted in many other states. In England the returns are received with such promptness as to permit the registrar general to publish an advance sheet giving much useful information as early as April 1 of the year succeeding that in which the deaths occurred. But in Massachusetts no information is published until nearly the close of the year following, and in the last instance the report for 1900 was not made public until as late as Feb. 1, 1902.

(2) No power is given by law to the central authority in Massachusetts to revise or correct indefinite or defective returns. In the existence of such defective and indefinite returns, it must be confessed there lies an element of weakness and the possibility of concealment of crime. In some states and countries the power to return the certificates or copies of the same to the municipal registrars for correction is granted by law, in others it is very properly assumed by the central authority without waiting for legal permission. The registrar general's "Annual Report for England," for example, states "that the total number of replies received in answer to such inquiries in the year 1896 was 4,221, of which 3,004 contained information which led to the more accurate classification of death causes." [2]

[2] Fifty-ninth Annual Report of Registrar General, England, p. xxix.

In the Massachusetts Registration Report for 1900 comment is made on alleged improvement in the registration of returns from indefinite causes, and yet, in this same report, it appears that 2,384 persons lost their lives in Massachusetts in that year, from such indefinite causes as atrophy and debility 1,072, cephalitis 1,215, and unknown 97, and out of these it is a significant comment that 1,449 deaths, or more than half, were those of infants under a year old. How many cases of infanticide and murder are concealed under these indefinite terms no one can tell. It is only when a score or more of persons are known to have been put out of the way beneath the green sod of the churchyard, through the agency of such persons as Robinson and Toppan, that public attention is called to the matter.

(3) A plan is much needed whereby each death shall receive some sort of official investigation before burial, as is done in some of the countries of continental Europe. If this plan is not practicable then at least all uncertified deaths, or deaths which occur when no physician is in attendance, should be subject at least to a "view" by an official appointed for the purpose. In some of our large cities this is already done. An attempt at such legislation was tried a few years ago, but unfortunately without success. Had such a system been in practice during the past twenty years, it is quite possible that the remarkable career of Sarah Robinson and Jane Toppan would have been arrested at an early period and several lives might have been saved.

(4) The collection and compilation of the death returns is in incompetent hands. That such is the fact has been abundantly shown by such men as Billings, Hoffman, Wilbur, Hewitt and others, all of whom are experts of the highest character, outside of Massachusetts. In the process of evolution of American vital statistics Massachusetts originally held a leading position as an example to other states. The officials who were first given charge of this important work, Palfrey, Walker, Oliver Warner and others, were careful to see that this duty was as well performed as that of any other public department, but during the past few years the quality of the work done has degenerated and fallen far behind that of other states.

One chief reason for this condition is the lack of a well-trained medical head, who should have charge of the work, with power to recommend or to adopt improved measures. The members of the medical profession are responsible for the accuracy of the returns of death throughout the state, and the collection and supervision of these returns should be in the hands of medical men, who alone are competent to judge of their accu-

racy. But, on the contrary, while every other state has by statute placed this important work under medical control, Massachusetts is still in the grotesque position of continuing the work in a department, which for many years has had no medical officer. Is it then to be wondered at that such work has been done in a blundering manner, and is constantly being held up to ridicule by experts in other states? Michigan has recently placed the whole work of supervision of death returns under the care of a competent medical man, with the result of improving the character of the work far beyond that of Massachusetts.

An attempt to remedy these defects was made in 1893, several petitions having been sent to the legislature by the Massachusetts Medical Society and other kindred organizations, for the purpose of securing legislation which would undoubtedly have produced the desired result if enacted, but the movement was defeated. Had this movement been successful, not only would many much needed improvements have been introduced, but a very decided saving of expense to the State would have been effected.

It is not creditable that a progressive State like Massachusetts should have suffered the loss of nearly a score of its citizens through the criminal or insane work of two women. It matters not whether these were deliberate murders or the work of a disordered mind. The loss is the same, and the State should probe the matter to the very bottom to determine, if possible, whether any defects exist in the general system of burials under which such loss has taken place, and whether any remedy can be applied to prevent such wholesale destruction in the future.

## LIFE INSURANCE REPORTS.

We have before us the report, by Claud Muirhead, M.D., medical officer of the society, of the causes of death among the assured in the Scottish Widows Fund and Life Assurance Society from the years 1874 to 1894, inclusive.

The report is prepared with much care and presents many points of interest, not only to life insurance examiners, but also to students of vital statistics in general. The mortality among males is alone considered.

The contents of the report is arranged under thirteen headings, including details of the diseases of the various systems and organs of the body, so that reference to the various fatal disorders is easy. Particular attention has been paid to the consideration of the two most fatal maladies, consumption and cancer. The average age at death of persons suffering from tuberculosis for the twenty-one years under consideration was forty-two, and the number of cases yearly has been steadily decreasing, whereas the mortality of cancer, with an average age at death of sixty, has been constantly increasing. This experience coincides, in general, with that in other parts of the world.

Statistics derived from life insurance returns are rapidly becoming of the very greatest importance, but with this increasing importance it is highly desirable that the data and classification of disease be as accurate as our present knowledge permits. Vague terms like debility, dropsy, tumor without further specification, are, of course, misleading and confusing in the final estimate of the causes of death. The report before us makes an admirable attempt to overcome the weaknesses of an established and now somewhat obsolete classification, and with considerable success. That confusion still exists among diseases of the nervous system is not remarkable, in view of the rapid increase of knowledge of the pathological anatomy and differential diagnosis of many affections, which a few years ago were placed in a common class. There is, for example, in this report much vagueness regarding the distinction between apoplexy and softening of the brain, and deaths recorded under the general heading of "paralysis" or "spinal cord disease" naturally have little statistical value. An interesting observation is made regarding "paralysis" and "paralytic dementia," with reference to the apparent increase of the latter disease. It appears that as the diagnosis of paralytic dementia has increased in frequency, that of paralysis, without further modification, has steadily diminished, but that the sum of the two has remained practically constant. We suspect that the general increasing accuracy of diagnosis is responsible for much of the reputed increase in certain diseases.

Admitting all such possible sources of error Dr. Muirhead is convinced that the mortality from cancer is increasing and that the time of death is earlier. In 1861, deaths from cancer represented 1 in 102 deaths from all causes, in this assurance society, and in 1891 they were equal to 1 in 41. These figures are striking and sufficiently disturbing, but we are still inclined to the supposition that the source of error from imperfect diagnosis in such statistics is a factor very seriously to be taken into consideration.

The value of the publication of figures of this sort is not to be underrated, however, on this account, for it is only by the careful scrutiny and criticism of imperfect data, that we may hope to arrive at more accurate facts in the future. However fallacious statistics may be, they are, nevertheless, essential.

## MEDICAL NOTES.

Bequest to Edinburgh University.— According to the *Philadelphia Medical Journal*, by the will of the late Mr. Robert Irvine, of Royston, Edinburgh University has received $150,000 for the foundation of a professorship in bacteriology.

### BOSTON AND NEW ENGLAND.

Acute Infectious Diseases in Boston.— For the week ending at noon, April 23, 1902, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: Diphtheria 48, scarlatina 10, measles 141, typhoid fever 10, smallpox 40.

Connecticut Health Report.— According to the report of the secretary of the State Board of Health of Connecticut, smallpox is still occurring sporadically in several towns, but is epidemic only in Waterbury. As an illustration of the possible control of the disease, it is reported that, except in Waterbury, it has been limited to one case in five other towns and to two cases in the other two towns in which it has appeared. Its greater spread in Waterbury is due to the large number of unvaccinated persons, the large foreign population, and the greater facilities for concealing the presence of the disease until many have been exposed to it. Typhoid fever is reported in 16 towns only, in the State, and except in New Haven there are not more than two cases in any one town. In all the State only 25 cases were reported. Pneumonia has been the most fatal disease, exceeding the fatality of consumption by 23 deaths. But the deaths from pneumonia for the three months ending March 31 were 241 less than in the same months of the previous year. The deaths from consumption numbered 46 less for the quarter ending March 31, 1902, than in the same quarter of 1901. There were 140 deaths from consumption reported in March. Although the new sanitary regulations, recently adopted, require the notification of all consumptive subjects to the Town Health Officer, only 22 cases were so reported, notwithstanding there were 140 deaths from the disease.

Meeting of the Massachusetts Emergency and Hygiene Association.— The annual meeting of the Massachusetts Emergency and Hygiene Association was held in Boston April 21. Reports made at the meeting showed that excellent progress had been made during the year in the work to which the association is devoted. Dr. J. J. Minot, reporting for the committee on instruction for attendants, said that the demand for attendants had been brisk, frequently exceeding the supply; that more practical work among the sick poor has been given this year than usual; that the course is to be lengthened next year to make it more thorough, and that the attendants fill a place below that of the trained nurse in skill as well as in compensation received. Dr. James J. Minot was re-elected president of the association.

Frequent Causes of Death.— Among 134 deaths occurring in Worcester, Mass., during March, 27 were from pneumonia, 17 from heart disease, 12 from tuberculosis of the lungs, and 10 from apoplexy.

### NEW YORK.

Treatment of Tuberculosis on Blackwell's Island.— The Commissioner of Public Charities has just given out a statement of the results thus far attained at the new municipal hospital for pulmonary tuberculosis, opened Feb. 1, in the buildings formerly occupied by the Manhattan State Hospital for the Insane on Blackwell's Island. The time included is, of course, very brief, and the report is probably of little real scientific value, but yet it is encouraging and of considerable interest as showing the good effects, in even a short period, and one embracing the most inclement part of the year in New York, of rest for those requiring it, a regular regimen, proper food, and plenty of fresh air. No mention is made of any special medicinal treatment, so that it is to be inferred that this was merely symptomatic. Of 273 cases admitted, 76 died, and 55 have been discharged,— 50 as improved and 5 not improved. There remain in the hospital 114. With few exceptions all of the patients were in more or less advanced stages of the disease at the time of entrance. Rather more than 50% were in the last stage. The remaining cases consisted of two classes: (1) Those in whom all the typical signs of tuberculosis were present, but who yet retained a fair amount of nutrition and strength, and (2) those whose general condition was less favorable, but who were able to be up for the greater part, if not all of the day. The 50 patients discharged as improved have, as a rule, either returned to their work or been sent to the country. Twenty-eight cases have been transferred on account of surgical needs, or as showing no evidence of phthisis. Of the patients remaining, 20 new cases are not yet classified, 40 are unable to leave their beds, and 54 are less advanced cases. Of these, 25 have been decidedly improved and show an average gain in weight of 6.75 lbs.; 13 show less improvement, but an average gain of 1.9 lbs.; 16 have not improved, and show an average loss in weight of 1.31 lbs. Special reports of some of the cases are given. In one of those the patient, admitted Feb. 3, gained 16 lbs.; in another, admitted March 10, the gain was 7½ lbs.; in another, ad-

mitted Feb. 1, 8¾ lbs.; in another, admitted March 24, 3¼ lbs. All were much improved in other ways also. One patient, admitted on Feb. 1, poorly nourished, gained 16¾ lbs., and left the hospital on April 9 in good condition. A salesman, 36 years of age, in the second stage of the disease, has gained 6 lbs. in weight, and the bacilli have entirely disappeared from his sputum.

Mortality Statistics of Hudson County, N. Y.— The annual report of the health department of Hudson County, N. Y., just issued, shows that the mortality during the year 1901 represented an annual death-rate of 18.6 per thousand, the lowest in 28 years. The death-rate in Jersey City, the principal city, was nineteen per thousand, the lowest since the records have been kept. Between March 1, 1901, and March 19, 1902, the total number of cases of smallpox was 556, with fifty-four deaths.

Comparative Death and Birth Rates.— During the first quarter of the present year the death-rate in the city of New York was 20.22 per thousand of the population, as against 21.01 for the first quarter of 1901. There were 18,364 deaths and 21,767 births reported in the quarter in 1902, and 18,575 deaths and 20,981 births in 1901.

## Miscellany.

### AN EXAMINATION PAPER ON OSLER (FOURTH EDITION).

Realizing that there is a certain monotony about medical examinations the following paper, purporting to be from the pen of a writer in the *St. Thomas Hospital Gazette*, London, is offered by way of variety:

1. Who was Mephibosheth? What parental superstition dates from his time?
2. What is "one of the saddest chapters in the history of human deception"?
3. Give Osler's quotations from the following authors: John Bunyan, Byron, John Cheyne, George Cheyne, Montaigne. Explain the context where necessary.
4. Describe, if necessary, with the aid of diagrams, Kemp's double current rectal tubes. What are the indications for their employment?
5. Give in full the name of "the distinguished old Bath physician." At what period did he flourish, and what is his claim to distinction?
6. As a sequence, to what therapeutic procedure did the son of Professor Langerhans die? What was the pathological and medico-legal interest of the case?
7. What is the chief recorded complication of a lay committee meeting at St. George's Hospital?
8. Who was convinced that more wise men than fools are victims of gout? Is there any reason why he, in particular, should hold that view?
9. What cases drift to "museums and side-shows"?
10. How did Trousseau's patient make money?
11. What celebrated English physician preferred to die in harness? State the cause of death?
12. What internal evidence is there: (*a*) That Osler has had an unhappy experience with cheap bicycles; (*b*) that he is interested in the history of Napoleon Buonaparte?
13. What is O. Rosenbach's dictum on the custom of wearing stays?
14. Quote Hunter's famous advice to Jenner.
15. What was the counsel of Rondibilis to Panurge?
16. How did Eryximachus treat the hiccough of Aristophanes?
17. Give the references to Lady Mary Wortley Montagu, President Jefferson, Jerome Cardan, the Elder Scaliger, Captain Catlin, Laurence Sterne, Thomas King Chambers, Robert Druitt and Colonel Townshend.
18. What did Strabo call "the lisping of the gout"?
19. Give the context of the following quotations, and make explanatory remarks if necessary: (*a*) Cases are given after nearly every one of the specific diseases; (*b*) I saw, some years ago, one of the most distinguished gynecologists of Germany perform laparotomy in a case of this kind; (*c*) the doses given by the late Alonzo Clark of New York may be truly termed heroic; (*d*) in a somewhat varied post-mortem and clinical experience, no instance has fallen under my observation; (*e*) a history of gorging with peanuts; (*f*) I have seen Murchison himself in doubt; (*g*) a toad-like caricature of humanity; (*h*) from the accurate view of Laennec and Louis the profession was led away by Graves, and particularly by Niemeyer; (*i*) one of the most powerful enemies of the American stomach at the present day; (*k*) I had a lesson in this matter which I have never forgotten.
20. Who was Van Helmont, and when did he live? Give a brief account of his opinion on contemporary medicine.
21. Who made an autopsy on Dean Swift, and what did he report?
22. What interest attaches to: (*a*) The Pullman car conductor from Chicago; (*b*) the Appleton-Swain family; (*c*) yellow cakes at Philadelphia; (*d*) Chancellor Ferrier; (*e*) Master McGrath; (*f*) Renforth the Oarsman; (*g*) Shattock's patient.
23. Who had a translucent head? What was the pathology of the condition?
24. On what occasion was a surgeon entrapped by a neurotic physician?

## Obituary.

### MEREDITH CLYMER, M.D.

Dr. Meredith Clymer of New York, for many years an authority on diseases of the nervous system, died on April 20 in the eighty-sixth year of his age. He was a native of Philadelphia, and a grandson of George C. Meredith, one of the signers of the Declaration of Independence. He was graduated from the University of Pennsylvania in 1835 and from the medical department of the university in 1837, after which he pursued his medical studies in London, Dublin and Paris. He practised his profession in Philadelphia for ten years, during which time he was consulting physician to the Philadelphia Hospital, physician-in-chief to the Cholera Hospital in that city, and professor of the practice of medicine in the Hampden-Sidney College at Richmond, Va. He came to New York in 1851, and became professor of practice in the Medical Department of the University of the City of New York. During the Civil War he was a surgeon in the United States Volunteers, and medical director of the Department of the South. In 1871 he was appointed professor of mental and nervous diseases in Albany Medical College. Dr. Clymer was a highly esteemed medical author, and in addition to writing several works and editing a number of others, was for many years a constant contributor to periodical medical literature.

## METEOROLOGICAL RECORD

For the week ending April 12, in Boston, according to observations furnished by Sergeant J. W. Smith of the United States Signal Corps:

| Date | Barometer. Daily mean. | Thermometer. Daily mean. | Thermometer. Maximum. | Thermometer. Minimum. | Relative humidity. 8.00 A.M. | Relative humidity. 8.00 P.M. | Relative humidity. Daily mean. | Direction of wind. 8.00 A.M. | Direction of wind. 8.00 P.M. | Velocity of wind. 8.00 A.M. | Velocity of wind. 8.00 P.M. | We'th'r * 8.00 A.M. | We'th'r * 8.00 P.M. | Rainfall in inches. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S....6 | 29.97 | 43 | 51 | 35 | 76 | 75 | 76 | W | S | 7 | 8 | F. | C. | O. |
| M...7 | 30.10 | 42 | 45 | 40 | 87 | 88 | 88 | S E | E | 7 | 14 | R. | O. | T. |
| T...8 | 30.00 | 40 | 42 | 39 | 90 | 100 | 95 | N E | N E | 22 | 30 | O. | R. | .48 |
| W..9 | 29.61 | 42 | 45 | 40 | 100 | 100 | 100 | E | N E | 12 | 12 | R. | O. | 1.27 |
| T..10 | 29.68 | 40 | 41 | 38 | 96 | 87 | 92 | W | N | 14 | 10 | O. | O. | T. |
| F..11 | 29.78 | 44 | 50 | 38 | 88 | 68 | 78 | W | N W | 9 | 7 | R. | O. | T. |
| S...12 | 29.68 | 52 | 60 | 43 | 73 | 65 | 69 | S W | N E | 11 | 4 | C. | O. | T. |
| ☞ | 29.83 | | 48 | 39 | | | 85 | | | | | | | 1.75 |

*O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow. †Indicates trace of rainfall.
☞ Mean for week.

## RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, APRIL 12, 1902.

| CITIES. | Population* Estimated, 1902. | Reported deaths in each. | Deaths under five years. | Percentage of deaths from Infectious diseases. | Acute lung diseases. | Diphtheria and croup. | Typhoid fever. | Cerebro spinal meningitis. |
|---|---|---|---|---|---|---|---|---|
| New York . . | 3,665,352 | 1,393 | 460 | 24.33 | 14.28 | 2.51 | .72 | .28 |
| Chicago . . | 1,852,828 | 562 | 163 | 23.05 | 19.03 | 2.49 | 1.14 | — |
| Philadelphia. | 1,349,624 | 506 | 123 | 19.09 | 12.58 | 2.55 | 2.75 | — |
| St. Louis . . | 603,717 | — | — | — | — | — | — | — |
| Baltimore . . | 525,330 | 182 | 34 | 21.96 | 11.53 | .54 | 1.64 | — |
| Cleveland . . | 411,826 | — | — | — | — | — | — | — |
| Buffalo . . . | 376,742 | — | — | — | — | — | — | — |
| Pittsburg . . | 341,401 | 155 | 46 | 26.44 | 23.86 | .64 | 13.05 | — |
| Cincinnati . | 332,032 | — | — | — | — | — | — | — |
| Milwaukee . | 304,975 | — | — | — | — | — | — | — |
| Washington . | 289,537 | — | — | — | — | — | — | — |
| Providence . | 185,870 | 70 | 19 | 18.00 | 12.86 | 5.84 | — | — |
| Boston . . . | 588,736 | 199 | 58 | 15.07 | 19.09 | 1.50 | .50 | 1.00 |
| Worcester. . | 127,337 | 27 | 3 | 11.10 | 18.51 | — | — | 3.70 |
| Fall River. . | 111,872 | 40 | 16 | 35.00 | 17.50 | 5.00 | — | — |
| Lowell . . . | 99,574 | 36 | 11 | 22.12 | 8.33 | 5.55 | — | — |
| Cambridge . | 96,334 | 27 | 10 | 22.22 | 18.51 | 3.70 | — | — |
| Lynn. . . . | 71,144 | 22 | 9 | 31.71 | 18.18 | — | — | 9.09 |
| Lawrence . . | 67,275 | 23 | 14 | 26.08 | 34.78 | — | 4.34 | — |
| Springfield . | 66,854 | 14 | — | 7.14 | 28.56 | — | — | — |
| Somerville . | 65,882 | 24 | 2 | 33.33 | 12.50 | 4.16 | — | 8.33 |
| New Bedford. | 65,574 | 26 | 9 | 15.40 | 17.25 | — | — | 3.85 |
| Holyoke . . | 48,065 | 11 | 4 | 18.18 | 27.27 | — | — | — |
| Brookton . . | 43,208 | 7 | 3 | 57.20 | — | 14.30 | — | 14.30 |
| Haverhill . . | 40,392 | 7 | 2 | 14.30 | 28.60 | — | — | — |
| Salem . . . | 36,567 | 13 | 1 | 38.50 | 7.70 | — | 7.70 | — |
| Newton. . . | 36,336 | 10 | 3 | 10.00 | 20.00 | — | — | — |
| Malden . . . | 35,390 | 8 | 2 | — | — | — | — | — |
| Chelsea. . . | 35,264 | 10 | 6 | 10.00 | — | — | — | — |
| Fitchburg. . | 33,848 | 14 | 6 | 14.28 | 14.28 | — | — | — |
| Taunton . . | 32,759 | 17 | 3 | 17.64 | 17.64 | — | — | — |
| Everett. . . | 27,114 | 6 | 1 | — | — | — | — | — |
| North Adams | 26,583 | 6 | — | 16.67 | 33.33 | — | — | — |
| Gloucester . | 26,121 | 3 | — | — | — | — | — | — |
| Quincy . . . | 25,307 | 7 | 2 | 57.20 | — | — | — | — |
| Waltham . . | 24,612 | 13 | 1 | 15.40 | 15.40 | — | — | — |
| Pittsfield . . | 22,311 | 5 | — | — | 40.00 | — | — | — |
| Brookline. . | 21,679 | 7 | 1 | 28.60 | 28.60 | — | — | — |
| Chicopee . . | 20,390 | 6 | 4 | — | 33.33 | — | — | — |
| Medford . . | 20,014 | 6 | 1 | 16.67 | 16.67 | 16.67 | — | — |
| Newburyport | 14,478 | 8 | 2 | — | 25.00 | — | — | — |
| Melrose . . | 13,384 | 2 | — | — | — | — | — | — |

*The populations of the cities outside of Massachusetts were estimated on the basis of the rate of growth from 1890 to 1900. Those of the Massachusetts cities were estimated upon the rate of growth from 1895 to 1900, since the State had an intermediate census in 1895. The populations of Gloucester, Marlborough and Newburyport were allowed to stand as in 1900, they having suffered a slight decrease during the five-year period.

Deaths reported 3,507; under five years of age, 1,030; principal infectious diseases (smallpox, measles, scarlet fever, cerebrospinal meningitis, diphtheria and croup, diarrheal diseases, whooping cough, erysipelas, fevers and consumption) 781, acute lung diseases 555, consumption 400, scarlet fever 52, erysipelas 15, typhoid fever 46, whooping cough 26, cerebrospinal meningitis 15, smallpox 22, measles 37, diarrheal diseases 72, diphtheria and croup 78.

From whooping cough, New York 15, Chicago 6, Philadelphia 2, Baltimore 1, Pittsburg 1, Boston 1. From cerebrospinal meningitis, New York 4, Boston, Lynn and Somerville 2 each, Worcester, Cambridge, New Bedford, Brockton and Gardner 1 each. From scarlet fever, New York 29, Chicago 15, Philadelphia 2, Pittsburg 1, Fall River 2, Boston, Fitchburg and Westfield 1 each. From erysipelas, New York 7, Chicago 2, Baltimore 2, Pittsburg 1, Boston 3. From smallpox, New York 12, Philadelphia 4, Boston 3, Lawrence 1, Quincy 2.

Beginning with January, 1902, the term "great towns" as employed in the Registrar General's Weekly Return of births and deaths includes the seventy-five municipalities of England and Wales which have a population of more than 50,000 in each.

In the seventy-six great towns of England and Wales, with an estimated population of 14,862,003, for the week ending March 29, the death-rate was 18.2. Deaths reported 5,175; acute diseases of the respiratory organs (London) 360, whooping cough 157, diphtheria 93, measles 145, smallpox 68, scarlet fever 52.

The death-rate ranged from 6.2 in Hornsey to 34.0 in Merthyr Tydfil; London 18.4, West Ham 16.9, Croydon 18.1, Brighton 20.1, Portsmouth 14.4, Southampton 18.4, Bristol 17.5, Birmingham 20.1, Leicester 19.3, Nottingham 19.5, Birkenhead 20.4, Liverpool 20.3, Manchester 21.3, Salford 19.1, Bradford 15.9, Leeds 18.3, Sheffield 17.8, Hull 18.4, Newcastle-on-Tyne 20.2, Cardiff 16.1.

## SOCIETY NOTICES.

CENSORS' MEETING.—The Censors of the Suffolk District Medical Society will meet for the examination of candidates at the Medical Library, No. 8 The Fenway, on Thursday, May 8, at 2 o'clock.

Candidates should make personal application to the secretary and present their medical diplomas at least three days before the examination.

F. J. COTTON, Secretary.

THE AMERICAN CONGRESS OF TUBERCULOSIS.—The Third annual session of this congress is announced to be held on the 14th, 15th and 16th of May, 1902, at the Hotel Majestic, 72d Street and Central Park, West, in the city of New York, in joint session with the Medico-Legal Society.

AMERICAN CLIMATOLOGICAL ASSOCIATION.—The American Climatological Association, instead of its usual annual meeting, has arranged a tour of the West from May 26 to July 3, in the course of which the scientific sessions will be held.

MEDICAL ASSOCIATION OF MISSOURI.—The forty-fifth annual session will be held at St. Joseph, Mo., May 20, 21 and 22, 1902.

## LECTURE.

LECTURE ON TUBERCULOSIS.—Dr. Edward O. Otis will lecture on "Sanatoria and the Open-Air Treatment of Tuberculosis" at the Tufts College Medical School, corner Huntington and Rogers Avenues, on Wednesday evening, April 30, at 8 P.M. Members of the profession are invited to attend.

## RECENT DEATHS.

DR. NATHANIEL MARSTON FREEMAN of New York, a graduate of the Yale Medical School in 1852, died suddenly from cardiac disease on April 18, at the age of eighty-one. Although enjoying good health, he had retired from active practice several years ago.

DR. JULIUS WISE died at Chicago April 19, in his fiftieth year. Dr. Wise was a physician of high repute, and especially for his work in the yellow fever epidemic in 1878-1879, when he was professor in the Memphis (Tenn.) Medical College. He was also a contributor of note to the Jewish press.

DR. R. R. RICKER, one of the oldest physicians in Lewiston, Me., died recently. He had been a resident of Lewiston nearly forty years. He studied at Dartmouth, and graduated finally from Bowdoin. Dr. Ricker entered the army as assistant surgeon in the Twenty-Third Maine Regiment in 1862, and later enlisted for a similar position in the Thirty-First Maine, serving with this regiment through all the closing battles of the war.

## Original Articles.

### PROBLEMS RELATING TO SURGERY OF THE STOMACH.[1]

BY WILLIAM J. MAYO, A.M., M.D., ROCHESTER, MINN.,
*Surgeon to St. Mary's Hospital.*

In the preparation of the subject to be discussed, I have thought it wise to confine myself to the practical aspects of gastric surgery, using for this purpose the material obtained from a single hospital, which, by reason of the fixed character of the agricultural community in which it is situated, gives fairly accurate data upon which some general observations can be based. This method of treating the questions brought forward is not due to a lack of appreciation of the grand work of the pioneers in this branch of our art, a work in which the surgeons of Boston have played so conspicuous a part, but rather with the hope that the limited experience of an observer in a somewhat distant field might be of the greater interest.

Gastric surgery is, to a large extent, still in the developmental stage, and this is due to the lack of definite knowledge upon which to base a surgical diagnosis. Volumes have been written upon the diseases of the stomach from a medical standpoint, but as the statements made are based upon the symptoms of the patient or the results of post-mortem examinations, we gain but little as to that great middle ground in which the surgery of expediency will find its field of usefulness. The debatable territory is now being explored, and we shall shortly have a more exact knowledge. At the present time our own experience would seem to indicate that in the medical diagnosis there were four important lines of inquiry to be pursued: (1) The history of the patient; (2) the size and position of the stomach; (3) tumor or localizing point of tenderness; (4) interference with the progress of the food. The examination of the stomach contents has some corroboratory value, especially with reference to the stagnation or retention of ingesta. The chemical and microscopical findings are unreliable in the early phases of disease, but possess some significance later in its course. Examination of the blood, the urine, the feces, etc., is of interest and occasionally helpful. The use of the gastroscope, gastrodiaphanoscope, x-ray, etc., is still experimental.

The mechanics of the stomach is the most interesting feature to the surgeon; from this point of view the function of the stomach is largely mechanical. It absorbs fluids, equalizes the temperature of the ingesta, and the weak solution of hydrochloric acid and pepsin which is secreted breaks up the food masses, forming a homogeneous material which is fed down into the small bowel, where the real work of digestion and absorption takes place. It may be said to act like the magazine of a furnace, the accumulation in the reservoir self-feeding through the pylorus. The more experience one acquires with the operative side of the question, the more one is impressed with the correctness of this view.

Any interference with the outlet promptly produces symptoms corresponding with the degree of obstruction, while ulceration or other disease involving the wall of the stomach, preventing it from acting as a reservoir, is also quickly resented. The distress in each case causes the patient to unconsciously try to adjust the quality of food and its quantity, to the loss of this peculiar function of the stomach. The result of obstruction at the pylorus is to increase the capacity of the stomach, and this is often the only objective sign to which our attention is called before operation. Dilatation is to be expected in the first group, of which pyloric stenosis is the type, but unless the disease of the wall is sufficiently near the pylorus to add mechanical features, it is not present in the second group, of which ulcer is the chief example.

Dilatation, due to benign obstruction at the pylorus, is followed by increase in the muscular wall of the stomach, the hypertrophy enabling the damaged organ to carry on its function. This degree of compensation is often aided by the patient through a selected diet. In these cases compensation, alternating with dilatation and its discomforts, gives a clinical picture which may be aptly compared to cardiac insufficiency.

Why is it that these patients, with far greater symptoms than would be tolerated in either the appendiceal or gall bladder regions, are allowed to go unrelieved? It is not only that we are unable to know before operation the exact nature of the trouble, but that we also distrust our ability to make a diagnosis even at the operating table.

In the beginning, every operation upon the stomach partakes of an exploratory incision, and too often the proposed operation stops, upon exposure of an extent of disease beyond intervention. This is particularly true of cancer. The surgical examination of the stomach may not prove easy. The pylorus and anterior wall are open to inspection, and gross lesions of all parts can be ascertained, but not so the more minute forms of disease, such as the round ulcer. Our plan has been to explore by sight and touch, the more accessible portions of the stomach wall. Then, by opening into the lesser cavity of the peritoneum through the gastrocolic omentum, to pass the hand behind the stomach and search its posterior wall (Tiffany). To explore the interior of the gastric cavity, a transverse incision is made three inches in length through the anterior wall half way between the pylorus and cardiac orifice. Into this a short rectal speculum, two inches in length and one and one-half inches in diameter, is inserted and the fluids removed by suction. With the hand behind the stomach, nearly the whole of its mucous surface can be passed in review before the end of the speculum under direct light. (This is a modification of the method first brought out by Maylard at the International Congress, 1900.)

[1] Read before the Surgical Section of the Suffolk District Medical Society, Feb. 26, 1902.

With a considerable lesion one may often doubt whether the trouble is cancer or ulcer; or, not infrequently, the seat of an ulcer has undergone carcinomatous degeneration, leading to uncertainty. This is especially true of the pyloric region. We have had two cases in which the thickening about a pyloric ulcer was so great that even after incision, with the parts open to inspection, we were unable to tell the difference, macroscopically. Enlarged lymphatic glands, unless distinctly cancerous, do not help us. It has been our experience, that in the majority of diseases of the stomach marked by retention and fermentation of the food, enlarged lymphatic glands are to be found in the omenta. The most common forms of dilatation of the stomach are due to the healing of a gastric ulcer causing stenosis, or to malignant disease involving the pylorus. The only cases of cancer of the stomach we have been able to diagnosticate sufficiently early to extirpate were the cases in which obstruction and dilatation were present. Upon opening the abdomen this factor is easily seen and needs no comment.

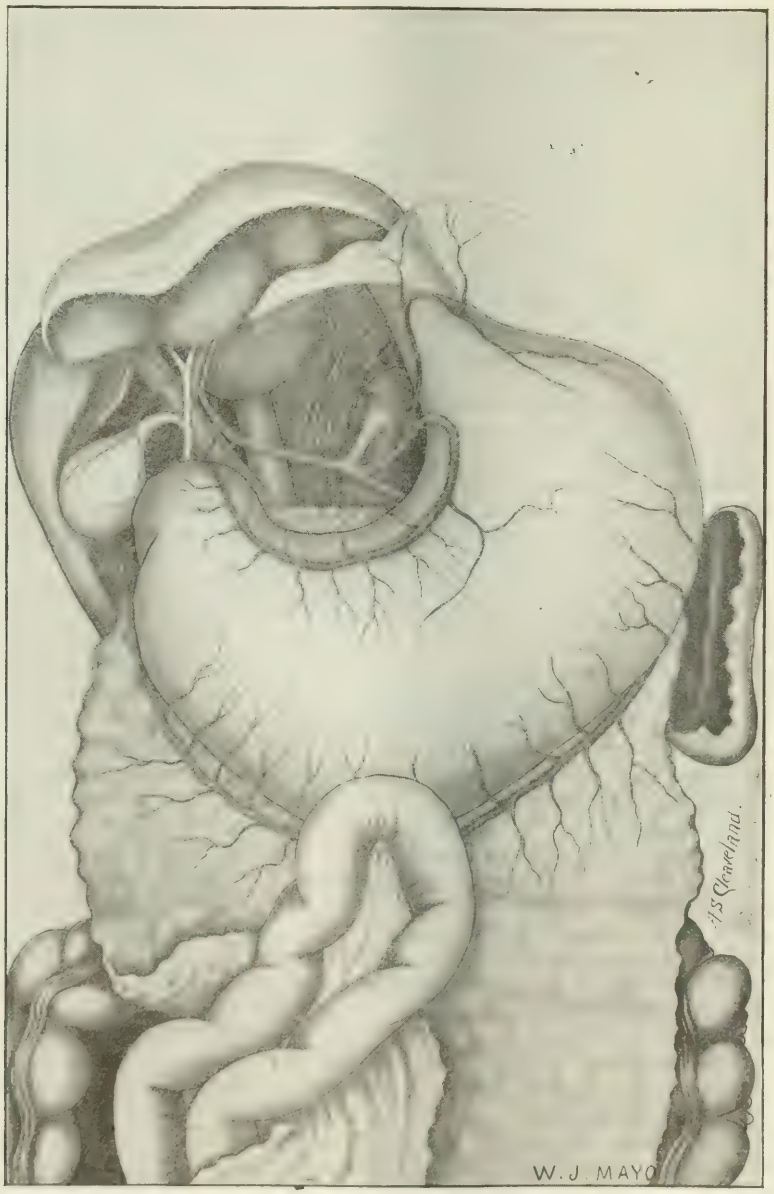



FIG. 1. Traction weight of small bowel producing funnel shape of stomach at site of anastomosis.

There is a large group, however, of chronic cases of dilatation of the stomach giving rise to symptoms which, upon careful surgical exploration, show no adequate cause for the condition. In other cases, hypersecretion or hyperchlorhydria is the case of chronic gastric distress in which operative relief is indicated. We may say

that pyloric spasm exists, due to a microscopic ulcer. It is a convenient term, not capable of either proof or refutation. In this connection I have examined over one hundred stomachs in the course of other operations, with especial reference to the pylorus, to try and establish a surgical normal. Under anesthesia, if the normal pyloric opening be compressed between the thumb and finger, invaginated into the stomach and duodenal walls, on either side, the lumen will permit of easy meeting of the opposing digits, and gives the feeling that an opening exists about the size of an old-fashioned silver three-cent piece. Comparing this with the cases which I had previously diagnosticated as having pyloric spasm, little difference could be detected. In only four cases could a definite thickening be demonstrated in the pyloric ring. In these patients the slight abnormality was situated posteriorly, but in one only did incision reveal an ulcer. It was also noted that in these four cases there was very little if any dilatation of the stomach.

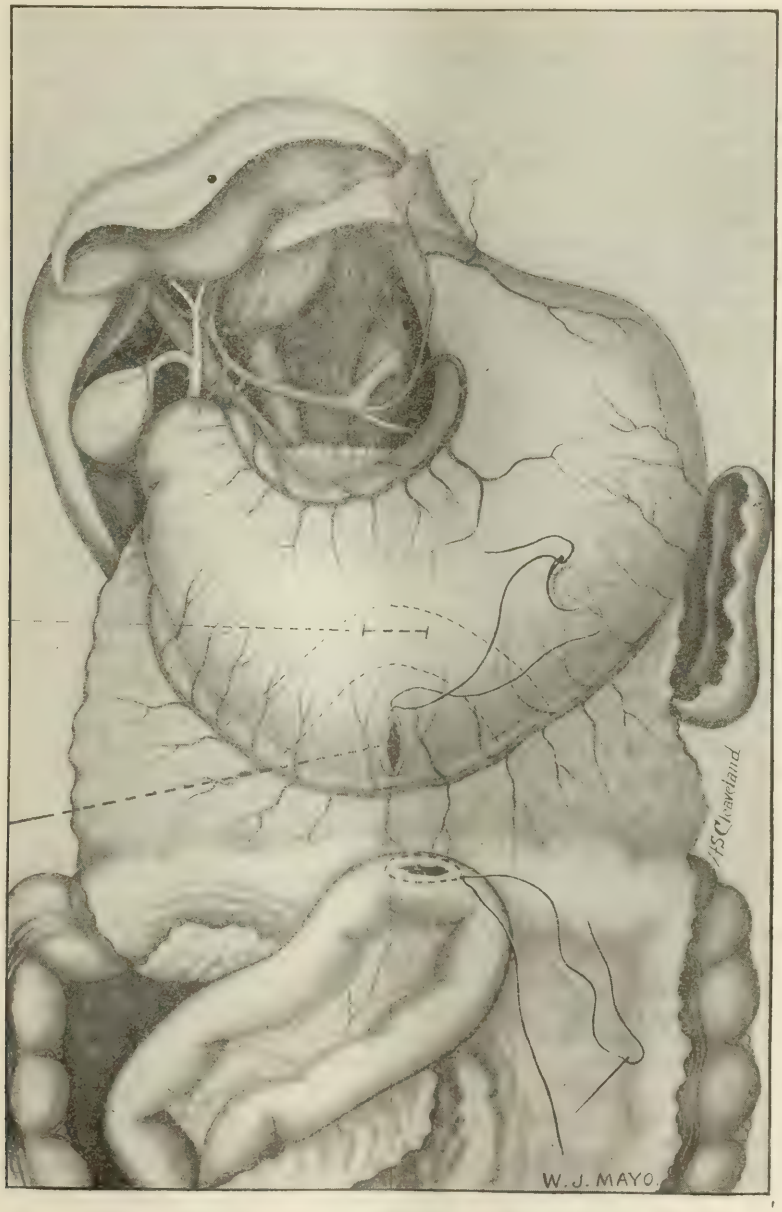



Fig. 2. Showing proper and improper locations of opening.

In a number of other cases angulation was present, that is, a high-lying pylorus somewhat firmly fixed, with a sharp bend of the stomach downward immediately proximal to it. In 1896 I described five cases of this condition as a cause of dilatation of the stomach, under the title of "Valve Formation." I have seen a number of

cases since. Adhesions outside the lumen of the stomach, the result of a perigastritis from gastric ulcer or a cholecystitis, may be the cause. (Robson, Cabot and others have described a number of such instances.) We have met with this condition most frequently in connection with work on the biliary tract. In some cases, however, when no apparent cause for the dilatation exists, the stomach wall is hypertrophied, and for this reason we must conclude that in some manner obstruction does exist.

The most perplexing cases are those of neurotic origin, in which class I would place the various grades of gastroptosis. Some of these invalids have also an accompanying dilatation, but usually of the atonic variety, that is, without increased muscular thickening of the wall. On surgical exploration such a stomach is usually found to be empty and contracted, although previous examination has shown it to be dilated.

In the purely neurotic variety, while there may be little or no change in the size or position of the stomach, symptoms of ulcer may be so perfectly simulated as to lead to an exploration which proves negative. On manipulating such a stomach it may contract in small areas, and for a moment look as though an ulcer existed, to as suddenly disappear, or the whole stomach may undergo vermicular contraction, until it is no larger than the colon. In two such instances I have seen the pylorus suddenly dilate until two or more fingers could be invaginated through it. These cases must be classified surgically with movable kidney, movable retroversion of the uterus, varicocele, etc., usually occurring in neurasthenic individuals, and occasionally demanding an operation which may be followed by benefit. I have examined a number of such stomachs, and we have operated upon a few, in which dilatation coexisted or a mistake in diagnosis was made. One has a feeling that we should reject, surgically, this whole group, yet even a neurasthenic is not exempt from actual disease, although we naturally subject them to a most careful and painstaking preliminary examination in which subjective symptoms are accorded but little weight. Speaking from an operative standpoint, dilatation with retardation of the passage of the food out of the stomach is the most important surgical indication. When does this condition demand an operation? It is largely a personal equation between the experience of the surgeon and the disability of the patient.

The value of gastric drainage in these cases is apparent and needs no argument. The desirability of drainage of the non-dilated stomach is based largely upon clinical observation. Theoretically, it would not strike one that a well-drained or contracted stomach, even if ulcer be present, would be benefited by such a procedure. It is claimed that gastric drainage, especially gastro-enterostomy, rests the stomach, permits of escape of secretions, and increases the nutrition, thereby aiding recovery. Our own experience, while very limited, in a general way seems to bear out this conclusion, but not wholly so. If we divide our cases of ulcer into two groups, in the first place all the cases in which ulcer existed in the pyloric end of the stomach, and in which the capacity of the stomach was increased from any cause, and in the second group place all the cases in which the contrary existed, we find the results much less favorable in the latter. In cases of ulcer in the small stomach, excision, if it can be located, offers a more satisfactory means of cure, although I regret to say we have had but two cases in which we were able to do this.

Gastric drainage can be best established in two ways: (1) Pyloroplasty, and (2) gastro-enterostomy. In St. Mary's Hospital pyloroplasty, after Heineke-Mikuliez, was made fifteen times by my brother, Dr. C. H. Mayo, or myself; in four of these cases, failure to permanently relieve the symptoms necessitated a secondary gastro-enterostomy. In the four cases the stomach was greatly dilated, and, by a more rapid stretching of its greater curvature, also pouched. The plastic operation on the pylorus in each instance was found to have been successful so far as enlarging its calibre was concerned, but the degenerated muscle fibre of the stomach wall had been unable to elevate the food from the gastric pouch to the high-lying pylorus, and the symptoms were largely unabated.

As at the secondary operation the pylorus was always found adherent, it occurred to me that perhaps after the plastic operation, if the pylorus could be anchored down in the vicinity of the umbilicus and allowed to become adherent at that point, it would drain the stomach better. We have practised this in five cases, but as we have also been more careful in the selection of non-pouched stomachs for the operation, I am uncertain whether the better results have been due to the method or the care in selection. There were no deaths in this group of cases and no later complications. Pyloroplasty will have a limited field of usefulness in cases in which dilatation of the stomach is not great. If it can be shown that the pyloric spasm is a large factor in the clinical course of gastric ulcer, pyloroplasty, which destroys the sphincter action of the muscle, might be the operation of choice in the group of cases without dilatation, or in which the stomach is contracted, as it is in these cases that gastro-enterostomy has been the least beneficial and late complications have occasionally arisen.

All in all, we have found gastro-enterostomy to be the most satisfactory operation on the stomach. This operation was performed eighty times, with eight deaths. For cancer, twenty-one gastro-enterostomies with four deaths, the greatest length of life was nineteen months, with ability to carry on manual labor for more than sixteen months. I regret to say, however, that with few exceptions the palliation has been of such short duration as to hardly justify the operation. The hope of the future for cancer of the stomach is early exploration and extirpation.

For benign conditions, gastro-enterostomy has the great advantage, in that it drains the stomach

from the lowest point, relieving the retention of obstruction equally with the painful contact which the food causes in gastric ulcer. Twelve cases of chronic intractable ulceration in the vicinity of the pylorus, in which some narrowing of the orifice was produced and dilatation was present, were benefited, the cure in the eleven that recovered from the operation being fairly good. In six cases of ulcer in which the pylorus was of normal size and the stomach contracted, relief was less certain and slow to come about. In three cases of ulcer, subjected to gastro-enterostomy, a secondary operation became necessary for angulation at the site of the anastomosis. This took place after some weeks or months, and was found to be due to a contraction which followed at the anastomotic opening. This subsequent narrowing is of no consequence so far as the stomach is concerned, but as one-third the lumen of the small bowel is involved, the reduction may be a serious matter, causing, later, an angulation. The attempt at obliteration comes on after the stomach has resumed its function, and takes place only in the cases in which the pylorus was unobstructed, nature making the usual endeavor to close an unnecessary fistula.

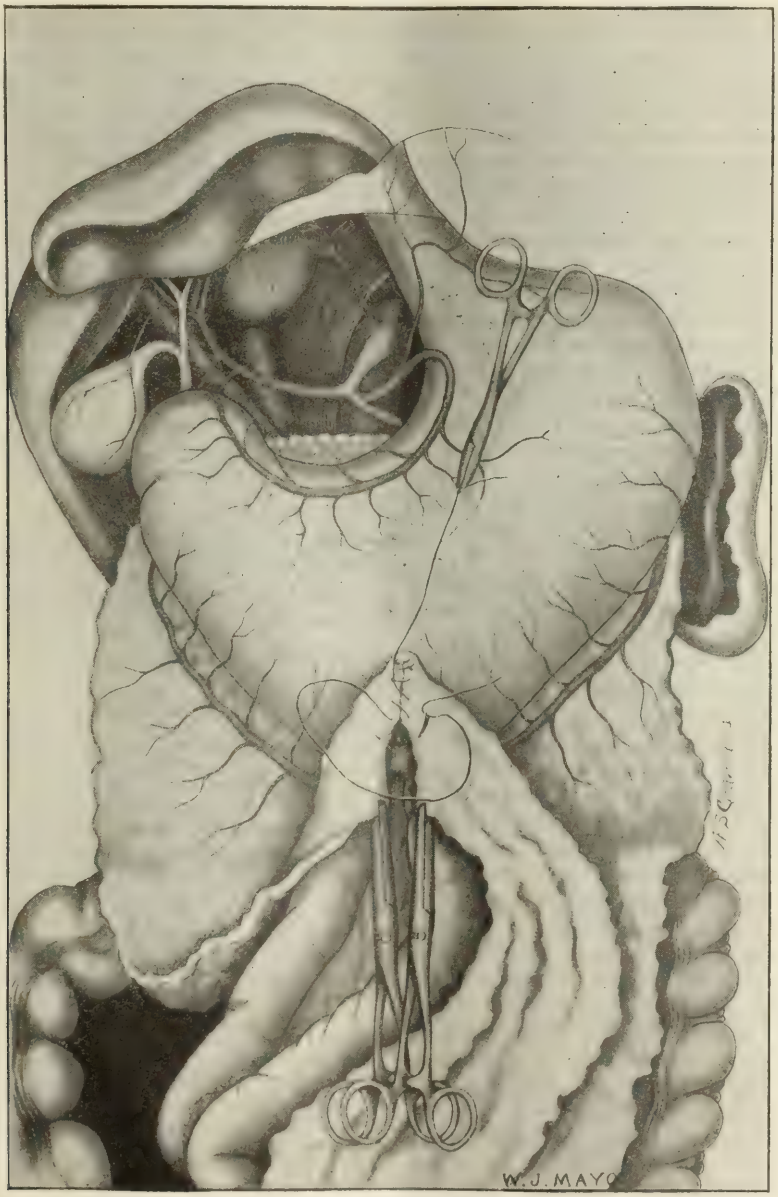



Fig. 3. Forming an apron of the omentum, attaching to the stomach above the anastomosis.

The symptoms of this complication are attacks of burning pain in the stomach, with nausea, and perhaps a little bile-stained fluid may be regurgitated or can at times be washed out of the

stomach, but there is usually no stagnation nor vomiting of food. Entero-enastomosis relieves the condition. It would seem wise to make an entero-anastomosis at the primary operation whenever gastro-enterostomy is performed in a case in which the pylorus is unobstructed. In no case of permanently obstructed pylorus has contraction of the anastomotic opening followed in our cases, so far as we know. We have never seen the opening completely closed.

At the present time we are asking too much of gastro-enterostomy. The splendid drainage established in the dilated stomach, which presupposes some interference with the passage of the food, leads us to use it for temporary purposes, in a normally drained stomach, with much less satisfactory results. Even in these cases it cures many and relieves the majority.

As to the method of performing gastro-enterostomy, there are still a few questions to be settled: (1) Shall we use the suture or the Murphy button? So far as I can judge, the results are about the same. We use the button. (2) Shall it be on the anterior or posterior wall of the stomach? Here again there is little choice. We have made sixty-nine anterior and eleven posterior with equally good results. Theoretically, the posterior operation would seem the better, as one can secure the jejunum at a higher point. We have made the posterior within six inches of the origin of the jejunum, and it takes fourteen inches to form a loop for the anterior method. The making of the posterior operation so close is not a safe procedure, as, if it should become necessary to do an entero-anastomosis later, there is not sufficient room on the proximal side of the anastomotic opening for this purpose. We lost one case from this cause. In either operation, from fourteen to sixteen inches of intestine should be left on the proximal side.

The main thing in gastro-enterostomy is that the opening should be low down, near the greater curvature, in either operation. We have had little trouble with primary pernicious vomiting ("vicious circle") for more than four years, since we began this practice. The anterior operation is usually made about half way between the lesser and greater curvatures and where there are but few blood vessels. This is a bad practice, as it leaves a pouch into which the bile and pancreatic secretions can easily enter. It encourages "vicious circle." In doing the posterier operation the inferior border is more accessible, and one naturally places the opening lower down. The anastomosis should be effected in such manner that its inferior edge shall be at the bottom of the stomach pouch, on a line with the greater curvature in either the anterior or posterior operation (Fig. 2).

In two of our cases of gastro-enterostomy, the bowel detached spontaneously from the stomach, once on the seventh and once on the tenth day, with resultant leakage and death, contrary to Chlumski's experiments, in which it was shown that union was firm after the fifth day. It was noted at the autopsy that it was the superior edge of the union only that detached; the lower edge, being just at the origin of the gastrocolic omentum, was so protected as to be of unusual strength. We now, after making the anterior inferior anastomosis, grasp the omentum upon either side and pull it upward in such a manner as will not tract upon the transverse colon. The two upper free ends are fastened together and then to the stomach wall, not less than one inch above the anastomosis, with fine catgut. The edges of the omentum are then united to each other for two and one-half inches, forming an apron which completely covers the site of union, protecting the weak point, yet having no connection with it (Fig. 3). Should the omentum drag in the future, the strain would come above the opening upon the stomach and increase that funnel shape (Fig. 1) which the stomach should assume after the operation is properly completed. In the posterior inferior operation a few sutures attaching the margins of the torn mesentery of the transverse colon to the stomach will furnish the same protection to the union. Gastro-enterostomy for late cancer of the pylorus will be followed by bad results without regard to method, and if ascites be present, union will probably not take place.

## THROMBOSIS OF THE CAVERNOUS SINUS; WITH REPORT OF FOUR CASES, INCLUDING ONE CRANIAL OPERATION.[1]

BY EDWIN WELLES DWIGHT, M.D.,
*Second Assistant Visiting Surgeon to the Boston City Hospital,*
AND
HARRY H. GERMAIN, M.D., BOSTON.

CASE I. *Cellulitis of face, thrombosis of cavernous sinus, operation, death.*— On Dec. 31, 1899, there was admitted to the Boston City Hospital, to the service of Dr. F. S. Watson, a man, 40 years old, a carpenter. His previous history and family history were negative. About two weeks before his entrance to the hospital he noticed a small abscess on the right side of his face, about one inch from the nose and just above the upper lip. This was treated with hot applications, but the swelling increased, and it was opened by incision through the lip. The bowels were constipated, and he had had fever and headache for two days. Temperature on admission, 103.5°.

*Physical Examination.*— On admission it was noted that his right cheek was swollen and hot to the touch, most marked near the nasolabial fold. In the centre of this indurated mass there was a small opening (surgical incision) about one-fourth of an inch in length, from which a drop of pus exuded. Just to the right of this was a second induration about the size of a half-dollar. The lids of both eyes were swollen, with exophthalmos and chemosis, most marked on the right. On the cornea of the right eye there was a small, superficial ulceration. The right eye was immobile, the left had slight motion in all directions, pupils dilated and neither re-acted to light nor accommodation. The fundus showed blurring of the edge of the disc on the right and a dilation of the veins on the left. The vision of the right eye was probably entirely absent; with the left the fingers could be seen at two feet.

Jan. 1: Temperature, A.M., 101.6°; pulse, 100. Temperature, P.M., 103.5°; pulse, 105; somewhat delirious and evidently in pain. Jan. 2: Temperature, A.M.,

[1] Read before the Surgical Section of the Suffolk District Medical Society, Feb. 26, 1902.

102.8°; pulse, 112. Temperature, P.M., 103.4°; pulse, 135; unconscious; moaning. Exophthalmos, chemosis and edema about the eyes much increased. Jan. 3: Condition growing steadily worse. Some stiffness of the muscles of the neck. Exophthalmos and chemosis still more marked, with great protrusion between the lids. Feces and urine passed involuntarily. Unconscious, restless and moaning. In the absence of Dr. Watson he was seen by Dr. Dwight, and Dr. Edwin Jack was asked to see him in consultation. Dr. Jack confirmed the diagnosis of thrombosis of the cavernous sinus which had been made by Dr. Germain when the patient was admitted to the hospital, and confirmed the opinion that a fatal result was almost sure. Members of the family were seen, an entirely bad prognosis was given, it being suggested that the only possibility of recovery depended upon the thorough drainage of the cavernous sinus, that this operation had never been done, but, that, in the opinion of the surgeons, it offered the only possible hope of relief. Permission for the operation was granted. Just preceding the operation the temperature was 103°, pulse 140 and irregular both in volume and rate.

*Operation by Dr. Dwight.*— Patient was lightly etherized, head shaved, and a horseshoe flap with its apex upward, including the temporal muscle, was turned down, the anterior edge of the flap being two and one-half inches back of the outer canthus. The flap was carried as low down as possible without removal of the zygoma, this route being practically the one recommended by Krause in his operation for intra-cranial resection of the trigeminus. The temporal bone was trephined as low as possible and the opening enlarged with a rongeur. The dura opened, the tip of the temporal lobe was lifted backward and upward until the cavernous sinus was felt with the tip of the index finger of the left hand; a narrow bistury with protected edges was carried in along the finger and the cavernous sinus opened with an incision about one-half an inch in length. This incision was followed by a rush of dark semiclotted blood. The knife was withdrawn and a narrow strip of gauze was introduced along the finger which had been kept in place; the finger was then withdrawn, the gauze, which had been left, entirely controlling the hemorrhage. The dura was brought together, the edges of the skin approximated by interrupted silk sutures, the strip of gauze which had been introduced being carried through the flap. The head was dressed with a large aseptic dressing. The operation itself, from the first incision to the beginning of the dressing, consumed but eight minutes.

At the end of the operation the patient's condition was decidedly better than at its beginning, the pulse having dropped 20 beats, and a diminution in the edema and exophthalmos being apparent immediately. At the end of half an hour the exophthalmos had almost entirely disappeared, as had, to a great extent, the chemosis and edema of the lids. The temperature had fallen to 101°, the pulse remained at 120, and the patient was much more quiet. His condition continued about the same for four hours, when he began to fail, and died six and a half hours after the operation.

The pathologist reported that the microscopical examination showed the presence of forms closely resembling actinomyces; the culture, however, produced nothing but staphylococcus albus.

Case II. *Carbuncle of neck, thrombosis of lateral, petrosal and both cavernous sinuses; death.*— Middle-aged man, farmer, service of Dr. Burrell. Transferred to the Boston City Hospital Dec. 18, 1897, from the Eye and Ear Infirmary, having been in that institution for twenty-four hours. History obtained from physician states that the patient has been under treatment during the past ten days for carbuncle of the neck, was apparently doing well until Dec. 15, when double exophthalmos appeared and patient became delirious.

*Physical examination.*— Temperature, 102°; pulse, 140; respiration, 30; delirious. Incontinence of urine and feces. Large sloughing carbuncle on back of neck. Eyes: Pupils dilated and do not react to light; apparently blurred. Corneæ hazy and anesthetic with some superficial ulceration. Examination of fundus impossible. Ears: Negative. Lungs: Numerous râles throughout both lungs. Respiration superficial. Abdomen: Negative. Condition remained unchanged, and patient succumbed Dec. 20 without regaining consciousness. No convulsion or paralysis noted at any time.

*Autopsy.*— Left lateral sinus showed softened thrombus, as did petrosal and both cavernous sinuses. All small sinuses around pituitary body were enlarged and filled with pus. Pressure on the eyeball causes pus to be forced out of orbit, apparently along the track of ophthalmic veins. Abscess of both lungs; septicemia; infection with staphylococcus aureus.

Case III. *Purulent otitis media, mastoid abscess, thrombosis of lateral and cavernous sinuses, pyemia, death.* — Laborer, entered Eye and Ear Infirmary March 22, 1899, service of Dr. Morse.

*Past history.*— Intermittent discharge from ear for two months, but no pain.

*Present illness.*— Began March 22 with acute pain in ear and profuse purulent discharge. General condition poor. Temperature, 101.8°; pulse, 110, weak. On March 27 had a chill, and another March 29. March 30: Mastoid operation by Dr. Morse. Pus and granulations removed from mastoid, and antrum thoroughly curetted. Culture shows streptococci. Wound closed for first intention.

April 2: Had severe chill, wound septic, all sutures removed. April 5: Apparently septic. Chills and irregular temperature. On following day developed tenderness along jugular vein. Vomiting. April 10: No improvement. Tenderness and induration increasing over jugular. Investigation of lateral sinus was determined on. Mastoid cleaned out, lateral sinus opened and considerable pus evacuated. External and internal jugular veins exposed and ligated. Operation difficult on account of brawny edema of neck. Vomiting. April 13: No improvement. Large abscess over hip evacuated. April 20: Chill continues with remittent temperature. Anorexia. Today developed consolidation of left lung with edema of right. Parotid gland swollen and tender. April 22: Exophthalmos of left eye; chemosis; diplopia; some headache. Optic neuritis either eye, more marked in right eye. Motion of right eye defective in all directions. Diagnosis thrombosis of the cavernous sinus. April 23: Exophthalmos of left eye; with chemosis. Pupil of right eye dilated. Operation on cavernous sinus considered, but abandoned after consultation on account of condition of lungs. April 27: Pericarditis, delirium, death. Duration of illness thirty-six days. No autopsy.

Case IV. *Septic infection of frontal sinus, thrombosis of both cavernous sinuses; pyemia and death.*— Woman, 26 years of age, married, housework. Service of Dr. Standish.

*Family history.*— Not obtained.

*Past history.*— Not obtained.

*Present illness.*— Entered Eye and Ear Infirmary June 11, 1901. Sick five weeks up to and including June 5. Had considerable discharge from right nostril. On June 6 discharge stopped and began to have pain referred to orbit above right globe. Increasing pain for four days, when she felt something "snap" in orbit and pain diminished. Immediately right eyelid began to swell. Chill on June 10.

*Physical examination.*— General condition poor. Temperature, 104°. Heart enlarged with evidence of mitral disease. Slight bronchitis. No tenderness over frontal sinus, except at exit of supra-orbital nerve. Upper lid and tissue about outer canthus much swollen and somewhat reddened. No fluctuation. Eye looks normal. June 12: Shadow shown by transillumination at inner part of brow (region of frontal sinus). Swelling, redness and tenderness increasing. Some limitation of motion of eye. Vertical diplopia. Probe passed into frontal sinus from nose and pus evacuated. June 13: Chill, retention, slight exophthalmos. Swelling extending to opposite side and to angle of jaw below. Temperature, 104.8°; pulse, 140. June 14: Frontal sinus opened, pus evacuated and sinus drained. June 16:

Exophthalmos increasing, failing pulse, delirium, death.

*Autopsy.*— Infection of frontal sinus with extension of inflammation into orbit and ethmoidal cells on right side. Septic thrombosis of both cavernous sinuses and circular sinus. Broncho-pneumonia. Ventral and tricuspid insufficiency with enlargement of heart, especially left ventricle. No meningitis. Other sinuses not affected. Culture: streptococci and a bacillus.

The subject of sinus thrombosis is one of very considerable interest, especially that form which is due to infection. When unoperated these cases are, as a rule, fatal, though recovery has followed a number where the diagnosis of thrombosis has been made. Operations upon the lateral sinus for infective thrombosis have frequently been made during the past few years by aural surgeons, and the results of these operations have been very satisfactory. Up to the present time the diagnosis of thrombosis of the cavernous sinus has been made very rarely. The literature on the subject, so far as we have been able to discover, includes 178 cases aside from those herein reported, and of these 182 cases but 14 recovered.

It has apparently been taken for granted by those who have reported cases or in other ways discussed these conditions, that on account of its anatomical position the cavernous sinus was not available for surgical interference, and with the few exceptions, which will be noted, all authors have agreed that the only justifiable operation was that of drainage through the orbit, which may or may not be associated with excision of the eyeball. Most authors agree with Gaillard in saying that "the treatment is entirely preventive." In those cases in which the cavernous sinus has been involved by extension from the ear through the lateral sinus, an attempt has been made to drain all the basal sinuses by opening and curetting the lateral. This operation has been followed by recovery in three of the cases reported. Cohen-Tervaert reports one case of extension through the ear, in which the middle cerebral fossa was opened and "several punctures were made, especially in the direction of the cavernous sinus," without result. Briger says that "this condition has not been successfully treated by the Krause method for intracranial resection of the trigeminus." Hessler recommends that the cavernous sinus be operated by the Krause method. Robineau describes a method of operation on the cavernous sinus by doing a temporary resection of the malar and trephining the sphenoid. He says: "This has never been tried as yet upon a living person."

In February, 1900, about one month after the operation reported in this paper, Hartley removed a thrombus from this sinus by essentially the same method as that employed in Case I, and a microscopical examination of that thrombus showed it to be a soft, round-celled sarcoma. This patient survived until May of the same year.

The prevalent feeling against operation in these cases apparently depends upon three facts: the supposed inaccessibility of this sinus, the extreme degree of toxemia which is present in most of these cases when the question of operation arises, and upon the common opinion that thrombosis of a single sinus, or thrombosis limited to the cavernous sinuses, must be rare. In forming an opinion on this latter point, based upon the reported cases, there is great difficulty, on account of the fact that the vast majority of these cases are not reported in detail, and conclusions drawn from them may be, for that reason, faulty. We believe that it has been demonstrated by the operation of Hartley and the one reported in this paper, that the cavernous sinus is not inaccessible; that it may be reached by means of the route described without grave danger to the patient and with at least a low mortality from the operation itself. Second, as to toxemia, it is at least as unfair to say that because toxemia to a grave degree is present during the late stages of this condition no operation should be done, as it would be to claim that because a similar condition with general peritonitis was found in fatal cases of appendicitis, therefore operation in the earlier stages was contra-indicated. On the third point we are prepared to accept the statement that the figures upon which our conclusions are based are inaccurate, but allowing for a degree of inaccuracy, we are still justified in saying that in a considerable number of cases the thrombosis is limited, even at the autopsy, to one or both cavernous sinuses, and the operation reported herein shows that an incision into one of the cavernous sinuses will drain both.

There are 134 autopsies reported, in which a clear statement is made of the sinuses which were involved. In 31 of these the thrombosis was limited to a single cavernous sinus. In 65 both of the cavernous sinuses were involved, while in 28 only had it extended to the petrosal, lateral and other sinuses, thus allowing for great inaccuracy and still leaving the majority in favor of involvement limited to the cavernous sinuses. It is with the hope that surgical interference may be more common and productive of better results in the future, that these cases are reported and the following study of the subject has been written.

*Etiology.*— Thrombosis of the cavernous sinus may be the result of a septic process, may follow injury to the head, direct injury to the sinus or develop in the course of debilitating disease, when it is known as marasmic. Marasmic thrombi are of purely medical interest, and almost invariably affect the longitudinal sinus. Thrombi resulting from injury to the head follow fracture of the skull, blows upon the head or punctured wounds through the orbit. The cavernous sinus is the only one which can be directly injured without involving the skull. Such cases are comparatively rare, only four being reported among those we have been able to collect. When they do occur, the history of injury will be present, and the diagnosis will naturally lie between septic infection of the wound and direct injury to the sinus.

Infective thrombosis may occur by contiguity of tissue, the process extending from the surrounding parts until the sinus is affected, as may be the case in meningitis, disease of the bone or

abscess of the post-orbital space. It may result from extension of the septic process through the tributary veins, or from the extension of thrombi in the other sinuses. The first class of cases is comparatively rare and will, as a rule, be preceeded by symptoms depending upon the location of the original process. Out of 182 cases reported the eye is given as the source in but four. Thrombosis from extension through the tributary veins is the common origin of primary thrombosis of the cavernous sinus. This extension usually takes place through the ophthalmic vein, whose branches, the frontal, supra-orbital and angular, drain the face and scalp; or from the mouth, nose and pharynx through the pterygoid plexus. We find that out of 182 cases reported the source of infection is given: from the eye 4, nose 9, mouth 14, face 34, and lips 2. Secondary thrombosis, that is, extension through the other sinuses, is probably the most common if we accept all the cases. Out of 149 cases in which an autopsy was made we find 43 in which the disease originated in the ear, causing thrombosis of all or most of the basal sinuses, and in these cases it is fair to assume that the lateral sinus was the first affected.

*Symptoms.*— So many factors enter into the causation of the symptoms presented in these cases, and the cases reported are so unsatisfactory, that it becomes very difficult to judge as to their relative importance. From the nature of the condition, local circulatory disturbance must occur early in the development of the thrombus. If, as is usually the case, the process is an acute one, these changes come on rapidly and give rise to a set of symptoms which is fairly constant.

Septicemia or pyemia are always present to a greater or less extent, and may be sufficient to entirely mask the disease. Cerebral irritation is commonly present, depending upon circulatory disturbances even if meningitis be not present. Headache is constant and occurs early. It is general and is usually described as deep seated. Vomiting, associated with nausea, as a rule, is explained by septicemia rather than by cerebral irritation. As the toxemia increases chills are added, recurring at varying intervals and becoming more frequent as the disease progresses. The temperature is always elevated, with marked remissions. The pulse is rapid, respiration is not remarkable as a primary condition, but pulmonary complications from septic emboli are very common. The above train of symptoms is due to septicemia, and is of little diagnostic value except as demonstrating the presence of that condition.

The patients are always extremely sick early in the disease. They are at first nervous and apprehensive; later, the sensorium is dulled and the condition becomes typhoidal. Cerebral symptoms are explained by high temperature, toxemia, and the circulatory changes associated with thrombosis rather than with organic changes in the brain or meninges. The same may be said of delirium, mental confusion and increased reflexes. Vertigo was present in Case III as well as in other cases which have been published, but in all of them it apparently had its origin in the ear.

Localized meningitis was found at autopsy in Case II, and has been reported in a few others. Its rarity is readily explained since infection, following the course of least resistance, extends along the course of the sinus rather than through its walls. Paralyses other than ocular are extremely rare, and when they do occur mean that some complication is present. Ocular paralysis or paresis, as demonstrated by fixation of the pupils or globe, is reported in 28 out of 159 cases. Among the published cases we find eight in which there was paralysis of the third nerve, and two where the fifth was involved. Sufficient involvement of the meninges to result in such typical symptoms as convulsions and retraction of the head is very rare, patients, as a rule, dying of toxemia.

Local circulatory changes depending upon thrombosis are manifested chiefly in the eye. On account of the anatomical position, size and arrangement of the cavernous, transverse and circular sinuses, in a large proportion of cases a thrombus beginning in one cavernous sinus extends with considerable rapidity to the opposite side through the transverse and circular. In but 31 out of 134 cases do we find an involvement of a single cavernous sinus. In certain rare cases one cavernous sinus may be absent or rudimentary, and when either of these conditions exists the symptoms will be confined to one side. If formation of the thrombus be slow, collateral circulation may be established by means of the anastomosis between the inferior ophthalmic vein and the pterygoid plexus; when this occurs the various symptoms dependent upon passive congestion, including proptosis, will not be marked. When the onset is sudden the symptoms dependent upon passive congestion will be marked: exophthalmos with edema of the lids, conjunctivæ and face coming on early, while the frontal, supra-orbital and angular veins are dilated. Within forty-eight hours the process has usually extended to the opposite side with the same train of symptoms, while the condition of the eye first affected usually improves. By this time the general symptoms have become very grave, and as diagnosis becomes easier, the probability of relief by surgical interference is reduced.

The fundus shows dilatation and tortuosity of the retinal veins with retinal edema and, later, hemorrhage. Optic neuritis occurs early. The view of the fundus is soon obscured by haziness or ulceration of the corneæ resulting from pressure.

Ocular paralyses are mentioned in most articles on this subject, and are quoted in a very considerable number of the cases reported. Such statements are of doubtful value, as it is usually the fact that exophthalmos comes on rapidly and to such an extent as to entirely obscure any paralysis that may be present. In the case reported by Knapp, operated on by Hartley, clas-

sified as thrombosis although it was really a sarcoma, the disease progressed slowly, giving rise to paralysis of the third, fourth and sixth nerves, with anesthesia over the area supplied by the fifth nerve.

Diplopia is one of the early symptoms, probably more common than it would appear from the fact that it is only noted in two out of 159 cases. It is usually in all directions, but in one of the cases it is said to have been limited to the vertical. This symptom is due to displacement and defective mobility of the eye as a whole rather than to paralysis. The pupil is dilated and may or may not react to light and accommodation. Where the exophthalmos is not very marked it usually reacts. Vision diminishes rapidly and the eye is blind within a few days. In one case which recovered, the eye was left permanently blind. The color sense is not changed, and there is not usually any change in the field; three cases are reported, however, in which the field was diminished. Edema of the mastoid is commonly given as one of the symptoms of thrombosis of the cavernous sinus; it is, however, as far as we are able to judge, due to thrombosis of the lateral sinus.

*Diagnosis.*— Certain rare cases occur in which, for one reason or another, exophthalmos is absent in cases of thrombosis or obstruction to the cavernous sinus, but these cases are rare, and when they do occur are usually of slow onset and most frequently secondary, through some other sinus, or due to inflammation within the skull. When exophthalmos is present and associated with symptoms of toxemia, the case is always a suspicious one. Under such circumstances differential diagnosis must lie between orbital cellulitis and thrombosis of the cavernous sinus. It must also be remembered that a process beginning as orbital cellulitis may readily extend to the cavernous sinus. The changes in the fundus are never so marked in orbital cellulitis; obstruction to circulation is much less, and the headache is supra-orbital rather than deep seated. Constitutional symptoms are much less severe in orbital cellulitis, and if the symptoms extend to the other eye the diagnosis of thrombosis of the cavernous sinus is practically assured. When the source of infection exists in any of the regions which are drained into the cerebral sinuses, and when the symptoms presented are suggestive of circulatory disturbances within the skull, the possibility of sinus thrombosis should always be considered.

*Conclusions.*— If we allow for the possibility of error in the cases reported, and we are entirely justified in so doing in a condition where so little is known and the symptoms are so indefinite, we must recognize thrombosis of the cavernous sinus as an extremely fatal condition. There is no way of deciding what the mortality in unoperated cases really is. The majority of writers on the subject consider it almost, if not quite, necessarily fatal. If we tabulate all the cases reported, we might arrive at a false opinion as to its fatality. Cases are reported so inaccurately that it is usually impossible to judge as to whether good reason existed for the diagnosis. At least it will be accepted that if not always fatal it is always serious, and fatal in the vast majority of cases.

Death following this condition is due to septicemia or pyemia, and, in well-established cases, operation in one form or another offers the only hope of recovery. Excision of the eyeball with curettage of the ophthalmic vein is insufficient, and is recognized as being so even by the advocates of this method. Operation upon the lateral sinus has apparently, in a few cases, relieved thrombosis in the cavernous sinus, but it is usually without effect, and must be so if the thrombus is a primary one or is well formed.

It has been recognized by several authors that the rational treatment would consist in opening the cavernous sinus directly, but this has not been attempted on account of the grave difficulties and dangers which were supposed to be associated with it. So far as is known, this operation has been done but twice, once in the case reported in this paper and again in that of Hartley and Knapp one month later. Hartley's operation demonstrated that it may be done without grave danger to the patient, providing that patient be in fairly good condition. In his case, which was not an acute one, the patient withstood the operation and lived for several months, dying as a result of his original disease, sarcoma. The case reported here is entirely in accord with this view, as certainly his condition was not made worse by the operation.

Our case shows that an incision into one sinus instantly and completely relieved the interference with circulation in both. It also demonstrated the fact that such an operation is not associated with extreme difficulty, that it can be done under almost primary anesthesia, not associated with any degree of shock, finished within a few minutes,— in this case eight,— and that the hemorrhage is easily controlled.

These two operations would apparently justify our belief that thrombosis of the cavernous sinus is distinctly an operable condition, and that the operation described herein holds out reasonable hope that its acceptance may be followed by a decrease in the present mortality in this serious condition.

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## THE CITY CONSUMPTIVE HOSPITALS AND THE DUTY OF THE MUNICIPALITY AND PEOPLE REGARDING CONSUMPTION.[1]

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In a republican form of government, such as ours, where the rule of the people is supreme, cities and towns are left largely to themselves in the regulation of their internal affairs. They can do little or much, as they please, regarding sanitary, educational, social or other matters pertaining to their welfare, comfort, amusement or protection. They can be extremely paternal to themselves or apathetically indifferent. They can tax themselves for free bath establishments, free music, free hospitals and public playgrounds, or go without them, or leave it to the individual citizens to provide some or all of them, if a philanthropic spirit is active among them.

The temper of American civilization, however, is in the direction of a generous provision by the municipality of such things as are conducive to the well being, protection and elevation of its people; hence the strict inspection of plumbers' work, compulsory vaccination, the high school, public library and city hospital.

This is especially the case in regard to the sick poor; both the city and private charity work together to afford them a fair opportunity for recovery or, if this has passed, a decent place in which to die, with the one exception of consumption. The appeal of the suffering poor is not to a soulless corporation or a hard-hearted public, but to a warm-hearted, quickly responsive people, when once they realize the need and its urgency. When the city of Boston, for example, fully realized the pathetic case of the poor, hopeless consumptive, it quickly responded and appropriated $150,000 for a consumptive hospital.

It is peculiarly the province and duty of the medical profession to clearly impress upon the community the existing needs and the remedy, and we may be sure that they will soon find a way to secure that remedy. We, as physicians, are all agreed that the proper care and isolation of pulmonary tuberculosis is a most pressing need, and the sanatorium and consumptive hospital is the remedy. The fact is now pretty thoroughly realized that, in proportion to other diseases, the ravages of consumption are excessive, continuous and appalling. We have become so used to it that it makes but little impression upon us, or else we take it as inevitable, a hope-

[1] Read before the Fall River Medical Society, Members of the Municipal Government and others, Feb. 26, 1902.

less disease against which it is useless to struggle; at least this was the general attitude of mind until quite recently. Present facts teach us, however, as we all know, that consumption is contagious or communicable, and hence avoidable; that it is a very curable disease, especially when taken early, as the experience at Rutland has shown us; that its mortality can be steadily and not very slowly reduced, as is taking place, for example, in England, Germany and New York.

But society has arranged itself upon the basis of a certain yearly mortality, and it would be quite inconvenient and more or less of a calamity if nobody died in any locality in a twelvemonth, as was the experience in that fabled community where the old lady kept death charmed in her pear-tree. Why not, then, as well die of consumption as of any other disease? Because every man born into this world has a right to live out his active life, and a duty to make it useful to the community; old age is the only normal and natural exit from the world.

Now, it is just in the active and most useful period of a man's life that consumption most frequently strikes him; hence the loss to himself, his friends and the community.

If time permitted, it would be not only interesting but startling to try and estimate in dollars and cents this enormous loss to any community by removing so many active members. It is quite unnecessary, however, to dwell longer upon the fact of the great prevalence of, and resulting loss and suffering from, pulmonary tuberculosis. We all admit it, and our own individual experience affords us abundant proof of it. The practical question for us is to determine reasonable methods by which we can hope to restrict the ravages of the disease to the narrowest limits, and perhaps eventually strangle it entirely, as has been done with leprosy, a kindred disease. We must work from two different directions: (1) Directly, by preventing the spread of the disease contagion, the tubercle bacillus, and (2) indirectly, by fortifying the resisting power of the individual; — the first is more properly a work to be organized and more or less completely conducted by the municipality, while the second must largely be left to the individual and private philanthropy.

To prevent the spread of a contagious disease we must know where the existing cases are; hence the unanswerable argument for compulsory notification. Further, we must provide means of isolation, when from helplessness, ignorance, carelessness or willfulness, the consumptive, in his abode, will not or does not properly and safely dispose of his sputum; hence the need of city consumptive hospitals for the advanced cases, where, besides isolation, proper treatment can be given.

But it is not alone the advanced cases, confined to their rooms, who may spread contagion. Those in the earlier stages, who are still able to attend to their vocation, are, in my opinion, quite as dangerous, on account of their increased opportunities of disseminating tubercle bacilli in going about or at their trade. Recently a cook came to my clinic with well-marked signs of the disease, who was working fourteen hours a day at her occupation. Hence, for such cases, the curable or hopeful ones, sanatoria in the country are necessary, like Rutland, both for isolation and cure. In my opinion, there is immediate need of another, one being devoted to women and the other to men.

"Such institutions," it has been argued, "could not possibly accommodate all the consumptives, they are so numerous. Why attempt to care for and isolate the comparatively few?" Because by isolating one consumptive we may prevent him from infecting others — it may be, many others. We destroy his sphere of contagious influence. Further, if he recovers, we save a useful member of society and send forth a trained teacher of prevention by the use of fresh air and wholesome living, and one who realizes the danger of the dried sputum. We are already beginning to recognize the effect of the missionary work of the Rutland graduates, a constantly increasing number.

The selfish or self-protective element also has its influence. As we restrict by isolation this contagious disease, we are constantly diminishing the risk to ourselves. You and I know how to properly dispose of our sputum; but our servant may not, and, in consequence, may infect us or a member of our household.

Communities, as such, assume the responsibility of providing for the destitute who are sick in their midst, and a considerable amount is appropriated each year for this purpose. The destitute consumptive, especially the advanced cases, is the most frequent applicant for such aid, as his is the most common disease. Is it good judgment, is it economical, to expend the money in keeping him at his wretched home, a menace to the rest of the family; send him to the almshouse, unfitted for the care and hopeful treatment of such cases, or expend the same amount, very likely less, in placing him in a properly equipped consumptive hospital? Such a consumptive hospital, located in a wholesome quarter or suburb of the city, can be established by a collective contribution of all the citizens in the form of taxation, or by voluntary private contributions, as is the case with the great Brompton Hospital in London. As the need is urgent, the former plan would appear to be the more speedy and sure. No man in normally good health is very likely to contract consumption, I believe, even if he is exposed many times to the infecting micro-organism; hence the importance of all efforts to improve and maintain the health of the workingman and his family. We shall never stamp out consumption by consumptive hospitals and isolation alone; that is only one-half of the problem; the other half is equally important: to establish and maintain the resisting power of the individual. To this end, we must work in many directions, or, rather, continue measures already begun, such as tenement-house and factory inspection; model workingmen's homes (it is the long-continued

dissemination of the dried sputum in confined places like dark, damp, sunless tenement-houses, illy ventilated and dusty workshops and factories, where the greatest danger lurks. Spitting in cars and on the streets, to which our attention is so constantly directed, is, in my opinion, a source of comparatively slight danger); sufficiently short hours of labor to permit of proper rest (mental and physical) and opportunity for obtaining out-door air; the prevention of the abuse and, so far as possible, the use of alcohol; the proper care of children and pregnant women and nursing mothers; instruction in the preparation of wholesome, nutritious food; in personal cleanliness and ventilation; opportunities for mental and spiritual uplifting, such as the various friendly societies and clubs are affording; in brief, we must work in all the innumerable directions which will help create and maintain a wholesome, healthy existence, which means a successful resistance to the tubercle bacillus.

If it were possible to arrive at a tolerably accurate estimate of the expense incurred by the city from first to last in caring for its consumptive poor, which ultimately it has to do, either directly at their homes or indirectly in the almshouse or elsewhere, I am convinced that we should not only be surprised at the amount, but that we should find it sufficient to maintain those, unsuitable for sanatorium treatment proper, in a consumptive hospital, and, in addition, quite likely find that there was a surplus to provide a sinking fund for the cost of the hospital. As I have elsewhere said, "The outlay would by no means be an entirely new and extra one, but only in another and more economic direction." Moreover, by this economic and scientific method of treating the poor consumptive we are constantly removing sources of contagion, and in consequence reducing the number of cases. There is the still further advantage of affording proper treatment to the consumptive, and not simply keeping him until he dies. Some lives will be saved thereby, for further usefulness. We have all had the happy experience of seeing some apparently hopeless cases arrested.

I have not referred to the humanitarian side of the question, which I think we are all disposed to consider. The poor consumptive is our neighbor, and we can hardly with a satisfied conscience complacently pass by on the other side. His case is pathetic and appealing in the extreme, and his case might be ours. Shall we not afford him a chance, as we do to his fellow-workman who happens to sustain a sudden injury or is suffering from pneumonia or appendicitis? It is not knowingly his fault if he is suffering from this lingering, wearisome disease. Nay, rather it may be much more our fault if we employ him in an illy ventilated shop or lease him an unsanitary abode!

As one who has passed through the bitter experience pertinently remarks: "For him who thinks that it is unnecessary to do anything I have one suggestion: let him contract the disease and try to fight for his life without money or friends."

In conclusion let us sum up the argument:

(1) Consumption is one of the most prevalent diseases, especially among the poor.

(2) It attacks its victims at the most useful period of their lives.

(3) It is contagious or communicable and hence avoidable.

(4) It is very curable, especially so when taken at its inception.

(5) It is most prevalent in crowded portions of a city and in tenement-house existence.

(6) The contagion is restricted, as with other contagious diseases, by isolation.

(7) The dried sputum is the principal source of contagion.

(8) Sanatorium treatment, especially for the poor, gives the best results with favorable cases.

(9) Sanatoria and consumptive hospitals afford the best means of isolation.

(10) By means of such institutions, we steadily and surely reduce the existing number of cases.

(11) Every means which increases the resisting power of the individual decreases his chances of contracting the disease.

(12) This resisting power is established and maintained by favorable environment, as to abode, place of labor, rest, food, etc.

(13) Economically, it is probably less expensive to care for the poor consumptive in a sanatorium or consumptive hospital than in any other way.

(14) Morally, we owe the destitute consumptive in our midst a reasonable opportunity for recovery or a decent place to die in.

Sanatoria and consumptive hospitals are in the air. The people are awakening to their importance. Rutland is teaching the lesson. Soon, in every city, I trust, we shall see the agitation going on, until the mass of the people rise up and willingly tax themselves for the benefit of the unfortunate poor consumptive and their own protection.

## Clinical Department.

### A CASE OF UNILATERAL PROGRESSIVE FACIAL ATROPHY.

BY J. W. COURTNEY, M.D., BOSTON.

Although the number of reported cases of this curious disease has grown steadily in the last decade, the sum total is still sufficiently small to warrant the presentation of an additional case.

The disease is essentially one of early life. Among the alleged exciting causes are exposure to cold, cranial traumatisms, and the acute infections. In a certain number of cases there is mention of such prodromes as pain and paresthesia of the face and spastic contraction of the masseters. In the majority the first symptom noted is a peculiar whitish discoloration of the face, with

thinning of the integument. This is usually followed by absorption of the subcutaneous fat and grooving of the face. A not unusual accompaniment of this stage is a trophic disturbance of the hair on the affected side, which may bring about a loss of color, cause the hair to fall out, or interfere with its growth. The cutaneous sweat glands appear to escape, but the sebaceous secretion is abolished. The intrinsic muscles of the face are permanently spared, while the masseters are often affected to some degree. The mouth may be drawn toward the affected side. The bones of both jaws and the smaller bones of the face may be much atrophied. Even the cartilages of the nose may in time undergo a diminution in volume. The teeth often show marked defects. Sensation is not as a rule affected.

Among the various pathogenetic theories put forward in explanation of the disease the most satisfactory is that which assumes a neuritic process brought about by some accidental factor (trauma, infection, etc.) in a congenitally defective fifth nerve.

The course of the disease is a steadily progressive one, the general health being rarely affected. No cures have as yet been reported.

There are no therapeutic measures of avail, although many have been recommended. Against certain of these a word of precaution may not be out of place. This applies particularly to the use of local applications and to surgical procedures. The former are very apt to produce either excoriations or a dermatitis difficult of cure, while the latter are so far divorced from common sense that their recommendation by some American surgeon has led Eulenburg to characterize the idea as one originating on the basis of a type of surgical paranoia somewhat common in this country.

The case to be reported differs in several features from the classical description. In the first place, it is very unusual, in that it is the right side of the face which is affected. The other points of difference will appear from the history.

The patient is a single man, twenty years of age, and by occupation a clerk. He was born in Poland and has been in this country fourteen years. I first saw him at the nervous clinic of the Boston City Hospital, Sept. 6, 1901. The family history, so far as known, was negative as to nervous and mental diseases. As to his previous history, he had had measles at five years, but no other acute or chronic illness. There was no evidence of venereal disease. He was a moderate consumer of beer and tobacco. His present complaint dates back twelve years, when he noticed that the right side of the face was not as full as the left. He thought that the right side was normal and that the left was swollen. The wasting of the face has continued, however, until it presents today the appearance shown in the accompanying photographs.





Physical examination, outside of the condition of the face, was nearly negative. The patient is in an excellent state of general health. Aside from the atrophy of the integument and subcutaneous fat, there is but little of note. The facial and masticatory muscles are but slightly affected. There is no discoloration of the skin, and the Faradic excitability of the various muscles is normal. Sensation is normal. The fundus oculi is normal. The lower jaw projects somewhat and does not appear to be as convex on the right as on the left side. The scalp and hair are alike on the two sides, the ears are symmetrical and the muscles of the right shoulder are not affected.

During the time the patient has been under my observation, a period of about five months, he has had fairly constant treatment with Faradic electricity, and in this rather short time the atrophy seems not to have progressed. It would, however, be hazardous to draw any conclusions from this fact as to the efficacy of the treatment. In all probability the atrophy will follow the regular course.

## Medical Progress.

### PROGRESS IN PUBLIC HYGIENE.

BY SAMUEL W. ABBOTT, M.D., BOSTON.

In consequence of the unusual prevalence of smallpox at the present time, the greater portion of this summary will be devoted to the allied topics of smallpox and vaccination.

#### THE PREVALENCE OF SMALLPOX IN THE CLOSING YEARS OF THE NINETEENTH CENTURY.

The following data relative to the prevalence of smallpox, as determined by the mortality returns of different countries, have been compiled from such sources as are available, among which the compiler desires to acknowledge the valuable assistance offered by the officials of the Boston Public Library.

*Comments upon the Table. (See page 466.)*

The table is divided into two groups of countries. In the first group, composed of the German Empire, England, Scotland, Ireland, Sweden, Switzerland and Holland, the mean annual death-rate from smallpox for the 20 years was in no country higher than 40 per million. The mean population of this group was about 100,000,000, and the deaths from smallpox during the years of record were 23,732. From all that can be learned from the statistics of the component states of the German Empire for the years 1880-1885, it is probable that the number of deaths from smallpox in three years would bring the completed total of the group up to about 29,500.

In the second group, composed of Italy, Japan, Belgium, Austria, Hungary, Spain and British India, the mean annual death-rate from smallpox was in no country less then 175 per million. The mean population of this group was about 350,000,000, and the deaths from smallpox were 2,630,115. The number of deaths from smallpox, which occurred in the years marked *, cannot be told with accuracy, but from such information as can be gathered from the sanitary reports of these countries, it appears probable that the missing numbers would swell the total deaths from smallpox in this group to at least two and three-fourths millions.

The combined population of these two groups constitutes about one-fourth the total population of the world.

Group I. *German Empire.*— The smallpox mortality of the German Empire is available for 1886 and the succeeding years. That of Prussia for the years 1880-1885 was considerably higher than that of the whole empire during the succeeding years.

*Scotland.*— The highest death-rate from smallpox in Scotland in the 20 years was 31.5 per million living in 1894, and in two years, 1890 and 1891, there were no deaths from this cause.

*Ireland.*— The highest smallpox mortality in this country was 75 per million in 1880, and the next highest 31.8 in 1895, and in four years there were no deaths from this cause.

*Sweden.*— In Sweden the mean annual death-rate from smallpox for the 20 years was 9.3 per million, but if the period is divided into two parts of ten years each, the death-rate from smallpox in the first half was 18 per million, or 15 times as great as that of the second half (1.2 per million).

*Switzerland.*— The death-rate from smallpox has been exceedingly variable, ranging, during the 19 years of record, from only .3 per million in 1895 and 1897 to 149 per million in 1885.

*Holland.*— Here also the range is extremely variable: there were no deaths from smallpox in 1899, but in 1883 there were 673, or 160 per million inhabitants.

*England.*— In England the smallpox mortality has varied from as low as .8 per million in 1897 to 119 per million in 1881, the mean for the whole period being 33.8 per million, and was the highest of this group.

Group II. *Italy.*— The figures of Italy include the 13 years 1887-1899, and show a high, but diminishing mortality from smallpox, the highest being that of 1888, or 612 per million, and the lowest 7 per million in 1899, the mean of the 13 years being 179.

*Japan.*— In this country the extremes are still greater, ranging from as low as .6 per million in 1890, to 1,122 per million in 1882. In the year 1879, not included in the table, the death-rate from smallpox was 3,060 per million, the total number of deaths from smallpox in that year being 113,228. The mean death-rate from smallpox for the 17 years of record was 201 per million, or, if 1879 is included, 347 per million.

*Belgium.*— In Belgium the highest death-rate from smallpox in this period, 749 per million, was in 1880, and the lowest, 20 per million, occurred in 1896. Even this lowest rate was nearly five times as great as the highest rate of the adjoining country, Germany.

*Austria.*— During the 19 years of record the mortality from smallpox ranged from 962 per million in 1882 to 36 in 1896.

*British India.*— In this country, with a mean population of about 216,000,000, during the 20-year period 2,057,227 persons are known to have lost their lives from smallpox, and there was no single year in this period in which the deaths from this cause were less than 40,000. In the two single years, 1878 and 1879, preceding this period the deaths from smallpox amounted to more than half a million (505,337), while those

of 1883 and 1884 were still greater in number. Even in the best year of the period, the smallpox death-rate was 43 times as great as that of the highest year in Germany, and the mean mortality from smallpox (475 per million) was 264 times as great as that of Germany.

Those districts in India suffered least which were most thoroughly protected by vaccination.[1]

[1] Sanitary measures in India, report of 1875.

"In the province of Bombay smallpox was most fatal in Gurgaon, where great opposition has always been offered to vaccination, owing to the existence in the district of the celebrated temple of Sitla, the goddess of smallpox."[2]

"The greatest mortality from smallpox occurred in that part of the province of Oudh in which vaccination has made least progress.

[2] Report of 1878.

DEATHS FROM SMALLPOX IN DIFFERENT COUNTRIES. ABSOLUTE AND RELATIVE FIGURES.

ABSOLUTE FIGURES.

| | Group I. | | | | | | | Group II. | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | German Empire.[1] | Scotland.[2] | Ireland.[3] | Sweden.[4] | Switzerland.[5] | Holland.[6] | England.[7] | Italy.[8] | Japan.[9] | Belgium.[10] | Austria.[11] | British India.[12] | Hungary.[13] | Spain.[14] |
| 1880 | * | 10 | 389 | 175 | 173 | 79 | 648 | * | 8,210 | 4,135 | 14,232 | 69,849 | 13,386 | 12,165 |
| 1881 | * | 19 | 72 | 299 | 167 | 75 | 3,098 | * | 12,995 | 2,721 | 18,019 | 71,647 | 12,467 | 10,548 |
| 1882 | * | 3 | 129 | 159 | 22 | 153 | 1,317 | * | 41,849 | 1,570 | 21,154 | 85,148 | 12,160 | 19,933 |
| 1883 | * | 11 | 16 | 125 | 24 | 673 | 957 | * | 12,189 | 1,796 | 13,310 | 232,436 | 6,789 | 16,903 |
| 1884 | * | 14 | 1 | 58 | 64 | 62 | 2,234 | * | 410 | 1,355 | 11,521 | 333,382 | 3,992 | 10,648 |
| 1885 | * | 39 | 4 | 4 | 426 | 31 | 2,827 | * | 3,329 | 1,636 | 13,212 | 80,785 | 4,746 | * |
| 1886 | 197 | 24 | 2 | 2 | 182 | 72 | 275 | * | 18,676 | 1,213 | 8,794 | 51,112 | 11,290 | * |
| 1887 | 168 | 8 | 14 | 5 | 14 | 18 | 506 | 16,249 | 9,967 | 610 | 9,591 | 65,757 | 15,740 | * |
| 1888 | 112 | 3 | 3 | 9 | 17 | 1 | 1,026 | 18,110 | 853 | 865 | 14,138 | 93,568 | * | * |
| 1889 | 200 | 8 | 0 | 2 | 3 | 10 | 23 | 13,416 | 328 | 1,212 | 12,358 | 125,453 | * | 8,472 |
| 1890 | 58 | 0 | 0 | 2 | 32 | 1 | 16 | 7,017 | 25 | 636 | 5,935 | 116,321 | * | 6,183 |
| 1891 | 49 | 0 | 7 | 2 | 26 | 10 | 49 | 2,910 | 721 | 1,300 | 6,838 | 93,745 | * | 9,081 |
| 1892 | 108 | 11 | 0 | 4 | 35 | 49 | 431 | 1,453 | 8,409 | 2,528 | 6,087 | 92,680 | 3,426 | 6,854 |
| 1893 | 157 | 68 | 1 | 25 | 15 | 190 | 1,457 | 2,638 | 11,852 | 2,103 | 5,821 | 63,178 | 1,224 | 5,194 |
| 1894 | 88 | 129 | 72 | 21 | 51 | 625 | 820 | 2,606 | 3,342 | 537 | 2,512 | 41,609 | * | * |
| 1895 | 27 | 47 | 146 | 0 | 1 | 79 | 223 | 2,998 | 268 | 298 | 1,164 | 43,328 | * | * |
| 1896 | 10 | 2 | 4 | 2 | 8 | 34 | 541 | 2,033 | 3,388 | 130 | 897 | 132,784 | * | * |
| 1897 | 5 | 10 | 3 | 1 | 1 | 1 | 25 | 1,003 | * | 140 | 1,450 | 160,059 | * | * |
| 1898 | 15 | 2 | 0 | 1 | 2 | 7 | 253 | 420 | * | 158 | 2,521 | 55,798 | * | * |
| 1899 | 28 | 1 | 1 | 1 | * | 0 | 174 | 214 | * | 257 | * | 48,598 | * | * |

* Reports for the years marked * were not available. The deaths from smallpox in Scotland in 1900 were 42, and in 1901, 205.

DEATH-RATES FROM SMALLPOX PER MILLION INHABITANTS.

RELATIVE OR SIGNIFICANT FIGURES.

| | German Empire. | Scotland. | Ireland. | Sweden. | Switzerland. | Holland. | England. | Italy. | Japan. | Belgium. | Austria. | British India. | Hungary. | Spain. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1880 | * | 2.8 | 75 | 38 | 61 | 19 | 25 | * | 222 | 749 | 647 | 356 | 853 | 724 |
| 1881 | * | 5.1 | 14 | 65 | 59 | 18 | 119 | * | 351 | 487 | 819 | 362 | 789 | 624 |
| 1882 | * | .8 | 25 | 34.6 | 8 | 37 | 50 | * | 1,122 | 277 | 962 | 430 | 765 | 1,172 |
| 1883 | * | 3.0 | 3.2 | 27.2 | 9 | 160 | 36 | * | 327 | 314 | 605 | 1,174 | 424 | 988 |
| 1884 | * | 3.7 | .2 | 12.6 | 22 | 15 | 83 | * | 11 | 234 | 523 | 1,650 | 245 | 619 |
| 1885 | * | 10 | .8 | .9 | 149 | 7 | 104 | * | 88 | 280 | 575 | 450 | 287 | * |
| 1886 | 4.2 | 6.2 | .4 | .4 | 63 | 17 | 10 | * | 485 | 205 | 382 | 249 | 676 | * |
| 1887 | 3.5 | 2.1 | 2.8 | 1.1 | 5 | 4 | 18 | 550 | 256 | 102 | 417 | 313 | 932 | * |
| 1888 | 2.3 | .8 | .6 | 2 | 6 | .2 | 36 | 610 | 22 | 144 | 615 | 445 | * | * |
| 1889 | 4.1 | 2 | —— | .4 | 1 | 2 | .8 | 449 | 8 | 199 | 515 | 570 | * | 481 |
| 1890 | 1.2 | —— | —— | .4 | 11 | .2 | .6 | 233 | .6 | 105 | 247 | 529 | * | 350 |
| 1891 | 1.0 | —— | 1.5 | .4 | 9 | 2 | 1.7 | 96 | 18 | 212 | 285 | 426 | * | 508 |
| 1892 | 2.2 | 2.7 | —— | .9 | 12 | 11 | 15 | 48 | 205 | 408 | 253 | 403 | 193 | 381 |
| 1893 | 3.1 | 16.5 | 2 | 5.2 | 5 | 40 | 49 | 86 | 289 | 334 | 243 | 274 | 69 | 285 |
| 1894 | 1.7 | 31.5 | 15.7 | 4.4 | 16 | 131 | 27 | 85 | 80 | 85 | 102 | 181 | * | * |
| 1895 | .5 | 11.5 | 31.8 | —— | .3 | 16 | 7 | 97 | 6 | 47 | 47 | 188 | * | * |
| 1896 | .2 | .5 | .9 | .4 | 2.5 | 7 | 18 | 65 | 81 | 20 | 36 | 577 | * | * |
| 1897 | .1 | 2.4 | .6 | .2 | .3 | .2 | .8 | 32 | * | 21 | 57 | 696 | * | * |
| 1898 | .3 | .5 | —— | .2 | .6 | 1.4 | .8 | 13 | * | 24 | 98 | 243 | * | * |
| 1899 | .5 | .2 | .2 | .2 | * | —— | .5 | .7 | * | 38 | * | 211 | * | * |
| Mean. | 1.8 | 5.3 | 9 | 9.3 | 22.6 | 24.2 | 23.8 | 179 | 201 | 206 | 380 | 475 | 516 | 605 |

SOURCES OF INFORMATION FOR THE FOREGOING TABLE.

[1] Germany. Ergebnisse der amtlichen Pockentodesfallsstatistik im Deutschen Reiche. 1886-1890.
[2] Scotland. Reports of the Registrar General of Scotland.
[3] Ireland. Reports of the Registrar General of Ireland.
[4] Sweden. Bidrag till Sveriges officiela Statistik, 1899, p. 40.
[5] Switzerland. Statistisches Jahrbuch der Schweiz, 1900.
[6] Holland. Bulletin de l'Institut International de Statistique, x, 83.
[7] England. Reports of the Registrar General.
[8] Italy. Statistica delle Cause di Morte, Rome, 1901, p. 12.
[9] Japan. Reports of the Central Sanitary Bureau, Tokio, 1900.
[10] Belgium. Annuaire Statistique de Belgique, 1901.
[11] Austria. Oesterreichisches Statist. Handbuch, Wien, 1900.
[12] British India. Annual Reports on the Sanitary Measures in India.
[13] Hungary. Bulletin de l'Institut International de Statistique, vol. x.
[14] Spain. Idem.

"Children, as usual, were the chief sufferers; 96% of the deaths from smallpox were among children under 12."[3]

*Hungary.*— In Hungary the record is incomplete, but for the five years of record the mortality from smallpox ranged from 932 per million in 1887 to 69 in 1893, with a mean death-rate from this cause for the ten years of 516 per million.

*Spain.*— In Spain the record is also incomplete. The smallpox death-rate showed less variation than in any of the other countries. In no one of the years of record was it less than 285 per million, and the mean death-rate from smallpox in these years was 605, or 336 times as great as that of Germany.

*Russia, France and Denmark.*— The published records of these countries are quite incomplete. Those of Russia, in Europe, for the six years 1887-1892, show that 90,934 deaths from smallpox occurred in those years, which was equivalent to a death-rate from this cause of 175 per million.

In France the records do not pertain to the whole country, but to the larger cities, and in these cities, with a population of about 9,750,000, there were 17,013 deaths from smallpox, or a mean annual death-rate of 213 per million. It is no wonder that the German medical officers are wont to point out with pride the distinction between the conditions of the French and the German cities in this respect, and the reports of the Comité Consultatif d'Hygiène of France occasionally contain mournful admissions of the same fact.

In Denmark the records pertain only to the towns, 74 in number, with a mean population of about 725,000. The deaths from smallpox in these cities in the 20 years 1880-1899, show a very low annual death-rate from this cause of only 4.3 per million.

*Other Countries not Embraced in the Table.*

*Nubia.*— "The smallpox comes every autumn and lasts till spring, and large numbers die of it."[4]

*The Soudan.*— "The smallpox mortality is high. One tribe lost one-third by it" (about 1890[5]).

*Egypt.*— "The result of the introduction of vaccination into Egypt was an increase of the population, by saving of life amounting to no less than 2,000,000."[6]

"In Asia Minor, Syria and Mesopotamia, where they have not succeeded in introducing vaccination as a general practice in place of inoculation, smallpox still plays as prominent a part in the sickness and mortality as it used to."

"This is true also of Persia and Arabia, and in a still higher degree of India and Farther India."

[3] Report of 1883.
[4] Report of Royal Commission, England, 1897, Final Report, p. 747.
[5] Report of Royal Commission.
[6] Loc. cit.

"Many regions of China, where vaccination is very imperfectly practised, and inoculation is still in full repute, constitute permanent centres of the disease, and have often been ravaged by disastrous epidemics of it."

"In Corea, Cheval found almost the whole population pock-pitted. In eight months after its introduction into the Sandwich Islands, it carried off 8% of the population."[7]

*The United States.*— In this country, constituted as it is of a large number of states with variable laws relating to infectious diseases, and with a population subject to constant migration, many of whom are either unvaccinated or have not been revaccinated since childhood or infancy, smallpox is bound to occur spasmodically. It is the unvaccinated immigrant who usually introduces smallpox into a community in this country, although, as at Holyoke, Mass., and other paper-mill towns, infected rags and clothing may occasionally be responsible. Among recently arrived German or Swedish immigrants smallpox is almost never found at the present day, for obvious reasons, but among the French Canadian unvaccinated immigrants from the rural districts of Eastern Canada, smallpox is a matter of very frequent occurrence, notwithstanding the serious experience of Montreal in 1885.

One of the great and pressing needs of the United States today is a strong central sanitary board at Washington, independent of other departments of the government, like the Imperial Board of Health of Germany, capable of investigating all sanitary questions and of giving advice to the multitude of small unprotected communities, which suffer untold losses in consequence of ignorance, neglect, and the want of proper information upon sanitary subjects. The spasmodic methods of our great cities and towns in regard to vaccination, whereby this practice is suffered to remain neglected in the intervals between epidemics, is in strong contrast to that of Germany, where vaccination is constant, uniform, annual, and therefore protective of the entire population.

*(To be continued.)*

## Reports of Societies.

### SURGICAL SECTION OF THE SUFFOLK DISTRICT MEDICAL SOCIETY.

F. B. LUND, M.D., SECRETARY.

Regular meeting, Feb. 26, 1902, Dr. F. S. Watson in the chair.

Dr. F. S. Watson: There is something in the atmosphere of our Western States, and in the freedom of their communities in matters of thought, that breeds men of strong purpose and peculiarly favors original methods of work.

[7] Hirsch: Historisch pathologisch, geog., vol. i, chap. vi, Blattern.

Among the men of this stamp is one of our profession, whose achievements deserve to stand high in the list of the best that have come from the minds and hands of American surgeons. Six years' study of his surgical work, as it has appeared in publications, and the application of such of his procedures as I have had the opportunity to put in practice, convinced me that there was no greater satisfaction that I could give to this society than that of seeing and hearing personally the gentleman who has been so good as to accept my invitation to come before you here tonight, and who has undertaken the long journey from Minnesota for that purpose — Dr. William H. Mayo, of Rochester, Minn.

DR. MAYO read a paper entitled

PROBLEMS RELATING TO SURGERY OF THE STOMACH.[1]

DR. WATSON: In the opening of the discussion of the admirable paper from Dr. Mayo, I have the further pleasure of introducing to the society another distinguished surgeon from the West, Dr. Ochsner, from whom I have learned more in the last few days than it is often one's good fortune to be able to do from any one individual.

DR. OCHSNER briefly addressed the society.

DR. J. C. MUNRO: There are two minor points that I wish to bring up in connection with the paper tonight:

First, the association of acute appendicitis with a gastric ulcer, of which I have had two cases. One recovered from his double trouble without operation; the other, progressing most satisfactorily after drainage of a peritoneal cavity, generally infected from a gangrenous appendix, died suddenly from severe hemorrhage from an ulcer of the stomach. In both cases the interest lay in the elimination of a diagnosis of perforating ulcer.

Secondly, I wish to put in an earnest plea in behalf of palliative operation in inoperable cancer of the pyloric half of the stomach. My cases, three in all, not including exploratory operations in this condition, those where it was unjustifiable to do more than explore, are too few to bring conviction, and yet, with proper selection, I strongly believe that we have a most humane measure for alleviating the physical and mental sufferings of a most pitiable class of patients. The type that I refer to is that in which the growth obstructing the pylorus fills the distal half of the stomach, is too large for excision, with beginning or perhaps extensive carcinomatous infection. These patients suffer from profuse, painful vomiting, starvation and the horror of being given up to die without any attempt at relief. An anterior gastro-enterostomy with a Murphy button, quickly and safely performed, allows the ingestion of food by mouth in a day or two; the intense suffering from starvation is done away with, the patient is hopeful and encouraged, and, as in one of my cases, he may grow fat. Of course, death comes eventually, but the patient dies more comfortably from a general malignant infection without the intense and hopeless vomiting; that which does come from invasion of the entire stomach being infinitely less distressing than that which is caused by a tightly shut pylorus. I firmly believe that this is a means of palliation that we must seriously consider where it is suitable; it seems essential, however, that the pyloric drainage should be blocked and that healthy wall at the cardiac end should be present. Other cases are best left alone.

The reader tonight, Mikulicz, Mayo Robson and others with large experience, have so definitely established the benefit that comes from surgery in selected cases of gastric lesion, that it would be a supererogation for me to add the results of my limited experience. I will willingly modify my views as to the gravity of ulcer of the stomach, but it is none the less disconcerting to feel that at least half the cases that I have seen have died from hemorrhage or perforation. This is, of course, a much distorted picture of the gravity of the lesion, and yet it must impress me to some extent. I will merely beg for earlier consideration by the surgeon in those cases that do not progress smoothly and rapidly under conservative measures. All others, and fortunately the percentage is fairly large, are medical and best treated medically, so that naturally they are rarely seen by the surgeon. We must remember that prolonged starvation, repeated losses of blood, persistent sepsis however mild, all make an operation, otherwise simple, a very grave affair. With judicious and timely interference, where necessary, and both the physician and the surgeon should have a voice in determining the necessity, it is rare that an operation should be demanded as a last resort, and when, as I have shown elsewhere, nearly half of the cases of abdominal lesion that come to us at the hospital are too late by days or weeks, it places the odium of some of our failures, not on surgery, but on the failure to recognize conditions that are surgical, when surgery would be the safest and most conservative means of treatment.

Until a larger experience simplifies the technique of posterior gastro-enterostomy I am inclined to make use of the anterior joint, low down, with the aid of the Murphy button, as it seems to me that the risk of infection and the shock from the length of operation are much lessened, and if the opening will remain patent as well as that made posteriorly with or without the bobbin, the differences in drainage, especially with the patient in the upright position, can be disregarded. In early operations for ulcer the risk from either procedure is extremely small, but in malignant or late cases the difference is quickly magnified, and I should favor the anterior opening. In introducing the button I have tried two methods: passing each half through an independent opening into the cavity of the stomach and gut, and perforating at the site of anastomosis through a minute opening that closely hugs the neck of the button, or else introducing each half through a small slit at the desired place for anastomosis and

[1] See page 451 of the Journal.

closing one end of the slit up to the neck of the button. Either method is satisfactory. Where the button would have to be passed through a close network of large vessels, at the very edge of the stomach, the former method might be less bloody and troublesome.

The scheme of suturing the omentum to prevent the drag on the joint appeals to me strongly. I have reinforced the button anastomosis by sutures in the malignant cases on that very account, but never realized that it could be accomplished so well by using the omentum as Dr. Mayo suggests.

I should like to ask the frequency of pyloric obstruction from gumma or scars following ulceration of a gumma. I think I have seen several well-marked cases.

Dr. F. B. Lund: I wish to congratulate the reader upon the excellent advanced work in this field of surgery of which his paper is evidence. He is a pioneer in the opening up of a field which I firmly believe will in the future be of very great importance, and which, to my mind, is as full of promise as any other department in surgery.

The reader has enlightened us upon several points upon which we especially desired information as a guide to our own work. Of the various subjects upon which he has touched it seems to me that the surgery of gastric ulcer has in it the most of interest and of promise. The practical question which confronts the surgeon in operating upon gastric ulcer is whether to perform excision with or without pyloroplasty or do gastro-enterostomy. Although gastro-enterostomy is perhaps the one operation which is of greatest service in these cases, I cannot but believe, as the writer has said, that we expect too much from it and perhaps perform it in cases where excision of the ulcer with or without pyloroplasty would be distinctly preferable. In cases where the pylorus is little, if at all, contracted, and the stomach not dilated, it is better to excise the ulcer and do away with the complicated looping of the bowel necessitated by gastro-enterostomy. The indication for gastro-enterostomy, it seems to me, is primarily dilatation of the stomach and spasm of the pylorus, and its employment in ulcer, unless these conditions are present, should be limited to cases where we cannot locate the ulcer or where it is so situated as to be inaccessible for excision. I think the importance of locating the ulcer is very great, and it must be admitted that it is frequently very difficult to do so. Even chronic ulcers which have for months proved intractable to treatment, and have caused frequent and severe hemorrhages, may be so situated, and surrounded by so little infiltration as to make it difficult to locate them by inspection or palpation after the abdomen is opened. Careful search must be made for any very slight thickening or injection of the stomach wall. A guide which I have found of value in two instances is the presence of one or more enlarged glands in the base of the great omentum and along the greater curvature. These glands were situated opposite ulcers on the pylorus and greater curvature respectively, and were of distinct aid in the location of the ulcers, which revealed their presence by thickening and injection so slight as to leave the operator in doubt as to whether he had correctly located them or not.

I cannot help feeling that excision of the ulcer is perhaps the ideal operation. I had a most excellent result from excision of an ulcer which almost girdled the pylorus. The operation naturally had to be combined with pyloroplasty. The case was of a young man who was operated upon last June after medical treatment had been carried out for many months unsuccessfully, constant vomiting and loss of weight being prominent symptoms. He made an excellent recovery, and today is at work.

In the case of ulcer of the posterior wall with adhesions to the pancreas and other structures in the lesser peritoneal cavity, gastro-enterostomy is, of course, the only operation to consider. Mayo Robson reports very remarkable instances of recovery in desperate cases of this sort. As between anterior and posterior gastro-enterostomy, I think that the posterior operation is preferable in the majority of cases of ulcer, but would emphasize the importance, in cases where the transverse mesocolon is affected by adhesions, of making a large opening and sewing the base of it to the stomach wall, to prevent contraction. I had the humiliating experience of losing a patient this fall, after apparently successful gastro-enterostomy, from kinking of the afferent loop by the contraction of this opening in the mesocolon. I am convinced that with proper technique this would not have happened. It is also important in performing this operation that the opening in the bowel should not be made too close to the duodenum. I was hampered in the performance of the subsequent entero-enterostomy, which was necessary in this case, by the shortness of the afferent loop.

In regard to operations for cancer, it seems to me that in the majority of cases where the patient suffers as he does from pyloric obstruction, and where the situation of the abscess precludes excision or pylorectomy, gastro-enterostomy offers a chance of relief and may prolong the life and promote the comfort of the patient. It seems to me that even a temporary relief makes operation worth while. In these cases of cancer the Murphy button certainly finds a place, as it affords the quickest method of operating, and speed is especially essential in these debilitated patients. It is very advisable to make the opening in the dependent portion of the stomach, as has been so well emphasized by our guest of this evening.

I would like to ask the writer regarding his experience in operations for hemorrhage. Here the indications for operation are still obscure, but I have in my short experience seen two patients die of hemorrhage, where the autopsy showed an ulcer which was easily accessible and could probably have been safely excised. I believe that

hemorrhage from gastric ulcer is much more frequently fatal than is generally believed.

Lastly, I must allude again to the importance of the work of Greenough and Joslin, who found that scarcely more than half the patients discharged from the Massachusetts General Hospital during a period of ten years, as cured of gastric ulcer, remained well. I think it is becoming more and more evident that these ulcers relapse with great frequency, and that if the patient does not recover in from four to eight weeks of medical treatment, surgical operation is indicated. I believe that early operation is generally safe, while late operation is rendered difficult and dangerous by the weakened condition of the patient. I believe that if the surgeon can see these cases early and does not hesitate to operate upon clear indications, the surgical treatment of gastric ulcer will prove of great benefit to humanity.

DR. EDWIN WELLES DWIGHT read a paper entitled

THROMBOSIS OF THE CAVERNOUS SINUS; WITH REPORT OF FOUR CASES, INCLUDING THE CRANIAL OPERATION.[2]

## THE AMERICAN ASSOCIATION OF PATHOLOGISTS AND BACTERIOLOGISTS.

SECOND ANNUAL MEETING HELD IN CLEVELAND, MARCH 28 AND 29, 1902.

(Concluded from No. 17, p. 444.)

A SUBCUTANEOUS GLIOMA OVER THE COCCYX.

DR. F. B. MALLORY of Boston read a paper on this subject, with lantern slide demonstrations. The tumor occurred in a woman forty-four years old. It had been noticed for twenty-five years. It was situated in the median line of the back over the coccyx and lower part of the sacrum, and it was not adherent. When it was first observed it was the size of a hickory nut; during the last year it had grown rapidly until it was larger than a baseball. Microscopically its structure was like a carcinoma, that is, it consisted of masses of cells lying in a connective tissue stroma, but between the cells in the alveoli were fine and coarse refractive fibres, which took the differential stain for neuroglia fibres. The interest in the tumor lies in its situation and also in its histogenesis. It seems probable that it arose from remains of the neural canal; these remains may be demonstrated in most embryos, and unquestionably have in consequence of their origin the potential possibilities of differentiating either in epidermis (dermoid cysts) or into ependymal cells and its derivatives; in this case neuroglia tissue.

CAPSULES OF PNEUMOCOCCI AND STREPTOCOCCI STAINED BY A NEW METHOD.

DR. P. H. HISS of New York described new methods for demonstrating capsules on pneumococci, and showed lantern slides. They grow on ascitic-serum agar, preferably with the addition of 1% glucose. Spread the organism on the coverglass with a drop of serum or a drop of one of the fluid serum media. Dry in the air and fix by heat. Then stain for a few seconds in a one-half saturated aqueous solution of gentian violet. Wash off with a .25% solution of potassium carbonate; mount and study in this solution. This is a good stain for capsules of the pneumococcus in the blood or serum of infected animals. Pneumococcus capsules may also be stained by the following method and be mounted in balsam without injury. A 5 or 10% solution of gentian violet or fuchsin (500 saturated alcoholic solution of gentian violet and 95 cc. distilled water) is used. This is placed on a dried and fixed coverglass preparation and gently heated until steam arises. The dye is washed off with a 20% solution of copper sulphate ($CuSO_4$ cryst.). By these methods most streptococci were found to have capsules.

A FORM OF NECROSIS INVOLVING UNSTRIPED MUSCLE AND ASSOCIATED WITH A NOTABLE ALTERATION IN THE PERICELLULAR ELASTICA.

DR. W. M. L. COPLIN of Philadelphia read this paper by title, and showed lantern slides.

SECOND DAY.

THE BACTERIAL ETIOLOGY OF GALLSTONES — AN EXPERIMENTAL STUDY.

DR. A. J. LARTIGAU of New York said the preliminary part of the paper was directed mainly to the consideration of the studies of Mignot, who established the fact by experiment that gallstones could be experimentally induced in animals by infecting the gall bladder. The first step in the writer's investigations was the study of the growth of bacteria in bile. His conclusions are in accordance with those of others who have investigated the matter, that bile is not bactericidal to the bacillus typhosus, bacillus coli communis, and some of the other pyogenic organisms. Direct inoculations of the gall bladder with different bacteria was followed by the development of gallstones. Sterile inert foreign bodies in themselves do not give rise to this condition, although they and the stagnation of bile seem to favor the development of gallstones in the presence of infection of the gall bladder. Mixed infections do not seem to induce gallstones earlier than single ones. From his studies the writer concludes that gall bladder infection may occur in cases of systemic infection, but he believes that in the human subject the bacteria usually gain access to the liver and gall bladder from the intestine through the portal circulation. This is especially so when intestinal inflammation is present.

ON THE PATHOLOGY OF SO-CALLED BONE-ANEURISMS, WITH THE REPORT OF A CASE.

DR. HARVEY R. GAYLORD of Buffalo read this paper by title.

[2] See page 456 of the Journal.

THE CHANGES PRODUCED IN THE HEMOLYMPH GLANDS OF THE SHEEP BY SPLENECTOMY, HEMOLYTIC POISONS AND HEMORRHAGE, WITH A MICROSCOPIC DEMONSTRATION.

Dr. A. S. Warthin of Ann Arbor spoke on this subject. Since the structure of the hemolymph glands in man resembles that of the spleen, and, further, because these nodes have a function in hemolysis, it seem probable that under certain conditions these nodes may compensate for the spleen. The present research was undertaken primarily to solve this problem, no experimental work with the hemolymph nodes having been previously made. The sheep was chosen because of the large size and number of hemolymph nodes in this animal. Total extirpation of the spleen was made, and the animals killed at intervals of one, three and five days, two weeks, one month, two and five months after the operation. The changes found may be briefly summed up as follows: During the first five days the hemolymph nodes show great congestion, increased destruction of red corpuscles, vacuolization of the lymph follicles, reduced numbers of lymphocytes and mast-cells. By the end of second week hypoplasia of the lymphoid tissue, both of the hemolymph nodes and of the lymphatic glands, has begun, affecting first the follicles, which are apparently increased in number and actually in size. Great numbers of pigment-containing phagocytes in blood and lymph sinuses; increase of eosinophiles, numerous mitotic figures. By the end of the second month the hemolymph nodes in certain regions are replaced by ordinary lymphatic glands, which are deeply pigmented, and there is a new formation of hemolymph nodes in unusual locations. These changes increase in degree and extent until the end of the fifth month, at which period the experiments ceased.

Conclusions: (1) No evidence that there is a formation of red blood cells in hemolymph nodes or lymphatic glands after splenectomy; (2) the earliest changes observed after splenectomy are in the hemolymph glands; (3) the latter become changed into hyperplastic structures resembling ordinary lymph glands, but heavily pigmented; (4) new hemolymph nodes are formed in subperitoneal tissue and in regions where normally they do not occur; (5) no new formation of spleen tissue was observed; (6) the new formation of spleen tissue observed by Tizzoni, the hemorrhagic lymph glands of Winogradow, and the hemorrhagic telangiectic lymphomata of Mosler are newly formed hemolymph nodes; (7) total extirpation of the spleen causes an increased hemolysis in the first five months after splenectomy; this takes place first in the blood sinuses of the hemolymph nodes and later in the lymphatic glands; (8) the increased hemolysis may possibly be explained by the presence of a hemolytic substance in the blood which it is the spleen's function to remove; (9) the spleen is compensated for by the hemolymph nodes and lymphatic glands.

EXPERIMENTS IN TUMOR TRANSPLANTATION AND INOCULATION.

Dr. Maximilian Herzog of Chicago read this paper by title.

FURTHER INVESTIGATIONS INTO THE TRANSPLANTATION OF TUMORS.

The results of a second series of consecutive transplantations of the sarcomatous part of a mixed tumor of the thyroid (adenocarcinoma-sarcoma) were reported by Dr. Leo Loeb of Chicago. The characters of the tumor cells were preserved in all details. Experiments were reported in which pieces of the tumor were kept on ice for variable periods. After having been kept in ice for five days, such pieces still produced tumors. These experiments prove that the tumor-producing agency is still alive at this time. Without having isolated the tumor-producing agency, by this means we may gain a knowledge of its character in a way similar to that in which ferments have been studied. Transplantation of an adenoma of the mammary gland showed a difference in the result of transplantation according to the animal into which it was transplanted. Mast-cells can be transplanted and remain alive in successfully transplanted pieces of tumor. Where the piece of tumor becomes necrotic, the mast-cell granules increase considerably and afterwards the mast-cells degenerate.

ON THROMBI COMPOSED OF AGGLUTINATED RED BLOOD CORPUSCLES.

Dr. Simon Flexner of Philadelphia said that his attention had been brought to this subject recently by an observation which he made on the intestine of a case of typhoid fever, in which the veins of the submucosa contained thrombi clearly composed of agglutinated corpuscles. The corpuscles in undergoing agglutination altered in staining properties, becoming hyaline, so that after coalescence the strands and cords produced presented a hyaline appearance. He felt sure that similar thrombi had been observed before, but had been interpreted as being composed of hyaline fibrin, etc. He extended his study to a variety of other infectious processes of human beings, in many of which similar thrombi could be demonstrated. Experiments were also conducted for the purpose of discovering whether similar thrombi could be artificially produced. For this purpose injections of ricin into the circulation of rabbits were employed, and similar agglutinated masses of red cells were found in many parts of the body. The injection of ether into the circulation of rabbits, as is well known, is followed by death in a very short time. Immediate examination shows the right side of the heart and pulmonary vessels to be plugged with soft clots. These clots were found not to consist of coagula, but of closely massed red corpuscles. The bacterial agglutinations were also studied, and the conclusion seems admissible that two kinds of agglutination of red corpuscles may be

met with: (1) That produced by biologic agents, and (2) by chemical agents, corresponding with the two kinds of hemolysis, which are also distinguished into biologic and chemical.

THE LYMPHOMATOUS TUMORS OF THE DOG'S SPLEEN.

DR. HERBERT U. WILLIAMS and DR. F. C. BUSCH of Buffalo said that although primary tumors of the spleen are rare in man, this is not the case in the dog and some other domestic animals. The paper was based on autopsies on 720 healthy dogs. In 17 cases, or about 2⅓%, tumor-like nodules of the spleen were present. The tumors were either single or multiple, and sometimes were as much as 4 cm. in diameter. Histologically they consisted of lymphoid masses larger than Malpighian bodies, with more or less atypical spleen pulp. Trabeculæ were not present in the tumors, and the lymphoid masses were usually devoid of central arteries. Metastases were not observed. Examination for bacteria gave negative results. In some respects these tumors resembled subcapsular hemorrhages of the spleen. Attempts to produce them by laceration of the spleen gave negative results.

ON THE RELATION OF THE BONE MARROW TO LEUCOCYTOSIS.

DR. W. R. BRINCKERHOFF and MR. E. E. TYZZER of Boston reported experiments. Large numbers of leucocytes were withdrawn from the circulation in rabbits by a transient aseptic peritonitis produced by the intraperitoneal injection of water and turpentine or of hot sterile salt solution. In the circulating blood there might be a slight drop at first in the numbers of leucocytes; finally, in every case, they were increased in number. At autopsy the peritoneum proved sterile in every case, with a great increase in the number of leucocytes. On an examination of the bone marrow it was found that many leucocytes had been withdrawn from the marrow into the circulation, there not being more than one-half the normal number in the marrow of the experimental rabbits. The loss of leucocytes in the general circulation is made up very promptly from the sinuses of the red bone marrow, the adult leucocytes in this place being in close relation with, but not in, the circulation.

THE DIFFERENTIATION OF HUMAN FROM ANIMAL BLOOD.

DR. ALFRED STENGEL and DR. C. Y. WHITE of Philadelphia read this paper by title.

A STUDY OF SEGMENTATION AND FRAGMENTATION OF THE MYOCARDIUM.

DR. LUDWIG HEKTOEN gave his place on the program to DR. A. P. OHLMACHER of Chicago, who read a paper giving the results of work done under Dr. Hektoen's direction — some "preliminary observation on certain mechanical microtechnical factors concerned in producing segmentation and fragmentation of the myocardium," by Walter H. Buhlig, B.S., of Chicago. The purpose of this paper was to show that the microscopic appearances, commonly designated fragmentation and segmentation of the heart muscle, were artificial factors, the microscopic imperfections of the microtome knife edge and the direction of cutting the sections being the most important. By varying the conditions calling these two factors into play, the author had reproduced in the heart of a healthy dog practically all the pictures usually regarded as disunion of the myocardium, from apparently intact heart muscle to extreme segmentation and fragmentation. The necessity of reviewing all the work in this subject along the lines here indicated was pointed out.

DR. L. HEKTOEN, presenting the substance of his paper in the form of remarks on the above, said: The fact that human fragmentation and segmentation are of such common occurrence in all sorts of conditions; the fact that it did not seem to be possible to produce these lesions experimentally; and the further fact that no changes of a reactive character about the fragments and segments were ever observed, led to the very reasonable conclusion that myocardial disunion was of intravital occurrence, most likely of agonal development, probably due to irregular contractions of the heart. The fact that fragmentation and segmentation are associated very generally with a distinct degeneration of the muscle fibres,— the sarcolytic degeneration,— led J. B. MacCallum to lay special stress upon the probable rôle of this degeneration in the production of disunion for mechanical reasons. Years ago Zenker expressed the idea that although actual fragmentation and segmentation may be of agonal and mechanical origin, yet this may depend upon changes in the muscle fibres of physical and chemical nature, which may be more marked in some diseases than in others. Based upon considerations of this kind, certain experiments were made especially with dilute solutions of electrolytes: NaCl, KCl, etc., which were injected into the hearts of living dogs, and also after death. Other substances, such as redistilled water, the juice of human hearts, etc., were also injected. Dilute solutions of KCl and water injected during life make the cement lines distinct, and produce the appearance in the muscle fibres that resemble very much the sarcolytic degeneration in human hearts, probably due to osmotic disturbances and absorption of water. It was soon found that the ordinary breaking of the fibres — fragmentation — observed in the specimens probably was the result of the action of the microtome knife, because it was so marked in the sections cut with the microtome knife at right angles to the long diameter of the fibres, but largely absent in the fibres cut in the reverse direction. More or less typical fragmentation is readily obtained in Zenker-fixed, paraffin-embedded pieces of dogs' hearts cut with the knife at right angles to the long course of the fibres, as pointed out by Ohlmacher. Fairly typical segmentation was observed in slight degree, mostly in heart muscle injected during life with $N_8$ to $N_{40}$ KCl solutions. In seems probable that

K ions may induce changes in the cement substance, and that the sarcolytic degeneration of muscle fibres may be the result of osmotic disturbances.

MULTIPLE ANEMIC INFARCTIONS OF THE LIVER WITH MICROSCOPIC DEMONSTRATIONS.

Dr. F. A. Baldwin of Ann Arbor read this paper by title.

THE INFLUENCE OF THE SPLEEN IN HEMOLYSIS.

Dr. Isaac Levin of New York read this paper by title.

THE OCCURRENCE OF TUBERCULOSIS AND CARCINOMA IN THE SAME ORGAN OR TISSUE.

Dr. Harris Moak of Albany read this paper by invitation. Five cases of the combination of these two diseases were reported. They coexisted in different organs in the body. Sometimes only one organ was affected, and at other times many organs were involved with metastases of both diseases. The tuberculous process was evidently primary in some instances, and at other times the carcinomatous process was without doubt primary, still, at other times they probably were both metastatic at the same time and in the same way. Tubercle bacilli were demonstrated in nearly every instance. To explain the rarity of the combination of these two common diseases it was shown that tuberculosis was distinctly an active disease before the age of fifty, and that carcinoma was most prevalent after that age. Further, that the organs or tissues most liable to tuberculosis were not those most liable to carcinoma. The relation of healed or latent tuberculosis was considered, and from figures quoted it was shown that this form of tuberculosis must frequently exist in some part of the body of cancer patients. The conclusion was that there is no real antagonism between these two diseases.

PRIMARY BILATERAL MYXOSARCOMA OF THE SCIATIC NERVES WITH METASTASES.

Dr. J. H. Larkin of New York read a paper on the above subject and showed photographs of the nerves, presenting numerous larger and smaller fusiform swellings.

NEW AND SIMPLE MEDIA FOR THE DIFFERENTIATION OF THE COLONIES OF THE TYPHOID, COLON AND ALLIED BACILLI.

Dr. Philip H. Hiss made a preliminary report on investigations with media of the same general character as that proposed by the author in earlier communications, but presenting fewer difficulties in its preparation. He showed photographs of cultures in his older medium and of similar cultures in the new media, in which the differences between the typhoid and colon colonies, as shown in the former, seemed to be preserved in the latter.

THE INFLUENCE OF POTASSIUM CYANIDE IN LIVING PROTOPLASM, WITH SPECIAL REFERENCE TO BACTERIA.

Dr. F. P. Gorman and Dr. R. W. Tower of Providence, R. I., called attention to the neglect to investigate the influence of bacteria by Loeb in his investigations on the influence of potassium cyanide on the life of unfertilized sea-urchin eggs. They find that sea water is teeming with bacteria, and that short of a strength of solution to kill the eggs themselves the per cent. of potassium cyanide recommended by Loeb as the one in which the eggs would live for the longest time is that which inhibits to the greatest extent the growth of bacteria.

THE PERSISTENCE OF VARIETIES OF THE BACILLUS OF DIPHTHERIA AND OF DIPHTHERIA-LIKE BACILLI.

Dr. William H. Park of New York (for Anna W. Williams) read this paper, based on a very large amount of work done in connection with cases from a hospital for contagious diseases, from a town during an extensive epidemic of diphtheria, from a home for destitute children, and from miscellaneous sources. Smears and pure cultures grown on various media and under varying conditions were studied, also the effect of inoculation in guinea pigs, white rats and goldfinches, and in symbiosis with other bacilli. In a series of cases of clinically typical diphtheria only one variety of virulent diphtheria bacillus was obtained from each throat; pseudo varieties were found no more frequently at the end than at the beginning of the disease. In normal throats different varieties of diphtheria-like bacilli may be found in the same throat. These may be found in institutions without cases of diphtheria resulting. In pure culture the diphtheria-like bacilli retain their characteristics indefinitely. In cases of diphtheria apparently contracted from the same source the same variety of virulent bacillus was found in each case, and these remained the only variety throughout; no gradations to pseudo types were found. In a study of pure cultures, grown under various conditions, the characteristics of the original culture was found to be preserved, the duration of life of the cultures under artificial conditions varying from one to seven years. The conclusion drawn from these studies is that morphologically the typical diphtheria bacillus is a distinct species from the atypical diphtheria-like bacillus and the so-called pseudo forms.

SPINDLE-SHAPED DILATATION OF THE URETER IN THE FETUS.

Dr. Carl A. Hamann of Cleveland states that, as a result of the examination of the ureters in thirty-seven fetuses of various ages it was found, in the vast majority of instances, the ureters present a spindle-shaped enlargement just above the pelvic brim. This enlargement varies in length from 1½ to 3 cm., and the diameter of the ureter here is from one and one-half to two times as great as the rest of the tube. Tortuosities and spiral turns are frequently encountered.

THE LIFE HISTORY OF ACTINOMYCES ASTEROIDES.

Dr. W. G. MacCallum of Baltimore reported a child in whom a gastric fistula had been produced for the relief of an esophageal stricture. There developed about three weeks after the operation a general peritonitis of a peculiar type. At the autopsy the abdominal viscera were bound together by adhesions containing abscesses, in which the branched filaments occurred in pure culture. They stain by Gram, show no spores, grow readily in the air on all media, but do not grow anaerobically; on potato elevated free hyphæ terminated by chains of conidia give a chalky bloom to the growth; on other media the reddish yellow growth is fairly firm and moist. The organism is killed in five minutes by a temperature of 68° C. The conidia are not more resistant. Rabbits, guinea pigs, dogs, etc., are susceptible to inoculation, abscesses being formed in enormous numbers throughout the tissues. With the attraction of leucocytes there is a necrotic process finally followed by a new growth of connective tissue which finally forms a capsule for each abscess. In the abscesses in the kidneys of rabbits there were found, after the abscess had existed for a time, "Drusen" comparable to the sulphur bodies of the *Actomyces bovis*, but long, cylindrical and contorted, instead of being rounded. From one end projected the loose filaments of the organism, while from the other, or blind end, as well as from the sides of the cylinder, hung club-like structures made up of the swellings of the ends of the filaments. In the centre of many of the cylinders was a crystal of calcium carbonate.

ON VACCINE BODIES IN VARIOLA.

Dr. James Ewing of New York presented this paper.

ON THE ANEMIA AND OTHER EFFECTS PRODUCED BY REPEATED DOSES OF BACILLUS COLI CULTURES OF LOW VIRULENCE (PRELIMINARY).

Dr. George A. Charlton of Montreal spoke on this subject. In these experiments pure cultures of the colon bacillus, isolated from the cecum of a rabbit, were used. Injections of broth cultures twenty-four hours old were made in the ear vein of adult rabbits. Anemia and progressive nerve changes were produced. The changes in the blood are: (1) Marked decrease in number of red blood corpuscles; (2) decrease in percentage of hemoglobin to 15% of normal; (3) slight leucocytosis, increase of 75% of normal; (4) poikilocytosis; (5) appearance of nucleated red cells, microcytes and macrocytes. The nerve changes affected the lower lumbar neurones, gradually progressing upward, and resulted in a complete paresis. A suspension of inoculation during two weeks resulted in considerable increase in red blood corpuscles, disappearance of nucleated reds, and marked improvement in nervous symptoms, only to rapidly relapse again when inoculations were resumed. Autopsies show in the cells of the liver and kidneys deposits of iron and pigment, no fibrosis. Spleen shrunken and of ashen gray color. Intestines free from ulcerations or other evidence of inflammation. Other organs normal. The same form of bacillus as was used in the inoculations was recovered in nearly pure culture from heart blood, bile, urine and liver in all cases. In a few cases the kidneys gave cultures also. Other experiments are being carried on to ascertain the effect of dead cultures, and also of the filtered toxins; the results obtained so far are modifications of those obtained with the pure culture.

ON THE GROWTH OF EPITHELIUM IN AGAR AND BLOOD SERUM IN THE LIVING BODY, WITH MICROSCOPIC DEMONSTRATIONS.

Dr. Leo Loeb of Chicago showed that epithelium transplanted into blood serum can grow. Without developing a carcinoma it can reproduce epithelial structures found in carcinoma: (1) Epithelial pearls form around pieces of blood serum; (2) certain structures are reproduced formerly taken to be parasites; (3) cell-inclusions are found, the epithelium including pieces of blood serum of various sizes. These experiments may help to differentiate degenerative changes found in carcinoma from structures, which may be caused by foreign bodies.

## Recent Literature.

*A Reference Handbook of the Medical Sciences.* Embracing the Entire Range of Scientific and Practical Medicine and Allied Science. By various writers. Edited by Albert H. Buck, M.D. New York: William Wood & Co. 1902.

This volume is the fourth of the new edition of this admirable reference handbook, and with it the set is half published. As we have done before, we again congratulate both the editor and the contributors for the very great care taken not only in the writing, but also in the manner of the publication of the articles. There is apparently no limit set to the number of illustrations, which, with modern methods of accurate reproduction, are always of the greatest value to readers. The illustrations are almost without exception satisfactorily reproduced, and special plate paper is used when necessary to bring out details. A criticism which seems justified is the attempt to reproduce x-ray photographs on ordinary paper. This is never a success, as shown, for example, in Dr. LaGarde's article on gunshot wounds. In general, the volume completely maintains the standard already set by the earlier ones, and we have no doubt that those which are to succeed will prove equally satisfactory.

Smallpox in the United States, as officially reported from Dec. 28, 1901, to April 18, 1902, amounts to 29,304 cases, with 850 deaths. The total for the corresponding period in 1901 was 16,734 cases, with 225 deaths.—*American Medicine.*

THE BOSTON

# Medical and Surgical Journal.

THURSDAY, MAY 1, 1902.

*A Journal of Medicine, Surgery and Allied Sciences, published at Boston, weekly, by the undersigned.*

SUBSCRIPTION TERMS : $5.00 *per year, in advance, postage paid, for the United States, Canada and Mexico ; $6.56 per year for all foreign countries belonging to the Postal Union.*

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283 WASHINGTON STREET, BOSTON, MASS.

## A COURSE IN SCIENCE PREPARATORY TO THE STUDY OF MEDICINE.

HARVARD University has recently taken definite steps to provide a systematic course of instruction for students intending to undertake the study of medicine. To this end a pamphlet has been published under the auspices of the Lawrence Scientific School, outlining a programme of studies, wide in scope, and yet all directed toward the preparation for later medical work. The title given this announcement is "Anatomy and Physiology, A Course in Science Preparatory to the Study of Medicine," and its aims are expressed as follows: "Only those branches of science which are recommended by the Medical Faculty of Harvard University are prescribed, together with two years of instruction in modern languages. Students who desire some work in literature, history, mathematics or arts may elect a course each year in any of those subjects. Students who have satisfactorily completed the required work of the first three years of this programme will be admitted to the Harvard Medical School on leave of absence from the Scientific School. The first year in the Medical School will be counted as the fourth year of this programme. The degree of Bachelor of Science in anatomy and physiology will be conferred on students who have completed this course of study and who have satisfactorily passed the prescribed examinations."

The first year is to be taken up with zoölogy, botany, physics, descriptive inorganic chemistry, rhetoric and English composition, German or French. The second year includes plant and animal morphology, advanced physics, chemistry, with English composition and German or French. In the third year, elementary physiology and hygiene and laboratory work in the comparative anatomy of vertebrates are taken up, along with a course in geology and one in logic and psychology. During these three years three and a half courses of elective study are allowed. The fourth year of the course, taken at the Harvard Medical School, includes the studies usually taken up in the first year of medical work. The requirements for admission are the same as to other departments of the Lawrence Scientific School.

The course above outlined must commend itself to everyone who looks toward the elevation of the standard of preparation of students about to take up the study of medicine. The arrangement of studies has evidently been carefully planned to meet the general demand for preliminary biological and general laboratory training. We regret that more attention has not been paid to the general field of philosophy and psychology, which together are allowed but one prescribed course. It requires no very distant vision to see that one of the great fields of research in medicine in the near future will lie in the domain of mental disease and allied conditions. We need to begin at once to train men for this difficult work in lines which go beyond the ordinarily accepted bounds of biological and physical science.

## REPORT OF THE MASSACHUSETTS BOARD OF REGISTRATION IN MEDICINE.

THE eighth annual report of this board is before us. Under many difficulties and with pressure brought to bear from various sources, it has consistently maintained a high standard, and continued to reject unworthy and improperly prepared candidates. This is as it should be; if such a board of registration have any significance, it lies in the fact that it offers a certain bar to the indiscriminate demand constantly being made for permission to practise medicine in this State. There should be absolutely no relaxation of vigilance in this regard, whatever the demands of unscrupulous and designing persons may be for a lowering of the standard. So far as we have been able to judge, the examinations set are comprehensive and fair, and should be passed by an ordinarily intelligent and well-trained man. That a goodly number fail each year is no reflection on the work of the Board of Registration.

The number of persons who applied for registration in 1901 was 342, of whom 303 passed satisfactorily. One hundred and one applicants of the rejected list of this and previous years were re-examined, of whom 35 have been registered. A comparison of the figures shows that 152 applicants graduated from medical schools within the State, of whom 67 failed to secure registration; of 150 graduating from other schools, 16% failed. It is of interest to note that in spite of the fact

that the rigidity of the examination is greater than three years ago, yet the whole number of rejected candidates was less, showing a rising standard of medical education in the schools of New England, from which, naturally, the candidates chiefly come.

The work of registration by written examinations began with the year 1895. Since then the board has given 3,390 individual examinations and has issued 2,636 certificates, an annual average of 376. Seven hundred and fifty-four unsatisfactory examinations have been held, being an annual average of 109. As a result, the number of registered physicians now in practice in Massachusetts is approximately 4,500, or an average of one to every 625 inhabitants.

This last statement is sufficiently appalling to lead us to express the sanguine hope that the Board of Registration will maintain and, if possible, continue to increase the requirements demanded of a registered physician. Such action is not only a boon to the community, but also to those men who are seeking to fill positions for which they are intellectually incompetent.

## ORGANIZED CANCER RESEARCH.

ENGLAND has finally taken systematic steps to join in the work of research on the etiology of cancer, which has now for several years been one of the main objects of scientific investigation in many parts of the world. A scheme of organized research on cancer was formerly adopted by the Royal College of Physicians of London on March 24, and later received the approval of the Royal College of Surgeons of England. It was voted that steps be taken to provide, equip and maintain laboratories exclusively for cancer research; to encourage investigation in British dominions outside of England; to assist in the development of cancer research departments in various hospitals; and finally to provide means for systematic investigation in other directions into the causes, prevention and treatment of the disease. The scheme further provides that, if the object of the fund which has been raised be attained by the discovery of the nature and cause of cancer, the money shall be further utilized either for equipping certain hospitals for the treatment of cancer or for further research into other diseases.

A somewhat elaborate plan for officers, executive committee, general committee and working and consulting staff has also been suggested, the details of which may be found in the *British Medical Journal* for April 12. So encouraging has been the appeal for funds to carry on this work that the *British Medical Journal* entertains no further doubt that ample provision will be made in the near future for the investigations above outlined.

Attention is also drawn to the fact that the want of co-operation among various investigators on this important subject has led to a great loss of power. It is hoped, therefore, that by giving the largest possible scope to investigations, and by including any line that offers even a small possibility of addition to our general knowledge, definite conclusions, both of positive and negative character, may soon be reached. As a further means to this end the British scheme includes a provision for the establishment of a system of intercommunication of workers in various countries. The hope is expressed that observations wherever made will regularly be communicated to other workers in the same field. At the present time, for example, a collective investigation on cancer is being made under the direction of Professor von Leyden of Berlin. Dr. Roswell Park of Buffalo has recently made an effort to organize an international commission in America, and much excellent work is being done in Boston and at other centres of medical investigation.

It rarely happens that any one subject excites such a wide-spread interest as this investigation into cancer has apparently done. For this reason, if for no other, it is certainly altogether desirable, as the *British Medical Journal* suggests, that no unnecessary work be done, and that what work is accomplished of positive value should at once become the property of all other workers in the same field. Theoretically such a plan is altogether to be commended. How it may practically work to a conclusion it is naturally impossible to say, but we are confident that a spirit of co-operation in such a matter is altogether to be encouraged.

## MEDICAL NOTES.

NURSES' MOVEMENT FOR REGISTRATION IN NEW YORK STATE.— The New York State Nurses' Association completed its organization at a meeting held in Albany on April 15, electing officers, trustees and committees. The society is now ready to consider the question of legislation for registration, which will ultimately place training schools for nurses under the supervision of the regents, establishing thereby a more uniform basis of nursing education in the State, and eventually making trained nursing a recognized profession.

CHOLERA IN THE PHILIPPINES.— It is reported from Manila that the situation as regards cholera is not improving. Some cases are reported among the American soldiers in the Camarines provinces of southern Luzon and elsewhere, but up to this

time few Americans have been attacked. In Manila there have been 555 cases and 449 deaths, while the provinces report 1,599 cases and 1,169 deaths, according to a despatch dated April 28.

First Egyptian Medical Congress.— This congress will be held from Dec. 19 to Dec. 23, 1902, at Cairo, under the patronage of the Khédive. Various reductions in steamship fares and other expenses are promised. Dr. William Osler has assumed the presidency of the American National Committee.

BOSTON AND NEW ENGLAND.

Acute Infectious Diseases in Boston.— For the week ending at noon, April 30, 1902, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: Diphtheria 28, scarlatina 19, measles 163, typhoid fever 13, smallpox 39.

Recommendations of Boston Insane Hospital Trustees.— In their recently published annual report the trustees of the Boston Insane Hospital make the following statement: "After careful consideration the trustees have decided that the most urgent need of the hospital is a suitable provision for the proper classification and care of cases of insanity that are curable. They believe that in caring for curable cases of insanity no means or expense should be spared to secure recoveries and that the percentage of recoveries is of more importance than the cost per patient. The care that a patient first receives oftentimes decides the question of his recovery. The importance of this matter is made evident by statistics which show that the average duration of life of the chronic insane is from fifteen to twenty years and that the expense to the community for maintenance for a pauper insane person during his lifetime is three or four thousand dollars. Accordingly the trustees are having plans prepared for buildings suitable for the care of acute and curable cases of insanity. Plans have been drawn for an observation building, in which all cases that require special watching can be placed. This building will provide for thirty-two patients. Plans have also been drawn for a building to accommodate twenty excited patients."

Boston Health Statistics.— The number of deaths reported to the Board of Health for the week ending April 26 was 207, as against 246 the corresponding week last year, showing a decrease of 39 deaths, and making the death-rate for the week 18.8. The number of cases and deaths from infectious diseases is as follows: Diphtheria 46 cases, 4 deaths; scarlatina 10 cases, 1 death; typhoid fever 8 cases, 1 death; measles 134 cases, 3 deaths; tuberculosis 14 cases, 25 deaths; smallpox 51 cases, 3 deaths. The deaths from pneumonia were 27; whooping cough, 2; heart disease, 18; bronchitis, 6; marasmus, 1. There were 12 deaths from violent causes. The number of children who died under 1 year was 33; under 5 years, 49; persons more than 60 years, 46; deaths in public institutions, 66.

Legality of Compulsory Vaccination.— In the Superior Criminal Court recently, a resident of East Boston was found guilty of refusing to allow the Board of Health to vaccinate his infant and also for refusing to submit to vaccination himself, basing his contention on the ground that vaccination is useless as a preventive of smallpox and is a peril to health. He further contended that the compulsory vaccination law is unconstitutional. The presiding judge, Sheldon, declined to so rule, and it is said the question of the constitutionality of the statute will go to the Supreme Court for its decision.

Smallpox in Malden, Mass.— Six new cases of smallpox have recently developed in Malden, all traced to a single person. The cases are of a mild form.

NEW YORK.

Endorsement of Work of Health Department in the Production of Antitoxins and Vaccine Virus.—At a meeting held April 21 the New York County Branch of the New York State Medical Association endorsed the work done by the Health Department in producing for sale or free distribution antitoxins and vaccine virus. The president of the Board of Health has sent to Mayor Low a report of the production, sale and free distribution by the department during the past three years. This report was prepared in answer to the remarks made by Barton S. Weeks, representing a number of drug trade journals, at a meeting in the mayor's office on April 17. He also presented to the mayor a petition signed by 1,100 physicians protesting against the production of antitoxin and virus by the Health Department. In the report Commissioner Lederle showed that the value of these produced by the department was $67,414 in 1899, $101,230 in 1900, and $116,167 in 1901. In 1899 the amount distributed free was two and a half times greater than the amount sold; in 1900 a little over twice as great, and in 1901 one and a half times as great.

Action Against Metropolitan Life Insurance Company.— In an action in the Municipal Court, brought by Ellen Trudden, as administratrix, against the Metropolitan Life Insurance Company, to recover upon a policy on the life of George Hayes, the defense was that Hayes had falsely stated in the application for insurance that he had never had kidney disease, and had

not been attended by a physician for two years previously. A physician, however, testified that for a year before Hayes was insured he had treated him for disease of the kidneys. This testimony was uncontradicted and unimpeached, and the Second Appellate Division of the New York Supreme Court has now decided, on appeal, that it should not have been submitted to the jury. In his opinion the presiding justice says that the facts stated should have been treated as established, and quotes the following language from another Appellate Division case: "It has often been held that the credibility of the uncontradicted testimony of a party is a question for the jury. So is the credibility of every witness, interested or disinterested; but a jury is not at liberty to disregard the evidence of any witness who is in nowise impeached, and whose testimony is such that its truth is highly probable."

LEGAL PROHIBITION OF UNPROFESSIONAL MENTAL HEALING.— At a meeting of the Society of Medical Jurisprudence held April 14 C. M. Demond of the New York bar read a paper on "Legal Prohibition of Unprofessional Mental Healing," which was followed by an interesting discussion. The exploiters of the delusion of Christian Science, he said, take little pains to conceal their eagerness for easily acquired money. The sufferings of the poor, whether real or imaginary, do not interest them in the slightest. He advocated an amendment to the present law, prohibiting medical attendance by anyone not a physician. At the conclusion of the discussion a committee was appointed to draw up a bill in accordance with the views expressed, for presentation at the next session of the legislature.

MEETING OF MEDICAL ASSOCIATION OF GREATER CITY OF NEW YORK.— At the meeting of the Medical Association of the Greater City of New York on April 14 Dr. Edward Fridenberg presented a patient cured of a high degree of myopia by an operation for the artificial production of a cataract, followed by the removal of the latter. The result in this case was eminently satisfactory. The patient, who was unable to wear glasses, had been obliged to give up his occupation, that of a bookbinder, on account of his extreme myopia, and now has an excellent degree of vision. At the same meeting Dr. Robert F. Weir, ex-president of the society, who has recently returned from an extended tour in the East, presented to the association a gavel handsomely mounted in silver. It was, he said, made in Manila, where the natives do very excellent work in wood carving.

APPOINTMENT OF DR. H. M. BIGGS.— At a meeting of the Board of Health held April 16 Dr. H. M. Biggs, director of the bacteriological laboratory of the department, was appointed medical officer of the board, at a salary of $5,000 per annum. The position of medical officer is a new one, created by the present municipal administration, and certainly no more admirable appointment to it could have been made than that of Dr. Biggs. It seems extraordinary, however, that Mayor Low, when he had the opportunity, did not select for president of the health department some such specially qualified physician as Dr. Biggs, instead of a layman. In that case there would have been no occasion for making this new office, and the city would have been saved the expense of paying a superfluous salary of considerable size.

REPORT OF NEW YORK STATE HOSPITAL FOR CRIPPLED AND DEFORMED CHILDREN.— The first report has just been issued of the New York State Hospital for the Care of Crippled and Deformed Children, situated at Tarrytown on the Hudson, of which Dr. Newton M. Shaffer of New York is surgeon-in-chief. It embraces a period of ten months, during which there were sixty-two applicants for admission; but Dr. Shaffer thinks there is every indication that before many years, as the work of the hospital becomes better known and appreciated among the poor, it will be called upon to provide for 500 patients. He calls attention to the remarkable improvement shown in the cases treated over what might have been expected of similar ones in a city hospital, and expresses the opinion that the good work of the institution might be more widely extended if a large tract of land could be provided for it in some such place as the hills of Westchester County. Reports of twenty-four cases are given, in several of which the children were entirely cured.

HONORARY APPOINTMENTS ON THE BOARD OF HEALTH.— On April 24 the president of the Board of Health announced the following appointments to honorary offices in the department: Daniel Draper, Ph.D., Consulting Meteorologist; Dr. George H. Fox, Dermatologist; Dr. Clarence C. Rice, Laryngologist; Dr. Arthur B. Deuel, Otologist; Dr. George F. Shrady, Consulting Surgeon.

## Miscellany.

### THE SIGNIFICANCE OF BLUE PIGMENT SPOTS.

DR. BAELZ, a German physician in Tokio, who has been repeatedly decorated by the Mikado, upon whom he has attended, seems to have made a discovery of great interest in anthropology.

Others before him had noticed the blue spots which Japanese babies have on the lower part of their spine and elsewhere, and which usually disappear before the age of six, but no one before him, so far as is known, had interpreted and set forth this phenomenon as a peculiarity of the yellow race in contradistinction to the white race. In Korean and Chinese children, in Malays and Eskimos, these blue spots have also been found. They are not visible on European children, but the pigment cells have been found microscopically. Dr. Baelz says: "The white, the yellow, and the black man have all the same kind of coloring matter in their skins; the difference is only a matter of degree. In the white the pigment does not show, or hardly shows at all, to the naked eye; in the yellow it is a little more abundant, hence the yellow tint; and the more abundant it is, the darker the skin will look until we reach the negro." In Euro-Japanese children, if the offspring resembles the fair-haired, blue-eyed parent, it has no spots at all; if the influence of the Japanese and the foreign parent is about equal, the spots are there though more or less indistinct. But if the Japanese characteristics prevail generally, the spots are almost as well marked as in a Japanese baby. While apes have the same blue spots, and certain monkeys blue callosities on the buttocks, Japanese children have sometimes one-half of their bodies covered with them. Dr. Baelz believes that the blue spots form a most important racial characteristic, and will not acknowledge that the configuration of the eyelids or of the earlobes is of anything like equal value.— *The Nation.*

## Obituary.

### THEODORE WALSER, M.D.

Theodore Walser, M.D., for several years sanitary superintendent of the Borough of Richmond, New York City, died on April 23. He was the oldest practising physician on Staten Island, having located there in 1851. He was born in Gottlieben, Switzerland, April 25, 1825, and was graduated from the Jefferson Medical College, Philadelphia, in 1850. For a time he was assistant physician at the institutions on Ward's Island and was then appointed deputy health officer of the port of New York. He held that position when the Quarantine Hospital buildings on Staten Island were set on fire by the residents of the neighborhood. For many years he was health officer of the old village of New Brighton, holding that appointment up to the time when Staten Island was incorporated in the city of New York as the Borough of Richmond. Dr. Walser was an authority on contagious diseases. During a smallpox epidemic several years ago he volunteered his services to the State, and in the last outbreak of cholera he did good service, also as a volunteer, at the quarantine hospitals on Hoffman and Swinburn Islands. He was one of the founders of the S. H. Smith Infirmary at New Brighton, the only general hospital on Staten Island, and for many years was an attending physician there. One of his sons is Dr. William C. Walser of Livingston, Staten Island. Dr. Walser has been the third sanitary superintendent of the Borough of Richmond to die within four years while serving in that capacity.

## METEOROLOGICAL RECORD

For the week ending April 19, in Boston, according to observations furnished by Sergeant J. W. Smith of the United States Signal Corps:

| Date | Barometer. Daily mean. | Thermometer. Daily mean. | Thermometer. Maximum. | Thermometer. Minimum. | Relative humidity. 8.00 A.M. | Relative humidity. 8.00 P.M. | Relative humidity. Daily mean. | Direction of wind. 8.00 A.M. | Direction of wind. 8.00 P.M. | Velocity of wind. 8.00 A.M. | Velocity of wind. 8.00 P.M. | We'th'r * 8.00 A.M. | We'th'r * 8.00 P.M. | Rainfall in inches. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S...13 | 29.70 | 48 | 54 | 41 | 64 | 68 | 66 | W | W | 12 | 18 | F. | C. | |
| M..14 | 29.96 | 43 | 51 | 35 | 64 | 68 | 66 | N | N W | 16 | 12 | C. | O. | |
| T..15 | 30.10 | 47 | 60 | 34 | 50 | 54 | 52 | N W | W | 10 | 8 | C. | C. | |
| W.16 | 30.06 | 50 | 59 | 41 | 48 | 50 | 49 | S W | W | 9 | 6 | F. | C. | |
| T..17 | 29.96 | 47 | 52 | 42 | 69 | 54 | 62 | S E | S | 8 | 6 | C. | C. | |
| F..18 | 30.02 | 47 | 53 | 41 | 75 | 71 | 73 | S | W | 8 | 5 | C. | O. | T. |
| S...19 | 30.08 | 50 | 61 | 40 | 60 | 67 | 64 | S W | W | 10 | 3 | C. | C. | |
| ☞ | 29.98 | | 56 | 39 | | | 62 | | | | | | | |

* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow. † Indicates trace of rainfall.
☞ Mean for week.

## RECORD OF MORTALITY

For the Week ending Saturday, April 19, 1902.

| Cities. | Population * Estimated, 1902. | Reported deaths in each. | Deaths under five years. | Percentage of deaths from: Infectious diseases. | Acute lung diseases. | Diphtheria and croup. | Typhoid fever. | Cerebro spinal meningitis. |
|---|---|---|---|---|---|---|---|---|
| New York . . | 3,665,352 | 1,345 | 429 | 26.17 | 13.68 | 3.12 | .59 | .22 |
| Chicago . . | 1,852,828 | 529 | 143 | 21.54 | 17.39 | 1.32 | .75 | — |
| Philadelphia. | 1,349,624 | 463 | 110 | 20.52 | 14.69 | 1.72 | 2.16 | — |
| St. Louis . . | 603,717 | — | — | — | — | — | — | — |
| Baltimore . . | 525,330 | 176 | 58 | 24.42 | 18.17 | 1.70 | 1.70 | — |
| Cleveland . . | 411,826 | — | — | — | — | — | — | — |
| Buffalo . . . | 375,742 | — | — | — | — | — | — | — |
| Pittsburg . . | 341,401 | 166 | 67 | 25.88 | 22.88 | 1.20 | 6.60 | .60 |
| Cincinnati . | 332,032 | — | — | — | — | — | — | — |
| Milwaukee . | 304.975 | — | — | — | — | — | — | — |
| Washington . | 289,537 | — | — | — | — | — | — | — |
| Providence . | 185,870 | 73 | 22 | 17.81 | 22.29 | 2.74 | — | — |
| Boston . . . | 588,736 | 243 | 74 | 25.50 | 13.57 | 3.71 | 1.64 | 2.05 |
| Worcester. . | 127.337 | 41 | 19 | 14.63 | — | — | — | 2.44 |
| Fall River. . | 111.872 | — | — | — | — | — | — | — |
| Lowell . . . | 99,574 | 40 | 14 | 12.50 | 15.00 | 5.00 | — | — |
| Cambridge . | 96,334 | 20 | 6 | 35.00 | 15.00 | 5.00 | — | — |
| Lynn. . . . | 71,144 | 19 | 8 | 15.78 | — | 5.26 | — | 5.26 |
| Lawrence . . | 67,275 | 19 | 9 | 15.78 | 26.30 | — | — | — |
| Springfield . | 66,854 | 12 | 4 | 8.33 | 8.33 | — | — | — |
| Somerville . | 65,882 | 18 | 5 | 27.77 | 22.22 | — | — | 5.55 |
| New Bedford. | 65,574 | 21 | 13 | 4.76 | 9.52 | — | — | 4.76 |
| Holyoke . . | 48,065 | 9 | 3 | 22.22 | 11.11 | — | — | — |
| Brockton . . | 43,208 | 14 | 3 | 28.96 | — | 14.28 | 7.14 | — |
| Haverhill . . | 40,392 | 14 | 4 | 14.28 | 28.96 | — | — | — |
| Salem . . . | 36,567 | 10 | 2 | 10.00 | — | — | — | — |
| Newton. . . | 36,336 | 5 | 3 | 20.00 | — | — | — | — |
| Malden . . . | 35,390 | 11 | 3 | 9.09 | — | — | — | — |
| Chelsea. . . | 35,264 | 10 | 3 | — | — | — | — | — |
| Fitchburg . . | 33,848 | 4 | 2 | — | — | — | — | — |
| Taunton . . | 32,759 | 12 | 1 | 16.67 | 25.00 | — | — | — |
| Everett . . . | 27,114 | 7 | 3 | 42.90 | — | — | — | — |
| North Adams | 26,583 | 7 | 1 | — | 16.67 | — | — | — |
| Gloucester . | 26,121 | — | — | — | — | — | — | — |
| Quincy . . . | 25,307 | 6 | 1 | 16.67 | 16.67 | — | — | — |
| Waltham . . | 24,612 | 7 | 2 | 14.30 | — | — | — | — |
| Pittsfield . . | 22,311 | 7 | — | — | 28.60 | — | — | — |
| Brookline . . | 21,679 | — | — | — | — | — | — | — |
| Chicopee . . | 20,390 | 8 | 5 | — | 12.50 | — | — | — |
| Medford . . | 20,014 | — | — | — | — | — | — | — |
| Newburyport | 14,478 | 5 | — | 20.00 | — | — | — | — |
| Melrose . . | 13,384 | 7 | 1 | — | — | — | — | — |

* The populations of the cities outside of Massachusetts were estimated on the basis of the rate of growth from 1890 to 1900. Those of the Massachusetts cities were estimated upon the rate of growth from 1895 to 1900, since the State had an intermediate census in 1895. The populations of Gloucester, Marlborough and Newburyport were allowed to stand as in 1900, they having suffered a slight decrease during the five-year period.

Deaths reported 3,376; under five years of age, 1,032; principal infectious diseases (smallpox, measles, scarlet fever,

cerebrospinal meningitis, diphtheria and croup, diarrheal diseases, whooping cough, erysipelas, fevers and consumption) 779, acute lung diseases 512, consumption 382, scarlet fever 58, erysipelas 18, typhoid fever 42, whooping cough 32, cerebrospinal meningitis 13, smallpox 16, measles 46, diarrheal diseases 86, diphtheria and croup 80.

From whooping cough, New York 10, Chicago 7, Philadelphia 5, Baltimore 3, Pittsburg 4, Worcester, Lowell and Cambridge 1 each. From cerebrospinal meningitis, New York 3, Pittsburg 1, Boston 5, Worcester, Lynn, New Bedford and Somerville 1 each. From scarlet fever, New York 30, Chicago 17, Philadelphia 5, Pittsburg 2, Providence 1, Boston 3. From erysipelas, New York 7, Chicago 6, Philadelphia 1, Boston 3, Somerville 1. From smallpox New York 8, Philadelphia 1, Providence 2, Boston 4, Somerville 1.

Beginning with January, 1902, the term "great towns" as employed in the Registrar General's Weekly Return of births and deaths includes the seventy-five municipalities of England and Wales which have a population of more than 50,000 in each.

In the seventy-six great towns of England and Wales, with an estimated population of 14,862,003, for the week ending April 5, the death-rate was 17.6. Deaths reported 5,010; acute diseases of the respiratory organs (London) 317, whooping cough 128, diphtheria 72, measles 171, smallpox 77, scarlet fever 42.

The death-rate ranged from 9.3 in Bournemouth to 29.2 in Burnley; London 17.9, West Ham 17.0, Croydon 17.0, Brighton 18.4, Portsmouth 15.5, Southampton 19.3, Bristol 17.6, Birmingham 18.0, Leicester 17.8, Nottingham 19.1, Birkenhead 15.3, Liverpool 21.5, Manchester 19.2, Salford 16.3, Bradford 15.7, Leeds 21.5, Sheffield 17.0, Hull 17.8, Newcastle-on-Tyne 21.2, Cardiff 15.1.

## CHANGES IN THE MEDICAL CORPS OF THE NAVY FOR THE WEEK ENDING APRIL 5, 1902.

B. R. WARD, passed assistant surgeon. Detached from the Boston Navy Yard, and ordered to the "Lancaster."

R. A. BACHMANN, assistant surgeon. Appointed assistant surgeon from March 20, 1902.

E. V. ARMSTRONG, passed assistant surgeon. Granted sick leave for six months.

C. O'LEARY, pharmacist. Retired from active service, April 25, 1902, having reached the age of sixty-two.

D. N. CARPENTER, passed assistant surgeon. Ordered to Naval Hospital, Newport, R. I., for temporary duty.

W. E. GRIFFIN, assistant surgeon. Detached from Naval Hospital, Newport, R. I., and ordered to accompany a detachment of Marines to the Philippines.

H. C. CURL, assistant surgeon. Ordered to the Naval Hospital, Mare Island, Cal.

M. V. STONE, assistant surgeon. Detached from the Naval Hospital, Mare Island, Cal., and ordered to the "Constellation."

R. A. BACHMANN, assistant surgeon. Ordered to the Naval Academy.

## OFFICIAL LIST OF THE CHANGES OF STATION AND DUTIES OF COMMISSIONED AND NON-COMMISSIONED OFFICERS OF THE U. S. MARINE HOSPITAL SERVICE FOR THE SEVEN DAYS ENDING APRIL 3, 1902.

STONER, G. W., surgeon. Granted leave of absence for one day. March 29, 1902, under paragraph 179 of the regulations.

CARTER, H. R., surgeon. Granted leave of absence for six days from April 1, 1902, under paragraph 179 of the regulations.

BROOKS, S. D., surgeon. Granted leave of absence for one day. March 31, 1902. March 29, 1902.

### PROMOTIONS.

Junior Pharmacist Charles G. Carlton, to be senior pharmacist from Jan. 13, 1902.

Junior Pharmacist H. E. Davis, to be senior pharmacist from Feb. 10, 1902.

Junior Pharmacist R. F. Troxler, to be senior pharmacist from March 13, 1902.

Junior Pharmacist J. E. Beck, to be senior pharmacist from March 15, 1902.

## SOCIETY NOTICES.

AMERICAN ACADEMY OF MEDICINE. The twenty-seventh annual meeting of the American Academy of Medicine will be held at Saratoga, June 7 to June 9, 1902.

MISSISSIPPI VALLEY MEDICAL ASSOCIATION.—The twenty-eighth annual meeting of the Mississippi Valley Medical Association will be held in Kansas City, Mo., Oct. 15, 16, 17, 1902.

Dr. C. B. Parker, of Cleveland, O., will deliver the address in Surgery and Dr. Hugh T. Patrick of Chicago the address in Medicine.

Titles of papers should be sent to the secretary, Dr. Henry Enos Tuley, 111 W. Kentucky St., Louisville, Ky., at as early a date as possible to obtain a favorable place on the program.

CONGRESS OF NATURAL PHILOSOPHERS AND PHYSICIANS.—Between Sept. 21 and Sept. 28, 1902, the Association of Natural Philosophers and Physicians will hold its seventy-fourth annual congress at Carlsbad, Austria. As on former occasions lectures and debates may be carried on in any language of the world.

ASSOCIATION OF AMERICAN MEDICAL COLLEGES.—The next meeting of the Association of American Medical Colleges will be held at such place as the local committee may designate in Saratoga, Monday, June 9, at 10 A.M., under the presidency of Dr. Victor C. Vaughan.

SCHOOL OF INSTRUCTION FOR HEALTH OFFICERS.—The State of New Hampshire School of Instruction for Health Officers and Sanitary Conference, under the auspices of the State Board of Health and the New Hampshire Association of Boards of Health, will be held at the State House, at Concord, on Tuesday, Wednesday and Thursday, April 29, 30 and May 1, 1902.

## RECENT DEATH.

DR. GEORGE E. HARRISON of Springfield, Long Island, died in St. Luke's Hospital, New York, on April 24, of cardiac disease. He was forty-four years of age, and a native of Cleveland, O. In 1873 he became a cadet at the U. S. Naval Academy at Annapolis from the Second Congressional District of Michigan. At the end of his third year at the academy he left in order to study medicine, and was graduated in Chicago.

## BOOKS AND PAMPHLETS RECEIVED.

Traumatic Arterio-Venous Aneurysms of the Subclavian Vessels. By Rudolph Matas, M.D., New Orleans. Reprint. 1902.

Massive Infiltration Anesthesia with Weak Analgesic Solutions (Modified Schleich Method.) By Rudolph Matas, M.D. Illustrated. Reprint. 1901.

Fifth Annual Report of the Trustees of the Boston Insane Hospital for the Year Ending January 31, 1902. Illustrated. Boston: Municipal Printing Office. 1902.

The Treatment of Abdominal Aortic Aneurism by Wiring and Electrolysis. A Critical Study of the Method Based upon the Latest Clinical Data. By Rudolph Matas, M.D., Professor of Surgery, Medical Department, Tulane University, of Louisiana; Visiting Surgeon to the Charity Hospital of New Orleans, etc. Reprint. 1900.

Clinical Contributions: I. Papillo-Retinitis due to Chlorosis: II. Two Cases in which Eye Strain was Relieved by Vertical Decentration of Lenses. By Cassius D. Wescott, M.D., Assistant Professor of Ophthalmology, Rush Medical College, and Brown Pusey, M.D., Late House Surgeon, New York Eye and Ear Infirmary. Reprint. 1902.

The Clinical Study of the Blood. A Brief Guide to the Application of Blood Examination to Medicine and Surgery. By Irving Phillips Lyon, M.D., Buffalo, N. Y., Instructor in Clinical Medicine, University of Buffalo; Clinical Pathologist to the New York State Pathological Laboratory, University of Buffalo, and to the German Deaconess Hospital, Buffalo. Illustrated. Reprint. 1901.

Diseases of the Intestines, their Special Pathology, Diagnosis and Treatment, with Sections on Anatomy and Physiology, Microscopic and Chemic Examination of the Intestinal Contents, Secretions, Feces and Urine, Intestinal Bacteria and Parasites, Surgery of the Intestines, Dietetics, Diseases of the Rectum, etc. By John C. Hemmeter, M.D., Philos.D. In two volumes. Vol. II. Illustrated. Philadelphia: P. Blakiston's Son & Co. 1902.

Bionomics. Experimental Investigations with Bacillus Sanarelli, and Experimental Investigations with Malaria, in Connection with the Mosquitoes of New Orleans. By Prof. George E. Beyer, Department of Biology of Tulane University; Dr. O. L. Pothier, Pathologist to Charity Hospital, etc.; Dr. M. Couret, Assistant Pathologist to Charity Hospital, and Dr. I. I. Lemann, Assistant Demonstrator of Microscopy, N. O. College of Dentistry. Illustrated. Reprint. 1902.

## Original Articles.

# THE PATROL AMBULANCE AN ADJUNCT TO THE AMBULANCE SERVICE IN CITIES; A SUBSTITUTE THEREFOR IN TOWNS.[1]

BY FRANCIS D. DONOGHUE, M.D., BOSTON,

*Chairman Committee on Lectures to Police and Firemen, Massachusetts Emergency and Hygiene Association.*

The history of ambulances for military purposes goes back to the time of Napoleon, but the attempt was not made until 1869 to use ambulances in civil life.

The theory of the hospital had always been, and is now, to a lesser degree, that the hospital staff was responsible only for the care and treatment of patients within its gates. It did not concern itself with the means by which the sick or injured reached the hospital. The push-cart, delivery wagon and the public hack have all been used for conveyance, although a majority of patients have staggered in alone or supported by friends.

Bellevue, in 1869, was the first city hospital to use an ambulance in connection with its work. This ambulance and all which have followed it differ from the heavy army ambulance, built to carry three or four men at a time over rough country, by being devised for speed, the first consideration in a city service. From this beginning the New York service has developed, until today it may safely be taken as a model. Boston, however, is not lacking in transportation facilities for cases of illness or accident, and while the municipality has done little directly for an ambulance service, yet a system has been built up which, except for the feature of ambulance surgeons, cannot be excelled even by New York, while the New York lack of facilities for summoning an ambulance does not exist here.

With the growth of towns and cities outside of the great centres, and the development of local hospitals, has arisen a demand for transportation facilities which it has been hard to meet, principally on account of cost. The result has been that in many of our larger cities private individuals have purchased ambulances or substitutes therefor, and have supplied transportation to such sick or injured as could pay for it.

The demand for prompt aid for the injured in Boston and elsewhere has led to the formation of emergency hospitals, under the control of private individuals or small corporations, who, for annual contributions, are willing to give treatment and care. These institutions, however, have not confined themselves to the work which they were formed to carry out, and have injured their usefulness by developing a commercial instinct, which alienated from their support most of the profession.

Some years after the introduction of ambulances, cities found it necessary to provide means for transporting arrested persons to places of detention, also means for transporting bodies of police to points of excitement or disturbance. This led to the formation of a system, connected with the Police Department, known as the Patrol Wagon System, and the usefulness of these wagons was later greatly increased by the introduction of the Police Signal Service.

It is not the purpose of this paper to show how an ambulance service can be developed as an adjunct of the modern hospital, or to enter into the details of ambulances for districts, or in connection with first-dressing stations. It is simply to show the development of one phase of first aid work which has been accomplished by the combined efforts of the Massachusetts Emergency and Hygiene Association and the Police Department of Boston.

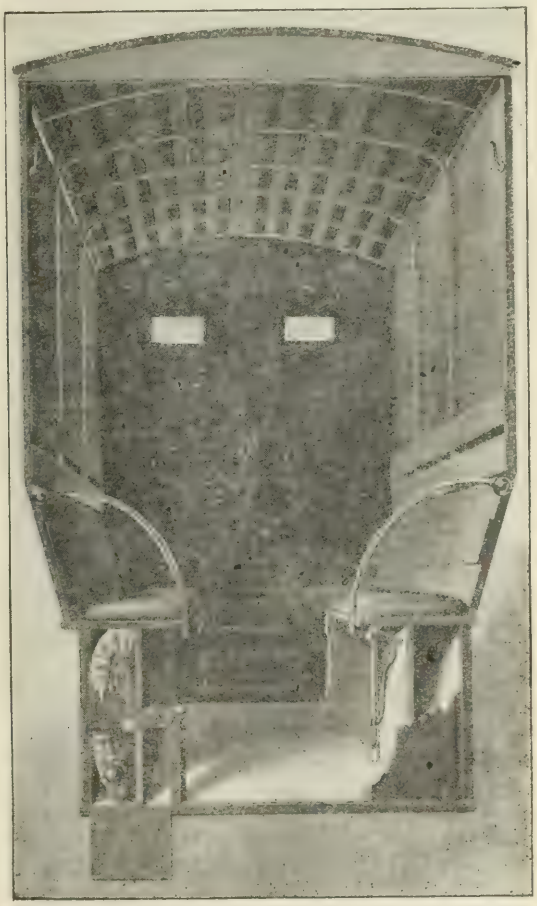


FIG. 1.—Shows interior of first type of patrol wagon. Box open on left showing method of carrying stretcher and mattress. On right is shown supports for hinged seat folded back.

In 1898, while recovering from a severe illness, I was a witness of an accident on the street in front of my window. The man was evidently severely injured (a fracture of the leg, I afterwards learned), and it interested me to note that forty minutes elapsed before the ambulance appeared. That fall I made a careful examination of the six police ambulances and twelve patrol wagons in

[1] Read by invitation before the Boston Society for Medical Improvement Jan. 6, 1902.

Boston, with a view to diminish the time that accident cases could be left untreated.

The report made to the Massachusetts Emergency Society in 1899 marks the beginning of our present system of patrol wagon ambulances, or, rather, patrol ambulances.

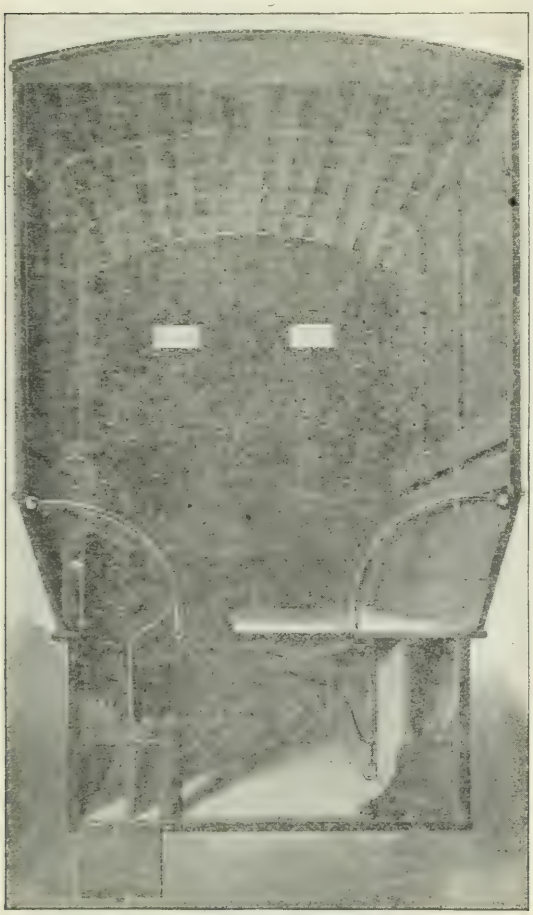


FIG. 2.—Same as Fig. 1, showing seat unfolded, resting upon supports. Width of unfolded seat twenty-eight inches.

It was recommended to the Police Department at that time that the patrol wagons be rubber-tired; water and dust proof first-aid dressing-packets be supplied; and that these wagons, already equipped with stretchers and slings, should be used to transport accident cases when a regular ambulance could not readily be obtained.

To test the recommendation, the oldest wagon in the department was equipped, and finding that slings for the stretcher were not needed with a rubber-tired wagon, a folding seat was devised, on which the stretcher with a mattress could be placed. This proved entirely satisfactory, and in the first ten months of use 260 accident cases were carried in it, either to their homes or to a hospital. This wagon was of the old covered express-wagon type, with two steps. The interior arrangements of this (Figs. 1 and 2), as well as the other type of wagon in use at that time, are shown by the reproductions (Figs. 3, 4 and 5). The other type of wagon in use was built with a lower running gear and had but one step (Fig. 5).

In making the interior changes in this type of wagon it was found that a drop seat would obviate lifting the patient in and out at such an acute angle, so the box on one side was taken out and the seat arranged so it could be easily dropped and the patient put in on a mattress on the floor (Figs. 3, 4 and 5).

With all wagons in Boston changed, we have on call, counting additions, nine ambulances and fifteen wagons (the same for all practical purposes as ambulances), and the extreme limit of time that any case can remain without transportation, after notifying a policeman or the Police Department by telephone, is reduced to seven minutes.

A patrol ambulance now responds to first-alarm fires and an ordinary ambulance is sent for the second.

The only thing lacking in this system is the ambulance surgeon, but as the driver and helper of each wagon hold a diploma for emergency work, few cases can be said to suffer from this lack.

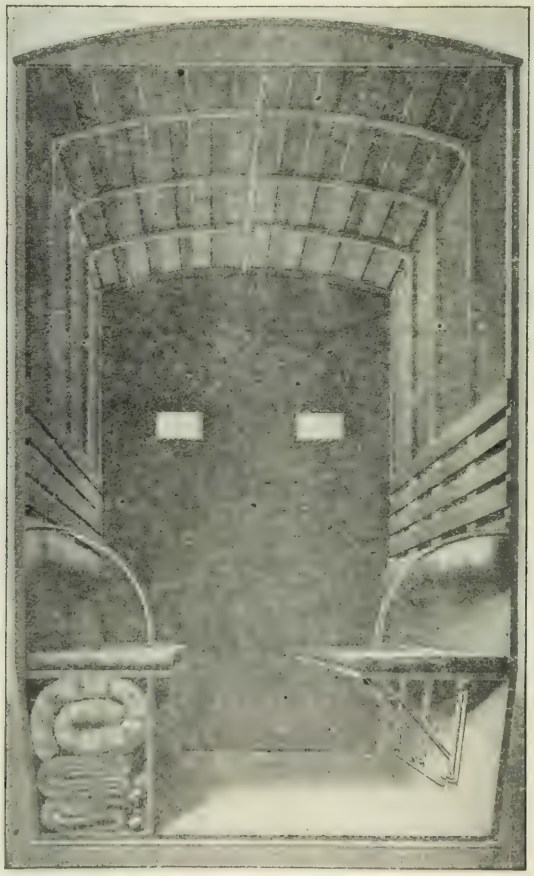


FIG. 3.—Second type of wagon, with wide body. Mattress and stretcher carried in box on left. Seat on right held by supports.

Last year, after seeing what had already been accomplished by the modified wagon, the Police Department placed an order for a patrol ambulance, and the first combination wagon was con-

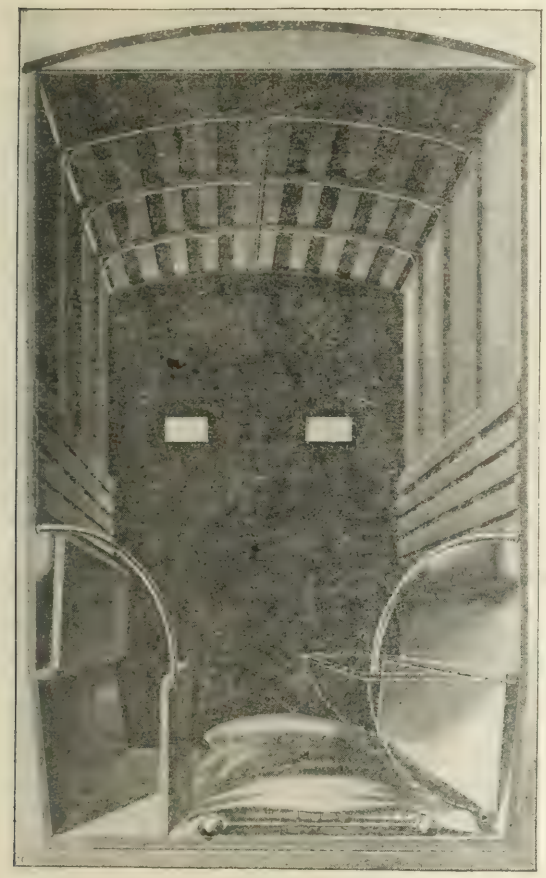


Fig. 4.— Same as Fig. 3. Supports folded back; seat dropped. Mattress on stretcher on floor.

structed. A later built wagon differs from this only in detail (Figs. 6 and 7).

The points of interest about this are: First, weight, which, including two-inch rubber tires, is 1,600 lbs., a saving of 300 lbs. over the old one, without sacrificing strength. Height from ground 32 inches, the first step being 16 inches from the ground, so that it will just come over the edge of curbstone. Interior is 6 feet 8 inches long, 45 inches wide and 6 feet 1 inch high. The seat lifts up and the end swings out, giving plenty of room for mattress on floor and for attendant on seat opposite. The cost, with platform, gear, rubber tires and full equipment, is $750. The ordinary perch gear, two springs back and one forward, would be $100 cheaper, but inferior in every way. The amount of power necessary to start the patrol ambulance on a level, as determined by actual test, is 19 lbs.

A further improvement is possible by making both sides alike, doing away with the box for mattress on the side and carrying mattress under driver's seat instead. This change would enable two patients to be carried at one time.

So much for what has been done in Boston. Knowing that a lack of transportation facilities existed outside of Boston, a circular letter with prepared blank was sent to the chief of police of each city in the State and to the chairmen of the boards of selectmen in towns of over 5,000 inhabitants. Answers have been received from 28 cities and 52 towns, and show clearly the great lack of service of this kind. Many of the cities can easily solve their difficulty by using the plan already given for changing the patrol wagon they now have.

Where there is an ambulance and a patrol wagon, the patrol wagon should be used solely for accident cases, leaving the ambulance for contagious cases or ordinary sickness. For the few cities and large towns where they have neither ambulance nor patrol wagon, they can purchase, when money is available, the patrol ambulance, which will do the work of both for the cost of one.

There is little need of ambulance service in towns, unless they are of sufficient size to maintain a hospital, and in such cases the cost of maintaining an ambulance falls now on the charitably inclined already contributing to the maintenance of the hospital.



Fig. 5.— Complete wagon ready for use.

A solution of the difficulty would be found by the town purchasing a patrol ambulance, and arranging with some enterprising stable, centrally

located, with a number of horses always ready, to furnish services as needed and receive compensation for each trip.



FIG. 6.—Patrol Ambulance. Seat in position, back closed.

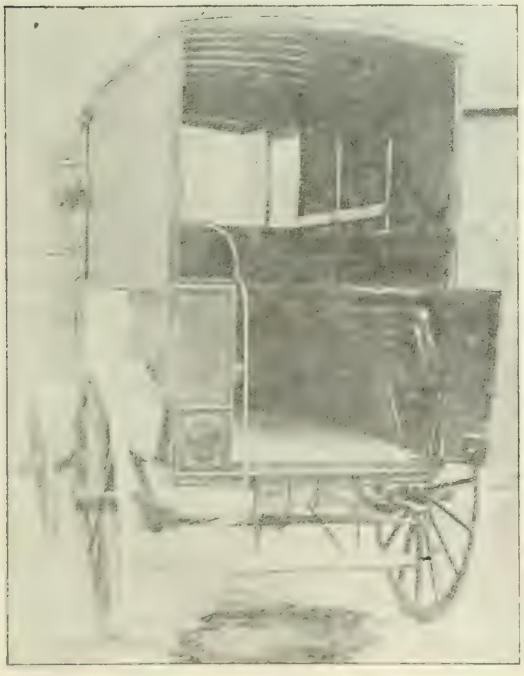


FIG. 7.—Same, with seat up, showing supports folded back. Back open to admit stretcher.

The cost of maintaining an ambulance service of this kind in a town of 9,000 inhabitants, owning a hospital (an actual experience in this State), was not over $300 for a year, of which patients able to pay contributed a part.

Along the lines followed in Boston, and adopting some simple system like the one outlined in this paper, much further good may be accomplished, not only in Massachusetts, but in every city and town in the country.

The ambulances which are available in Boston, however, have reached such a number that some understanding is necessary between the Police Department and the various hospitals, so that conflicts over patients will not occur. It may even be necessary to place the responsibility for ambulance calls with the Police Department, and that all calls shall come from a central station.

In closing, I wish to thank the society for its invitation to be here tonight, and for the interest it has taken in this work.

## THERAPEUTICS AND THE DRUG MANUFACTURER.[1]

BY BRACE W. LOOMIS, M.D., SYRACUSE, N. Y.

ON looking backward through the twenty-five years preceding the present time, it is apparent that great progress, great development and great expansion have been made in all those arts and sciences which relate to medicine. The united industry of teachers and experimenters, supplemented by that of practitioners, has been marvelous, and the results of this industry have added substantially to the welfare of human existence. The record is a brilliant one, and we may well feel elated whenever we pause from our daily labor to point to the triumphs of the last quarter of a century.

But, as Fothergill has it, "the ultimate aim of all medical research is the treatment of disease," and it may be said regarding nearly all those arts and sciences, that their activity is along lines that focus in the treatment of disease, and this art, too, the art of therapeutics, has shared in the general progress and development. Our resources of treatment are greater than ever before. Methods of attacking disease are more numerous and effective. Knowledge of remedies is more specific and accurate. Relief is more certain, more prompt; cure more frequent.

However, the path of the therapeutist has never been a smooth one. He stumbles at times; again, he slips and often falls down. He wanders along uncertain ways, and even appears to go backward. The same mistaken observation, the same errors of judgment, the same fallacies in reasoning may occur today that have occurred times without number in any preceding period of therapeutic activity; for the human mind still behaves very much as in the times of Hippocrates or Galen, and because this is so, the therapeutist is even yet inspired to many sins of omission and commission that have the age and precedent of

[1] Read before the Semi-annual Meeting of the New York State Medical Society, Oct. 15 and 16, 1901.

antiquity, notwithstanding that his knowledge of the relation between disease and its cure is greater in every way. The chronicles of medicine, compiled slowly and with infinite labor, during hundreds of years, furnish nothing more interesting than is recorded in accounts of the treatment of disease. Sickness, pain and death, liable at any time to afflict mankind, apt at any moment to seize those who are well and prostrate those who are strong—these are the common enemy. They have always been doubly dreaded because mysterious and intangible. More terrible because the attack is from within and must be fought, for there is no retreat, no running away from sickness. If the history of medicine discloses strange notions of the nature of disease and all manner of vagaries respecting its pathology, it likewise shows the most singular ideas prevailing among those who propose to fight it. The primitive conception that illness was a scourge visited by God upon his creatures, or was a manifestation of evil spirits, lent countenance to the plan of removing it by prayer, penance and sacrifice, or by resort to incantations and use of charms. Later on, as the centuries rolled along, and definite knowledge of morbid processes accumulated, methods of relief took on a sort of scientific coloring, and in many instances were founded on a respectable basis of accurate empiricism. The great past contributes a category of agents and measures almost innumerable, and their character includes every variety of crazy conception, as well as all that belongs to the practical, the sensible and the scientific. A curious aggregation of beliefs and practices; but out of the jumble of facts and fancies, of truths and delusions, of improbable imaginings and sound knowledge, have come the axioms and principles of rational therapeusis as crystals settle and form pure and clear out of turbid and unclean solutions.

As a preliminary to the consideration of certain principles of rational treatment, it seems advisable to refer to important natural tendencies of the organism that have a very material bearing on the management of illness. First of all, comes the principle of self-limitation of most acute diseases, and closely connected with this is the fact that most acute diseases having reached this natural and predetermined limit, the patient then recovers. When the records of clinical medicine are investigated, it is found that physicians during hundreds of years were not influenced by those facts for the reason that they were ignorant of them; and, strangely enough, there are many followers of our art today who ignore them likewise. To be sure, they admit them in theory, but in practice they seem to ignore them. Still another fact requiring mention because of a similar disposition to forget or ignore it, is that many symptoms rightly considered are in truth the outward manifestation of an effort initiated by the organism for its own relief and cure. Partly on account of the facts thus outlined, and partly because the fallacy involved was too seductive to be easily avoided, most practitioners were led to habits of therapy that have their origin in an impulse of the powers of reason that nearly always dominates, namely, to combat symptoms and to seek to remove them *seriatim*. All those plans of treatment and the legion of medicines having "anti" for their prefix, are the natural result of this combative therapy. Probably its origin was coeval with the earliest and most primitive efforts toward treatment, and as a method it has been established hundreds of years. Is the sick man weak? Give him something that will make him strong. Is he restless and wakeful? Give him something that will quiet him. Is his pulse rapid? Give him something that will make it slower. And so on, taking the symptoms in series. The practice of combating symptoms on the supposition that they constituted the disease itself and were of necessity harmful, led those who were disposed to be energetic in their practice to fallacious reasoning of another kind, the consequence of which was, that in addition to too many medicines, too large quantities of medicines were administered, and the ills of polypharmacy in connection with drug poisoning were often added to the primary disease. It has been necessary to refer to this ignorance of the essential limitations of diseases, together with certain mistaken tendencies in treatment, in order to better understand the principles of rational therapeutics which were slowly formulated, and which are the outcome of hundreds of years of observation and experiment.

Briefly, the essentials of a sound therapeutic method are as follows:

(1) Keeping in mind the tendency of self-limitation of pathological processes and the possibility of cure as a result of natural forces, never prescribe a remedy that will interfere with, or upset the conservative efforts of, the organism.

(2) Keep the problem of treatment as simple as possible by the exhibition of few remedies, well selected.

(3) Bear in mind the possibility of aggravating existing pathological conditions and introducing new ones, by injudicious or too heroic methods of treatment.

(4) Remember that the benefit to be expected from remedies is generally offset or neutralized, when a large number of remedies are exhibited at the same time.

(5) Try to remove the cause — this presupposes a careful study of the case, rather than a hasty prescription for this, that or the other symptom.

(6) Do not forget that most medicines are two-edged swords — if a medicine does no good it is likely to do harm.

(7) Prescribe for conditions, not diseases.

(8) When necessary, hit hard, but not too often.

(9) Watch constantly for symptoms that may be the result of remedies prescribed for the relief of other symptoms.

A category of principles of rational treatment might well include more than the above, but this list is comprehensive enough for argument, and will help make plain certain vicious tendencies in therapeutics which have multiplied, or at least become more obvious and general, in recent times.

During the past ten years, the volume of capital invested in the manufacture of medicines and chemicals has increased to a point nearly beyond commercial safety. Immense sums have been expended in equipping laboratories for the production of all the older forms of remedies and thousands of new ones. The capital once invested, the goods are made and put upon the market, and have got to be sold. To this end,— to the selling of the product, thousands of dollars are further expended for free samples to physicians, for "literature," as it is called, and for the hire of salesmen who understand well how to dispose of their wares. As a result of this activity of the drug manufacturer, physicians and patients together purchase a bulk of medicines in the form of tablets, pills, granules, tinctures, fluid-extracts, elixirs, synthetic products and derivatives, that is unparalleled and almost incredible.

Manufacturing druggists are in business for revenue — not for love of science, but for profit. They intend to make the public, and that means the retail druggist and doctor and patient, pay interest and dividends on their large investments. Of course the energy and enterprise of drug dealers and manufacturers has furnished much that is valuable, but the point is that this vast commercial enterprise has its bad side, and the medical profession has been harmed by it. Used wisely, many of the new preparations are helpful to both physician and patient, but the contention is, that the methods in vogue to effect their enormous sale have produced a dangerous departure from the beaten track of scientific therapeutics. These methods are alluring and convincing. That is, they convince a sufficiently large number of those who follow the profession of medicine. Not very long since the representative of a well-known drug house admitted in the course of an argument on the subject that much harm was done by trade methods, "but," he said, "we do it because it pays." Doubtless it does pay the drug manufacturer, but does it elevate the practitioner to the plane of an expert prescriber — one who brings to his aid the information furnished by modern pathology and modern methods of accurate diagnosis, and who, working on such a foundation, constructs and supervises a sound and efficient plan of treatment? Does not many a physician unknowingly fall into errors that were ignorantly practised years and years ago? The same errors essentially — different in outward form, but similar in essentials to the mistakes of the fathers in medicine. Doubtless it does pay the drug manufacturer. Let us see whether it pays the honest physician. Let us see whether the quality of the prescriber's work is improved or depreciated. In order to approach this aspect of the subject easily, it will be expedient to quote from the published dose-lists a few of the preparations. Besides the long catalogue of liquid preparations all trade-marked and copyrighted, which are not far removed from proprietary and patent medicines, there are in the form of pills, granules, tablets, etc., antiasthmatic, anticonstipation, antidyspeptic, antimalarial pills; bronchitis, enteritis, rhinitis, cystitis, diabetic, dyspeptic, sciatica, fever, voice, heart and throat tablets. On the list is found a therapeutic inspiration called "Hooper's Female Tablet." There are hundreds of others. Who can deny that these aids to treatment simplify the work of the physician? If a patient comes in complaining of sore throat, give him some throat tablets. Or if the prescriber would be more specific and treat the hoarseness that may be present, let him add a voice tablet. If the sufferer should happen to be a lady, complete the combination and make it solid with a female tablet. Thus the indications are met, the road to treatment is rendered easy, and we have the word of the drug manufacturers that thousands of our brethren tread this straight and narrow way.

With the enormous array of drug combinations at hand, does the prescriber always study the individual needs of the case? Does he always try to provide a carefully thought out remedy or remedies for the patient, or does he not try to fit the case to the ready-made medicine? Does he not gradually drift into polypharmacy? In many instances has he not allowed the drug manufacturer to do his thinking for him? Instead of remaining a thoughtful, observing and scientific worker, may he not degenerate into a gentlemanly sort of "middle-man"? — the patient on one hand and the manufacturing pharmacist on the other hand — the manufacturing pharmacist who instructs him as to what he shall prescribe and when he shall prescribe it!

To these questions there are answers derived from a number of different sources. Testimony of manufacturers themselves should come first, and following is what their agents have stated in their own words. One of them says: "We sell these combinations to thousands of physicians." Another: "It is a fact that many physicians keep our list and dose manual before them on the desk to use it as a help in prescribing." The clever representative of a well-known house said: "Nine-tenths of the younger men buy our goods and use them for the class of cases we specify." On one occasion a young physician who had given up practice for the more lucrative occupation of selling a new malt product, said in the course of discussion: "I have practised medicine for five years, and sometimes when out of reach of So and So's tablets, I often had to stop and think a long time what to give for the relief of a patient. I had forgotten many of the ingredients of the tablets I was in the habit of prescribing."

"To see ourselves as others see us" has been held to be salutary, so in this connection the views of intelligent pharmacists as to the effect

of the present commercial activity on the quality of prescription work may be worth our attention. One says: "These 'cut-and-dried' mixtures are taking the place of the carefully prepared prescription of years ago." One member of the New York State Board of Examiners in Pharmacy, long known as a leader in his profession, after referring to the injury done to legitimate pharmacy, asks: "But has not this had its corresponding bad effect on the young physicians of the day? The pharmacist notices that most of the therapeutists appear to draw but lightly on their gray matter when prescribing for patients, and paper brains seem to be the rule rather than the exception."

Finally, there can be no doubt — no reasonable doubt — that pathological conditions are complicated and added to, by misdirected zeal. It is not uncommon to find patients taking fifteen, twenty or more medicines in the twenty-four hours. Even thus handicapped, the recuperative power of the human system offsets and covers more sins than Charity — tenfold!

Systems of therapeutics come and go. Paracelcus, Brown, Resori, Stahl, Hahnemann and many other workers and thinkers have had their day, and influenced the practice of medicine. Wonderful specifics and novel doctrines spring up, monopolize the attention of practitioners, promise much, fulfil little or nothing, and in due time are reduced to whatever level their merit deserves. This has been the history of the past and will be the experience of the future. It would seem reasonable to insist that the work of the individual prescriber be as free as possible from the errors of those who have preceded him and that he should profit by the mistakes of the army of workers who have passed away, but whose record of achievements and failures lies before him. The principles of rational treatment, a few of which are dwelt upon in this paper, ought to help him to avoid many of those mistakes so often associated with the art of healing. They should warn him against the chase of many a will-o'-the-wisp, and in due time raise the quality of his efforts to the dignity of skilful therapeusis. Skilful therapeusis is no easy art to master. No man becomes a therapeutist from giving medicines according to such directions as are found in books and journals and in the literature of drug manufacturers. Attending lectures and recitations and passing examinations never made a therapeutist. Laboratory work will not educate a student up to that high standard of accomplishment. The student becomes a graduate, the graduate becomes a practitioner, but not until years have passed — years of experiment and observation at the bedside, in the consulting room and dispensary and hospital ward — does he get to be a therapeutist in the broad meaning of the term. So many arts and varieties of knowledge are only stepping-stones; the way is uncertain and slippery, the footing insecure, and, indeed, to this kind of learning there is no royal road.

## Clinical Department.

### A CASE OF TETANY IN AN ADULT.

FROM THE SERVICE OF DR. F. C. SHATTUCK, MASSACHUSETTS GENERAL HOSPITAL.

BY EDWIN A. LOCKE, M.D., BOSTON.

E. M. Q., age 36, married. Family history good. Habits: Two to three glasses of whiskey and three to four of beer per day; occasionally intoxicated. Tobacco, tea and coffee in moderation. For thirteen years the patient has worked in chain forging shop at the U. S. Navy Yard. Work is very hard and gives constant exposure to changes in temperature, before the furnaces the thermometer often registering from 120° to 130° F. From the furnaces the patient often goes to cool place, or plunges hands into cold water. He sweats profusely, and not infrequently stands in water. Much of time his work consists in holding the sledge while a fellow-workman strikes. Excellent general health. Measles and whooping cough in childhood; never sick in bed since. No history of rheumatism, cardiac, renal, gastric or pulmonary troubles. Eighteen years ago gonorrhea and questionable syphilis.

Seven years ago began to notice occasional cramps in muscles of hands and forearms, accompanied by sensations of tingling and numbness, but with no malaise, headache, nausea or vomiting. One day suddenly became much worse, and hands could not be released voluntarily from handle of hammer. When released by force, the fingers immediately assumed former position, that is, the fists clenched tightly. With continuation of work the cramps moved to muscles of loins, and finally to those of the feet and legs. Suddenly, about 4 P.M. of the same day, the muscular spasms became so severe that the patient was completely overcome, felt dazed and in sort of stupor, and rolled about the floor in agony. The sensation was described as that of severe muscular cramps rather than real pain, the affected muscles being intensely hard, board-like and slightly tender. This muscular involvement was present in nearly all parts of body, various sets being affected either at same time or successively, and lasting in most cases from a few seconds to ten minutes. Face was cyanotic during an attack; heart accelerated. Polyuria was present, but no vomiting or defecation. The power to bear hot applications without pain, which attendants could scarcely handle, indicates a moderate degree of anesthesia. The application of hot cloths to muscles with vigorous massage gave much relief after three-quarters of an hour, and in two hours the patient was able to go home. All night he felt weak and had slight numbness in muscles, but in the morning symptoms had entirely disappeared. Subsequently, at long intervals, the cramps appeared in very mild form, usually after very exhausting work.

Three years later, at 5 P.M., a second attack came on exactly simulating the first, though of

shorter duration, in consequence of measures for relief which were early and vigorously applied. In usual good health on the following day. Many times since then at end of hard day's work, especially if associated with exposure to great variations in temperature, very moderate symptoms of a similar nature have appeared.

Feb. 19, 1902, a third attack of same character as previous ones, though much more severe. Like the others, it appeared in the late afternoon, and was preceded by numbness and cramps in muscles all day. At onset, vomited and voided urine several times; no movement of bowels. One hour after onset I saw the man in the accident room. He was then prancing up and down the room, apparently in great agony.

*Physical examination.*—The spasms changed constantly from one muscle, or group of muscles, to another, either spontaneously or with massage, and were confined chiefly to the flexors and adductors. The position when first seen was striking, the head drawn slightly to the left, the fingers strongly adducted, wrists flexed, forearms flexed and slightly rotated internally, the arms adducted and held firmly across chest; the thighs, legs and feet somewhat flexed, toes partially extended and abducted. With the exception of the right sternocleidomastoid, no involvement above the clavicles could be made out. When examined, the muscles were found to be in a state of tonic contraction, usually symmetrical, board-like and tender, with no fibrillary twitching. No impairment of sensations could be made out; no clonus. Westphal's sign was absent, but the abdominal cremasteric and plantar reflexes were found normal. Trousseau's sign (the characteristic spasms induced by pressure upon the large nerve trunks) showed strikingly. In the absence of suitable apparatus it was impossible to determine the electrical irritability of the nerves. Face deeply congested, some general cyanosis. Pupils equal and react to light and accommodation. Few small lymph-nodes palpable in axillæ and groins. Whole body drenched with perspiration. Visceral examination negative. Genitals: small scar on glans, otherwise normal. No edema. Temperature normal; rate of pulse and respiration moderately increased. A specimen of urine obtained at this time showed the following analysis: Normal color, slightly acid, albumin a trace, sugar and bile absent, chlorine considerably diminished. Sediment very little. Few hyaline and fine granular casts with occasional renal cells adherent. Few renal cells and leucocytes. Occasional large epithelial cell. No blood.

Vigorous massage, heaters and morphia while in the accident room, soon gave relief, and in two hours the patient went home feeling as well as usual, except for weakness and headache.

Since that time, I have twice seen the patient. He has had no return of symptoms and the physical examination has each time been negative. The presence of a trace of albumin and casts in the urine during the attack observed, led me to examine a specimen from the twenty-four hourly amount after recovery; but nothing abnormal could be made out.

The relative infrequency with which the disease occurs in America, together with several important and interesting features which this case presents, have made it seem worthy to record. In 1894, Griffith was able to collect but 72 cases in America. Somewhat later, in Germany, Frankl-Hochwart brought together 399, including all ages, of which 83% were between the ages of 16 and 25. Of the 142 cases studied by Gowers in 1898, but 13 occurred in males above the thirtieth year, and only 4 between the thirtieth and fortieth. In general the disease is shown to be slightly more common in males than females, more frequent in the first and second decade of life, and very rare after the fortieth year.

The question of etiology in the present case is of considerable interest, since we find a striking absence of all the commonly recognized causes, that is, gastro-intestinal disturbances, removal of the thyroid, pregnancy, lactation, acute fevers, toxic conditions, epidemics, and epilepsy. Among the "occasional causes" are usually mentioned prolonged muscular work, with fatigue, alcoholism, and exposure to cold and wet; and to these the history of the case points strongly. Not infrequently, after an unusually hard day's work, the patient, as mentioned in the history, noticed slight tingling sensations in the fingers and arms, or moderate spasms in some of his muscles, and each of the three attacks of tetany occurred with marked fatigue. The somewhat excessive use of alcohol and the constant exposure to great changes in temperature, made necessary in his work, would also seem to be of importance as etiological factors.

A differential diagnosis is not difficult. The typical muscular spasms and position of the arms, the onset in the muscles of the extremities, the involvement of certain groups only, their bilateral and intermittent character and presence of Rousseau's sign, together with the presence of recognized etiological factors, are overwhelmingly in favor of tetany (Russel).

From epilepsy this condition is readily distinguished, for though the epileptic spasms may be tonic and bilateral, they are of much shorter duration, and consciousness is completely lost. In the case of the Jacksonian type, the convulsions generally begin in one set of muscles or extremity as tonic spasms, later becoming clonic; and if they become general, consciousness is lost. Furthermore, headache, vomiting, and other premonitory signs, if present, are conclusive.

Muscular spasms in cases of cerebral congestion, if repeated and of short duration, may also simulate those of tetany, but are to be differentiated by the more marked cerebral symptoms and by the absence of the "localizing and evolutionary" characteristics of tetany.

Hysterical conditions in rare cases must be considered. Here the absence of the above-mentioned signs and symptoms of tetany, together with the presence of the characteristic symptoms

of hysteria, are sufficient to distinguish the two diseases.

Of especial interest in this case are the presence of polyuria and albuminuria during the attack, but few cases of either condition being recorded. They are much more frequently found in children than adults. Hoffmann, Neusser, Mader and Frankl-Hochwart each mention one case of polyuria. Among seventy-two cases in children examined by Loos, only two showed albumin in the urine. Frankl-Hochwart and Hoffmann have each reported one case.

## TWO UNIQUE CASES OF HYSTERECTOMY.

BY W. P. GIDDINGS, M.D., GARDINER, ME.

Case I. On Feb. 16 of the present year I was called to see Miss W., age 31, of slight build, countenance sallow, pinched and anxious. She had been more or less an invalid for several years. Family history negative. Six years ago she entered the General Hospital of Lewiston, Me., where she had curettage done for excessive flowing. She states that she was then advised to have oöphosalpingotomy done, but declined. So much improvement followed curettement that she resumed her work, that of running a stitching machine in a shoe factory. She continued at this employment, except that twice during the six years she had two attacks of pelvic peritonitis that laid her by for two or three weeks each time.

It was in the midst of the last attack that I saw her, and convalescence had evidently begun. An examination, made as carefully as circumstances permitted, showed that a severe salpingitis existed, and an early operation was advised. She entered the Augusta City Hospital in a few days, and I operated on her Feb. 22. I found the uterus bound down firmly by old organized bands, several of which had to be tied and divided. The small intestines lying over the parts were matted together, and also adherent to the uterus and its appendages. These were separated from each other and from the womb with considerable difficulty. On the left side there was a large irregular mass representing the tube, ovary, and broad ligament, the whole constituting two abscess cavities. On the right side there was a large distended tube strongly resembling a great sausage. The whole space surrounding these masses was packed off, and an attempt was made to separate the right tube without rupture. It proved to be very friable, and ruptured quickly despite every care, and pus literally poured out, saturating the sponges and escaping into the abdominal cavity; the same happened on the left side. After much difficulty the whole was removed, and the toilet completed by washing thoroughly with normal salt solution; drainage inserted, and the abdomen closed.

The peculiar feature of this case is, there was not the slightest evidence that there was ever any ovary, uterine ligament or other of the usual structures except the tube of the right side. On the left there was suppurative salpingitis, and an abscess of the ovary that involved the whole of the broad ligament to the uterine body, which together contained at least one-half pint of pus. The temperature reached 100° F. in the evening of the first day, but during the night dropped to normal, and it and the pulse continued so to the completion of convalescence, which was in three weeks.

Case II. Miss C., a music teacher, age 39, a woman of exceptionally good family history. Fifteen years ago she was operated on at the Maine General Hospital for an unilocular ovarian cyst on left side. Nothing unusual attended the case or her convalescence. In the fall of 1901 she began to experience discomfort in pelvis, which increased so much that she consulted me in December last. I found on examination that the uterus was crowded low in the pelvis, fixed, enlarged and tender. Diagnosis: Fibroma with subacute metritis.

On Jan. 22 I was called to see her at her home in an adjoining town, and found her seriously ill with metroperitonitis. After a month's severe sickness she gradually improved and entered the Augusta City Hospital, and on March 7 I operated on her. As in Case I, adhesions were general but less firm. I did find, however, an addition to the trouble that I had not suspected. There was an abscess of the right ovary the size of a large orange, and had invaded all of the broad ligament, except the Fallopian tube, which was free. In this, also, the friability of the abscess walls were such that in trying to separate the adhesions beneath, the sac ruptured, and a large amount of pus diffused itself in all directions, and despite the precautions taken it found its way into the general cavity. This was cleansed by washing thoroughly with normal salt solution, and a wick drainage put in; the wound closed in tiers.

In neither case, after the first evening, was there any rise of temperature or acceleration of the pulse rate. The drainage was removed the third day in both cases, neither having been soiled. The convalescence was steady from the first, and complete at the end of the third week. From the fact that in each case pus in considerable amount was diffused among the intestines, I was naturally apprehensive that septic infection would follow, but they proved an apt illustration of the truth of Dr. Morris' claim, that where pus has existed sufficiently long to infect more or less the whole system, the peritoneal cavity seems to acquire an immunity against reinfection. In Case I there was abundant evidence that the system was infected, she having had chills, followed by profuse perspiration, for two weeks before operation. The condition of the skin and general look of the features also confirmed it. In Case II no such conditions were obtained, and the presence of the abscess was a surprise. The malformation in Case I is to me something entirely new. The tube was intact, and but for the absence of the fimbriæ, was otherwise like all pus

tubes. The most careful examination after removal of the uterus fails to show even a rudimentary part of anything like a broad ligament. In Case II it was the abscess that had crowded down and fixed the womb in the position I first found it, for while there was a fibroid, this was in the upper anterior part of the uterine body, exerting no influence on the malposition.

## MASSACHUSETTS GENERAL HOSPITAL. CLINICAL MEETING OF THE MEDICAL BOARD.

REGULAR meeting, Feb. 14, 1902, Dr. C. B. Porter in the chair.

DR. A. T. CABOT described a case of

MOVABLE KIDNEY WITH HEMATURIA.[1]

DR. JOEL E. GOLDTHWAIT demonstrated a case from Dr. Richardson's service of

CONGENITAL HYPERTROPHY OF THE TIBIA

in a young man twenty-one years of age, showing a radiograph taken of this case, and for purposes of differential diagnosis, radiographs illustrating osteitis deformans, the different syphilitic bone lesions, osteo-arthritis and osteomyelitis.

He also showed a case from Dr. Fitz's service of

OSTEITIS DEFORMANS

in a woman fifty-five years of age, in whom all the long and flat bones of the body were affected. Attention was called to the fact that at times the disease may be present in only one bone, and may remain as a local process in many joints.

He also showed a case from Dr. Shattuck's service of

OSTEO-ARTHRITIS OF THE SPINE

in a man fifty years of age, in which the only symptom was pain in one leg, this being increased by exertion. The motions of the spine and the character of the limitation of motion were demonstrated.

DR. J. P. CLARK reported a case of

CICATRICIAL OCCLUSION OF THE TRACHEA.

The patient was a girl, aged five years, who had had complete cicatricial occlusion of the upper part of the trachea following an attack of diphtheria, in which intubation had been necessary. Early in July, 1900, this child was operated on by Drs. Conant and Clark. The cicatricial tissue was incised and stretched from below, through the enlarged tracheotomy wound, and a hard rubber intubation tube of the size used in an eight to ten-year-old child inserted. This was worn continuously for eight weeks, and after an interval a 10-12 tube was inserted. The child wore one or the other of these tubes, with increasingly long intervals of omission, for nearly a year. She has now been without any tube for eight months and breathes with apparent ease. There is almost no voice, owing, apparently, to the way in which the left vocal is held in a position of complete abduction by a cicatrix. This case is to be reported in detail at an early date.

[1] See Journal, March 6, 1902.

DR. F. C. SHATTUCK demonstrated

TWO CASES OF ACROMEGALY.

I wish to show tonight two patients, both of whom have acromegaly. The first patient was seen in the Out-Patient Department by Dr. J. M. Jackson, and at the request of Dr. Musgrave has kindly consented to come here tonight. I wish also to report briefly a case of typhoid fever with perforation.

CASE I. This woman (Fig. 1) is 52 years of age, and was born in Germany. Her family history is unimportant, and her previous history has no bearing on her present illness. Three years ago she began to have occipital headaches, which have been more or less persistent since. Associated with these have been lassitude and weakness. For the past year she has complained of irregularity in her menstrual flow. Associated with this there has been increasing weakness and dyspnea. Six months ago she had an attack of polyarticular rheumatism. Both knees were swollen, red and tender. For the past five months they have troubled her more or less. She dates the gradual enlargement of her hands and face from this time. There is moderate enlargement also present in the feet. The thyroid gland shows slight enlargement. The case, although well marked, is not nearly so far advanced as the patient whom

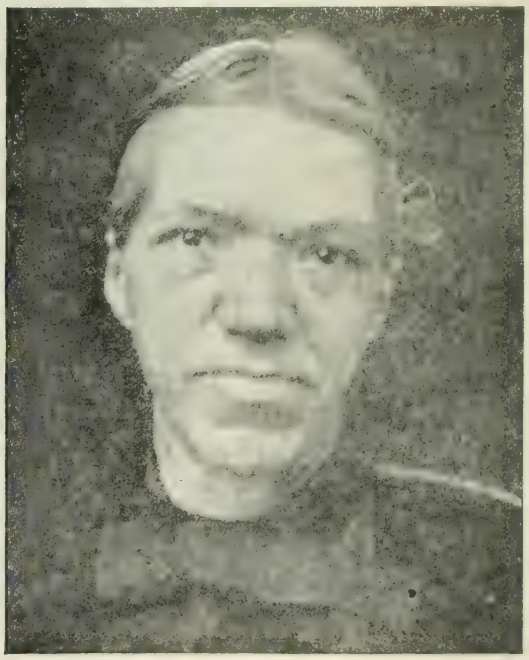


FIG. 1.

I will next show, who came into my wards a few days ago.

Case II. This patient (Fig. 2) is 40 and single, a cook. She was born in Ireland and her family history is unimportant. She has had excellent general health up to four years ago, when she first noticed severe pain in the right hip. She attributes this to sleeping in a cold room. The pain has been more or less constant since that time, especially when standing. She is practically free from pain when lying down. One and one-half years later the left hip became similarly affected, but to a much less extent. At present there is marked limitation of motion in the right hip, and the process is considered by Dr. Goldthwait to be an osteo-arthritis and independent of the condition for which she enters. She dates the beginning of the enlargement of the face and extremities (Fig. 3, which shows the patient's hand com



Fig. 2.

pared with the hand of a large normal woman) to one year ago. She thinks the face became large at first, next the hands, and in a few months the feet. The enlargement has been progressive during the past year, and there has been some loss of muscular power. She is naturally a large woman, her best weight being 223 lbs. five years ago; but in spite of the steady progress of the disease and the increasing muscular weakness and difficulty in walking, she has been able to continue her work as a cook, up to the day of entrance to the hospital. Her urine is practically negative, and her blood shows nothing beyond a moderate degree of anemia.

Case III. A male, age 19, a machinist, entered the Massachusetts General Hospital Jan. 1, 1902, with typhoid fever, apparently at the end of the first week of the disease. The course of the disease was mild and uncomplicated until Jan. 13, when the record states: "At 1 P.M. he complained of sharp, cramp-like pains across the lower abdomen. There was some rigidity and tenderness of the abdomen present. The pulse, respiration and temperature were unchanged. The white count was 6,100. There was no iodophilia present." At the evening visit there was no pain and the abdomen was soft.

The record of Jan. 14 states: "At 6 A.M., one hour after bath, he was seized with cramp-like abdominal pains, followed by a slight chill. There was no nausea, but he vomited a dose of brandy. No vomiting afterward. At 8 A.M. the patient was lying on his back with the thighs flexed on body. He was feeling as usual except for moderate abdominal tenderness. His pulse was of good quality. The abdomen was very rigid, generally tympanitic; the liver dulness was encroached upon. There was marked tenderness in whole lower abdomen, more marked on left. Very slight shifting dulness in left flank. No



Fig. 3.

masses felt." His pulse and respiration slowly rose, until at 11 A.M. his temperature was 104.4°, pulse 116, and respiration 25. He was seen in consultation by Dr. Warren and Dr. Greenough, and transferred for operation within six hours after the first definite symptoms. White count, Jan. 13, 5.30 P.M., 6,800, no iodophilia; Jan. 14, 9 A.M., 9,400, slight iodophilia; Jan. 14, 11.45 A.M., 11,800, good iodophilic reaction.

An interesting feature in his case is the fact that after the operation he had a typical relapse, from which at present he is convalescing.

Dr. R. B. Greenough gave the surgical report of Dr. Shattuck's last case.

TYPHOID FEVER; PERFORATION; OPERATION; RECOVERY.

*Operation* by Dr. Warren. The abdomen was opened in the median line below the umbilicus. Cloudy fluid was found in the right iliac fossa and pelvis, which on culture showed colon bacilli.

A pin-hole perforation was found in the ileum about fourteen inches above the ileocecal valve, on the side opposite to the mesentery. A piece of fibrin was firmly attached over the opening and was removed. Gas then bubbled from the opening. The perforation was then closed with a double row of Lembert sutures, and the bowel washed off with salt solution. There was considerable fibrin on the bowel in this region. The rest of the abdomen was then washed out with salt solution and the wound closed with gauze drainage.

After operation the pulse and temperature dropped for several days but rose again gradually, until by the end of a week after the operation it was evident that the patient was undergoing a relapse of his typhoid. The course of this relapse was apparently not modified by the operation, and on the twentieth day after operation the temperature reached normal and has remained there ever since. The stitches were removed from the abdominal wound on the ninth day, and on the tenth day the edges of the wound pulled apart, owing to the cough which accompanied the relapse of the fever. The wound was again closed with secondary sutures, and at the present time is almost healed by granulation. The operation was a month ago tonight. The patient is now taking a diet of soft solids and is doing well.

DR. GREENOUGH reported for Dr. Warren:

SUPRARENAL TUMOR; OPERATION; DEATH.

The patient was recommended to the hospital by Dr. R. C. Cabot and entered the East Surgical Wards Oct. 24, 1901, with the following history: Man, age 49, native of Nova Scotia. Family history and previous history negative. Two years ago the patient fell across a wagon wheel, bearing his whole weight on his left side. Was in bed for about four months and passed bloody urine for a year. Hematuria was not constant, but occasionally large amounts of blood were passed. None has been noticed now for six months. Immediately after accident he noticed a tumor in the left side of the abdomen. He had not noticed anything before that time, and considered himself in perfect health. He has had considerable pain in region of tumor, and has lost weight and strength. Symptoms of gastric disturbance have developed in this time, nausea and occasionally vomiting, but no blood was noticed in vomitus or stools.

*Examination.*— Well-developed but poorly nourished individual, with slight yellow tinge to skin. The heart was not enlarged, but a loud, rough, systolic murmur was heard in the pulmonic area, replacing the first sound almost completely, and transmitted slightly in all directions. In the abdomen, on the left side, under the costal border, a hard mass is felt, about the size of a fetal head. The mass moves slightly, if at all, with respiration, and can be palpated through the flank. The mass presents a rounded border and no notches could be felt. The inflated colon lay superficial to the tumor. The liver was enlarged to three fingers' breadths below the costal border but was not nodular. No abdominal rigidity or tenderness was present, except on pressure over the tumor; no ascites. The patient's pulse was of unusually high tension, and both radials and temporals showed sclerotic changes. The urine was normal except for a slight trace of albumin and a few blood corpuscles. A later examination, however, showed a few casts. The blood examination gave: Hemoglobin 50%, reds 3,600,000, whites 7,000.

The diagnosis of a tumor of the kidney was made, and the probability of a tumor of suprarenal origin was considered on account of the marked arterial changes at the comparatively early age of 49.

On Nov. 2 Dr. Warren undertook the removal of the tumor by operation, but was called away, and left the completion of the operation to the writer. A vertical incision in the left linea semilunaris was made, and from this a transverse incision into the left flank. The right kidney was examined and found normal in size and position, and the abdominal cavity was then walled off with gauze. The tumor was then shelled out and its pedicle clamped. The tumor was removed and gauze packing put in to control the oozing from adhesions, which was not particularly abundant. Upon examination of the pedicle it was evident that the renal vein was occupied by a growth of the tissue of the tumor as far as it could be traced. The rest of the tumor could be removed without difficulty, but that in the vein could not be taken out, and was included in the ligature, which was passed as high as could be reached. The patient was in extreme collapse, but responded to infusion and stimulation.

The pathological report received from Dr. Whitney was "sarcoma or perithelioma" of adrenal origin.

The patient died in about twenty days, with gradual loss of strength and increasing cachexia. No autopsy could be obtained.

DR. C. B. PORTER reported a case of

INTESTINAL OBSTRUCTION; TWO OPERATIONS; RECOVERY.

E. A. C., age 50, married; housework. Entered the hospital Dec. 28, 1901. Temperature, 100°; pulse, 102; respiration 25. Recommended by Dr. R. H. Fitz for intestinal obstruction.

*Family history.*— Good.

*Past history.* Has been a very healthy woman all her life, though usually troubled with constipation, often requiring cathartics. Catamenia regular, normal. She was married at twenty-three, and has had four children and one miscarriage.

*Past illness.*— Five months ago she was taken with sudden, cramp-like pains in the abdomen lasting a day or so. These pains were general throughout the abdomen. She had a second, less severe attack three months ago. These attacks

were accompanied by diarrhea and vomiting, but not by fever. One month ago the patient began to feel weak and tired, while the bowels were moved with greater difficulty than ever before. There commenced to be "rolling" of the bowels and, at times, pain. About every three days there was a large, hard movement. The general health has been growing steadily worse, as shown by anorexia and nervousness. For the past two weeks there has been no change in the symptoms. She has had vomiting spells of late, though none for the last four days. The bowels have not moved for four days. She has never been jaundiced, or had any urinary trouble that she knows of.

*Physical examination.*— Urine: Color dark, acid; specific gravity, 1,028; sugar absent; albumin, slightest possible trace; sediment, rare hyaline and granular casts, a few small round cells. Indoxyl normal, bile absent; white count, 12,000. She is well developed and nourished, but looks weak. The face is dusky and yellowish, the tongue heavily coated, the chest normal. The abdomen is very full and distended. Peristalsis is visible in large coils. There is a continual change, but one large coil above across the epigastrium, and another below across the lower abdomen are pretty constant. There is no tenderness. Slight dulness is present in the right flank, which does not shift with posture. No masses are to be felt. Nothing is felt by rectum, which is empty. Vaginal examination negative. She was given $\frac{1}{30}$ gr. of atropin and a high, hot oil enema without results, afterwards nutritive enemata every four hours. On the following day, Dec. 29, there was slightly less distention and some improvement in color, but no movement. On the 30th the physical examination was the same, and she was in better condition.

*Operation, Jan. 1*, by Dr. C. B. Porter. An incision five inches long was made below the umbilicus, in the median line. The large and the small intestines were greatly distended and filled with soft feces. The enlarged, elongated sigmoid had a constriction at about its centre, apparently a cicatrizing malignant growth. This was limited to a very small area of the bowel, about one inch. There were no adhesions or bands. The sigmoid below the stricture was collapsed. No enlarged glands were discovered. A Mixter tube was inserted into the descending colon, 8 inches above the stricture and fastened to the abdominal wall. For four days there was a free discharge of feces by the fistula, while the distention and the visible peristalsis faded gradually away. The Mixter tube came out on the third day. On the tenth day there began to be small daily movements by the rectum, while there were several large movements through the sinus each day. The rectum was thoroughly flushed out each day with salt solution by means of a tube in the rectum and a catheter in the wound. The fistula was closed with a cocoon, and a second operation done on the twenty-second day by Dr. C. B. Porter. The abdomen was opened by a five-inch incision on the outer border of the left rectus below the umbilicus. The intestines were found matted together and to the parietal peritoneum by dense adhesions. These were separated without difficulty, and the constriction identified in the sigmoid, which was normal in size and color. After freeing this bowel the cavity was walled off, and two inches resected on either side of the constriction, including the portion of the mesentery beneath. Only one small, non-malignant gland was discovered. A small gauze wick was left at point of suture.

On reaching ward, $\frac{1}{6}$ gr. morphia was given every four hours. On the following day she took liquids without milk, and tincture opii deodorata, 5 min., three times daily. She had no pain and passed gas through tube in fistula. On third day wick was removed, and small rubber drain was inserted. Fourth day opium was omitted; soft solids begun. First movement by rectum on the seventh day. Was comfortable without distention. A warm enema introduced through fistula caused two free motions by rectum. Eleven days after operations stitches removed, as well as small drain. Fourteenth day, bed-rest.

On Feb. 13, three weeks and a day after second operation: Fistula closed spontaneously; bowels moving normally. Patient was rapidly gaining weight.

The pathological report by Dr. W. F. Whitney is as follows: About 6 cm. of intestine, occupying the greater part of which was a deeply ulcerated cicatrized and infiltrating area about 3 cm. wide. The ulceration forms a deep crater-like excavation towards the mesenteric border.

Microscopical examination showed the normal mucous membrane to pass over into a growth of irregular tubular gland of large size and lined with columnar epithelium. These glands penetrated the fibrous tissue and formed the base of the ulcer mentioned above, and could be followed into the loose connective tissue beyond. Farther than this, there were in places, small round-cell infiltrations in the neighborhood of the vessels. The lymph gland removed from the mesentery failed to show any new growth.

*Diagnosis.*— Malignant adenoma.

It seems to me that the success in this case was largely due to the division of the relief in two operations: the first merely the relief of the obstruction by an artificial anus. The patient was in such a weak unnourished condition as to make it doubtful if she could have borne an intestinal resection. After the relief to the obstruction and subsequent building up of her strength, she seemed to feel the shock of the intestinal resection only in a mild degree.

Another interesting point was that after the obstruction was relieved by the artificial anus she had a number of normal dejections from the rectum.

At the first operation the descending colon and upper part of the sigmoid flexure were found very much hypertrophied.

(*To be continued.*)

# Medical Progress.

## PROGRESS IN PUBLIC HYGIENE.

BY SAMUEL W. ABBOTT, M.D., BOSTON.

(Continued from No. 18, p. 467.)

### COMMENTS UPON THE TABLE OF VACCINATIONS.

WHILE it is a comparatively easy matter to ascertain the number of deaths from smallpox in a given country, and, by comparing them with the population, to learn the standing of such country in its relation to neighboring countries in this respect, it is by no means an easy task to ascertain the relative extent and thoroughness with which vaccination is enforced in such countries. The reasons for this difficulty lie in the lack of uniformity (1) in the methods of executing the measures adopted for securing vaccination, and (2) a similar lack of uniformity in reporting the results.

It has been the writer's object to bring together such facts in this table as were available from different countries in the closing years of the last century. The figures represent exclusively public vaccinations performed by public officials at the public cost, and do not include such vaccinations as may be performed by private physicians and are consequently not contributable to the public records.

It is much to be regretted that the relative figures in the table of vaccinations have so little relation to each other. This fact is due to the lack of uniformity in the methods of reporting such statistics in different countries.

*Germany.*— In Germany, which has undoubtedly the most perfect system of well-enforced vaccination in the world at the present day, a very accurate and careful report is made each year. The number of vaccinated persons is stated for each year, classified as primary and secondary vaccinations in the proportion of about 55% of the former and 45% of the latter. The number of persons subject to vaccination, both primary and revaccinations, is also stated, so that the number who are exempt may be known. The reasons for exemption are: (1) Persons (very few in number) who had had smallpox previous to presenting themselves for vaccination. (2) Persons who had been successfully revaccinated in the preceding year but had not attained the prescribed age for revaccination (for example, children of 9, 10 or 11 years of age). (3) Others who were successfully vaccinated in the year before, but were not present for inspection till the year of record.

The percentage of those vaccinated with humanized and with bovine lymph is also stated, the use of the latter having increased throughout the empire, from 77.4% of all public vaccinations in 1888, to 99.9% in the years 1896, 1897 and 1898.

The ratio of successful vaccinations ranged from 84.2 to 86.8% in primary vaccinations, and from 90 to 94% in revaccinations.

Every case of alleged harm from vaccination is made the subject of an official investigation and report.

The compulsory law of Germany is stated elsewhere. Sweden also has a compulsory law, but figures relating to vaccination were not available.

VACCINATION IN DIFFERENT COUNTRIES.

| | The German Empire.[1] | Scotland.[2] | | Holland.[3] | England.[4] | | Japan.[5] | Austria.[6] | | British India.[7] | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Vaccinations. | Successful vaccinations. | Per cent. of births. | | Successful vaccinations of children. | Per cent. of children not accounted for. | Vaccinations. | Vaccinations. | Per cent. of the living born. | Successful vaccinations. | Per 1,000 of the total population vaccinated. |
| 1885 | — | — | — | — | 757,714 | 5.8 | 4,325,437 | 678,677 | 77.3 | 4,703,214 | — |
| 1886 | — | 110,864 | 86.6 | — | 754,059 | 6.4 | 4,551,235 | 691,460 | 80.3 | 4,950,893 | — |
| 1887 | — | 107,077 | 86.0 | — | 733,980 | 7.1 | 3,066,426 | 694,357 | 79.3 | 5,202,595 | — |
| 1888 | 2,487,484 | 106,734 | 86.6 | — | 719,103 | 8.5 | 2,295,988 | 727,802 | 82.0 | 5,640,967 | — |
| 1889 | 2,485,485 | 104,931 | 85.4 | — | 707,161 | 9.9 | 1,817,382 | 703,897 | 79.1 | 5,709,462 | 25.7 |
| 1890 | 2,463,268 | 103,635 | 85.2 | 112,594 | 682,560 | 11.3 | 1,937,959 | 710,054 | 79.0 | 5,974,598 | 28.9 |
| 1891 | 2,462,603 | 107,482 | 85.3 | 118,209 | 693,117 | 13.4 | 2,170,194 | 768,621 | 88.4 | 5,882,683 | 26.8 |
| 1892 | 2,444,821 | 107,352 | 85.8 | 128,756 | 663,657 | 14.9 | 3,988,761 | 816,767 | 88.8 | 6,396,480 | 27.5 |
| 1893 | 2,433,779 | 108,117 | 85.0 | 123,870 | 661,513 | 16.1 | 3,907,828 | 751,780 | 83.8 | 6,716,134 | 28.9 |
| 1894 | 2,534,040 | 106,840 | 85.8 | 163,412 | 626,126 | 19.2 | 3,022,541 | 749,708 | 81.2 | 6,869,271 | 30.3 |
| 1895 | 2,513,900 | 108,035 | 85.7 | 109,194 | 624,690 | 20.5 | — | 734,069 | 81.4 | 7,223,591 | 32.0 |
| 1896 | 2,533,227 | 110,033 | 85.1 | 117,653 | 602,922 | 22.9 | — | 819,592 | 87.1 | 7,309,087 | 32.2 |
| 1897 | 2,630,176 | 108,378 | 84.0 | 119,830 | 578,639 | 22.7 | — | 742,200 | 78.2 | 7,144,474 | 31.5 |
| 1898 | 2,676,015 | 108,981 | 83.2 | 124,257 | 562,737 | 21.5 | — | 734,983 | 77.8 | 6,860,915 | 30.2 |
| 1899 | — | 109,261 | 85.5 | 125,709 | — | — | — | — | — | 7,437,916 | 32.9 |

SOURCES OF INFORMATION FOR THE FOREGOING TABLE.

[1] Germany. Die Ergebnisse des Impfgeschafts im Deutschen Reiche (1888-1898).
[2] Scotland. Reports of the Registrar General of Scotland (1886-1898).
[3] Holland. Reports of the Central Bureau of Statistics, 1900, p. 14.
[4] England. Reports of the Local Government Board (1885-1898).
[5] Japan. Reports of the Central Sanitary Bureau (1895-1896).
[6] Austria. Oesterreichisches Statist. Handbuch (1885-1900); also Statist. Sanitatswesen Wien., 1901.
[7] British India. Reports upon the Sanitary Measures in India (1885-1899).

"Well-nigh all Sweden embraces vaccination with perfect confidence."[8]

*Scotland.*— The column of figures for Scotland represents the numbers of children successfully vaccinated in each year, and the second column represents the percentages of those who were born during the year, these vaccinations usually being about 85 to 86% of these births. The remainder consists of those who died before vaccination (about 9½%), those in whose cases vaccination was postponed (about 2%), those who were insusceptible in consequence of having had smallpox and from other causes (about ½%), and those who had removed from the district before vaccination (about 2.5%).

Moreover, it was testified at the Parliamentary inquiry upon vaccination[9] that "at no time during that period (1864-1894) has there been any considerable opposition in Scotland to the practice of vaccination."

*Holland.*— The figures for Holland represent only the public vaccinations in the years named. Of the whole number of vaccinated persons represented in this column 9.3% were under one year old, 36.1% were between 1 and 3 years old, 42.3% were between 3 and 6, 8.2% were between 6 and 12, and 4.1% were over 12. The mean population of Holland for the period was about four and three-fourths millions.

*Ireland.*— Figures for vaccinations in Ireland are not available. It was testified before the Royal Commission of 1889-1896 that "At no time in that period (1831-1894) has there been any considerable opposition in Ireland to the practice of vaccination. The proportion of the population which had at some time been vaccinated has steadily grown, down to the present time.[10] Mr. Grimshaw also testified that "the population of Ireland accepted vaccination gratefully."[11]

*England.*— In England, on the contrary, the country where vaccination had its origin, there has developed a very strong and organized opposition to the practice. The result of this opposition is shown in the figures presented for England, which show a decreasing number of children vaccinated,—from 757,714 in 1885 to 562,737 in 1898, the births meanwhile increasing in the same period from 894,270 to 923,165.

In the thirtieth annual report of the Local Government Board of England it is stated:[12] "The proportion of cases not finally accounted for in England and Wales for 1898 is 21.5%; in London, 33%; in the provincial returns, 19.6%."

This percentage, not accounted for, has risen in some of the English cities to as much as 80%, and even higher in Leicester and Northampton; while in Liverpool and Manchester the unvaccinated residuum is quite small.

This fact, together with the absence of any adequate law providing (as in Germany) for revaccination, is amply sufficient to account for the frequent outbreaks of smallpox in English cities. London is at this moment paying the penalty of the weak and absurd position of Parliament in refusing to enact a strong compulsory law.

The number of cases of smallpox admitted to the Metropolitan Hospitals of London in the weeks ended Jan. 4, 11, 18, 25, Feb. 1, 8, 15, 22, March 1, 8, 15, 22, 29, and April 5, 12 and 19 were as follows: 261, 305, 213, 203, 499, 287, 390, 502, 555, 450, 449, 389, 376, 274 and 328.

*Japan.*— In Japan the vaccinations consist of both primary and revaccinations, and appear to be influenced, as in some other countries, to a considerable degree by the prevalence of smallpox. The report of the Central Sanitary Bureau stated in 1890 that "one of the principal causes of the wide prevalence of smallpox in late years is no doubt the neglect to vaccinate. This neglect was largely owing to an insufficient supply of vaccine."

The government now maintains a plant for the production of animal vaccine, which is distributed throughout the country.

The deaths from smallpox had been reduced from 188,471 in the five years 1879-1883, to 27,259 in the five years 1892-1896, or about one-seventh as many.

The total number of vaccinations performed in Japan during the 10 years 1887-1896, was 29,435,665, of which 11,726,601 were primary vaccinations and the remainder were revaccinations. Of these, 83.9% of the primary vaccinations and 33.5% of the revaccinations were successful and a large part of the population is still unvaccinated.

*Austria.*— In Austria, where vaccination is not compulsory, the number of vaccinations has varied from as low as 77.3% of the living births to 88.8%. These figures, however, do not represent the successful vaccinations, which constituted about 90% of the total. This reduces the percentage of the living-born protected by vaccination to an average of about 73%, leaving an unprotected residuum of about 27%. In some districts the percentage of unvaccinated persons is stated to be as high as 72 or 73.

*British India.*— Vaccination in British India, as shown by the table, appears to be progressing favorably, the annual number having increased from nearly four and three-fourths millions in 1885 to nearly seven and one-half millions in 1899. Even this large number, however, leaves a large unvaccinated population, sufficient to account for the excessive smallpox mortality which is annually reported.

In the report of 1884,[13] it was stated that "1,828,059 of the vaccinations were those of children under one year of age, or less than one-fourth of the estimated births."

"This is the only safe way of testing the probable effect of vaccination, for whatever the number of vaccinations above one year may amount to, we have added year by year some millions of infants who are the most susceptible subjects to

[8] Royal Commission on Vaccination, Final Report, p. 755.
[9] Final Report of Royal Commission, 1896, p. 36.
[10] Royal Commission, Final Report, p. 38.
[11] Second Report, p. 89.
[12] P. clvi.
[13] Sanitary measures in India.

attacks of smallpox, only one-fourth of the number being protected. In that year (1884) one-sixth of all the deaths which occurred in British India were from smallpox."

*Sweden.*—In Sweden vaccination is practically compulsory, and the public vaccinations during the 30 years 1860-1889, averaged about 105,000 per year.[14]

*Mexico.*—A letter of Dr. Liceaga, president of the Board of Health of Mexico, states that the vaccinations in the Federal District of Mexico from 1872 to 1890 amounted to 276,090.[15]

VACCINATION LAWS OF DIFFERENT COUNTRIES.

*The Law of England.*

The statutes of England relating to vaccination have nearly all been enacted in the latter half of the nineteenth century and in the reign of Queen Victoria. The first somewhat crude act of 1840[16] was entitled "An Act to Extend the Practice of Vaccination," and required medical officers to report the numbers vaccinated by them.

An act of the next year, 1841, chap. 32, related chiefly to the matter of expenses of vaccination.

The act of 1853[17] was entitled "An Act to Extend and Make the Practice of Vaccination Compulsory." It required that districts should be assigned for vaccination; children were to be vaccinated within three or four months of birth, and were to be inspected on the eighth day. Provision was also made for postponing vaccination in certain cases and for keeping records of vaccination.

In 1867 a more comprehensive act was passed, and the following are the essential provisions of this act as amended by further acts of 1871, 1874, and 1898:

I. (1) The period within which the parent or other person having the custody of a child shall cause the child to be vaccinated shall be six months from the birth of the child, instead of the period of three months mentioned in § 16 of the vaccination act of 1867, and so much of that section as requires the child to be taken to a public vaccinator to be vaccinated shall be repealed.

(2) The public vaccinator of the district shall, if the parent or other person having the custody of the child so requires, visit the home of the child for the purpose of vaccinating the child.

(3) If a child is not vaccinated within four months after its birth, the public vaccinator of the district, after at least twenty-four hours' notice to the parent, shall visit the home of the child, and shall offer to vaccinate the child with glycerinated calf lymph, or such other lymph as may be issued by the Local Government Board.

(4) The public vaccinator shall not vaccinate a child if, in his opinion, the condition of the house in which it resides is such, or there is or has been such a recent prevalence of infectious disease in the district, that it cannot be safely vaccinated, and in that case shall give a certificate (under § 18 of the vaccination act of 1867) of postponement of vaccination, and shall forthwith give notice of any such certificate to the medical officer of health for the district.

(5) Notwithstanding any regulation of any lying-in hospital or infirmary, or other similar institution, the parent of any child born in any institution shall not be compelled under such regulation or otherwise to cause or permit the child to be vaccinated at any time earlier than the expiration of six months from its birth.

II. (1) No parent or other person shall be liable to any penalty under § 29 or § 31 of the vaccination act of 1867, if within four months from the birth of the child he satisfies two justices, or a stipendiary, or metropolitan police magistrate, in petty sessions, that he conscientiously believes that vaccination would be prejudicial to the child, and within seven days thereafter delivers to the vaccination officer for the district a certificate by such justices or magistrate, of such conscientious objection.

(2) This section shall come into operation on the passing of this act, but in its application to a child born before the passing of this act there shall be substituted for the period of four months from the birth of the child the period of four months from the passing of this act.

(3) An order under § 31 of the vaccination act of 1867, directing that a child be vaccinated, shall not be made on any person who has previously been convicted of non-compliance with a similar order relating to the same child.

(4) No proceedings under § 31 of the vaccination act of 1867 shall be taken against any parent or person who has been convicted under § 29 of the said act on account of the same child, until it has reached the age of four years.

(5) Persons committed to prison on account of non-compliance with any order or non-payment of fines or costs under the vaccination acts shall be treated in the same way as first-class misdemeanants.

(6) Treats of the power to make rules as to duties and pay of the vaccinators.

(7) Local Government Board may in a threatened outbreak of smallpox require the provision of vaccine stations and make certain modifications in the provisions of the act.

(8) Lists to be kept in smallpox hospitals of names, etc., of patients and conditions as to vaccination.

(9) Provides for repeal of certain enactments.

(10) Act not to apply to Scotland and Ireland.

*The Law of Scotland.*

The following brief digest contains the essential provisions of the Scottish Vaccination Law.[18] This act is entitled "An Act to Extend and Make Compulsory the Practice of Vaccination in Scotland."

[14] See Report of the Royal Commission, vi, 755.
[15] Sixth Report, British Royal Commission, Appendix.
[16] 3 Vict. 3 and 4.
[17] 16 and 17 Vict.
[18] 29 and 27, chap. 108.

Section 1 provides for the appointment of registered medical practitioners as vaccinators by the parochial boards.

(2) Provides for remuneration of the vaccinators, at not less than 1*s.* 6*d.* for each vaccination (37 cents) when performed within two miles of the vaccinator's residence, measured by the nearest public road, and 2*s.* 6*d.* for distances beyond two miles.

(3) Makes the vaccination districts of the same area as the registration districts.

(4) Parochial boards are to give notice of the names of the vaccinators.

(5) Parochial boards are to conform to certain regulations.

(6) They are to defray the expenses of the act.

(7) Vaccination and medical treatment are not to be considered as alms or charitable expenses.

(8) The father, mother or guardian of a child must have each child vaccinated within six months of its birth, and is to receive a certificate of the same.

(9) A medical practitioner may exempt a child from vaccination for two months, if the child is not in a fit and proper state to be vaccinated.

(10) A medical practitioner may certify that a child is insusceptible to vaccination.

(12) Certain modifications may be made to apply to insular districts.

(15) Registrars must keep records of vaccinations.

(16) Registrars receive a fee of 3*d.* for each record of vaccination.

(17) Prescribes penalties for neglect and noncompliance. Vaccinators are required to keep records of vaccinations. The act is accompanied with a series of blank forms for the required certificates.

*Ireland.*— The law relating to Ireland was enacted in the same year,[19] and also provided that children should be vaccinated within six months of birth.

This was amended in 1879, requiring the vaccination of children within three months of birth or three months after being brought into Ireland.

*Germany.*[20]— The present vaccination law of Germany, enacted in 1874, applies to all the German states. Under this act every child must be vaccinated in the year following the year of its birth, and as there are usually two periods in each year for the performance of public vaccination (May and September), it follows that nearly all children are vaccinated before arriving at the age of twenty months.

All pupils of public or private schools must be revaccinated in their twelfth year, unless they have had smallpox or have been successfully vaccinated within five years.

Vaccination may be postponed in the case of sick children.

[19] Vict. 26 and 27.
[20] Reichs-Impfgesetz, April 8, 1874.

Persons vaccinated must be presented for inspection not earlier than the sixth nor later than the eighth day after vaccination.

Vaccination is gratuitous, and the places for vaccination and inspection must be within 5 kilometres of each other (about three miles).

Lists of persons to be vaccinated must be furnished to the vaccinators, who must also prepare lists of the persons successfully vaccinated and forward them to the government authorities.

The governments of the different states must establish dépôts for producing, storing and distributing the vaccine lymph, which is furnished gratuitously.

Certificates of successful vaccination are given to the vaccinated persons, which are requisite for admission to school.

The place for vaccination must be clean, well lighted and well ventilated. Children presented for vaccination must be clean, and dirty children are to be sent home by the person in charge.

*Sweden.*[21]— Vaccination has been compulsory in Sweden since 1853. Children must be vaccinated before the age of two years. Inspection must also be made in order to be assured that vaccination is successful.

No one can be admitted to a public school or public establishment unless he has had smallpox or been successfully vaccinated.

Certain persons have authority to vaccinate, chiefly physicians, sacristans and midwives.

Preference as to time for vaccination is given to May and September.

Certain physicians are nominated whose duty it is to maintain a constant supply of vaccine.

If anyone who has neglected vaccination is attacked with smallpox, and the infection should be propagated through this unfortunate omission, he will be liable to imprisonment.

*Austria.*— There is no direct compulsory vaccination in Austria.

*Denmark.*— Vaccination is compulsory in Denmark for all children, and must be performed before they attain the age of seven years. (Law of Feb. 4, 1871.)

*Holland.*— In Holland vaccination is not legally obligatory, but is practically enforced by the regulations regarding admission to school.

*Italy.*— A law of Jan. 1, 1892, provides for the production and preservation of vaccine lymph.

All children must now be vaccinated within the half-year succeeding their birth. Certain exemptions are specified — children who have had smallpox, etc.

Persons who have not been revaccinated since they were eight years old are excluded from schools and workshops until they are revaccinated.

*Portugal.*— Vaccination is not obligatory, and smallpox is of frequent occurrence.

*Spain.*— Vaccination is not obligatory, except for soldiers.

*Switzerland.*— At present vaccination is not compulsory in Switzerland. Dr. Schmid, federal sanitary reporter, says: "Faith in the protective

[21] Palmberg: Public Health and its applications, p. 447

power of vaccination is proved by the fact that the population still have recourse to vaccination in times of threatened outbreaks of smallpox."

*France.*— Vaccination is not compulsory in France. The Comité Consultatif d'Hygiène is bound to encourage it. The Academy of Medicine and the French Society of Hygiene take an active part in promoting vaccination. The production of vaccine lymph is not under governmental control, as in most other countries.

Vaccination is required as a preliminary to entrance to certain public establishments.

*Japan.*— Children must be vaccinated within a year after birth, and the vaccination is to be repeated a second and third time at intervals of five years.

*Egypt.*— By a decree of 1890 the vaccination of infants is made obligatory. The infant must be presented at the office of the health board and inspected within a week, and a certificate is then given, if successful vaccination is found. Postponement may be made in cases of illness.

Records of vaccinations must be kept.

STATE LAWS RELATIVE TO VACCINATION.[22]

The laws of the different states, although aiming at the same end, are very dissimilar in their methods of aiming at the result — the general vaccination of the population.

In Connecticut[23] "the health officers may adopt such measures for the general vaccination of the inhabitants of their respective towns as they shall deem proper and necessary to prevent the introduction or arrest the progress of smallpox."

In Michigan[24] boards of health may order the vaccination of all children or others who have not been vaccinated within five years.

In North Carolina[25] cities, towns and counties may make rules requiring vaccination, and a similar rule is found in Virginia,[26] Colorado[27] and Kentucky.[28] In South Carolina[29] the State Board of Health may order vaccination.

In some states (Colorado, Indiana and North Carolina) the laws only provide for vaccination during the prevalence of smallpox.

In New Mexico the governor may order vaccination and appoint vaccinators. In Georgia, county and municipal authorities may order vaccination.

The vaccination of school children has very generally been considered a practical method of securing the vaccination of the larger part of the population at a very susceptible period of life. It is argued, and rightly, that it is not only the right but the duty of the state to protect its schools against the invasion of communicable disease, and that this method of requiring the vaccination of pupils is a simple and effectual means of preventing the invasion of the schools by smallpox.

[22] Compiled chiefly from Chapin's Municipal Sanitation, 1901.
[23] General Statutes of Connecticut, 1888, Sec. 2,607.
[24] Compiled Laws, 1897, Sec. 1,465.
[25] Act of March 1, 1893, Sec. 23.
[26] Code of 1887, Sec. 1,733.
[27] Act of April 13, 1893, Sec. 42.
[28] Statutes of 1891, Sec. 1,040.
[29] Chapter 78, Laws of 1899.

The vaccination of school children is required in many states and has been declared constitutional in Indiana,[30] Pennsylvania,[31] New York[32] and California.[33]

In Connecticut, Maine, New Jersey and Ohio permissive laws are in force, authorizing the exclusion of unvaccinated children from the schools.

The attendance at school of unvaccinated persons is forbidden by law in California, Delaware, Florida,[34] Iowa,[35] Illinois,[35] Maryland, Massachusetts, New Hampshire, North Dakota,[35] New York, Pennsylvania and Rhode Island, with certain exceptions.

In Florida, Iowa, Kentucky, Maryland, Massachusetts and Minnesota the laws also require the vaccination of all children irrespective of school attendance.

In Florida no manufacturer can admit an unvaccinated employee. In Massachusetts provision is also made for the vaccination of persons in manufacturing establishments and in public institutions. In Connecticut and Maine workers in paper mills must be vaccinated. In Maryland, fruit packers and growers and fish packers cannot keep unvaccinated persons in their employ.

In a few states bovine lymph only can be used in public vaccinations.

In California, Connecticut and New York legal provision is made for gratuitous vaccination of school children.

In Maine, Michigan, New Hampshire, Vermont and Virginia the township is authorized to provide free vaccination, but in Delaware, Florida, Kentucky, Maryland, Massachusetts, New Jersey, Ohio and Rhode Island it is required of the local authorities.

REQUIREMENTS AS TO VACCINATION IN THE PUBLIC SCHOOLS OF NINETEEN CITIES.[36]

A physician's certificate of vaccination is required in the following cities:

New York. (Rules and Regulations, Manhattan and the Bronx, 1900, p. 64.)

Chicago, unless applicant has had smallpox. (Rules and Regulations, 1898, p. 30.)

Philadelphia, unless applicant has had smallpox. (Rules, 1897, p. 292.)

Boston, except where physician certifies that child is unfit for vaccination. (Rules and Regulations, 1900, p. 44). This is also a State law and applies to every city and town in Massachusetts.

Cleveland, vaccination or other protection. (Handbook, 1899-1900, p. 62.)

Buffalo. (Charter and Ordinances, 1896, p. 231.)

Detroit. (Rules, 1895, p. 24.)

Milwaukee. (Rules and Regulations, 1891, p. 44.)

Newark, unless child has had smallpox. (Report of 1899, p. 365.)

Providence. (By-Laws, 1897, p. 20.)

[30] See Report of State Board of Health of Indiana, 1894, p. 334.
[31] See Report of State Board of Health of Pennsylvania, 1895, ii, 82.
[32] See Report of Department of Health of Brooklyn, 1895.
[33] See Report of State Board of Health, 1889 and 1890, p. 40.
[34] In places of 2,000 inhabitants.
[35] In these States it is a rule of the State Board of Health as a part of its organic law.
[36] From Report of U. S. Commission of Education, 1899-1900, ii, 2581.

OTHER PROVISIONS.

St. Louis, children admitted, provided they have been vaccinated. (Rules, 1897, p. 78.)

Baltimore, vaccination or other protection from smallpox required. (Rules, 1900, p. 15.)

San Francisco, satisfactory evidence of vaccination required. (Rules, 1900, p. 38.)

Cincinnati, satisfactory evidence of vaccination required. (Manual, 1895, p. 198.)

New Orleans, satisfactory evidence of vaccination required. (Rules, 1896, p. 5.)

Washington, vaccination or other protection from smallpox required. (Rules, 1900, p. 1.)

Jersey City, vaccination or other protection from smallpox required. (Report, 1896, p. 148.)

Louisville, evidence of vaccination or other protection required. (Manual, 1898, p. 23.)

Minneapolis, evidence of vaccination, or physician's certificate that child should not be vaccinated, is required. (Annual Report, 1900, p. 134.)

*(To be continued.)*

## Recent Literature.

*A System of Physiologic Therapeutics.*— A Practical Exposition of the Methods, Other than Drug-Giving, Useful in the Prevention of Disease and in the Treatment of the Sick. Edited by Solomon Solis Cohen, A.M., M.D., Professor of Medicine and Therapeutics in the Philadelphia Polyclinic. In eleven octavo volumes. Volume VI: Dietotherapy and Food in Health. By Nathan S. Davis, Jr., A.M., M.D., Professor of the Principles and Practice of Medicine in Northwestern University Medical School; Physician to Mercy Hospital and Wesley Hospital, Chicago; Member American Medical Association, etc. Philadelphia: P. Blakiston's Son & Co. 1901.

The sixth volume of this excellent series discusses the highly important subject of food in health and disease. The aim of the author has been to make as practical a book as possible upon dietetics, and that he has succeeded a perusal of the pages amply testifies. One hundred and seventy pages are taken up with a discussion of the general principles underlying diet, and diet in health. A large amount of information with which all physicians should be familiar is presented in a systematic and readable way. The second part of the book concerns itself with the question of diet in disease; the writer in this section has seen fit to preface many of his remarks by a brief statement of the symptoms of the disease under consideration, which goes far toward impressing upon the mind of the reader his various warnings and suggestions. In general, the book is admirably conceived and put together, and is a fitting sequel to those which have gone before in this noteworthy attempt to rationalize therapeutic procedures.

Guatemala has the highest death-rate of any country in the world, 41 per 1,000. In New Zealand the mortality is only 11 in the 1,000.— *Medical Record.*

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# Medical and Surgical Journal.

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## EXACT METHODS OF DIAGNOSIS.

The very great desirability of quick and at the same time accurate methods of diagnosis will be generally admitted. It will also be granted that those methods are best which combine to the greatest possible degree these two elements. To be quickly accurate is what the clinician is striving for and what he is frequently absolutely incapable of attaining. Often there is time and to spare in arriving at a conclusion regarding the nature of disease; on the other hand, expedition is frequently necessary and always a satisfaction. Mechanical methods of diagnosis, to be practically useful must be simple, easily carried out after a moderate amount of training, and devoid of great expense. Whatever the diagnostic value of the x-rays may prove to be, for example, in internal medicine, it is clear that, unless the apparatus for producing them can be enormously simplified, they can never come into general use in the hands of the practitioner or consultant. As a routine practice it is altogether probable that this means of diagnosis will remain prohibited by expense and cumbersomeness.

Another and better example is the various investigations of the blood which a general physical examination apparently now demands. In hospital practice the determination of the condition of the blood has become almost as much of a routine of examination as the urine. This work is largely mechanical, laborious and consumes much time; it is therefore delegated to house officers. In the general fields of practice, where assistance is not so easily to be had, we suspect that the blood remains neglected, except in the exceptional instances when other signs point strongly toward some primary disease of the blood itself. The reasons for this are obvious: first, such examinations are rarely of more than contributary importance; and, secondly, it has up to the present

been so tedious a process, requiring instruments of considerable expense and much delicacy, that the practitioner has simply neglected the whole matter. In the rush and hurry of an ordinary practice this will always be the case. The more refined laboratory methods will be laid aside until they are made simple and therefore practically applicable. It is therefore gratifying to see new methods appearing from time to time which aim toward a maximum of simplicity and accuracy. The laboratory investigator certainly cannot render a greater service to practical medicine than to devote his knowledge and energies toward this end. The recent introduction of the so-called Tallquist Hemaglobin Scale is an instance in point. Just why some such simple means has not long since been discovered for determining so important a constituent of the blood, no one knows, but like every other highly useful discovery the wonder grows that it had not been thought of before. It is now possible for anyone to form an immediate estimate of the amount of hemaglobin, information which is always of value in general clinical work. The older method, inaccurate and annoyingly time-taking, will no doubt be wholly replaced by this, except when a control is needed. Other things being equal, the simpler method is sure to replace the more complex. We note also with gratification that Drs. Einhorn and Laporte of New York (*Medical News*, April 19, 1902) have recently published a new method of approximately estimating the number of blood corpuscles from stained specimens. For the details of the procedure we would refer our readers to the original article.

The writers conclude as follows:

First, the whole procedure is a very simple one. Neither pipettes nor diluting solutions are needed. Every physician can easily carry a few cover-glasses in his pocket and thus always has at hand all the utensils necessary for obtaining a specimen for counting.

Second, the method is a very rapid one. If we wish to determine the number of leucocytes only, we can reach an accurate estimate in five or even three minutes after staining. If besides the white the red cells also have to be counted, which of course is a more tedious procedure, it will take from ten to fifteen minutes. Those who have had experience in blood-counting will grant that an accurate count either of the red or white alone according to the Thoma-Zeiss method will with the necessary subsequent careful cleaning of the pipette take not less than half an hour, usually longer.

This method of cover-glass counting furthermore allows us to obtain simultaneously an idea about the condition of the blood as manifested in the stained specimen. It is easy, especially when counting the leucocytes alone, to combine a differential leucocyte count with it, which also tends to save time.

Finally, by this method we are enabled by reason of its rapidity and simplicity to count more frequently, from hour to hour if necessary. No one will doubt that this may occasionally be of great diagnostic and prognostic value in cases of acute appendicitis or similar acute cases in which pus may be suspected and in which we have to deal with a persistent or progressive hyperleucocytosis.

We have no experience whatever with the method, but if, as claimed, it is comparatively simple and quickly accomplished, it is safe to prophesy that it will gain many adherents among those who shun the comparatively laborious method now in vogue. Another example of the value of rapidity in diagnosis is given in the use of the freezing microtome now generally available in hospitals, though naturally still beyond the reach of the practitioner. This, with the rapid methods of mounting, fixing and staining have been of the very greatest service in the immediate diagnosis of new growths and various pathological products. In general, if we are to bring laboratory methods into closer accord with observation in clinical work, we must endeavor on the laboratory side continually to simplify, and thus render generally useful, exact methods of diagnosis. Badly named as it is, the development of so-called "clinical pathology" represents the need of practically applicable methods of exact diagnosis, and will, no doubt, do much to bridge the gap between pathological anatomy and the clinical study of disease.

## THE BOSTON FLOATING HOSPITAL.

FOR a number of years certain physicians and philanthropic persons have maintained a floating hospital for the city of Boston during the hot months of summer. The work has been prosecuted with great difficulty owing to the somewhat improvised and inadequate character of the boat which alone was available. In spite of these drawbacks a well-equipped hospital has been carried on which has led to a considerable amelioration in the condition of the smaller children of the crowded sections of the city. As is natural in such cases the number of patients has rapidly outgrown the capacities of the boat, particularly since it has become advisable to keep certain of the sicker children more or less permanently on board. We are glad, therefore, to record the fact that a very much improved hospital boat is projected, the plans for which have already been drawn. In designing this new boat, facilities for the treatment of all varieties of children's diseases have been provided for, together with ample room for mothers and for the isolation of those cases demanding such special care.

The vessel is to have four decks. Forward of the main deck there are to be two wards, each with sixteen beds, together with the necessary examining and treatment rooms. Further aft is a room specially designed for the modification of milk. Various offices and special rooms for doc-

tors, nurses and guests, with the requisite toilet facilities, are also provided for on this deck. On the lower deck the contagious wards are located. In this part of the boat there is also an atmospheric plant, making it possible to maintain an even temperature whatever the external conditions may be. An autopsy room and morgue are also provided for. The upper deck has four large wards, each with sixteen beds and the necessary accessories. The deck above this is to serve for the use of so-called out-patients, which no doubt will form the greater contingent of the total number of children treated.

It is proposed, as the brief sketch we have given would indicate, to make this an entirely adequate hospital for the purpose for which it is designed. We can easily see that this may be the case, inasmuch as all that previous experience and foresight can accomplish will be brought to bear on these new plans. It is also self-evident that even this greatly enlarged hospital will soon be wholly inadequate for the demands made upon it. We are, however, probably not overstepping the bounds of probability when we say that increased facilities even to the multiplication of such floating hospitals will be provided as the urgent demand arises. Certainly the charity is one to be fostered and encouraged.

## MEDICAL NOTES.

Officers of the Association of American Physicians.— The Association of American Physicians has elected the following officers for the coming year: President, Dr. James Stewart, Montreal; Vice-President, Dr. William T. Councilman, Boston; Secretary, Dr. Henry Hun, Albany, N. Y.; Treasurer, Dr. J. P. C. Griffith, Philadelphia; Recorder, Dr. S. Solis Cohen, Philadelphia, and Councillors, Dr. Charles G. Stockton and Dr. Walter Reed.

Diphtheria in Berlin, Germany.— It is reported that owing to the use of antidiphtheritic serum there has been the lowest death-rate from diphtheria in Berlin ever recorded. The deaths in 1901 were 469. Previously the deaths ranged from 1,300 to 2,600 a year.

Cholera in the Philippines.— A despatch dated May 5 states that there have been in Manila 754 cases and 603 deaths from cholera, while the provinces report 2,153 cases and 1,583 deaths.

### BOSTON AND NEW ENGLAND.

Acute Infectious Diseases in Boston.— For the week ending at noon, May 7, 1902, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: Diphtheria 41, scarlatina 18, measles 166, typhoid fever 8, smallpox 22.

Boston Mortality Statistics.— The total number of deaths reported to the Board of Health for the week ending May 3 was 225, as against 234 the corresponding week last year, showing a decrease of 9 deaths, and making the death-rate for the week 20.5. The number of cases and deaths from infectious diseases is as follows: Diphtheria 33 cases, 7 deaths; scarlatina 20 cases, 1 death; typhoid fever 12 cases, 1 death; measles 158 cases, 4 deaths; tuberculosis 19 cases, 26 deaths; smallpox 28 cases, 4 deaths. The deaths from pneumonia were 26; whooping cough, 1; heart disease, 14; bronchitis, 3; marasmus, none. There were 11 deaths from violent causes. The number of children who died under 1 year was 42; under 5 years, 70; persons more than 60 years, 56; deaths in public institutions, 78.

Annual Meeting of Norfolk South District Medical Society.— The annual meeting of the Norfolk South District Medical Society was held May 2, at the United States Hotel, Boston. The annual address was delivered by the president, Dr. J. C. Fraser, on the subject "The History of Medicine." The election of officers resulted as follows: President, Dr. J. C. Fraser; Vice-President, Dr. W. A. Drake; Secretary and Treasurer, Dr. S. W. Ellsworth; Commissioner of Trials, Dr. N. S. Hunting; Councillors, Drs. N. S. Hunting, C. S. Adams, E. N. Mayberry and V. M. Tirrell; Censors, Drs. E. N. Mayberry, W. A. Drake, F. C. Granger, J. F. Welch and J. A. Gordon.

Bill to Permit the State to Make its own Vaccine Virus.— The Committee on Public Health gave a hearing May 5, at the State House, on the resolve of Representative Adams of Melrose that the State Board of Health be authorized and requested to investigate and report a plan for production and distribution of pure vaccine lymph for free use in this Commonwealth, the report to be made to the General Court as soon possible. Dr. H. P. Walcott, chairman of the State Board of Health, spoke in favor of the resolve, which was also supported by Dr. S. W. Abbott, secretary of the Board.

Organization of the Boston Board of Health.— The Boston Board of Health has organized by the choice of Dr. Samuel H. Durgin as chairman and Mr. Charles E. Davis as secretary. Dr. Durgin has held the position of chairman since 1877.

A Victim of "Caisson" Disease.— A negro employed in the East Boston tunnel construction work is reported to have died last week from so-called "Caisson" disease.

NEW YORK.

DEATH-RATE IN NEW YORK CITY IN 1901.— From statistics just issued by the Health Department it appears that the total number of deaths in the city during the year 1901 was 70,720 and that the death-rate was exactly 20 per thousand of the estimated population. The death-rate for each of the five boroughs was as follows: Manhattan, 20.55; the Bronx, 21.60; Brooklyn, 19.25; Queens, 17.20; Richmond, 19.51. In the borough of the Bronx, where the mortality is the heaviest, it is to be noted that the death-rate is increased by the presence of several large institutions, the great majority of whose inmates are residents of the other boroughs. The statistics of the principal contagious diseases are as follows: Diphtheria and croup, cases reported, 12,329; deaths, 2,068. Measles, cases reported, 11,990; deaths, 449. Scarlet fever, cases reported, 16,692; deaths, 1,162. Smallpox, cases reported, 1,964; deaths, 410. Typhoid fever, cases reported, 2,748; deaths, 727. The number of deaths from some of the other principal diseases was as follows: Phthisis, 8,135; pneumonia (not including bronchopneumonia, from which there were 2,621 deaths), 6,547; nephritis and Bright's disease, 5,500; cancer and other malignant growths, 2,463; organic diseases of the heart, 4,626; diarrhea and enteritis (under two years of age), 5,796; malarial fevers, 195; influenza, 856. During the year there were 4,636 violent deaths, of which 713 were suicides.

ITEMS OF NEW YORK'S BUDGET.— On April 30 the budget for the city's expenses for the present year was finally passed upon by the Board of Estimate and Apportionment. The Department of Health gets an appropriation of $984,391, which is about $5,500 larger than that in the original budget. The appropriation for Bellevue and the other public hospitals under the charge of the new Hospital Commission is $572,086, an increase of $110,000, and that for the Department of Public Charities is $1,773,960, an increase of $175,076. These increased allowances were found by the Board to be necessary in order that the work of the Health Department might be efficiently carried on and the city's sick and poor be adequately cared for.

JEWISH HOSPITAL FOR BROOKLYN.— A largely attended meeting was held on April 27 at Temple Israel, Brooklyn, for the purpose of increasing the interest in the proposed Jewish Hospital in that borough. It is planned to raise at least $100,000 with which to begin the work of building. About $35,000 has already been subscribed, and it is expected that $70,000 will later be raised. The hospital society has some 800 members who are interested in the project, and it is at present conducting a dispensary on Johnson Avenue, Williamsburgh.

AN ELECTRIC AMBULANCE LAUNCH.— The Margaret, the first electric ambulance launch ever built, and the gift of Isaac N. Seligman to St. John's Guild, was launched at Bayonne, N. J., on May 2, and made a successful trial trip. This water ambulance is to be used in transferring sick children from the Guild's floating hospitals to the Seaside Hospital at New Dorp, Staten Island, provision being made for lowering a stretcher directly from the hospital barge through the canopy of the launch.

BEQUEST FOR HOSPITAL BED.— By the will of Mrs. Isadora Ritter $5,000 is left to St. John's Hospital, Brooklyn, to endow a bed in memory of her sons, Joseph and Judson Dimoch.

## Obituary.

### ZABDIEL BOYLSTON ADAMS, M.D.

ZABDIEL BOYLSTON ADAMS, M.D., descended from Zabdiel Boylston Adams, Harvard (1791), and from Zabdiel Boylston Adams, Harvard (1813), and M.D. (1816), died May 1, 1902, at the age of seventy-two years and eight months.

He was a graduate of Bowdoin College, and of the Harvard Medical School in 1853. He practised in Boston, but on the breaking out of the Civil War he joined the army. He was surgeon of the Thirty-second Massachusetts Regiment, was a captain in the Fifty-sixth Regiment, and was commissioned major by Governor Andrew. He was wounded several times and carried his lameness until his death. He was for three months in Libby prison. Returning from the war somewhat shattered in health, he settled in Roxbury, where he was one of the charter members of the Roxbury Society for Medical Improvement. In 1867 he removed to Framingham, where he passed thirty-five years as a practitioner; he was many years medical examiner, and filled other offices of trust and responsibility.

He was chosen councillor of the Massachusetts Medical Society in 1872, 1873 and 1874, and from 1886 to 1902. He was elected vice-president in 1893 and 1894. In 1887 he delivered the annual oration. Honored thus by his medical brethren, he shared equally the love and esteem of his fellow-citizens.

An optimist by temperament he was warmly enthusiastic in all that concerned the welfare of his profession. He was an ardent upholder of vaccination.

We recall with interest his advocacy of the lancet, at a recent meeting of the Massachusetts Medical Society, that disused instrument of the old armamentarium, in the treatment of some forms of sthenic pneumonia.

His good-fellowship rendered him a beloved and acceptable fellow of the Loyal Legion. To its publications he contributed an exceedingly readable sketch of his army experiences.

Born of an old New England stock he maintained its prestige in his personal appearance and his genial manners. An honorable professional career was terminated by his accidental death — untimely for his friends, but not premature as to age. He was an old-fashioned doctor and a characteristic representative of the passing generation.

His widow, son and daughter survive him. The son, the fourth of the name, is entering on his father's profession.

## JOHN HOMANS, 2d, M.D.

John Homans, 2d, M.D., died in Boston on May 4 at the age of forty-five. Although for several years there had been symptoms of renal disease, up to three months ago he had not been prevented from leading an active life. Dr. Homans, who followed his grandfather, father and uncle in the pursuit of medicine, was the son of Dr. Charles D. Homans. He graduated from Harvard College in the class of 1878, and immediately entered the medical school. He received the degree of M.D. in 1882, after a year of service as surgical house-officer in the Massachusetts General Hospital. He spent two years in study in Europe, and returned to Boston, where he has since practised medicine.

He was greatly interested in furthering the needs of the Medical Library, having for years given much time and labor to this work, and as a member of the executive committee of the Medical Library Association, his enthusiasm and zeal contributed largely to the successful completion of the new building erected on the Fenway. He was devotod to the cause of cremation from an early date, when public interest was slow in awakening, and in his position as secretary of the Massachusetts Cremation Society, added his full measure to developing the standing held by this movement today. At the time of his death he was president of the Massachusetts Charitable Eye and Ear Infirmary, having served on the board of directors for several years. He was also physician and director of the Home for Aged Men, and of the Boston Asylum and Farm School for Indigent Boys; assistant medical director of the New England Mutual Life Insurance Company, and a trustee of the Massachusetts Humane Society. In addition to his medical interests he was a keen student of military history. He was a member of the Military Historical Society and the New England Historic and Genealogical Society. He was a prominent member of the Society of the Cincinnati, in which he had held the office of assistant secretary of the Massachusetts Chapter for many years.

Dr. Homans has for nearly twenty years been identified with the active medical and charitable work of Boston, and never more so than just before his death. Always loyal to the profession, he was a zealous guardian of its dignity and honor. Whenever opportunity offered he worked for the public good with genuine interest and enthusiasm. Unsparing of himself in his thought for his patient, he was always ready to give not only his time and skill but his friendship, and with it invaluable comfort and encouragement. The loss to the profession and to the community will be keenly felt.

## FREDERICK A. CASTLE, M.D.

Dr. Frederick A. Castle of New York died from intestinal cancer on April 28, in the sixtieth year of his age. About a week before his death he was removed to the Roosevelt Hospital, where he was twice operated upon in the hope of prolonging his life. A short time after the second operation he succumbed. While a medical student at Bellevue Hospital Medical College, at the beginning of the Civil War, Dr. Castle helped to organize what was known as the Medical Cadet Corps, and was sent with it to the front. Later, he left that organization and served for two years in the navy. He then returned to New York and resumed his medical studies, and was graduated from Bellevue in 1866. He became widely known in the profession through his editorial work in connection with several medical journals, and for a time occupied the chair of materia medica and therapeutics in Bellevue Hospital Medical College. He was largely interested in the erection of the Academy of Medicine building on West 43rd Street, being a trustee and afterwards the treasurer of the Academy. Outside of his profession he was interested in bookbinding and designing, and he planned the "Dutch Room" of the Grolier Club, of which he was a prominent member.

## METEOROLOGICAL RECORD

**For the week ending April 26, in Boston, according to observations furnished by Sergeant J. W. Smith of the United States Signal Corps:**

| Date | Barometer. Daily mean. | Thermometer. Daily mean. | Thermometer. Maximum. | Thermometer. Minimum. | Relative humidity. 8.00 A.M. | Relative humidity. 8.00 P.M. | Relative humidity. Daily mean. | Direction of wind. 8.00 A.M. | Direction of wind. 8.00 P.M. | Velocity of wind. 8.00 A.M. | Velocity of wind. 8.00 P.M. | We'th'r * 8.00 A.M. | We'th'r * 8.00 P.M. | Rainfall in inches. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S...20 | 30.06 | 51 | 60 | 42 | 85 | 78 | 82 | S | S | 10 | 13 | F. | O. | T. |
| M..21 | 30.04 | 56 | 65 | 48 | 75 | 72 | 74 | S W | S | 10 | 10 | O. | O. | .01 |
| T. .22 | 29.98 | 50 | 58 | 42 | 73 | 93 | 83 | W | N E | 6 | 11 | O. | O. | |
| W .23 | 29.84 | 56 | 71 | 41 | 93 | 64 | 78 | S E | S W | 3 | 21 | C. | C. | |
| T. .24 | 30.05 | 56 | 66 | 46 | 67 | 53 | 60 | W | W | 20 | 10 | C. | C. | |
| F. .25 | 30.24 | 52 | 61 | 42 | 61 | 60 | 60 | N W | S | 12 | 12 | R. | O. | |
| S...26 | 29.80 | 56 | 67 | 45 | 96 | 79 | 88 | S E | S W | 8 | 29 | C. | C. | .36 |
| ☞ | 30.00 | | 64 | 44 | | | 75 | | | | | | | .37 |

*O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow. †Indicates trace of rainfall.
☞ Mean for week.

## RECORD OF MORTALITY

For the Week ending Saturday, April 26, 1902.

| Cities. | Population Estimated, 1902. | Reported deaths in each. | Deaths under five years. | Percentage of deaths from: Infectious diseases. | Acute lung diseases. | Diphtheria and croup. | Typhoid fever. | Cerebro spinal meningitis. |
|---|---|---|---|---|---|---|---|---|
| New York . . | 3,665,352 | 1,419 | 447 | 23.25 | 13.67 | 3.59 | .42 | .35 |
| Chicago . . | 1,852,828 | — | — | — | — | — | — | — |
| Philadelphia. | 1,349,624 | 473 | 108 | 24.50 | 11.10 | 1.69 | 4.64 | .42 |
| St. Louis . . | 603,717 | — | — | — | — | — | — | — |
| Baltimore . . | 525,330 | 214 | 54 | 29.20 | 13.66 | .94 | 1.41 | — |
| Cleveland . . | 411,826 | — | — | — | — | — | — | — |
| Buffalo . . . | 375,742 | — | — | — | — | — | — | — |
| Pittsburg . . | 341,401 | 162 | 42 | 23.44 | 17.28 | .62 | 8.02 | — |
| Cincinnati . | 332,032 | — | — | — | — | — | — | — |
| Milwaukee . | 304,975 | — | — | — | — | — | — | — |
| Washington . | 289,537 | — | — | — | — | — | — | — |
| Providence . | 186,870 | 59 | 18 | 20.40 | 10.20 | — | 1.70 | — |
| Boston . . . | 588,736 | 207 | 49 | 22.22 | 15.94 | 1.93 | .48 | — |
| Worcester. . | 127,337 | 30 | 11 | 10.00 | 13.33 | 3.33 | — | — |
| Fall River. . | 111,872 | 26 | 10 | 23.10 | 19.25 | — | — | 3.85 |
| Lowell . . . | 99,574 | 48 | 11 | 8.33 | 16.66 | 2.08 | — | — |
| Cambridge . | 96,334 | 27 | 6 | 14.80 | 11.10 | 3.70 | — | — |
| Lynn. . . . | 71,144 | 30 | 11 | 13.33 | 6.67 | — | — | 3.33 |
| Lawrence . . | 67,275 | 15 | 11 | 13.33 | 26.66 | — | — | — |
| Springfield . | 66,854 | 23 | 3 | 21.74 | 26.09 | — | — | — |
| Somerville . | 65,882 | 14 | 3 | 21.42 | 42.84 | — | — | — |
| New Bedford. | 65,574 | 29 | 8 | 10.34 | 20.68 | — | — | — |
| Holyoke . . | 48,065 | 9 | 2 | — | 11.11 | — | — | — |
| Brockton . . | 43,208 | 4 | — | 25.00 | — | — | — | — |
| Haverhill . . | 40,392 | 12 | 3 | 33.33 | 16.67 | 8.33 | — | — |
| Salem . . . | 36,567 | 13 | 1 | 7.70 | 15.40 | 7.70 | — | — |
| Newton. . . | 36,336 | 9 | 1 | 33.33 | — | — | — | — |
| Malden . . . | 35,390 | 4 | 1 | 25.00 | — | — | — | — |
| Chelsea. . . | 35,264 | 15 | 4 | 20.00 | — | — | — | — |
| Fitchburg. . | 33,848 | 10 | 4 | 40.00 | — | — | — | — |
| Taunton . . | 32,759 | 11 | 1 | 9.09 | 9.09 | — | — | — |
| Everett. . . | 27,114 | 15 | 3 | 20.00 | — | 6.67 | — | — |
| North Adams | 26,583 | 8 | — | 12.50 | — | — | — | — |
| Gloucester . | 26,121 | 6 | 1 | — | — | — | — | — |
| Quincy . . . | 25,307 | 11 | 3 | 18.18 | 18.18 | 9.09 | — | — |
| Waltham . . | 24,612 | 2 | — | — | — | — | — | — |
| Pittsfield . . | 22,311 | 2 | — | — | — | — | — | — |
| Brookline. . | 21,679 | 2 | — | — | — | — | — | — |
| Chicopee . . | 20,390 | 4 | 1 | 25.00 | 25.00 | — | — | — |
| Medford . . | 20,014 | 6 | 1 | 50.00 | — | — | — | — |
| Newburyport | 14,478 | 3 | 1 | 33.33 | 33.33 | — | — | — |
| Melrose . . | 13,384 | 4 | 2 | — | — | — | — | — |
| Westfield . . | 13,038 | 5 | — | 40.00 | — | — | — | 20.00 |
| Attleboro . . | 12,846 | — | — | — | — | — | — | — |
| Adams . . . | 12,813 | — | — | — | — | — | — | — |
| Milford . . | 12,516 | — | — | — | — | — | — | — |
| Framingham | 12,109 | 7 | — | 14.30 | 28.60 | — | — | — |
| Peabody . . | 11,957 | — | — | — | — | — | — | — |
| Revere . . . | 11,894 | 5 | — | 20.00 | — | — | — | — |
| Gardner . . | 11,544 | 1 | — | — | — | — | — | — |
| Weymouth . | 11,337 | 5 | 1 | 40.00 | — | — | — | — |
| Southbridge. | 10,838 | 3 | 2 | — | 66 67 | — | — | — |
| Watertown . | 10,600 | 4 | 1 | 25.00 | 25.00 | — | — | — |
| Plymouth . . | 10,336 | — | — | — | — | — | — | — |

Deaths reported 2,973; under five years of age, 831; principal infectious diseases (smallpox, measles, scarlet fever, cerebrospinal meningitis, diphtheria and croup, diarrheal diseases, whooping cough, erysipelas, fevers and consumption) 677, acute lung diseases 406, consumption 335, scarlet fever 27, erysipelas 18, typhoid fever 46, whooping cough 27, cerebrospinal meningitis 10, smallpox 25, measles 42, diarrheal diseases 57.

From whooping cough, New York 13, Philadelphia 4, Baltimore 5, Pittsburg 2, Boston 2, Worcester 1. From scarlet fever, New York 17, Philadelphia 4, Pittsburg 3, Boston 1, Fitchburg 2. From erysipelas, New York 5, Philadelphia 5, Baltimore 1, Pittsburg 3, Boston 3, Lowell 1. From typhoid fever, New York 6, Philadelphia 22, Baltimore 3, Pittsburg 13, Providence 1, Boston 1. From measles, New York 22, Philadelphia 3, Pittsburg 9, Boston 3, Lynn 2, Somerville 1, Chelsea 2. From smallpox New York 13, Philadelphia 6, Baltimore 2, Boston 3, Watertown 1.

In the seventy-six great towns of England and Wales, with an estimated population of 14,862,003, for the week ending April 12, the death-rate was 17.4. Deaths reported 4,971; acute diseases of the respiratory organs (London) 299, whooping cough 145, diphtheria 85, measles 161, smallpox 94, scarlet fever 45.

The death-rate ranged from 5.5 in Hornsey to 28.5 in Middleborough; London 17.3, West Ham 20.4, Croydon 11.7, Brighton 13.8, Portsmouth 21.4, Southampton 13.1, Bristol 15.7, Birmingham 20.9, Leicester 15.9, Nottingham 13.7, Birkenhead 19.5, Liverpool 20.1, Manchester 20.1, Salford 18.9, Bradford 15.4, Leeds 18.6, Sheffield 15.0, Hull 18.7, Newcastle-on-Tyne 19.8, Cardiff 17.3.

## CHANGES IN THE MEDICAL CORPS OF THE NAVY FOR THE WEEK ENDING APRIL 12, 1902.

T. A. BERRYHILL, surgeon. Granted sick leave for six months.

E. KERSHNER, medical inspector, retired. Commissioned medical inspector on the retired list from April 2, 1902.

FOR THE WEEK ENDING APRIL 19, 1902.

W. L. BELL, assistant surgeon. Ordered to Pocatello, Idaho, on recruiting duty.

R. H. YOUNG, assistant surgeon. Detached from the "Rainbow" and ordered to the Cavite Naval Station.

F. M. MUNSON, doctor. Appointed assistant surgeon April 5, 1902.

M. S. GUEST, passed assistant surgeon. Detached from the Cavite Naval Station and ordered to the "New Orleans."

H. D. WILSON, passed assistant surgeon. Ordered to duty with the Marine Brigade, Philippine Islands.

H. C. HOLCOMBE, assistant surgeon. Ordered to proceed home via "Manila."

## OFFICIAL LIST OF THE CHANGES OF STATION AND DUTIES OF COMMISSIONED AND NON-COMMISSIONED OFFICERS OF THE U. S. MARINE HOSPITAL SERVICE FOR THE SEVEN DAYS ENDING APRIL 10, 1902.

AUSTIN, H. W., surgeon. To proceed to the Delaware Breakwater and Reedy Island Quarantine Stations as inspector of unserviceable property. April 4, 1902.

GLENNAN, A. H., surgeon. To report at Washington, D. C., for special temporary duty. April 9, 1902.

HODGSON, S. H., acting assistant surgeon. Granted extension of leave of absence for ten days from March 30, 1902. April 7, 1902.

JACKSON, J. M., acting assistant surgeon. Granted leave of absence for three days from April 9, 1902. April 7, 1902.

FOR SEVEN DAYS ENDING APRIL 17, 1902.

BANKS, C. E., surgeon. Granted leave of absence for five days from April 14, 1902. April 11, 1902.

WHITE, M. J., assistant surgeon. To proceed to Reno, Nev., for special temporary duty. April 15, 1902.

GOLDSBORO, B. W., acting assistant surgeon. Granted leave of absence for seven days. April 16, 1902.

WALKER, R. T., acting assistant surgeon. Granted leave of absence for eighteen days from May 1, 1902. April 11, 1902.

BOARDS CONVENED.

Board convened to meet at Baltimore, Md., to inspect steam tug "Neptune." Detail for the Board: Passed Assistant Surgeon H. D. Geddings, Marine Hospital Service and Chief Engineer H. W. Spear, Revenue Cutter Service.

Board convened to meet at the Bureau April 11, 1902, for the physical examination of candidates for appointment to grade of second assistant engineer, Revenue Cutter Service. Detail for the Board: Surgeon L. L. Williams, chairman, and Assistant Surgeon S. B. Grubbs, recorder.

Board convened to meet at New Orleans, La., April 14, 1902, for physical examination of an officer of the Revenue Cutter Service. Detail for the Board: Passed Assistant Surgeon C. P. Wertenbaker, chairman, and Assistant Surgeon J. W. Schereschewsky, recorder.

Board convened to meet at Marine Hospital office, San Francisco, Cal., Monday, April 21, 1902, to examine officers of Revenue Cutter Service. Detail for the Board: Passed Assistant Surgeon W. G. Stimpson, chairman, and Passed Assistant Surgeon H. S. Cumming, recorder.

Board convened to meet at Marine Hospital, Port Townsend, Wash., Monday, April 21, 1902, to examine an officer of the Revenue Cutter Service. Detail for the Board: Passed Assistant Surgeon C. H. Gardner, chairman, and Assistant Surgeon M. H. Foster, recorder.

## SOCIETY NOTICES.

AMERICAN ORTHOPEDIC ASSOCIATION.—The sixteenth annual meeting will be held in Philadelphia June 5, 6 and 7, 1902.

THE AMERICAN PROCTOLOGIC SOCIETY.—The fourth annual meeting will be held in Saratoga Springs, New York, June 10 and 11, 1902.

NEW HAMPSHIRE MEDICAL SOCIETY.—The one hundred and eleventh anniversary meeting of this society will be held Thursday and Friday, May 15 and 16, 1902, at Concord, N. H.

AMERICAN CONGRESS OF TUBERCULOSIS.—The American Congress of Tuberculosis will be held June 2, 3 and 4, instead of May 14, 15 and 16, as first announced, at the Hotel Majestic, New York City.

TRI-STATE MEDICAL SOCIETY OF ALABAMA, GEORGIA AND TENNESSEE.—The fourteenth annual meeting of the Tri-State Medical Society of Alabama, Georgia and Tennessee will be held at Birmingham, Ala., Tuesday, Wednesday and Thursday, Oct. 7, 8 and 9, 1902.

## PRIZE ESSAY.

The Colorado State Medical Society offers a prize of twenty-five dollars for the best essay, for circulation among the laity, upon the dangers of self-drugging with proprietary medicines. The competition is open to all. Essays must be typewritten in the English language, must contain not more than 3,000 words, and must be submitted before June 15, 1902. Essays should be sent to Dr. C. A. Graham, secretary, Stedman Block, Denver, Colo.

## RECENT DEATHS.

ZABDIEL BOYLSTON ADAMS, M.D., M.M.S.S., died in Framingham May 1, 1902, aged seventy-two years.

JOHN HOMANS, 2d, M.D., M.M.S.S., died in Boston May 4, 1902, aged forty-five years.

DR. CHARLES H. MASTER, a prominent physician of Rockland County, New York, died of pneumonia at his residence in Nyack-on-the-Hudson, on May 1, in the sixty-third year of his age. He was graduated from Bellevue Hospital Medical College, New York, in 1869.

DR. CHARLES ABNER PHELPS died recently in Boston at the age of eighty-one. Dr. Phelps was born Oct. 20, 1820. His father was Dr. Abner Phelps, a prominent physician. He entered the Harvard Medical School, graduating in 1844. He also took a degree at the Jefferson Medical College, Philadelphia. In 1860 he gave up the practice of medicine and devoted himself to politics.

## BOOKS AND PAMPHLETS RECEIVED.

A Lecture on Abiotrophy. By Sir W. R. Gowers, M.D. (Lond.), F.R.S. Reprint.

The Therapeutics of Cutaneous Diseases. By Albert E. Carrier, M.D., of Detroit, Mich. Reprint. 1902.

Hare-Lip and Cleft Palate. By R. W. Murray, F.R.C.S. Illustrated. Philadelphia: P. Blakiston's Son & Co.

The Medical Treatment of Gallstones. By J. H. Keay, M.A., M.D. Philadelphia: P. Blakiston's Son & Co. 1902.

On the Decadence of the American Race. By John W. Kyger, M.D., Kansas City, Mo. Reprint. 1902.

Transactions of the American Climatological Association for the year 1901. Volume XVII. Philadelphia. 1901.

# Original Articles.

## BIRTH- AND DEATH-RATE AS INFLUENCED BY OBSTETRIC AND GYNECIC PROGRESS.*

BY GEORGE J. ENGELMANN, M.D., BOSTON,
*President Obstetrical Society of Boston.*

The progress of medical science has left an unquestioned impress upon the world's vital record, and we see the results clearly marked in the statistics of all civilized communities. No less decisive has been the progress of obstetric and gynecic science, and we have every reason to expect similar positive results and a similar impress upon vital statistics. But it will appear that *this is not the case;* at least not to an even approximately corresponding degree, as shown by a comparison of the results achieved: On the one hand (1) the death-rate, past and present, from certain infectious diseases; on the other (2) fecundity, number of stillbirths and death-rate in childbirth before and after introduction of modern method.

### I. STATISTIC EVIDENCE OF MEDICAL PROGRESS.

This we find in fluctuations in the movements of population which are directly referable to the development of medical science, such as the control of smallpox or diphtheria and the extermination of yellow fever.

(1) *Smallpox.*— Smallpox, that foul disease which, according to Condamine,[1] at one time destroyed or disfigured one-fourth of mankind, and which was causing one-tenth of all the deaths of the human race when Jenner performed his first vaccination, is now almost eradicated. In the last decade of the eighteenth century, 32% of all deaths under ten years of age were due to smallpox, and at times, as epidemics swept over the land, these figures were frightfully exaggerated. In 1737, 70% of the inhabitants of Greenland died from the ravages of this disease, which has left its traces on this continent too, and has done more than any other cause to exterminate the American Indian: as late as 1837 the destruction of life was enormous, entire tribes being swept away by this disease.

The results of vaccination appear with the precision of a chemical experiment: from 1774 to 1801 there were 204 deaths per 100,000 population in Sweden. The very first attempt at vaccination (1892 to 1896) is marked by a reduction of this rate to 40.8; optional vaccination reduced this to 15.5 (1817 to 1884), and compulsory vaccination (1884 to 1893) brought the figures to a minimum, the death-rate being but .02 to .5, very much the same figures as those found in Prussia.

In 1874, when vaccination was made compulsory in that country, the death-rate from smallpox was 31 to 100,000 population; after that it was 1.5, and in 1896, .5. In the Prussian army, where revaccination is so strictly observed, it has practically disappeared — one death only is recorded from 1874 to 1896.

(2) *Yellow fever.*— More striking still is the recent conquest of yellow fever,— a triumph of the most advanced methods of modern scientific medicine, preventive, protective rather than curative, which appears like one great clinical experiment, performed under our very eyes. In a very few years changes have been wrought which are usually accomplished slowly with the development of medical science in the course of the century's progress. In Cuba medieval conditions have been rudely disturbed by modern scientific methods, and the result we see in the prompt disappearance of the long-persisting scourge. For the first time in 150 years, since 1762, no death from yellow fever has been reported in the city of Havana during the usual period of its activity.

In October, 1896, the death-rate from yellow fever was still 240 per 100,000 population; in 1899 it was 29, with not a single case in 1901. Such is the showing of Major Gorgas,[2] chief sanitary officer of Cuba, of the splendid work done by General Wood in Havana. Yellow fever has been practically stamped out, and the death-rate from all diseases for November, 1901, was 19.6 per thousand population, which compares favorably with any city of the civilized world, somewhat better than Boston at the same period. These are the results in Cuba alone, but the benefits extend far beyond the limits of the island, throughout our southern states and into the Mississippi valley as far as Memphis, which has again and again been depopulated by yellow fever, which had its origin in Havana.

Such are statistical figures which mark *medical progress*, and it seems but natural that we should seek some corresponding evidence of the influence of *obstetric* and *gynecic* development upon the community at large — some evidence of the progress of that science whose object is the treatment of conditions which prevent the healthy performance of the sexual function and the relief of morbid processes which interfere with the normal progress of menstruation, of ovulation and of parturition.

### II. STATISTIC EVIDENCE OF OBSTETRIC AND GYNECIC PROGRESS.

We should expect a more healthy functional activity, conception more frequent, pregnancy more normal, parturition more safe and successful for both mother and child. But the result, as shown by the record of vital statistics in *birth-rate*, number of *stillborn* and number of *deaths in childbirth*, is not what we should expect from the splendid record of gynecic science, from the brilliant operative procedures and successful methods of treatment which constantly appear.

(1) *Birth-rate.*— The tendency of gynecic progress in past decades has perhaps been hardly such as to favor a healthy functional activity of the sexual organs. The mortality from abdominal section has been reduced to 3 or 4%. Series of 100 cases without a death are so frequently reported that they have become a drug on the market, but brilliant surgery, no matter how successful, can-

* Read before the Obstetrical Society of Boston, Jan. 21, 1901.

not compare in benefit derived with preventive medicine; removal of uterus, of tubes and ovaries, does not favor fecundity and an increased birth-rate.

However, we now see distinct evidence of a beginning revulsion — a tendency to so-called conservative surgery, though hardly as yet to preventive and curative gynecology, but we have learned to control many conditions which were formerly beyond the resources of our art. The curette and the electrical current have proven satisfactory means of overcoming endometrial inflammation; neoplasms which obstruct the uterovaginal canal are readily removed; displacements which might interfere with conception are permanently overcome; obstructed tubes are again made patulous; fimbriated extremities are repaired; and ovulation suspended by disease of the organ is made possible by a transplantation of ovarian tissue, if need be, from another individual.

Whatever the immediate operative results, they have certainly not led to a more healthy functional activity, as statistical records demonstrate: the fecundity of woman is decreasing; the birth-rate growing steadily less in all countries, most so in the United States. As an index of conditions on the other side of the Atlantic we may note the changes which have there taken place (Table I).

TABLE I.— BIRTH-RATE.

BIRTHS REGISTERED PER 1000 POPULATION.

| | 1870-1874 | 1890-1894 |
|---|---|---|
| Russia | 50. | 48.5 |
| Austria | 39.4 | 37.2 |
| Prussia | 37.6 | 36.9 |
| England | 35.2 | 30.3 |
| France | 25.9 | 22.4 |
| UNITED STATES | — | 22.1 |
| Massachusetts, native | — | 17. |
| Michigan, native | — | 14. |
| Massachusetts, foreign | — | 52. |
| Michigan, foreign | — | 50. |

From 1884 to 1898 the rate of childbirth in Austria has been reduced from 39.7 per thousand population to 36.2;[3] in England, from 33.6 to 29.4; in France, from 24.8 to 22.1; and this is about the condition which exists in this country — a birth-rate of 22.1 per thousand population, which has not decreased in the last few years, because it had already reached so low a state that further reduction would seem impossible; 22.1[4] per thousand population is the birth-rate found by averaging that of six states in this Union, which present the most reliable statistical records. But this rate, as low as that of France, is the total, in which we must carefully distinguish the birth-rate of the native American population, which varies from 14[4] to 17[5] per thousand, and that of the foreign population, which is usually at least two and one-half times as great, from 37 to 50 and more per thousand — that of the native less than the lowest in any European country, that of the foreigner higher almost than the highest.

To the medical man the existing conditions will be more clearly depicted by the figures which represent the fecundity per marriage, or the fertility of the individual woman. In European countries this varies between four and five children to the marriage.[3] In the United States it is a little over two,[6] and in speaking of this country I shall refer only to the native-born American woman, because it is she who exemplifies American conditions. The birth-rate of the foreign-born mother is greater immediately after immigration, under the more favorable conditions of her new home, even greater than it was in her native land, but in one generation the American standard is promptly attained.

The fecundity of the American woman is decreasing with astonishing rapidity. Benjamin Franklin[7] allows eight children to a family, one and all considered. Genealogical records[6] show it to have been fully six in the seventeenth century in the American colonies; and at the end of the eighteenth century the United States stands at the head of the list, with a fecundity of 5.2,[8] second only to New South Wales, with 5.4 children to the marriage — a fecundity such that, when considered together with that of China, it led to the Malthusian theory of superfecundation, to the fear of overpopulating the earth's surface: and now, after a lapse of only one century,— that century of the greatest obstetric and gynecic progress,— the fertility of the American woman has been so much reduced that it is but little over two children to the marriage, much like that of France. From *first* we have passed to *last* (Table II).

TABLE II.— FECUNDITY PER MARRIAGE.

DECREASE IN UNITED STATES OF NUMBER OF CHILDREN PER MARRIAGE.

| | |
|---|---|
| Franklin's statement | 8. |
| Genealogical records, 19th century | 6. |
| Sadler, 1750-1780, 18th century | 5.2 |
| Salem, 1727-1784 | 4.5 |
| Native American, end of 19th century | 3. |
| Native born, 1900 | 2-2.7 |
| Foreign born, 1900 | 4.5 |
| European average, end of 19th century | 4.5 |

As fecundity has decreased, sterility has increased, and throughout the entire State of Massachusetts[5] — the only State which gives such statistical figures — it is now 20% among American women,— precisely the same status which I have found in the cities of St. Louis and Boston, that is, 20% among the entire American population, slightly less among the lower, and more, 24%, among the higher classes; — throughout the State one in every five American marriage is barren. Such are the figures;* whatever the

* VALIDITY OF FIGURES PRESENTED.— The minimal birth-rate and low fecundity of the American woman is so striking that objection has again and again been made to these figures as questionable by reason of the paucity and inaccuracy of vital statistics in this country. The question is one so important and so serious that I must emphasize the validity and correctness of the figures I give. I will not here argue as to their absolute correctness to the decimal. It must suffice to show that they fairly repre-

cause, obstetric and gynecic progress show no perceptible impress.

(2) *Stillbirths.*— The status of obstetric practice may be judged, as far as the community at large is concerned, by the number of stillbirths and the number of deaths in childbirth, which, like the birth-rate, are recorded in the vital statistics of the country. Stillbirths should have decreased with the progress in the science and practice of obstetrics. The death of the child *in utero* should now be almost the only admissible cause for the birth of a dead full-term fetus, and the cause of such premature death is usually syphilis, which is under reasonable control, so that even stillbirths from this cause should be greatly reduced. The life of a fully developed, viable child should no longer be endangered during the progress of labor, unless it be in extreme cases of eclampsia or placenta previa. The use of the obstetric forceps has become so general, and both instrument and method of application have been so perfected, that rigidity of tissues or inefficiency of labor pains should no longer endanger the life of the child. Malposition should no longer be an obstacle to the birth of a living fetus, since we are enabled to rectify such irregularity by external manipulation during pregnancy, and to deliver during labor by combined version; anesthesia has facilitated all obstetric operations, and made them possible when death of the child before completion of delivery must have ensued without its use. A deformed pelvis of higher degree, and abdominal tumors which, until within the last few decades, were an inevitable indication of fetal if not maternal death, are no longer an obstacle to the birth of the living child, since the perfection of the Cæsarean section and of symphyseotomy: even extra-uterine pregnancy, if developed to full term, should add to the country's living population. In fact, enthusiastic advocates of the Cæsarean section claim that ere long the intelligent woman will give preference to childbirth by this means, as thus avoiding the pangs of labor.

Not only has obstetric science progressed, but obstetric teaching has been greatly perfected. The student is no longer obliged to gain the necessary experience after graduation in the early years of his medical career, but enters upon the duties of his profession with a practical experience, which his older confrères may well envy.

In face of these facts statistics show that stillbirths have not materially decreased. In European countries they appear to be diminishing somewhat in frequency, but this hardly seems to be the case in the United States, so far as we can judge from statistical records, which even now are far from perfect, and do not extend back over many years. From 1850 to 1860 we find that in European countries more than 4% of labors resulted in stillbirths: in Prussia, 4.2%[9] (1858 to 1867); in Sweden only do we find them less frequent, 3.3% (1861-1870) less than in other countries at the present time; recently the city of Berlin reports 3.4% (1884 to 1895), a decrease of .4% from the preceding years (1877-1888). During the same period, in the State of Rhode Island,[10] we find 3.6%, with no change from 1877; in fact, in the entire forty-six years after 1854, only 3.8% are noted. In Rhode Island the rate has remained practically unchanged, while in Prussia it is decreasing slightly. In comparing these data with those from European countries, we must remember that on the other side of the Atlantic illegitimate births are far more common than in this country, averaging about 7 or 8%,— in some regions more, in some less,— and among these stillbirths are by far more common, usually about 7%, which of course adds to the general number.

The lowest figures given are those from Berlin[11] (1884-1895), 3.4%; in the year 1898, 3.5%. In the city of Budapest, which I cite on account of the accuracy of its statistics, 3.9% are recorded in 1896. Throughout Italy, from 1894 to 1896, the frequency is somewhat greater, 4%; in the city of Rome, 6%.

I may note that it would appear from European records that in some, at least, of the great centres, stillbirths are more common than in the rural communities, possibly on account of the greater number of illegitimate labors. To this fact I desire to call attention as an indication of the utter impotency of medical science when confronted with the powerful factors for evil which actually determine the movements of population.

In the Out-Patient Department of the Lying-in Hospital of the city of New York[12] 3.6% of stillbirths occurred, all cases included, among more than 10,000 labors, in the six years previous to 1896 — practically no improvement upon the statistics of the entire State of Rhode Island for the past half-century. Among some 5,000 cases in the Out-Patient Department of the Boston Lying-in Hospital[13] during the three years from 1898 to 1901, 3% of stillbirths are reported. In the hospital itself, from 1874 to 1901, among nearly 11,000 cases, stillbirths reached 5.4%, but if we

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sent existing conditions, and this, I believe, is clearly proven by the following facts:

(1) Our population is not increasing, at the present time, notwithstanding the large number added by immigration, as much as it was by birth-rate alone in the days before immigration.

(2) All figures from various sources give the same results: from the vital statistics of Michigan and of Massachusetts, from the dispensary records of Dr. Chadwick in Boston, and my own in St. Louis, and from the study of female college alumnæ by Carroll D. Wright in the East and Mary Robert Smith in the West.

(3) My own and other individual investigations are based on the report of each mother as to the number of her children, and though small compared with census numbers are certainly reliable.

(4) The figures given in the vital statistics of Michigan and Massachusetts are not the crude results of the census, but an approximation to the true birth-rate as secured for Massachusetts by Kuczynaski and for Michigan by Wilbur by a correction of the crude results by addition of such numbers as experience has shown to be necessary for the omissions in each state.

(5) In the State of Massachusetts, the question "How many children in each family" was asked in the census of 1885, so that a correct ratio was obtained even if only a portion of the population was reached.

(6) The refined and corrected birth-rate for Massachusetts gives figures which would seem rather *above* than below the true average, as that for the foreign-born element is higher than that of any European country, even higher than that of Russia.

It is simply impossible that these figures should be *below* the true numbers — if anything, they are *too high*. This should be convincing to those who are not satisfied to accept as correct, results which are practically alike for the same class of population in three different states, immaterial whether from the State census or from private investigations.

exclude those which are noted as premature, the result is a much better one, 2.5%.

To the vital statistics of many of our communities I am hardly justified in referring, by reason of their admitted imperfection. In the State of Michigan but 2.4% are recorded, and in the city of St. Louis we find the rate varying from 3.8 to 8%. In both instances, however, the investigators call attention to the uncertainty of the data, so we may well ignore these two extremes (Table III).

TABLE III.—STILLBIRTHS PER 100 BIRTHS.

| | Before the antiseptic era. | | Recent Records. | |
|---|---|---|---|---|
| Prussia | 1858–1867 | 4.2 | | |
| Sweden | 1861–1870 | 3.3 | | |
| Leipzig, Berlin, Hamburg, illegitimate births | 1870 | 7. | | |
| Berlin | 1872–1888 | 3.8 | 3.4 | 1884–1895 |
| Rhode Island | 1872–1888 | 3.6 | 3.6 | 1884–1895 |
| " " | 1854–1899 | 3.8 | | |
| Budapest | | | 3.9 | 1896 |
| Out-Patient Dept., New York | | | 3.6 | 1890–1896 |
| " " Boston | | | 3. | 1898–1901 |
| McLean Hospital, " | | | 5.4 | 1874–1901 |
| Infirmary, W. & C., New York | | | 5 1 | 1901 |
| Blackwell's Island, " | | | 10.7 | 1901 |

The impress made upon the statistics of stillbirths by the advance of obstetric art is evidently but slight. Throughout Prussia there seems to be a trifling but gradually continuing decrease from 4.2% in the early '60's to 3.4% in 1895, in Berlin. At the present day we find 3.9% in Budapest, 4% in Italy, 3.6% throughout the State of Rhode Island, with hardly a change from 1854, and the same, 3.6%, at the present day, in the Out-Patient Department of the Lying-in Hospital of the city of New York; yet Sweden recorded but 3.3% from 1861-1870; 3%, the lowest figure noted, occurred in the Out-Patient Department of the Boston Lying-in Hospital, over 5% in the hospital itself; and for 1901, 5.1% in the New York Infirmary for Women and Children; 10.7% at Blackwell's Island, Metropolitan Hospital, and at the City Hospital, 6.5%.

*(To be continued.)*

## AMAUROSIS (ATROPHY OF THE OPTIC NERVE) AND ITS TREATMENT BY THE SUBCUTANEOUS INJECTION OF STRYCHNIA.[1]

BY HASKET DERBY, M.D., BOSTON.

PROBABLY no disease of the eye was more frequently met in the group classed by our predecessors under the general head of "Amaurosis" than progressive optic nerve atrophy. And although the progress of science has enabled us to give this affection its own proper name, to watch its development and, in some cases, ascertain its cause, the prognosis is hardly less gloomy and the efficacy of treatment but little more demonstrable than was the case half a century ago. The ophthalmoscope gives us an opportunity of witnessing the change, the test-types and the perimeter of noting advance, but in the matter of therapeutics we have but slight improvement to record.

The recent simultaneous occurrence of several cases of optic nerve atrophy in my own practice, and a rather unusual opportunity offered for their study and observation, has led me to look over my notes of similar cases met with during my professional life. I have thus been enabled to collect some statistics not found in the books, a recital of which, although it may add but little to our practical knowledge of the disease, will not, I trust, be without interest.

It is not often that the surgeon has an opportunity of following a fatal case to its termination. I therefore give a brief history, which may serve as a typical one.

Patient a stout, well-preserved man of 48. He had been captain of a whaler, and only recently retired from the sea. Habits temperate, health always excellent. Within a year had noted the gradual loss of the sight of left eye, vision simply growing dim and gradually almost disappearing. For six months he had observed failure of the remaining eye, and this brought him to me. His own attention had been called to the progressive contraction of the visual field, and he had just lost the power of reading. On examination the left eye, externally normal save for a somewhat dilated pupil, was found to possess only quantitative perception of light. The nerve was of chalky whiteness, veins large, arteries greatly contracted, no excavation. Vision of right eye .5, visual field much contracted upwards and inwards, nerve somewhat atrophic, but the process much less advanced than was the case in the other eye. To make the account of this case as brief as possible, the disease steadily progressed, despite all treatment. The field slowly contracted, the nerve grew whiter and whiter, central vision became more and more impaired. As the patient expressed it, "I see everything through a mist, that is gradually thickening as the field contracts." He went home, but wrote me from time to time. His health continued excellent, his strength unabated and his appetite good. Two years later he was blind. Four years afterward he was again heard from. In the interval, assisted by a competent clerk, he had continued to perform his duties as registrar of deeds in his native town. He, moreover, edited a paper, besides writing up and publishing his adventures as a whaleman. His memory continued good and his mind was never in the least affected. Several years later he died of, I think, pneumonia.

The foregoing may be taken as a representative case of the class in which blindness proceeds from this cause and the general health remains unimpaired. Such an instance is by no means infrequent. Of course many others depend on local or general disease, on excesses in living, the abuse of venery, the abuse of alcohol or tobacco. But there are many that can be classed under none of these heads.

[1] Read before the New England Ophthalmological Society, Feb. 11, 1902.

Referring to the notes of my own practice, I have been able to collect the following statistics: There are notes of 117 cases. Of these 78 were males, average age 43.7; 38 were females, average age 37.7. Both eyes were affected in 86 cases; one only in 31 cases. In 71 cases there was no history to be traced. In the remaining 46 I found the following probable causes: Abuse of alcohol and tobacco, 11; syphilis, 8; blow on head, 9; brain disease, 6; apoplexy, 1; epilepsy, 1; locomotor ataxia, 1; meningitis, 2; optic neuritis, 2; erysipelas, after lachrymal abscess, 1; mumps (both cases children), 2; following pregnancy, 1; tumor of pituitary body, 1.

Coming now to the question of possible treatment of what is undoubtedly one of the most fatal of diseases, we are met with a sweeping statement by one of our foremost authorities. I find in the *New York Medical Record* of Nov. 16, 1901, an account of the proceedings at a meeting of the Acadamy of Medicine, in which occur the following remarks made by Dr. H. Knapp: As to the futility of treatment in atrophy of the optic nerve, he begged leave to tell his own opinion and that of the late Dr. Alfred Loomis, who had asked his opinion about the therapeutic value of electricity in tabic and other atrophies. He, the speaker, answered he thought that electricity, in these diseases, was next to quackery, to which Loomis replied: "That is too far off." It would seem that other methods of treatment are intended to be included in this condemnation.

With all modesty, I beg to differ from the foregoing statement, and to base this on certain facts.

I have been able to subject 26 of the foregoing patients to courses of treatment, and to follow up the results. And they may be thus tabulated: Not relieved, 15, the disease progressing and terminating in blindness; doubtful relief, 1; temporary relief, 2; appreciably relieved, 8; and by relief I mean an evident cessation of the onward march of the disease, with occasionally a slight increase in the limits of the field and the acuity of vision. In each instance the case was held under observation a length of time that, judging from the previous progress of the disease, would have afforded an opportunity for manifest failure of sight, and in which this would actually have occurred.

The amelioration thus obtained has been due to the use of a single drug, strychnia, applied in gradually increasing doses in the temples by subcutaneous injection.

The use of strychnia in amblyopia and amaurosis dates back to the early part of the nineteenth century, Thomas Shortt of Edinburgh having first brought it into notice. He used large doses, applied endermatically and as near the eye as possible, and claimed striking results. He flourished long before the invention of the ophthalmoscope, but as far as symptoms are concerned it seems probable that some of his cases were optic nerve atrophy. Others followed in his footsteps. But the credit of introducing this form of treatment by local subcutaneous injection belongs indisputably to Nagel of Tübingen, who, in 1872, published a monograph on the subject. This pamphlet, no doubt familiar to many of you, gives numerous cases of optic nerve atrophy, occurring in both the young and those of middle age, all similarly treated and with the results carefully recorded. In certain instances he claims increase in the visual acuteness, in the area of the field and even in the appearance of the nerve itself. So far as the cases could be followed up, some of the results appeared to be lasting.

Becker of Heidelberg applied the method in a case of embolus of the central retinal artery, and obtained disappearance of the cherry red spot, enlargement of the field and a return of normal vision. Horner of Zurich reported a case of white atrophy combined with retinal hemorrhages, where vision quadrupled, the appearance of the nerve remaining unchanged.

In 1873 von Hippel of Königsberg published a brochure containing a long list of cases, and summed up his experience in the following words: "These facts convince me that in diseases of the optic nerve, where our therapeutics have hitherto been of no account, we possess in strychnia a drug which in many cases arrests advancing disease, and in others materially improves the much impaired vision; while its effect is not limited to those cases in which the ophthalmoscope shows as yet no evident anatomical change in the nerve, the fact being that in actually developed atrophy we may obtain most astonishing results, always supposing that there remains good perception of light."

In 1876 Haltenhoff of Geneva also brought out a pamphlet on the subject and advocated the treatment. Since that time, while many works on ophthalmology still advise the internal administration of strychnia, less and less stress is laid on local subcutaneous injection, and the impression is largely given that we can get the same effects by giving the drug by the mouth. As far as I am aware, the method of Nagel has at present but few, if any, adherents in our own community, a fact which is not perhaps extraordinary when we look over some of the accepted textbooks of the day. Noyes mentions the plan of Nagel, but indicates his own preference for the internal administration of the drug. Berry gives no treatment whatever. The same is true of the smaller work of Norris and Oliver, while even in their larger system of diseases of the eye the strychnin treatment receives no mention. Among our own writers De Schweinitz alone comes out with the advice that the drug be administered in full doses, and states that the hypodermic method affords the best result. Fuchs, edition of 1898, of course alludes to the method of Nagel, but expresses some doubt as to the permanency of the effect on the nerve caused by the strychnia, while admitting its immediate effect.

It is most reasonable to suppose that the preferable method of administering the strychnia is

the hypodermic. When a drug of this kind is given by the mouth the rapidity of the general effect must depend on the contents of the stomach and the state of digestion. And if a supra-orbital or a facial neuralgia is most quickly relieved by an injection of morphia made in the immediate vicinity of the nerve affected, it stands to reason that the effect of the strychnia must be the more rapid, to say the least, when it is injected in close proximity to the nerve it is desired to stimulate.

As has been stated, there were 26 cases in which the strychnin treatment was carried out. In 15 of these no effect whatever was produced and the disease progressed to blindness. But in 8, about 30%, the result was fairly encouraging. Many of these patients came from a distance, and I ultimately lost sight of them, nor have I been able to trace their subsequent history. But they were all so much encouraged when they left the city that I cannot help feeling that I should have heard again had there been subsequent failure, especially as it is my habit to urge such patients to write to me, whether they are intending to return or not.

CASE I. A Maine lumberman, age 43; health excellent. Rapidly progressing atrophy. Right eye, vision .3, left counts fingers in 50 cm.; no letters can be seen. Two months later, vision right, nearly .5; left makes out 60 of Monoyer in 60 cm. Two years later writes that his vision has failed, if at all, very slightly.

CASE II. Female, age 25. No history. Vision right .4, left not quite .8; one course of injections. At its close, vision right .7, left 1. Two months later was holding her own.

CASE III. Man from Nova Scotia, age 60. Under strychnin injections his vision doubled, rising from .2 to .4. He died suddenly in the course of the same year, but I have no reason to suppose that he lost any of the vision he had gained.

CASE IV. Man, age 32. One eye entirely blind, nerve atrophy marked in the other. Vision at first .6, after treatment, nearly .8. Six months later had lost no ground. Previous to treatment failure had been rapid. At end of a year, still improving, as he writes.

CASE V. Man, age 68. Vision of each eye failing for three years. Vision before treatment, right .3, left .2. One course of injections. This patient was seen in consultation and but once. But his physician reported that he held his own seven months afterwards.

CASE VI. Female, age 64. Right eye gone, left rapidly failing. A single course of injections. This case, too, was seen in consultation, but the physician reported a cessation of the progress of the disease six months later.

CASE VII. Male, age 67. Only one eye affected, vision .5. At the end of six months after one course of injections no progress could be noted.

CASE VIII. The history of this patient has been so remarkable that I will close this paper by giving it more fully. A. B., a boy of five, was brought to me in the summer of 1874. Three years previously he was reported to have had a serious inflammation of the brain, during the progress of which his life was at one time despaired of. Since that time he had been somewhat deaf and rather backward. Vision of right eye had lately been found to be imperfect. There was complete white atrophy of the right optic nerve, no perception of light. The left nerve was of a grayish color, but vessels were full and vision appeared to be good. I did not see him again until 1881. His deafness and backwardness had long since disappeared, but in reading he was said to hold his book close, as though he were near-sighted. Vision was now .4, visual field slightly but uniformly contracted, nerve as white as the other, but vessels fairly well filled. In 1885 vision was nearly .6; field as before (Fig. 1). In April, 1888, his central vision had fallen to .4, but a weak concave glass brought it up to nearly .7; field the same. In October, 1892, central vision and fundus remaining unchanged, there was found great diminution in the field (Fig. 2). Injections of strychnia were at once commenced, but the field narrowed steadily and rapidly, and Nov. 10 was as in Fig. 3. The patient all the while felt poorly, was easily fatigued and lost weight. Dr. Walton, in consultation, found nothing, and considered the case a most unusual one. Another course of injections was now carried out, and the progress seemed arrested. His strength improved and there was even a slight increase in the length of the field. In February, 1895, the field was found to be narrowing, and in May it had reached the size shown (Fig. 4). Strychnia repeated. Dr. Walton again found no evidence of brain disease, and wrote: "It seems as if the strychnia treatment must have kept the trouble back materially." In November Dr. Walton found the knee jerk normal and the general health considerably improved. On March 24, 1896, field evidently again contracting; another course of strychnia and arrest of the process; central vision the same. On April 13 there was another relapse, and the field now reached its maximum of contraction, narrowing to little more than a horizontal slit (Fig. 5). Another course of strychnia. Dr. Walton found no change in general health. In January, 1897, the field had slightly widened in a vertical direction. Twice since then there has been a slight change for the worse, and each time a course of strychnia was started, the last being in May of that year. From that time forward the case has been simply kept under observation. His health is now good, central vision between .7 and .8, and *the field has grown notably larger*, a considerable change for the better having occurred during the present year (Fig. 6).

The patient is now thirty-three years of age. He is a man of education and intelligence, and his enforced leisure has enabled his observation and comparison of his own symptoms to be thorough. At my request he called on me a short time since, and I plainly asked him to state his mature judgment as to the effect of the strychnia injections. His reply was that in three instances he considered the disease to have been distinctly checked, while in the other two "remarkable improvement" (I use his own words) had followed.

As regards the technique of these injections I would say that I have been accustomed to make them in either temple alternately. Since using aseptic precautions I have never observed any local irritation. Previous to this abscesses were not uncommon. I begin with .04 of a gr. and add .01 daily, until constitutional effects are observed, expecting generally to reach at least the tenth injection. By that time the temples are apt to be a little sensitive, so I wait ten days and then repeat the course. In some few cases a third course of injections has been found of advantage.

To sum up the whole matter, I freely admit that these cases are not brilliant as to result. But the malady is in itself so fatal, and has been regarded as so hopeless, that it seems to me the smallest chance of relief, whether temporary or permanent, ought not to be allowed to slip.

The following conclusions are justifiable:

(1) Strychnia is a stimulant to the optic nerve. Even in normal eyes it slightly increases the acuteness of vision and widens the visual field. These effects are temporary (Fuchs).

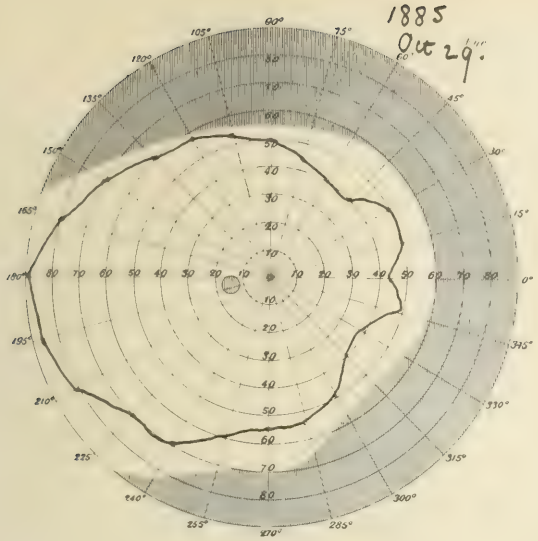



FIG. 1.

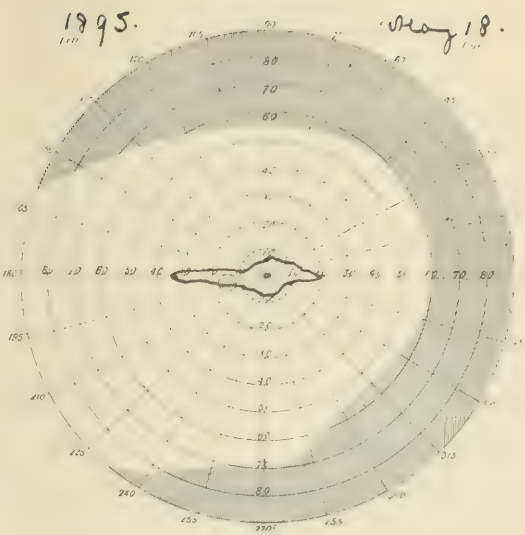
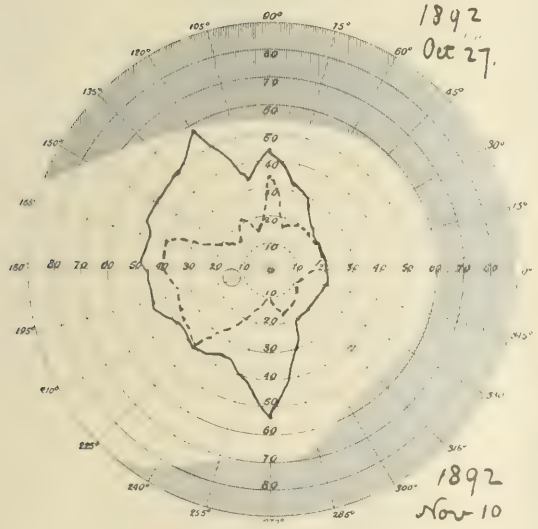



FIG. 4.




FIGS. 2 and 3.

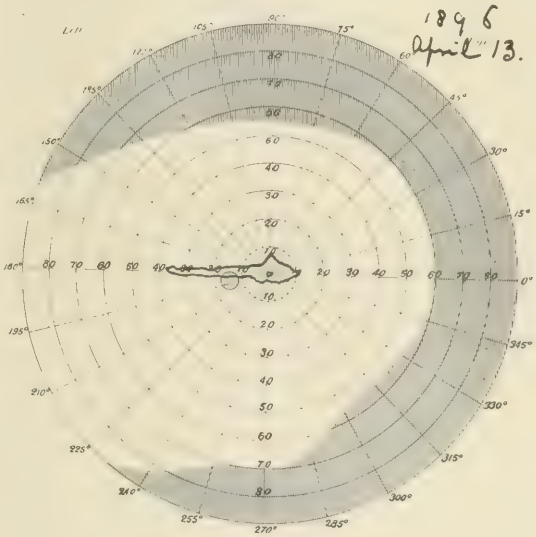



FIG. 5.

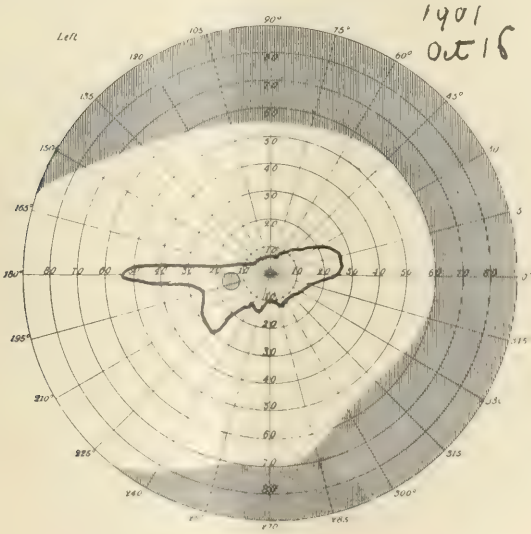



FIG. 6.

(2) In certain cases of optic nerve atrophy its local subcutaneous injection has, to say the least, coincided with an arrest in the progress of the disease, and has been followed by a somewhat increased acuteness of vision. Whether these effects are temporary or permanent, time and fuller statistics will show.

(3) In a progressive case of this disease it is clearly our duty to state the above facts to the patient, and allow him to take the treatment if he is so inclined.

(4) The strychnia should always be administered in the temple, and by subcutaneous injection.

Case IX. On the day this paper was to be presented I saw, through the kindness of his physician, for the first time, a patient whose case seems to me remarkable. A young man, age 23, was attacked two years ago with progressive optic nerve atrophy, and his vision very rapidly declined. He saw several specialists here, and finally consulted Dr. Kalish of New York, who advised the strychnin treatment. This has since been carried on by Dr. Stickney of Arlington, from whom I have the following particulars: Commencing with $\frac{1}{30}$ gr. after each meal, by the mouth, and the same amount by injection in the temple daily ($\frac{4}{30}$ gr. in all) he went up in two months' time to $\frac{1}{6}$ gr. after each meal and $\frac{1}{6}$ gr. subcutaneously daily, making $\frac{4}{6}$ gr. a day, and kept up this amount for one year. Now he takes $\frac{1}{10}$ gr. by injection, and $\frac{12}{30}$ gr. to $\frac{13}{30}$ gr. after each meal, making $1\frac{3}{30}$ gr. per day, and has kept this up some months.

The patient, who is quite intelligent, tells me that his vision rapidly fell off in the outset, until treatment was commenced, and that then the progress of the disease appeared to be arrested. Dr. Stickney says that he was unable, a year or more ago, to count fingers, but that he can now do this with either eye; moreover, that he distinguishes some colors, sees the glass in his father's greenhouse and even makes out the leaves on the plants. The examination made by me showed typical and advanced optic nerve atrophy in either eye. There is a small, lateral visual field in the right, with no central fixation. In the left there is central fixation and a very limited lateral field. Either eye counts fingers in the distance of about one metre. The left eye, of course, does this more easily than the right.

This patient has taken an unusual amount of strychnia and for an unusual length of time. In regard to its general effect Dr. Stickney writes as follows:

"I would add that only once did we have any marked evidences of the doses given being too large, and then probably the subcutaneous dose of $\frac{1}{6}$ gr. was given too near a dose of $\frac{1}{6}$ gr. by the stomach. Judging by the rapid development of strychnia symptoms the subcutaneous dose of strychnia was probably injected into a vein. A spasm of the muscles in the back and legs came on suddenly, patient fell his full length on the sidewalk, rupturing the left membrana tympani. Bleeding from the ear, nose and throat came on, with vomiting for several hours. Intellect remained perfect throughout this time. In ten days patient had recovered, and hearing was restored in three weeks. Of course tonics have been used more or less. At times the pallor of face was marked and nitroglycerin was used with benefit."

Gift to the Lakeside Hospital, Cleveland. — Mr. J. H. Wade of Cleveland is reported to have recently announced a gift of $100,000 to the Lakeside Hospital.

## DISEASES OF THE EAR OF INTEREST TO INSURANCE EXAMINERS.*

BY PHILIP HAMMOND, M.D., BOSTON,

*Assistant in Otology, Harvard University; Assistant Aural Surgeon, Massachusetts Charitable Eye and Ear Infirmary, etc.*

There is considerable difference of opinion among the members of the profession as to what aural conditions constitute sufficient grounds for the rejection of an applicant as an undesirable risk. At the present time nearly all companies refuse to consider persons having a suppurative process in either ear, although some accept candidates who have had no discharge for three months. As I shall show later on, this rule is not a sufficient protection, inasmuch as there are certain conditions which favor recurrence of the disease.

It is interesting to note that although the intracranial complications of ear diseases are comparatively infrequent, they are exceedingly dangerous. Bürkner [1] found that $\frac{3}{10}$ of 1% of all ear patients die from otitic intracranial disease. These figures were also confirmed by Randall [2] and Schwartze.[3]

According to the records of Guy's Hospital,[4] there were between the years 1869 to 1888 57 deaths from purulent ear disease out of 9,000 cases of all kinds, or about $\frac{2}{3}$ of 1%. The records of a very much larger number of cases occurring in the Vienna General Hospital [5] show that out of over 40,000 post-mortem examinations, 232, or about .58%, died of aural complications.

No exact statistics are available as to the number of persons who die annually from ear diseases, but the list is undoubtedly a long one. Von Troltsch was of the opinion that a suppurative disease of the middle ear was as serious a risk to accept as many cases of valvular heart disease, phthisis or hernia. Barr [6] hardly concedes this, but believes all companies should inquire carefully as to the existence of any present or past suppuration, and that the actual condition of the ear should be taken into account in considering the expectation of life. The existence of a chronic discharge which persistently baffles all treatment should be considered as very unfavorable; a discharge which stops absolutely under treatment, leaving an open perforation, may be accepted conditionally; and a suppurative ear which heals by forming a new cicatricial drum may be accepted without reservation. In the latter case the ear is no more liable to future disease than it was originally, but in the case of an open perforation, the least drop of water entering through the drum, as, for instance, in bathing or a severe head cold, is apt to cause a renewal of the suppurative process.

The mere fact that the patient states that he has had a discharge from the ear should not necessarily militate against him, for all aurists of experience will recall cases where patients have applied for the relief of a discharge which examination has shown to be simply cerumen or, in other cases, due to the moist secretion of an ec-

* Read by invitation at the Fourth Annual Dinner of the Medical Examiners of the Massachusetts Catholic Order of Foresters, Feb. 11, 1902.

zema. This shows the necessity for a careful examination with the mirror and speculum in all suspected cases, and positive evidence as to whether the drum is open or not. In the case of any disease of the external ear there is seldom any danger to life, but in the event of a hole in the drum we should be on our guard.

Neither is it wise to take the statement of the patient that he has never had an abscess in the ear, for there are many who are unconscious of the fact that one or both ears are diseased, often as the result of a forgotten trouble in childhood. Even the fact that the patient appears to hear perfectly well does not exclude the possibility of disease.

As an illustration in my personal experience, I recall the case of an insurance agent, who came to me because he occasionally suffered from slight deafness during an attack of coryza. Examination revealed the fact that there was a perforation of each drum occupying fully half its area, and yet in conversing with this man no one would have suspected that he was in any degree deaf. In this case the patient could not recall ever having had any discharge from the ear, and yet the condition could have been caused only by a suppurative process.

In another case a young lady applied for the relief of a recent deafness in one ear, stating that there was nothing the matter with the other. On investigation the supposed good ear proved to be filled with pus, and a little questioning revealed the fact that it had been discharging over twenty years. The patient had become so accustomed to it that she no longer considered it an inconvenience. This shows how easily a really serious condition may be overlooked if the examiner be not always on the alert.

It is sometimes possible to detect the presence of a constitutional malady like phthisis from the clinical appearance of an ear long before the disease has manifested itself in the other organs. A striking example of this occurred in the writer's practice about six years ago. A young man presented himself with the history of an acute suppuration of the right ear. There was rapid disintegration of the drum from the start, until the appearance changed from two small perforations to an almost complete destruction of that membrane. A diagnosis of probable tuberculosis was made from the clinical aspects alone, as examination of the chest and sputum had been negative. As is characteristic with this disease recovery progressed slowly, and the patient was under observation some two years. At the end of this time he had a severe cold with protracted bronchial cough, which on examination proved to be tubercular.

In this instance a probable diagnosis of consumption had been made from the appearance of the ear two years before other signs appeared. I am happy to state that the patient entirely recovered his ordinary health by removal to a favorable climate, and is following his usual vocation.

Since we all grant the possibility of death from the existence of a chronic suppurative process in the ear, the next question to consider is what other dangerous diseases of the ear are apt to shorten the life of the individual?

The fatalities are not confined to the cases of chronic disease by any means. The writer recalls having seen two patients die in one week of acute purulent meningitis caused by direct extension from the ear. In each case the trouble was very acute, the lapse of time from the first symptom to the fatal result having occupied not more than a week. In one of the cases there was a lack of development of the bony roof of the middle ear, as sometimes happens, thus affording a direct route from the ear to the brain.

Among other causes which we must include in our dangerous list are suspicious nodules or tumors of the auricle in elderly persons, or ulcerated areas which may be due to the breaking down of an epithelioma. Lupus is also to be carefully considered with any ulcerative condition of the auricle, as it may manifest itself around the ear, although it usually occurs early in life. Any stenosis of the external canal due to the results of old traumatism or abscess is exceedingly apt to give rise to trouble in case of another outbreak in the middle ear. The presence of an exostosis is dangerous in the same way. In the event of an infection of the middle ear, and the presence of an obstruction in the canal sufficiently large to block it in any measure, the discharge would be walled in on all sides, and would naturally seek relief in the direction of least resistance, which would usually be towards the brain. In the case of a bony or cartilaginous growth, its removal is a simple matter.

One point which seldom receives mention in this connection is the extra liability of persons partially deaf to accidental injury. One who hears imperfectly in one ear often has the greatest difficulty in locating the source of sounds, and it will readily be perceived at what a disadvantage this would place one in case of sudden danger.

While vertigo may be an aural symptom, it has to be considered from many standpoints before we can positively say that any one organ is the cause. It may be due to the stomach, to the eyes, or to some obscure central lesion of the brain. Even the fact that the patient has some deafness does not necessarily imply that his dizziness is of aural origin. In many instances the vertigo from the ear is slight and transient, but it may be constant and associated with vomiting. Frequently the patient has a sudden attack, without any premonitory symptoms, sufficient to cause him to fall to the ground if not supported in some way. As may readily be imagined this is a serious affair to a man who is employed as a carpenter or painter. In such an instance it means that the man cannot follow his trade while subject to the attacks, and in many cases it is unsafe for him to go about unattended. I recall one such example in the person of a locomotive engineer, who suf-

fered from a relapse of an old suppurative ear which had ceased discharging years before, leaving almost total destruction of the drum. In this case the suppuration responded readily to treatment, the ear became dry, and the vertigo entirely disappeared. It would not be safe to accept such a risk, however, unless absolutely sure that the disturbance to equilibrium came from some lesion which was in no way to exert an unfavorable influence on the duration of life. We should examine critically for symptoms of a brain tumor or syphilis in any case not readily explained.

The prognosis in the cases of complicated suppurations has changed materially in recent years, and this naturally affects the standing of insurance applicants suffering from this trouble. It is of the greatest importance in examining one of these cases to detect the cause of the otorrhea, for many are comparatively simple and easily cured. Often after fruitless attempts by syringing, the use of solutions, etc., the removal of a mass of granulations, or maybe of the ossicles themselves, if diseased, will bring about the desired result. Even in those cases which formerly were considered as hopeless, where there was formation of cholesteatome within the temporal bone, or possibly extensive caries, modern surgery has finally triumphed. In a general way we may say that those diseases of the ear which would cause us to unconditionally reject an applicant consist of local manifestations of grave constitutional disorders. We should reject all active suppurations with the reservation that they may be accepted only when absolutely cured.

We must bear in mind the fact that although we are safeguarding the interests of the company, the applicant also has certain rights. It is most unjust to deprive a man of the benefits of insurance if the defect from which he suffers can be overcome, and it is a good rule in doubtful cases to defer examination until such time as we shall have definite knowledge as to the probability of recovery. Once the patient has been rejected for any cause, it makes future acceptance by the same or any other company doubly hard.

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## Clinical Department.

### MASSACHUSETTS GENERAL HOSPITAL. CLINICAL MEETING OF THE MEDICAL BOARD.

(Concluded from No. 19, p. 493.)

Drs. H. H. A. Beach and Farrar Cobb presented a case of

TRAUMATIC ASPHYXIA

which is of much rarity and interest. Not more than two or three cases of the sort have recovered so far as is known. Time will only permit me to show you the case and the pictures of him, and give you a very brief account of the history, and just touch upon the most important facts of the pathological theories and literature of the subject.

By a curious coincidence, on the very day and week that this case entered the hospital, Drs. Burrell and Crandon of the Boston City Hospital reported a similar case from the hospital service of Dr. Burrell, which case also recovered. In their article, a résumé of the history and pathology of the lesion is given somewhat at length. Later in the year a complete account of this case, together with a full study of the question, will be published.

The name given to the remarkable condition is traumatic apnea or traumatic asphyxia. This expresses the mechanism of the condition, namely, that the peculiar and striking discoloration is caused by forcible compression of the thorax for some length of time so that breathing cannot take place. I will pass around this really excellent water color painting done for me by Mr. Aitkin, through the courtesy of Dr. Richardson, and also two photographs. These pictures will show better than we can describe the remarkable appearance of the patient.

The patient was a large muscular German between thirty and forty years of age and in perfect health at the time of the accident. He entered the accident room one hour after he had been caught and held by an elevator for fully three minutes. It is said that his face turned black and his eyes protruded, and that he bled from the nose before he was released. He was unconscious only for a few minutes after being set free. When first seen at the hospital he was conscious, but somewhat stupid, and was in a state of moderate shock and presented the appearance shown in the colored picture. Examination showed that he had been subjected to violent trauma from the groin and buttock to the midthoracic region; over the skin of the abdomen were several contusions; in the left loin and back, low down, was a large fluctuating hematoma; the eighth and ninth ribs on the left were fractured in the midaxillary line; in the neighborhood of the fractured ribs, for a short distance, was a moderate amount of subcutaneous emphysema. Examination of the heart and lungs was negative. The appearance of the face and eyes was as you see. Ophthalmoscopic examination by Dr. Cheney showed no hemorrhage of the retina. Pressure on the blue-black skin did not cause it to pale completely, as in the case of cyanosis, but had little effect. By careful inspection the skin of the face seemed to be dotted with countless spots from black to reddish black or blue in color, very close together, and between these spots lines or areas, very minute, of normal skin. These spots could be best noted at the line of the hair on the forehead and close to the line of demarkation of the color in the neck. The artist has shown the punctate nature of the coloring very well. The line of demarkation in the neck in front was

sharp, as can be seen; but what is not shown in the picture, and has not been noted in any other case, is that the double triangle of the trapezius muscle was marked out very clearly, that is, in the back of the neck; there was no discoloration, except within the confines of the trapezius muscle.

The man got well. At no time was he very sick, except that on the third day his temperature rose to 106°, and he seemed to be oppressed for breath; both lungs were full of râles and the expectoration was somewhat bloody. This condition, however, passed away in twenty-four hours. The hematoma in the back was aspirated six times; each time from one to two pints of bloody serum was withdrawn, and each time the fluid reaccumulated with great rapidity, at last dissecting around under the skin to the front of the abdomen, so that a free incision and packing with gauze was made. At present there is still a small cavity needing dressing. The serum was at all times sterile.

On the second day after entrance, with the consent of the patient, a piece of skin was removed from the discolored area in the neck for microscopic examination, with the view of throwing some light on the minute pathology of the lesion. So far as is known, this is the only case in which it has been possible to obtain sections of skin from the living patient.

The color faded rapidly after the third day, simply fading out, the areas of normal skin between the punctate color regions became wider and larger, the general color scheme faded from black to lead color to a slight cloudy appearance of the skin, and as you see the patient now this evening, the skin of the face looks not quite normal, but somewhat suffused. In contrast to this, the subconjunctival discoloration was actually due to hemorrhage, and here the usual chemotactic changes were noted, as in the absorption of any blood clot. In the face there were no pigmentary changes; in the eyes these were present. All the functions of the body were performed normally during convalescence.

The gross cause of this condition was evidently violent compression of the chest, extending over several minutes, accompanied by entire cessation of respiration. So far as we can ascertain, only two cases have been studied in the living, Dr. Burrell's case and my own. The knowledge of the subject has hitherto been gained from fatal cases. It has been noted that such appearances are most frequent in individuals pressed to death in struggling crowds or mobs. Ollivier and Tardieu have reported the post-mortem findings in several such cases, but aside from the appearance of the face and eyes no specially characteristic pathological lesions have been found. In all cases it was noted that the blood was black, fluid, filling all the large veins running into the heart. Punctate hemorrhages occurred in the loose tissues of the scalp, on the surfaces of the pleura and the heart and the abdominal viscera. Briefly, pathological findings, post-mortem, have only been characteristic of tremendous venous engorgement.

The object of special interest is the minute pathology of the discoloration. Is it caused by subcutaneous hemorrhage or by venous stasis? And why should this remarkable discoloration be so sharply limited to the head and neck? There is a conflict of opinion as to the minute phenomena. As Dr. Burrell has said: "Respiration is stopped, the blood becomes carbonized, and the blood tension, at first raised, rapidly drops. There is an undoubted escape of blood under the conjunctiva; but in the skin, while there may be true hemorrhage, the fact that color fades somewhat on pressure and that the color does not go through the changes of tint usual in a skin hemorrhage, favor the theory of Ollivier and others that the skin appearance is largely stasis of carbonized blood in dilated and temporarily paralyzed capillaries."

The unique feature of this case is that it is the only case from which sections of skin have been studied after being taken from the living. It seemed rational that the discoloration was due to stasis of carbonized blood in dilated capillaries, but we thought that microscopic examination of these pieces of skin would definitely settle the question as to whether the abnormal color was due to subcutaneous hemorrhage or to stasis alone, or to a mixture of both. The examination of our sections shows apparently normal skin. Dr. Wright says he can see nothing else in them. This is important negative evidence in favor of stasis as the cause of the color; certainly, had there been subcutaneous hemorrhage, our sections would have shown it.

DR. G. L. WALTON showed a case of

ANGINA CRURIS (INTERMITTENT CLAUDICATION).[2]

This case presents a typical example of a malady heretofore regarded, perhaps, rather as a neurological curiosity than a subject of interest to the general practitioner, but its study may be of practical value in paving the way to the better understanding of many obscure cases commonly designated by the familiar but not always accurate terms, sciatica, internal varicose veins, or the result of flat-foot. The patient came to the Neurological Clinic, complaining of attacks of severe pain in the right calf. He could walk but a very short distance before being seized by a pain which prevented further motion, and which could only be compared to a severe attack of tic doulereux. The leg was cold, but physical examination was otherwise negative. He gave a history showing marked neuropathic tendency; also a history which indicated spinal lesion (possibly specific) several years ago, from which he recovered, but during which there was paralysis of the limbs and of the bladder. He was referred to the house, where he entered the service of Dr. Shattuck, who has kindly allowed me to study the case and to report it. The only further objective sign is absence of pulsation in the dorsalis pedis arteries of both feet, and very faint pulsation in the posterior tibials. The attacks have recurred

[2] For complete report of this case see Journal, April 3, 1902.

during the daytime and at night, notwithstanding the treatment which has been recommended for this affection, particularly strophanthus and nitroglycerin. The attacks last about half a minute, and the blood pressure, taken by Dr. Jackson, at the onset of one of the attacks, showed a rise of 50 mm. of mercury. In view of the possibility that this rise was due to muscular movement resulting from the pain, Dr. Quinby has, at Dr. Jackson's instance, tested the blood pressure of normal individuals undergoing short periods of violent exercise, and has found no appreciable rise in the blood pressure.

Cases of this nature have been reported from time to time in the neurological periodicals, since Charcot called attention to the symptom in 1858. As regards the etiology, the arterial degeneration incident to advancing years (atheroma) was at first regarded the underlying cause, excepting in cases with local or general source of arterial obliteration (aneurism, syphilis). Erb mentioned gout, the misuse of tobacco, exposure to cold and other causes. Many cases have now been reported between the ages of twenty and forty, and a congenital tendency to angio-sclerosis is now deemed a sufficient cause. The arterial obliteration alone is not sufficient to explain the attacks of pain, which are probably due to superimposed vasomotor spasm, to which a neuropathic disposition renders the patient liable, and it seems probable that a third factor, namely, a sudden increase of blood pressure, is essential to the spasm.

In studying this subject, Dr. Paul and myself have been impressed with the not infrequent coincidence of painful nocturnal cramps, with signs of impaired circulation, and pulseless arteries in the foot, and we are inclined to regard such painful cramps as a modified form of this disorder, for which we have suggested the name "angina cruris" as more accurately descriptive than those hitherto proposed. The study of the subject is of practical value as aiding in the interpretation of the various obscure cases of malnutrition and of painful cramp, as directing the attention to the circulation rather than to the nervous system. The treatment of well-established angina cruris is most unsatisfactory, but much may be done in incipient cases by way of preserving the circulation.

Dr. Putnam, who is much interested in this subject, and who has reported one of the only two cases published, I think, in this country, is unable to be present this evening to discuss the subject, but he authorized me to say that while recognizing the important part played by the circulation in all these conditions, he is in doubt whether the cases with nocturnal attacks should be placed in the same class with those of well-established claudication occurring only during exercise.

Dr. E. A. Codman spoke on

A RESUME OF THE RESULTS OF DR. HARRINGTON'S SERVICE FROM JUNE 1 TO OCT. 1, 1900, AS SEEN IN THE FOLLOWING JUNE OR LATER.

Last May, with Dr. Harrington's approval, postals were sent to many of the patients who had been in the East service of the previous year, asking them to call at the hospital on any morning during the first two weeks in June at about eleven. More than a half of those thus notified responded by letter or in person and were examined, and the results were noted in the records. These results were, as a whole, so interesting and instructive to us that we have made an effort to present them briefly to you in the following table and remarks, hoping that they may give some idea of one-ninth of the surgical work of the hospital, as seen through the perspective of a year. This is not presented as statistical but as a sort of review. Possibly it may be interesting to you to glance at the everyday work of the hospital staff, as well as the rare or brilliant cases which are usually shown at these meetings.

| Disease. | Number traced. | Perfect result. | Good result. | No improvement. | Bad result. | Died. | Died after leaving hospital. | Total number treated. |
|---|---|---|---|---|---|---|---|---|
| Appendicitis: | | | | | | | | |
| General peritonitis from appendicitis | 5 | .. | .. | .. | .... | 5 | .... | 6 |
| Appendicitis; wound drained | 14 | 7 | 7 | .. | .... | .. | 2 | 20 |
| Appendicitis; wound closed | 15 | 9 | 4 | 2 | .... | .. | .... | 23 |
| Hernia: | | | | | | | | |
| Strangulated inguinal | 1 | 1 | .. | .. | .. | .. | .... | 2 |
| Inguinal | 7 | 5 | 2 | .. | .... | .. | .... | 22 |
| Umbilical | 2 | 1 | 1 | .. | .... | .. | .... | 3 |
| Femoral | 2 | 2 | .. | .. | .... | .. | .... | 3 |
| Other forms | 1 | .. | .. | 1 | .... | .. | .... | 2 |
| Miscellaneous Laparotomies. | | | | | | | | |
| Fibroid of uterus | 4 | .. | 4 | .. | .... | .. | .... | 6 |
| Salpingitis | 5 | .. | 4 | .. | .... | .. | 1 | 9 |
| Ovarian cyst | 1 | 1 | .. | .. | .... | .. | .... | 2 |
| Malignant cyst | 2 | .. | 1 | .. | .... | 1 | .... | 4 |
| Cancer of rectum | 1 | .. | 1 | .. | .... | .. | .. | 1 |
| Closure fecal fistula | 1 | 1 | .. | .. | .... | .. | .. | 1 |
| Gallstones or cholecystitis | 4 | 2 | 2 | .. | .... | .. | .... | 6 |
| Tubercular peritonitis | 2 | .. | 2 | .. | .. | .. | .. | 4 |
| Intestinal obstruction | 1 | .. | .. | .. | .... | 1 | .... | 2 |
| Phantom tumor | 1 | .. | 1 | .. | .... | .. | .. | 1 |
| Cancer of stomach | 1 | .. | .. | .. | .... | 1 | .. | 2 |
| Cancer of liver | 1 | .. | .. | .. | .... | 1 | .... | 1 |
| Traumatic rupture of intestine | 1 | .. | .. | .. | .... | 1 | .... | 1 |
| Cancer of uterus | | .. | .. | .. | .... | .. | .... | 1 |
| Extra-uterine pregnancy | 2 | 1 | 1 | .. | .... | .. | .. | 3 |
| Gynecological Cases | | | | | | | | 20 |
| Caruncle | 1 | .. | 1 | .. | .... | .. | .... | .. |
| Ventral fixation for retroversion | 4 | .. | 3 | .. | 1 | .. | .... | .... |
| Repair of cervix, with or without perineum | 3 | .. | 2 | 1 | .... | .. | .... | .... |
| Dilating and curetting | 5 | .. | 3 | .. | .... | .. | .... | .... |
| Complete repair, cer. per. and V. F. | 3 | .. | 2 | .. | 1 | .. | .. | .... |
| Genito-urinary cases: | 12 | 1 | 4 | 2 | .... | 5 | .... | 27 |
| Head injuries: | | | | | | | | |
| Compound fracture of skull | 1 | .. | .. | .. | .... | 1 | .... | 4 |
| Fracture of base | 2 | 1 | .. | .. | .. | 1 | .... | 2 |
| Concussion | 1 | .. | 1 | .. | .. | .. | .. | 5 |
| Bone and joint disease | 8 | 3 | 5 | .. | .... | .. | .. | 13 |
| Plastic operations | 3 | .. | 2 | 1 | .... | .. | .. | 7 |
| Fistula in ano | 5 | 3 | 2 | .. | .... | .. | .. | 9 |
| Empyema | 2 | 1 | 1 | .. | .... | .. | .. | 5 |
| Tubercular glands of neck | 4 | 2 | 2 | .. | .... | .. | .. | 8 |
| Cancer of breast | 8 | 3 | 4 | .. | .... | 1 | .. | 11 |
| Fibroma of breast | 1 | .. | 1 | .. | .. | .. | .. | 2 |
| Miscellaneous malignant cases | 7 | 2 | 3 | .. | .. | .. | 2 | 13 |
| Accident cases | 9 | 3 | 2 | .. | .... | 4 | .. | 3 |
| Miscellaneous cases | 19 | 9 | 2 | .. | 1 | 6 | .. | 49 |
| Fractures of various kinds | 11 | 3 | 8 | .. | .... | .. | .. | 41 |
| | 181 | 1 | 79 | 7 | 3 | 28 | 5 | 300 |

*Explanation.*— Most of the results were seen personally by Dr. Harrington or by Dr. Codman. A few who replied by letter are included. The results of cases as seen at the time of discharge and not heard from later are not given, because

such figures can easily be obtained from the Annual Report.

Perfect results are not discussed in the remarks at the end because they are perfect and speak for themselves.

Good results include those cases which, while they showed some benefit from the operation, were nevertheless not completely relieved. In what respects these lacked perfection is explained in the remarks.

REMARKS ON THE CASES IN WHICH THE RESULTS WERE NOT PERFECT.

*Acute appendicitis.*— In the acute appendix cases, two or more which might justly be considered general peritonitis are included. Of the seven classed as good results, two were fairly well for a year, and then died in consequence of operations for hernia and adhesions about the scar. Another was operated on in the course of the year for adhesions and salpingitis and is still far from comfortable. Another has great bulging of scar but no other trouble. Two others report themselves well but were not examined and were therefore not considered perfect. The seventh has constipation and uncomfortable abdominal symptoms suggesting adhesions.

*Chronic appendicitis.*— Two cases were not in the least improved by the operation. The chief complaint of one was constipation; of the other, premenstrual pains. The four classed as good results had solid wounds, but also had mild symptoms attributable to adhesions, constipation, abdominal discomfort, etc.

*Inguinal hernia.*— The two good results have solid scars but complain of dragging pain more pronounced than before operation.

*Umbilical hernia.*— One case has two weak spots in scar. The patient was an extremely stout male, and the wound had burst open during convalescence, necessitating a secondary suture in the granulating fascia. A curious hernia of the liver in a small colored child was not improved by operation.

*Miscellaneous laparotomies.*— One hysterectomy has a discharging sinus, but is able to work. The other three have no objective trouble but subjective symptoms similar to those of the menopause. The four salpingitis cases still have a little discomfort — leucorrhea, weakness, etc. One has been operated again for abdominal sinus. A case of malignant ovarian cyst which had been drained and curetted through the vagina had been very comfortable and had gained weight for ten months, but recently has not been well and there is evident increase in the disease. A cancer of the rectum excised, an inguinal artificial anus made: no return of the disease, and patient is leading an active life. Two cases of gallstones had recurrence, and have since been operated again. One tubercular peritonitis has still an enlarged tube; the other has a small sinus. Both are otherwise in good health.

*Gynecological cases.*— The bad result from ventral fixation was in an old woman with prolapse, in whom the ventral wound became septic. The eight good results in gynecological cases were in the main relieved but individual symptoms persisted. The one bad result in which curetting, cervix, perineum, and ventral fixation were done was anatomically perfectly successful; her original troubles were replaced by pain in her side, which she considered worse than anything she had had before.

*Genito-urinary cases.*— An enlarged prostate and a papilloma of the bladder showed no improvement. One hydrocele only reported — perfect.

*Head cases.*— The case considered as a perfect result of fracture of the base had typical symptoms at entrance.

*Bone and joint disease.*— Perfect results: Two cases necrosis of ribs; double hallux valgus. Good results: Two cases osteomyelitis of tibia; hip disease. Led to amputation: Necrosis of ulna; tuberculosis of ankle; sepsis of elbow.

*Plastic operations.*— One contracture of scar in cheek following a bicycle accident was not improved by operation. He was operated on again a year later, however, and some improvement effected.

*Fistula in ano.*— Of the two good results one still has sinuses and artificial anus. The original Littrè operation was done to save life. The other has slight incontinence when he breaks wind.

*Empyema.*— One still comes to the Out-Patient Department in spite of fairly successful thoracoplasty last summer.

*Tubercular glands of neck.*— Of the two good results, one has an ugly scar and the other paralysis of the upper fibres of the trapezius. No case showed recurrence.

*Cancer of the breast.*— All had gained weight and looked well. Three had had troublesome swelling of the arm but this had improved. Only one had recurrence — two small nodules in the chest wall. A fibroma of breast had an annoying scar.

*Miscellaneous malignant cases.*— Two sarcomas in parotid region had local recurrence but good general health. A woman whose arm was amputated for sarcoma of the humerus has symptoms of brain tumor. An epithelioma of the lip and one of the nose had not recurred.

*Accident cases.*— Only two results of interest: An amputation stump of the leg which had healed by first intention had "catboils" when an artificial leg was worn six months later. Cut wrist: Suture of superficial and deep flexor tendons and ulna nerve. Perfect result in tendons; the functions of ulna nerve had not returned.

*Miscellaneous cases.*— Bullet wound, with hemothorax; entirely recovered. A knee opened and drained for gonorrheal arthritis had complete ankylosis. Three cases not operated on are interesting as resurrections. A bad tuberculosis of kidney and bladder, refused operation, went home to the country, gained thirty pounds, and is now doing a thriving grocery business, only disturbed by frequent micturition. A moribund jaundiced

case, too feeble for exploratory operation and diagnosed as cancer of the liver, is perfectly well and working every day. A pregnant woman who was sent in for appendicitis, and who showed an unaccountable pyrexia while in the ward, has been well ever since. The delivery was normal and at term.

The following cases died during or after the service:

Cases which died unoperated: One case fracture of base of skull; one case general peritonitis; two cases multiple injuries; two cases multiple burns; two cases enlarged prostates.

Cases in which death was probably hastened by operation: Cancer of stomach; cancer of liver; cancerous peritonitis; laminectomy for fracture of spine; persistent suprapubic fistula; sudden death in ward from unknown cause when convalescent from perineal section.

Cases in which death was probably not hastened, or not more than a few days, by operation: Extravasation of urine; acute intestinal obstruction; three cases tetanus; compound fracture of skull; diabetic gangrene of foot; traumatic rupture of intestine; four cases general peritonitis from appendicitis.

Cases operated on, which died after leaving hospital: Two cases acute appendicitis operated on a year later for adhesions; perineorrhaphy-cardiac symptoms; pelvic disease, probably malignant; papilloma of bladder.

Dr. F. B. Harrington: I think the examination and tabulation of the results a year after operation is of great value. Certainly it is of great interest to the operator. I was pleased and surprised at the number of cases which reported. Results are sometimes less successful than they seem to promise when the cases leave the hospital. On the other hand, the results at the end of a year are, I think, most encouraging. Some of the other surgeons are in the habit of making this yearly examination of cases. I think all services should do so. These results are entered into the records and, of course, increase the value of the records greatly. I believe that a discharge card should be given to each patient, requesting them, when they leave the hospital, to report at the end of a year during a certain period. To examine these cases does not require much time, and certainly is of great value, not only to the surgeons but to the house officers, who are thus enabled to see end results. If patients are requested to call during the space of two weeks, the work of examination is compressed into a short period, during which definite arrangements can be made for such examinations and time allowed for the same.

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A Centenarian.— Mrs. Belinda Hunt died in Brooklyn, N. Y., at the reputed age of nearly 109 years. She is stated to have been born May 3, 1793, and although a native of Virginia, she did not claim to have seen General Washington.

# Medical Progress.

## PROGRESS IN PUBLIC HYGIENE.

BY SAMUEL W. ABBOTT, M.D., BOSTON.

(Concluded from No. 19, p. 499.)

The radical defects in the practice of vaccination throughout the United States are mainly the following:

(1) It is practically voluntary, and not compulsory, whereby a considerable proportion of the population escapes vaccination.

(2) It is not constant and uniform, but spasmodic or intermittent, and only at its best during epidemics or threatened invasions of smallpox.

(3) The laws upon this subject in the different states are not uniform. (A decided step in advance was taken by the American Public Health Association in 1886, by endorsing a system of interstate notification. In consequence of the very rapid communication between different countries at the present day, Dr. Sykes of London proposes international notification.)[37]

(4) Sufficient importance has not been given to the principle of revaccination after a definite period.

(5) Little or no provision is made by states or by municipalities for the keeping of exact records of the names of persons vaccinated, or for their inspection within a definite period after vaccination. (Every city and town in Massachusetts has been furnished by the State Board of Health with facilities for this purpose, but unfortunately there is no law requiring a record to be made, as in many countries.)

(6) In all countries where vaccination is thoroughly carried out and in such a manner as to secure a definite national immunity from smallpox, vaccine lymph is at present produced under government control.

(7) (Already mentioned.) A national board of health is greatly needed, to supervise the whole question of the management and control of smallpox in the United States, to secure uniform legislation, and lend its aid in stamping out this pest of nations, and in bringing our own country into line with those few countries in Europe which for several years have been able to point with pride to an almost absolute freedom from its invasion.

### SMALLPOX IN LONDON IN 1901.

Dr. Sykes[37] shows that one principal source of the spread of smallpox in London was the dirty linen sent to laundries. There was no evidence that laundries spread the disease to their customers, but received it from them, and that consequently those who handled the dirty linen were exposed to great risk. Another source was the existence of unrecognized cases coming from abroad and staying in the hotels and boarding-houses.

[37] Smallpox in London, by J. F. J. Sykes, M.D., Medical Officer of Health of St. Pancras; London, December, 1901.

By way of preventive measures he recommends the following:

(1) International notification of smallpox.

(2) Extension of the instructions to be given to vaccination officials, as to suspicious rashes and ailments observed by them in the course of their duties.

(3) The making of chicken-pox a notifiable infectious disease.

(4) The law should require that in every case of vaccination the operation should be thorough and efficient, and a description of the result obtained should form part of the certificate.

(5) The provision of clinical examination in doubtful cases where bacteriological examination is not available as an aid to diagnosis for the purpose of notification.

(6) Health authorities and the superintendents of smallpox hospitals should be in direct and continual communication with each other, and furnish each other immediately with any information necessary for the protection of the public.

(7) A consideration of the powers and duties of health authorities with regard to the exclusion and isolation of persons who have been in contact with smallpox.

Murphy,[38] in his last report upon the sanitary condition of London,[39] comments upon the history of smallpox. In the year 1900 there were only four deaths and eighty-six cases in the city. He states, however, that "there are reasons for believing that greater prevalence of smallpox in London than that in recent years may be expected for some time to come." His prediction is now proving to be correct.

He presents the following figures, giving the death-rates for a long series of years:

| Period. | Smallpox Death-rate per 1,000 living. | Period. | Smallpox Death-rate per 1,000 living. |
|---|---|---|---|
| 1851–'60 | .28 | 1894 | .020 |
| 1861–'70 | .28 | 1895 | .012 |
| 1871–'80 | .46 | 1896 | .002 |
| 1881–'90 | .14 | 1897 | .004 |
| 1891 | — | 1898 | .000 |
| 1892 | .007 | 1899 | .001 |
| 1893 | .040 | 1900 | .001 |

In the foregoing table where — is inserted no deaths occurred.

The notified cases in London during the last eleven years were as follows:

| Year. | Cases notified. | Case-rate per 1,000 living. |
|---|---|---|
| 1890 | 60 | .014 |
| 1891 | 114 | .027 |
| 1892 | 425 | .100 |
| 1893 | 2815 | .653 |
| 1894 | 1193 | .274 |
| 1895 | 980 | .223 |
| 1896 | 275 | .050 |
| 1897 | 104 | .023 |
| 1898 | 33 | .007 |
| 1899 | 29 | .006 |
| 1900 | 86 | .019 |

[38] Ninth Annual Report of the Medical Officer of Health of the Administrative County of London.

[39] By the term London, here, the Administrative County, containing 4,526,700 inhabitants, is meant.

None of the foregoing figures in Dr. Murphy's report, however, are so significant as to the causes of the present spread of smallpox in London as the following table, in which are presented the percentages of unvaccinated children as compared with the total births. This unvaccinated residuum constituted more than 20% in 1894, rapidly increasing, and ending with 33% in 1898, and furnishes the kindling wood of the present epidemic, and for this result and the modification of the vaccination statutes the antivaccination agitators must be held largely responsible:

LONDON VACCINATION RETURNS.

| Year. | Children not finally accounted for (including postponed cases). Per cent. of total births. | Year. | Children not finally accounted for (including postponed cases). Per cent. of total births. |
|---|---|---|---|
| 1872 | 8.8 | 1886 | 7.8 |
| 1873 | 8.7 | 1887 | 9.0 |
| 1874 | 8.8 | 1888 | 10.3 |
| 1875 | 9.3 | 1889 | 11.6 |
| 1876 | 6.5 | 1890 | 13.9 |
| 1877 | 7.1 | 1891 | 16.4 |
| 1878 | 7.1 | 1892 | 18.4 |
| 1879 | 7.8 | 1893 | 18.2 |
| 1880 | 7.0 | 1894 | 20.6 |
| 1881 | 5.7 | 1895 | 24.9 |
| 1882 | 6.6 | 1896 | 26.4 |
| 1883 | 6.5 | 1897 | 29.1 |
| 1884 | 6.8 | 1898 | 33.0 |
| 1885 | 7.0 | | |

With the foregoing figures in view, it does not appear strange that Dr. Murphy should have made the prediction which he did as to the probable appearance of smallpox in London at an early date.

## THE AERIAL DISSEMINATION OF THE INFECTION OF SMALLPOX.

The well-known report of Dr. Power upon the influence of the Fulham smallpox hospital in London, in spreading smallpox to the neighboring districts, followed as it was by similar instances in other parts of England, resulted in the transfer of all the smallpox hospitals of London to a number of ships moored in the river Thames at a point nearly twenty miles below the Tower Bridge. Now since the beginning of the present serious epidemic of smallpox in London (which is steadily on the increase), and the consequent transfer of many cases down the river to these anchored hospital ships, the disease has broken out at Purfleet, a small district on the north bank of the Thames, about a mile from the ships. Dr. Thresh,[40] the medical officer of health of Essex, attributes the excessive prevalence of smallpox at Purfleet to the proximity of these hospitals of the Metropolitan Asylums Board of London. Cases have followed one another in rapid succession since September last, until about one-tenth of the population has been attacked, and it has spread to adjoining parishes.

[40] Hospital Ships and the Dissemination of Smallpox, by Dr. J. C. Thresh; the Lancet, Feb. 22, 1902, p. 495

Vaccination has been much neglected in Purfleet: "The prevailing wind has been from the southwest, and in the cottages nearest, and exposed to the prevailing wind, out of every eight persons, one has been attacked. If such an epidemic prevalence had occurred in London there would have been over a half-million cases in the past seven months. My impression is that the infection may be carried two or possibly three miles in the direction of the wind."

In an editorial in the same issue of the *Lancet*, the same view receives substantial support in the following words: "These revelations are extremely inconvenient, and another result should be the recognition of the fact that *we cannot, by isolation, hope to get rid of smallpox.* The remedy is ready at hand and consists in placing revaccination on the same basis as primary vaccination. With the German method we shall avoid smallpox outbreaks, but with primary vaccination alone we can never hope to do so."

### IS A SMALLPOX HOSPITAL A NUISANCE?[41]

(Harrop and others *vs.* the mayor and corporation of Ossett, England.) The plaintiffs did not object to the use of the proposed hospital for other infectious diseases than smallpox, but that disease they alleged was liable to be spread by aerial convection. The hospital was only for eight patients; only one had been so far received. It was 250 yards from a valuable mansion, 100 yards from the premises of a shoddy factory, about the same distance from the warehouse, and about 170 yards from a dwelling-house. A six-foot wall, enclosing an open space of 40 feet, surrounded the hospital.

*Held:* That the action must be dismissed with costs. Judge Romer, in giving his decision, said, *inter alia*: To sustain a *quia timet* action, the plaintiff must establish a strongly or extremely probable case that the apprehended mischief must arise. Here the evidence was most conflicting. If badly constructed, a smallpox hospital might be dangerous, especially if large and badly conducted, and the neighborhood crowded, but if well conducted, he was not satisfied that it would be such a source of danger as to constitute a legal nuisance. Considering the size, situation, and general character of the hospital in question, it would not be such a substantial danger as to justify him in granting an injunction. Moreover, there had been smallpox in the neighborhood, which had not caused ill results. It was not necessary to deal with danger which it was said would arise when the plaintiffs' land was built on, until the danger arose. He thought there was no danger from drainage. Further, all the witnesses concurred that vaccination offered complete protection, and by taking this reasonable precaution all parties could protect themselves. Further, the case was not one of public, but of private, nuisance.

[41] Practical Guide to the Public Health Acts, by T. W. Hime, B.A., M.D.; Appendix, p. 21, London, 1901.

### THE TECHNIQUE OF VACCINATION.

The following are the revised instructions given by the Local Government Board of England to vaccinators under contract:[42]

(1) Except so far as any immediate danger of smallpox may require, the public vaccinator must vaccinate only subjects who are in good health. As regards infants, he must ascertain that there is not any febrile state, nor any irritation of the bowels, nor any unhealthy state of the skin, especially no chafing or eczema behind the ears, or in the groin, or elsewhere in folds of skin. He must not, except of necessity, vaccinate in cases where there has been recent exposure to the infection of measles, scarlatina or diphtheria, nor where erysipelas is prevailing about the place of residence.

(2) A certificate of postponement must be given by the public vaccinator in the form prescribed by the Local Government Board or to the like effect: (*a*) If in his opinion the child is not in a fit and proper state to be vaccinated, or (*b*) if in his opinion the child cannot be safely vaccinated on account of the condition of the house in which it resides, or because there is or has been a recent prevalence of infectious disease in the district; and in any such case the public vaccinator is required forthwith to give notice of such certificate to the medical officer of health for the district in the proper form.

(3) All public vaccinations are to be performed with glycerinated calf lymph or with such other lymph as may be issued by the Local Government Board. If the parent or other person having the custody of the child requires that it shall be vaccinated with lymph issued by the Local Government Board, the vaccination must be performed with such lymph.

(4) The public vaccinator must keep such record of the lymph he uses for vaccinating as will enable him always to identify the origin of the lymph used in each operation. He must not employ lymph supplied by any person who does not keep an exact record of its source.

(5) The public vaccinator must keep in good condition the lancets or other instruments which he uses for vaccinating, and he must not use them for any other purpose whatever. When he vaccinates he must cleanse and sterilize his instrument after one operation before proceeding to another, and must always, when vaccinating, have with him the means of doing this. When once he has unsealed a tube of lymph he must never attempt to keep any part of its contents for the purpose of vaccination on a future occasion. Under no circumstances should the mouth be applied directly to the tube in which the lymph is contained for the purpose of expelling the lymph. In the case of ordinary capillary tubes an artificial blower may properly be employed for this purpose.

(6) Vaccination should at every stage be carried out with aseptic precautions. These should

[42] See Twenty-eighth Annual Report of the Board for 1898-1899.

include: (1) The cleansing of the surface of the skin before vaccination; (2) the use of sterilized instruments; and (3) the protection of the vaccinated surface against extraneous infection both on the performance of the operation and on inspection of the results. Advice as to the precautions to be taken in this respect until the scabs have fallen and the arm has healed should always be given to the person having the custody of the child.

(7) In all ordinary cases of primary vaccination the public vaccinator must aim at producing four separate good-sized vesicles, or groups of vesicles, not less than half an inch from one another. The total area of vesiculation resulting from the vaccination should not be less than half a square inch.[43]

(8) The public vaccinator must enter all cases in his register on the day when he vaccinates them, together with all particulars required in the register up to and including the column headed "Initials of the Person Performing the Vaccination." The results of the vaccination, which must be attested by the initials of the person who inspects the case, are to be entered upon the day of inspection. In cases of successful primary vaccination the public vaccinator must record the number of separate scarified areas, punctures or groups of punctures made, and the number of separate normal vaccine vesicles or groups of vesicles which have been produced. In cases of revaccination, he must register as "successful" only those cases in which either vesicles, normal or modified, or papules surrounded by areolæ have resulted. When any operation (whether vaccination or revaccination) has to be repeated owing to want of success in the first instance, it should be entered as a fresh case in the register.

VACCINAL IMMUNITY.

The following experiments relating to the production of vaccinal immunity are stated in Dr. Cory's lectures on the Theory and Practice of Vaccination (1898):

"The first experiment was, instead of putting all the vesicles on the arm at the time we first vaccinated it, we have put on only one; the next day we put on another, and so on until the tenth day, and in both cases which we had the opportunity of so vaccinating we found that the ninth day was the last day we could produce any specific effect from the vaccination. It was curious to observe how the vesicles that were subsequently put on to the first developed. We will take that vesicle which was vaccinated four days after the first as an example. This vesicle arrived at its maturity five days after it had been inoculated, or on the ninth day from when the first had been inoculated. Moreover, it hurried through its stages, overtaking gradually the first vesicle, and both maturing together on the ninth day. That vesicle which was inoculated on the seventh day reached its maturity also on the ninth day from when the first vesicle was inoculated, or the second day from which it had been inoculated — in fact, all the vesicles matured on the ninth day from which the first had been inoculated. After the ninth day no further specific effect could be produced by inoculation of vaccinia."

M. Trousseau, in his fourth edition of "Clinique Médicale,"[44] describes himself as having made similar experiments with the same results, and we know from Mr. Bryce, as long ago as 1809, that this phenomenon had been observed, for on page 173 of his book the following passage will be found:

"That if during the regular progress of cowpox a second inoculation be performed a certain number of days after the first, the affection produced by this second inoculation will be accelerated in its progress so as to arrive at maturity, and again fade, at nearly the same time as the affection arising from the first inoculation, and that this will take place although the constitutional affection be so slight as otherwise to pass unnoticed." In passing, we may observe also that the same observation had been made with regard to the vesicle produced by the inoculation of smallpox — another piece of undesigned evidence of the close affinity of the two diseases.[45]

The second experiment was, supernumerary fingers were vaccinated on the tip, and the finger removed on different days after vaccination. For instance, one child was vaccinated on the tip of its finger, and the finger, together with the vaccine vesicle, was removed on the fourth day from the time it had been vaccinated.[46] About a month after the child was again vaccinated on the arm. The second vaccination ran rapidly through its course, reaching its maturity on the fifth day, and then began to decline. And it was further found in other children who had supernumerary fingers that, if the finger with the vaccine vesicle was removed on the second day after vaccination, then the subsequent vaccination performed a month after the stump had healed ran seven days' course. In the former case four and five make nine, and in the latter two and seven make nine. All the supernumerary fingers obeyed the same law, which was, that on the assumption the vesicle took nine days to mature, the sum of the times of the two vaccinations always equaled nine days.[47]

Titeca[48] believed that vaccination could be made perfectly protective by repeating the operation after a week or more and until it ceases to "take." He showed this by experiment. Warlomont gave to this practice the name of "vaccinization." It is well known that autovaccination often occurs among children by the act of scratching the mature vesicle and then ac-

[43] Dr. Cory says upon this point: "There can be little doubt that it is better to vaccinate in a multiple number of places than to endeavor to make one large vesicle equivalent to the smaller ones." (Lectures on Vaccination, London, 1898, p. 84.)

[44] Vol. i, p. 121.

[45] Practical Observations on the Inoculation of Cowpox by James Bryce, published in 1809; p. 159, et seq.

[46] Paper by Dr. Cory in the transactions of the Epidemiological Society, vol. iv, p. 197, for the years 1875-1881.

[47] From Lectures on the Theory and Practice of Vaccination, by Robert Cory, M.A., M.D., London, 1898, p. 48-50.

[48] La pratique de la Vaccine; Ce qu'elle est, ce qu'elle devrait être. Bulletin de l'Acad. de méd. de Belgique, xix, No. 6.

cidentally inoculating a new place, the second, or autovaccination, usually running a shorter course than the original, or primary, vaccination.

*Insusceptibility.*— It is quite probable that under the most favorable circumstances for vaccination (absolutely fresh lymph in each instance), insusceptibility in primary cases does not exist.

Dr. Robertson says, in the twenty-fifth "Report of the Registrar General of Scotland": "Constitutional insusceptibility, as expressed in the returns, is virtually a confession from an operator that he has made three unsuccessful attempts to vaccinate a child without ascertaining the cause of his failures, and the fact that a child has a certificate of insusceptibility does not absolve its guardians from the duty of having the reality of the conditions tested from time to time."

Dr. Cory says[49] upon this point: "Of my own vaccinations, I may say that I have in my time performed over 38,000 primary operations with human or with calf lymph, and that it has only once fallen to my lot to fail twice at an attempt at vaccination. This subject was a ten-year-old child, in whom, as stated by its mother, vaccination had been attempted on previous occasions without result. My operation failed at the second attempt, and I did not get the opportunity to try a third time."

Dr. Thorne, chief medical officer of the Local Government Board, says:[50] "I would point out that the number of consecutive primary vaccinations by the board's own officers, without the occurrence of a single instance of so-called insusceptibility, now reaches 107,180."

THE COMMERCIAL IMPORTANCE OF VACCINATION.[51]

Since the unfortunate modification of the Vaccination Law of England, enacted in 1898, very many children have been exempted from vaccination. The effect of this disastrous piece of legislation is already showing itself in more ways than one. Seventy English life insurance companies have required a renewal of their policies. Thirteen companies absolutely refuse to insure unvaccinated children, fifty-seven companies consider such persons as exposed to an extra risk, and refuse to pay the amount insured if the policy-holder dies of smallpox, while only ten companies continue the old form of contract. Many public departments refuse to employ unvaccinated persons. The Duke of Norfolk (postmaster general), as a peer of the realm, voted for the conscience bill, but, as a matter of public policy, does not allow unvaccinated persons in the postal service. The same is also true of the heads of the War and Navy Department, each of whom voted for the conscience bill, but allow no unvaccinated persons in their branches of public service. The first lord of the treasury has adopted the same measure. In some quarters of the city landlords have turned out tenants who refuse to be vaccinated, and have placed signs upon their houses bearing the inscription "Not for unvaccinated tenants."

[49] Lectures on Vaccination, p. 73.
[50] Twenty-seventh Annual Report of the Medical Officer of the Local Government Board, p. viii.
[51] Rev. d'Hygiene, 1899, p. 1055.

## Reports of Societies.

### THE OBSTETRICAL SOCIETY OF BOSTON.

MALCOLM STORER, M.D., SECRETARY.

Meeting of Jan. 21, 1902, Dr. J. B. Swift in the chair.

Dr. G. J. Englemann read a paper entitled

BIRTH- AND DEATH-RATE AS INFLUENCED BY OBSTETRIC AND GYNECIC PROGRESS.[1]

Dr. E. M. Hartwell: As regards the general subject of birth-rates in America, it is well to remember that they are far from satisfactory, and must be taken with some degree of allowance. Here in Boston births are not returned promptly or, in all probability, accurately. Another ratio than that to the total population is needed, as we live in a city that is largely recruited by immigrants, mostly of the male sex. Our mortality statistics, owing to the legal requirement of death certificate as a prerequisite for a burial permit, are, of necessity, much more trustworthy than our birth and marriage certificates.

I have wanted for a long time to publish the number of births by months, in the monthly bulletin of the statistics department, but such figures would be without significance, as under the present system the number of births registered in a given month do not represent the actual births of the month. Two or three months before the time when he has to make returns to the State House, the city registrar has a general round-up of babies made, in order to ascertain the number of births within the year. The present condition might well be improved, but part of the trouble is owing to the incomplete and dilatory returns of births by physicians. Within ten years it was discovered that a certain man reported in one year some ninety fictitious births for the sake of the quarter of a dollar paid for each certificate. But as the law now stands those fictitious births figure in the birth-rates, as they cannot legally be expunged from the records.

In the statistical department I have not yet taken up comparative mortality tables, and would be loth to do so until there is an improvement in the tables of population. There has been an epidemic of lowered death-rates in American cities. Inaccurate and boastful estimates of the annual increase of population in the intercensal years helps to lower death-rates. I know of one city in which the method of estimating population practically amounted to guessing at the number of houses and multiplying by five. I can show you three several estimates of the population of Balti-

[1] See page 505 of the Journal.

more for the year 1898, each stated to be "official." These were (1) 500,000, (2) 625,000 and (3) 541,000. On the latter the death-rate was based. In 1900 the United States census gave Baltimore a population of only 509,000. In view of such uncertain data, I refrain from comparing death-rates. I think that the death-rate in Boston is more accurately given than in most other cities. In studying birth statistics we need better material to work with. If we could get the detailed material concerning Boston which is contained in the United States census schedules, much of which will never be published by the Census Bureau, we could make some very instructive tables. I have taken some steps toward procuring the material. It is most desirable, I wish I could say it is probable, that the city shall appropriate $5,000 to pay for copies of the Boston schedules for 1900, which will be used as the basis of comparison for a hundred years.

The last annual report of the city registrar is a great improvement on its predecessors. It contains a number of tables showing death, marriage and birth statistics by wards. The multiplication of such tables will enable us to attain clearer ideas of the local conditions which obtain in different parts of the city, and may serve to suggest more effective measures for reducing the death-rate.

I trust that Dr. Engelmann's paper will be published and widely read. It should arouse discussion as to the reasons for the deplorable conditions he has depicted. If our birth-rate is diminishing, it is a matter of capital importance.

It would, perhaps, be better if the birth-rate were based upon the number of married couples instead of the total population. It is largely owing to Dr. Engelmann's activity, I may say, that the forthcoming census report will contain tables relating to fecundity.

DR. ALFRED WORCESTER: I am inclined to think that the number of births reported is much less than those actually occurring. Families employing midwives or relying upon the kindly aid of neighbors are not apt to bother about reporting births, while the yearly house-to-house visitation to find out whether any children have been born in the past year is apt to be most slipshod; so, too, physicians who go outside of their own town to attend confinement cases, are very apt to forget to make any reports, being under no compulsion to do so.

DR. E. O. OTIS: In listening to these disappointing results that Dr. Engelmann has told us, we cannot but find hope in the possible faultiness of the statistics to which Dr. Hartwell has alluded. It is interesting that the French Canadians have such large families, far larger than women of the same stock have in France, women gaining in importance with the number in their family.

DR. J. G. BLAKE: As far as the death-rate in confinement is concerned, it seems to me that new methods of treatment are needed. I think that the old methods of treatment in difficult cases have been developed as far as is practicable, and that to get better results we must have recourse to new methods, like Cæsarean section, for instance. Certain cases cannot stand the shock of giving birth to a child. If Cæsarean section can be developed far enough it might give some hope in such cases. As to birth statistics, any applying to Boston must be mere conjecture. In the old days we never bothered about reporting cases. I am confident that even now a more accurate compliance with the law would give a far better birth-rate. Many a child is born in Boston and moves out of the city, of whose existence the registrar has no idea.

DR. ENGELMANN: The figures which I have given are corrected figures. I have myself asked a sufficiently large number of women in various dispensaries, "How many children have you had?" to have been struck with the closeness of the result thus obtained with the corrected figures for Massachusetts and Michigan.

As to reducing mortality in childbirth, it seems to me that some hospitals, with their mortality of .05%, have shown what can be done. The trouble is not with the hospitals, but with the profession at large. Now the hospitals, even with all their desperate cases, give better results than those of private practice.

DR. HARTWELL: There is one gleam of hope in Dr. Engelmann's figures. While there has been a reduction in the maternal mortality, the number of stillborn children has not fallen correspondingly. It may be that there is an irreducible minimum of stillbirths, due possibly to conditions incident to the immense increase of our urban population in late years. After the inhabitants of our great cities become adapted to an urban environment, it is quite conceivable that birth- and death-rates may improve.

DR. BLAKE: I would like to bear testimony to the supreme excellence of the aseptic training that I see among the younger physicians by whom I am called in consultation. I should also like to ask Dr. Green, as representing our lying-in hospital, if in his judgment there is any direction in which advance will improve the present maternity statistics.

DR. C. M. GREEN: I cannot say that I see any great chance for improvement except possibly in the treatment of eclampsia, to which a relatively large number of the present deaths are due. We do not as yet really know very much about eclampsia anyway, and it is possible, with more definite knowledge about the disease, great advance in methods of treatment will be made.

## ASSOCIATION OF AMERICAN PHYSICIANS.

ABSTRACT REPORT OF THE SEVENTEENTH ANNUAL MEETING, HELD IN THE NEW WILLARD HOTEL, WASHINGTON, D.C., APRIL 29 AND 30, 1902.

### FIRST DAY.

THE opening session was called to order by the President, DR. J. C. WILSON of Philadelphia,

who immediately presented the annual Presidential Address.

He referred to the early history of medical organization in this country, the beginning being far back. Two organizations, one in Boston and one in New York, but both short lived, preceded the oldest existing medical society in this country, the Litchfield County Medical Society of Connecticut, which was founded in 1765 and is still flourishing. After this societies were formed in New Jersey, Massachusetts, Philadelphia, and finally in 1847 the American Medical Association came into being.

He stated that the services rendered to the profession, and through the profession to the people, by this great association, with its constituent state and county societies, could not be overestimated. It has brought the profession together and given it solidity. It has not only encouraged the formation and growth of local societies, but has proved a constant stimulus to activity on their part. It has by means of its section work and excellent journal set a high standard of professional attainments and fostered among physicians a deep sense of responsibility and a lofty conception of the duties and privileges of their calling.

He referred to the defects that had led to the recent reorganization, the effect of which can only be shown in the course of time.

Following this period in the organization of special societies, the basis of which was set forth by Dr. Delafield in his presidential address, in the statement that "it is the desire to have an association in which there will be no medical politics and no medical ethics; an association in which no one will care who are the officers and who are not; in which we will not ask from what part of the country a man comes, but whether he has done good work and will do more; whether he has something to say worth saying and can say it. We want an association composed of members each one of whom is able to contribute something real to the common stock of knowledge and where he who reads such a contribution feels sure of a discriminating audience." These principles have been carried out faithfully, and as the transactions prove with great success.

The address closed with tributes of respect to the members who have died during the past year, including Drs. J. T. Metcalf, who was chosen an honorary member when the society was first organized, Meredith Clymer, and William Waring Johnston, an original member of the association and for many years its treasurer, and at the time of his death a member of the council.

The following suggestions were thrown out for the consideration of the members and possible future action:

(1) That in many instances the form of communication best suited for publication is not that adapted to an audience such as this, and that details of clinical history or of experiments and copious quotations from the literature can often be omitted in the reading of papers without detriment to their value.

(2) That the papers should be handed to the recorder directly after the meeting, or with as little delay as is necessary, to enable him to issue the transactions promptly.

(3) That the wise suggestion of Dr. Da Costa, repeated by Dr. Welch, our last president, in regard to the honorary list, be considered by those "who have been members for a long time, but find it inconvenient to attend regularly and yet wish to remain with us."

(4) That the time is now at hand when our membership should be increased to 150.

(5) That the number of new members elected in any one year should not exceed ten.

An amendment to the constitution providing for the increase of the possible membership to 150 was introduced, and under the rules, laid over for a year.

The scientific program was then taken up and the first paper presented by Dr. B. K. Rachford on

COMPARATIVE TOXICITY OF AMMONIUM COMPOUNDS; A STUDY IN AUTO-INTOXICATION.

He undertook to study the comparative toxicity in mice of such salts as may be formed by the union of ammonium, potassium, sodium, calcium and magnesium, with such acid ions as may be present in the body in health and disease. From these experiments he drew the same conclusions as those which he expressed before this society three years ago, namely, "that the xanthin bodies were the important toxic principles in my 'final fluids,' but that their toxicity was increased by small quantities of ammonia in combination with them. The quantities of ammonia, however, required to markedly increase the toxicity of the spinal fluids was much too small to give toxicity to any of the inorganic acid ions studied in this work. From these experiments I am prepared to state that the toxicity of my 'final fluids' were not due solely to the ammonia they contained, but to other toxic agents found in migrainous but not in normal urines, without which the ammonia would have been innocuous. For these reasons I adhere to the belief that the ammonium compounds of the xanthin bodies gave toxicity to my 'final fluids' and that these same compounds are toxic agents in producing migraine and other lithemic disorders which I have described in my previous papers as being due to xanthin bodies alone. This point seems plausible when one remembers that the functionally incompetent liver, which is an important etiological factor in all these conditions, may, by the fall of its urea-forming function, throw into the general circulation sufficient ammonia and uric acid leucomaines to combine and in this way diminish the excretion of urea and increase the excretion of ammonia and xanthin bodies."

The study was made of the relative toxicity of such ammonium compounds as might possibly occur in the body during health and disease and also the relative toxicity of such salts of other alkalis which might possibly play a rôle in the

production of auto-intoxication. Ammonium, sodium, potassium, calcium and magnesium were all studied in their various combinations. Ammonium was found to be quite toxic with the ions of hydrochloric, nitric and sulphuric acids, while the sodium salts of the same acids were comparatively nontoxic. If combined with an organic acid the ammonium ion rapidly loses its toxicity. Potassium seems to be about one-half as poisonous as ammonia in its salts of inorganic acids. Magnesium is with some salts more poisonous than ammonium, while calcium has but slight toxicity. The acids were tested in connection with a nontoxic base like sodium, and it was found that the inorganic acids were comparatively nontoxic, while the organic acids add to the toxicity of the alkaline bases.

AN ESTIMATE OF THE AMOUNT OF TOXIN IN THE BLOOD OF A HORSE INFECTED WITH TETANUS.

DR. B. MEADE BOLTON read this paper. He referred to the outbreak of tetanus in St. Louis last year which was shown to be due to the use of diphtheria antitoxin which contained tetanus toxin. The antitoxin used in those cases was obtained from a horse that exhibited symptoms of tetanus two days after the blood was drawn, and he was able to demonstrate the presence of a considerable amount of toxin in this serum. There is no evidence in literature of such a finding having been made previously under similar circumstances. All the known facts before have seemed to show that the toxin in some cases, whether it was injected into the blood or developed in the tissues from infection, disappeared from the blood, while in other cases, even though a minute quantity had been used, it could be found in the blood. In experimental work it was found that the toxin remains circulating in the blood in guinea pigs, while in rabbits it disappears from the blood and combines with the tissues. Dr. Bolton's work consisted in inoculating horses with garden soil known to contain the tetanus organism by the result of tests upon small animals and also by inoculating one horse with a culture that produced tetanus in smaller animals. The blood from all the horses was drawn at intervals of twenty-four hours after inoculation and the amount of toxin in the serum determined by the injection of guinea pigs and other small animals. It was shown that the toxin makes its appearance in the blood of the horse several days before any symptoms of tetanus are to be observed, and that it gradually increases until about two days before the symptoms become noticeable, after which it rather suddenly diminishes and even disappears in some cases. The amount of toxin varies considerably in different cases.

THE ETIOLOGICAL SIGNIFICANCE OF THE ACID RESISTING GROUP OF BACTERIA AND THE EVIDENCE OF THEIR MECHANICAL RELATIONSHIP TO THE BACILLUS OF TUBERCULOSIS.

DR. A. C. ABBOTT read this paper. He remarked that it was somewhat disturbing to learn that there exists a group of bacteria that resembles the tubercle bacilli in staining qualities and in appearance. They retain the stain to a certain extent after treatment with acids, and consequently have been called the acid-resisting bacteria. They have been found in the sputum, in gangrenous lungs, from the urine, etc., and lately a great deal of attention has been attracted to them by their discovery in butter and milk. Dr. Abbott and his assistants have conducted an investigation of these organisms, the expenses of which have been borne by the Rockefeller Institute. He found that they are, microscopically, strikingly like tubercle bacilli, and that they do resist acid decolorization to some extent. If the old method used for staining the tubercle bacillus and decolorizing by nitric acid be used, these bacteria do not retain the stain longer than one-third the time of the tubercle. If injected into animals under certain conditions they cause nodular growths that somewhat resemble tubercles. There is, however, no particular evidence of caseation and no evidence whatever of dissemination. In other words, the picture presented is less that of the tuberculous nodule than that of the actinomycotic organisms. Inoculation experiments failed to produce tubercular nodules, the results being either the production of granulation tissue at the point of inoculation or nothing at all. Even if the inoculations were made into the jugular vein directly, there was no evidence of dissemination. Injection directly into the lungs produced no dissemination and resulted only in the production of a mass-like granulation tissue. Dr. Abbott thought that these organisms might be dismissed from consideration, in so far as any danger of their causing trouble by infection from milk and butter is concerned. More work has yet to be done to show how closely they are related to the tubercle bacillus. It is shown that they grow as actinomyces, and the work of others has shown that the bacillus tuberculosis under particular methods of inoculation may likewise develop as actinomyces. These last experiments were confirmed by Dr. Abbott with the tubercle bacillus, an organism being secured that strongly resembles this acid-resisting group.

In discussion, DR. FLEXNER said that he had had the privilege of examining Dr. Abbott's specimens and felt that there could be no doubt that the lesions produced by this group of organisms were not true tubercles. The whole lesion studied together reminded one of granulation tissue with a large number of giant cells. He thought the lesions were very similar to those produced by the blastomycetes.

DR. MELTZER referred to the case of a man who had for many years been considered to be tuberculous, but whose sputum on careful examination showed these peculiar organisms. He asked for information about the methods of staining, particularly the alcohol method.

DR. ABBOTT replied that early in his work it became evident that the old method of staining and decolorizing by nitric acid gave perfect and

sure results and that he had ceased to experiment with other stains.

THE HISTOLOGICAL ALTERATIONS OF CYTOTOXINIC INTOXICATION.

Dr. Simon Flexner presented this paper. He said that the studies of Bordet, Ehrlich, Metchnikoff and others have proven that many kinds of body cells, when injected into alien animals, give rise to the production of cytotoxins agreeing in many physiological properties with bacterial and other toxins. Among other effects they seem to act specifically upon cells of the kind from which they were derived. It has now been established that practically all the cells of an animal can be converted into toxic agents from this animal, if they be introduced into an animal of another species, and it has been shown that the cytotoxin of one cell acts specifically upon similar cells, for instance, the cytotoxin of kidney cells acts upon the kidney, of the nerve cells upon the nerves, etc. Dr. Flexner worked particularly with the cytotoxins of the lymphatic organs and found that the lesions produced in the glands are general throughout the body, just as they would be after bacterial toxins. An effort was made to determine whether it would be possible to produce autolysines, and there is evidence that this can be done for certain of the important cells of the body, that is, for certain of the viscera. The work has some bearing upon the question of terminal infections and shows that in the majority of cases of such infections there is a great reduction of the complement of the circulating blood, if not an entire absence of it.

A STUDY OF BACTERIAL CELLS.

Dr. V. C. Vaughan read this paper. He referred to the apparatus described by him last year for the growing of large numbers of bacteria, which he said had proven very satisfactory. By its use he was able to raise various microorganisms by the acre and thus secure a sufficient quantity to study chemically their constituents, particularly their pigments. The bacillus prodigiosus has a pigment which gives a spectrum very closely resembling that of oxyhemoglobin. It is soluble in water and can be used as a stain for cotton, wool or silk goods. Two coloring matters are obtained from this pigment, one yellow and the other a beautiful pink, and Dr. Vaughan exhibited some silk handkerchiefs colored therewith.

Subjecting masses of the germs to alcohol he extracted their toxins, and evaporating the alcohol off, obtained it in the form of a dried powder. Some of these toxins were capable of being split up into two or more forms, for instance, the diphtheria organism produces a soluble toxin against which antitoxin protects, but another toxin is left after the first washing which may or may not be protected against by the antitoxin, and a third toxin is still obtainable from the residue against which antitoxin offers no protection. In all the work of splitting these toxins it was evident that the residues were always less toxic than the whole original substance, and if heated further it rapidly lost its toxicity.

ON SOME EFFECTS OF TOBACCO ON THE TISSUES OF RABBITS.

Dr. I. Adler read this paper. It was merely a preliminary report on the effects of chronic tobacco poisoning. The experiments were made upon rabbits confined within proper limits and fed upon cabbage mixed with an infusion of tobacco exclusively. The tobacco strength of the infusion was gradually increased until the animals were taking an enormous quantity of tobacco extract. They rapidly acquired a taste for it and all appeared quite healthy until killed for examination. The animal killed at the end of the first month was normal in all respects except that careful microscopic examination revealed an extensive infiltration of round cells around the interlobular vessels and smaller bile ducts of the liver. An animal killed after two and a half months shows an enlarged liver, pale in color and granular in appearance, the liver lobulation being very pronounced, quite contrary to the usual appearance in the rabbit. The proliferation of fibrous tissue follows the tract of the portal vessels and bile ducts. The liver cells are absolutely normal and the process is restricted entirely to the interstitial tissue.

The first beginning of interstitial proliferation in the kidney tissue appears at the end of four months. The experiments had not gone beyond that stage and it is impossible yet to say whether interstitial processes in the liver will be progressive.

In the course of discussion and in response to a question from Dr. Adami, Dr. Adler stated that he would not at present attempt to draw an analogy between his findings and a cirrhosis of the liver.

A CASE OF HEMATOPORPHYRINURIA.

Dr. James Tyson reported this case. The patient, a woman 50 years of age, had been taking from 20 to 60 gr. of sulphonal nightly for several years to produce sleep. In November she complained of abdominal pain associated with tympany, so severe as to require hypodermic injections of morphin sometimes twice a day. She was first seen by Dr. Tyson in December, presenting in addition to the above symptoms dry tongue and feeble, rapid pulse. Examination of her urine showed the presence of hematoporphyrin. Since the introduction of sulphonal into practice in 1888 about a hundred cases of this affection have been reported from its use; in only a small number of these cases, however, was the substance isolated from the urine and chemically identified, in most instances the color of the urine being considered as sufficient evidence, apparently, for diagnosis.

Dr. Eithington, in discussion, reported a case occurring after the administration of two 15 gr. doses of trional.

Dr. Starr also reported a case occurring after the use of trional.

PNEUMOCOCCIC ARTHRITIS.

DR. JAMES B. HERRICK read this paper. He stated that this affection was a rare one, appearing oftenest during, or shortly after, croupous pneumonia, and most frequently in men. It may be primary in the joint and severe and even fatal constitutional symptoms may result from the toxemia thus induced. Previous damage to a joint, as by trauma, rheumatism or gout, favors the localization. The lesions are usually nonarticular, the knee being the joint most frequently affected. Exploratory aspiration with bacteriological examination of the fluid is the only means of recognizing the pneumococcic nature of the inflammation. The prognosis is grave, mortality 65%, largely because of the accompanying toxemia and the involvement of other more vital parts of the body. Cases of suppurative pneumococcic arthritis should be treated by immediate incision and drainage. Serous arthritis may often be healed by aspiration, rest and compression.

In discussion DR. OSLER remarked that one of his assistants had recently worked up this subject carefully and had divided the cases into three groups, one with local symptoms mainly, the second group that follows or is associated with pneumonia, and a third group in which the arthritis is associated with a general pneumococcic septicemia. He related the history of one case of the latter kind in which it was difficult to say where the primary lesion was. Blood cultures showed numerous pneumococci, as did also aspiration of the joint, and autopsy showed an extensive pneumococcic meningitis, arthritis and general infection of the blood.

Dr. MUSSER reported a somewhat similar case with involvement of the joints, beginning with the sternoclavicular, but the patient finally recovered.

THE PATHOLOGY OF HERPES LABIALIS AND OF HERPES ZOSTER OCCURRING IN AN ACUTE CROUPOUS PNEUMONIA.

DR. W. T. HOWARD, JR., presented this paper. He concludes from his examination of the lesions in the ganglion and in the skin in herpes labialis and in herpes zoster of pneumonia, that the conditions are the same, and that as they have the same pathology as ordinary herpes zoster, it seems probable that the various forms of herpes are identical.

DR. THOMSON remarked that it used to be considered a favorable sign, clinically, when herpes appeared in the course of a croupous pneumonia.

*(To be continued.)*

## Recent Literature.

*Trichinosis in Germany.* Published by the U. S. Department of Agriculture, Bureau of Animal Industry. By C. W. STILES, Ph.D., and ALBERT HASSALL, M.R.C.V.S. Pp. 211. Washington, D.C. 1901.

This interesting document has for its object, as stated in the introductory portion, "to judge the value of the microscopic inspection, as shown by German health statistics for 1881-1898, in order to inquire whether this system gives a protection proportionate to its expense, hence whether we should introduce it into this country; also to see whether any cases of trichinosis have been definitely traced to American pork bearing the inspection stamp of the bureau, thus inquiring whether the attacks upon American pork printed in the German agrarian press have any foundation in German health and mortuary statistics. The German law prohibits the sale of trichinous pork, regardless of the condition of the parasites, whether dead or alive."

The report is divided into the following topics: (1) General remarks upon trichinosis in Germany; (2) a statistical review of trichinosis in Germany during the 18 years 1881-1898; (3) European cases of trichinosis of alleged American origin; (4) a very full bibliography of the subject.

The author shows by an exhaustive analysis of German reports that there had occurred in Germany in these 18 years 6,329 cases of trichinosis, and of these 318 were fatal. (This is a very much larger number than had occurred in the United States during the same period and in a larger population.) The reported cases were due to the use of pork of local origin, and in very many instances it was shown that the pork in question had been inspected and reported as free from trichinæ. Moreover, it was shown that during the nine years in which American pork was excluded from Germany there was an annual average of 454 cases and 30 deaths, while in the period since American pork was readmitted, this annual average fell to only 149 cases and 4 deaths.

A further analysis of the 24 outbreaks, in which the pork was alleged to be of American origin, shows the evidence to have been of the most flimsy and worthless character, the statement of Zundel being especially worthy of comment as an example of *reductio ad absurdum.*

The author concludes that "a compilation of the German evidence fails to show that a single case of the disease has been traced to the more than 200,000,000 pounds of American pork exported to Germany during the years 1892-1898, and a study of the statistics does not support the view that the microscopic inspection gives a greater protection than the curing methods. He is therefore forced to the conclusion that, from the practical experience of the German people with immense quantities of American pork, there is no sanitary justification for the numerous systematic and too often rabid attacks upon this article of diet, which is so important to thousands of German factory hands."

With reference to the introduction of a system of microscopic inspection in this country the author states "that it is much better to rely upon our methods of curing and cooking rather than to expend between three and four million dollars annually to introduce a system which has a decided tendency to give the public a false sense of security and, furthermore, a system which would un-

questionably result in extending that exceedingly unhygienic German custom of eating raw or rare pork."

*The Four Epochs of Woman's Life.* A Study in Hygiene. By Anna M. Galbraith, M.D., Author of "Hygiene and Physical Culture for Women," Fellow of the New York Academy of Medicine, etc. With an Introductory Note by John H. Musser, M.D., Professor of Clinical Medicine, University of Pennsylvania. 12mo volume of 200 pages. Philadelphia and London: W. B. Saunders & Co. 1901.

In the announcement of this work it is stated that the book is written for the laity and that "it contains those truths of which every woman should have a thorough knowledge."

The book contains a variety of information, some of which is true and some of which is at least open to question. None of its truths are new to any well-educated physician, and it is difficult to conceive that any intelligent physician would desire to have spread broadcast among women much of the information which is in the book. For example, does anyone think it is wise for a young maiden to be acquainted with the anatomy of the genitalia, with the theories and anomalies of menstruation, with "The Condition of the Hymen as a Proof of Virginity," or for a woman at the menopause to know that the prominent symptoms of the climacteric may be marked debility, intense nervousness, nervous prostration, melancholia, hysteria, irritable heart, insomnia, Bright's disease, as well as others. Among other things, the book contains "a glossary of those medical terms necessary to a thorough understanding of the subject under discussion," in which are defined such words as cohabitation, coitus, continence, erection and gonorrhea. It is to be feared that our English friends, when they see this work, will point it out as another example of American book-making.

*Atlas and Epitome of Otology.* Saunders' Medical Hand-Atlases. By Gustav Bruhl, M.D., of Berlin, with the collaboration of Prof. Dr. A. Politzer of Vienna. Edited, with additions, by S. MacCuen Smith, M.D., Clinical Professor of Otology, Jefferson Medical College, Philadelphia. With 244 colored figures on 39 lithographic plates, 99 text illustrations, and 292 pp. of text. Philadelphia and London: W. B. Saunders & Co. 1902.

This excellent volume contains what is probably the best collection of colored plates of the ear, both of normal and of pathological conditions, of any handbook published in the English language. In addition to this the text is presented in an unusually clear and direct manner. The association of Professor Politzer in the preparation of the work, and the use of many valuable specimens from his collection, notably enhance the value of the treatise. The work contains everything of importance in the elementary study of otology, and, without question, is a most valuable contribution to medical literature.

THE BOSTON

# Medical and Surgical Journal.

THURSDAY, MAY 15, 1902.

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283 Washington Street, Boston, Mass

## STATE PRODUCTION OF VACCINE MATERIAL.

Early in the present session of the General Court of Massachusetts a bill was presented upon petition of the chairman of the Board of Health of Boston, providing for a plan of State production of vaccine lymph under the charge of the State Board of Health. In opposition to this petition certain druggists were ably represented by counsel vigorously objecting to the proposed measure. No valid objections to the bill, however, were presented, but the Committee on Public Health, before whom the hearing was held, reported unfavorably upon it.

Meanwhile, new and important evidence having become public, the question was reopened upon motion of Mr. Adams of Melrose, and another hearing was held by the same committee, at which the State Board of Health was requested to appear, upon a resolve "authorizing and requesting the board to investigate and report a plan for the production and distribution of pure vaccine lymph for free use in this Commonwealth, said report to be made to the General Court as soon as possible."

At this hearing it was shown by an official of the United States government that a cow aged about eight or nine years had been slaughtered at an establishment in Somerville, bearing the comparatively fresh marks of having been used for vaccine production. This cow, after being slaughtered, was found to be so thoroughly diseased with tuberculosis as to render it necessary to condemn the carcass and convert it into fertilizers, being entirely unfit for food purposes. There was also pretty conclusive evidence to show that this animal had but a short time before been employed for the purpose of vaccine production at an establishment near Boston.

A representative of the largest vaccine establishment in New England who was present testified that it was not the custom of that establishment to slaughter the animals used for vaccine purposes before sending out the lymph for public use. And yet all of the best establishments outside of Massachusetts have recognized the importance of this measure, and in most of them this practice has become a requirement. Otherwise, what guarantee of protection have the public that the animals from which the vaccine material is obtained are in a healthy condition at the time of taking the lymph?

At the same hearing the counsel for the Druggists' Association introduced Drs. MacFarland and Huddleston, two experts from Philadelphia and New York, for the purpose of showing that there is no danger in the use of tuberculous cows for vaccine purposes, and that the purity of lymph may be very easily tested, irrespective of the conditions under which it is produced. The attorney for the druggists, however, did not elicit from Dr. MacFarland the fact that he (Dr. MacFarland) had, but a few days previous to his appearance at this hearing, published a list of cases of tetanus which had occurred among persons who had been vaccinated with lymph from establishments where far more careful measures are taken to ensure a pure product than have ever been taken at any of the establishments in Massachusetts. At such establishments outside the State young and healthy calves are employed for vaccine purposes, but in the State it would appear, from testimony which has been presented, that "any old cow" will answer the purpose.

Under present conditions it may reasonably be inquired what guarantee have the people that any protection can exist in the future as to the purity of the vaccine which is produced in Massachusetts?

## WHAT SHALL WE DO WITH REPRINTS?

THE question periodically arises as to a proper disposition to make of the reprints of medical articles. Whether or not the reprint habit is growing, we have no definite means of ascertaining, but certain it is that no physician is long in practice without receiving a goodly number of the reprinted papers of his colleagues. Individuals undoubtedly differ in the use to which they put them. Many are at once destroyed, many are carefully filed away for future reference, some no doubt go to libraries, and all serve the purpose of bringing the writer more or less temporarily to attention. We are glad to welcome any proposition which will put the reprint, often a document of great value, to a practical and legitimate use.

Dr. J. Madison Taylor has recently suggested a specific use to which such reprints may be put. He advises, in the first place, that a greater uniformity in the size of the sheet would be extremely desirable for ease in filing. It is hardly necessary to say in this connection that such a provision is next to impossible on account of the widely varying sizes of the pages of the original publications from which the reprints are taken. What is of more possible application is the suggestion that authors should select a certain number of libraries, both local and general, and always send a copy, preferably in duplicate, of every paper they may write to each, so that they may be filed both under the heading of author and subject. By these means, he rightly maintains, all the contributions of the author may be at once found grouped together, which would in many instances prove a decided convenience to the student. He makes also another hint, namely, that a copy of a reprint should always be placed on file at the hospital from which clinical material has been obtained, urging that this would be a great convenience to students searching through the notes, who would thereby in a measure be saved the annoyance of doing work already done by another. It would also prove of value in determining by whom and in what way certain clinical cases had been used. Notes of hospital records, so far as they are common property, should also be marked in some way, to prevent duplicate use.

Dr. Taylor's suggestions are certainly good and should be generally acted upon. However difficult or inconvenient it may be for an individual to collect and properly tabulate reprints for his own use, it is certainly possible in the modern and well-equipped hospital that such work could be done, to the manifest advantage of the profession at large. Reprints should be sent to libraries, particularly medical libraries, far more generally than is ordinarily done. While we are on this subject, we would like to insist upon the propriety of always indicating on the cover, or in some other part of a reprinted article, both the volume and the page of the original publication from which the article is taken. It is a common custom of the weekly medical journals to send out reprints merely with the date of the original publication. This, manifestly, is a source, often, of very great annoyance to the bibliographer, who, in spite of the fact that he may have in his possession an accurate reprint of an article, is still unable to catalogue it by volume and page. It is a simple matter, and one which should be universally adopted, to print the volume and the

pages, in addition to the date, on all reprints. Repaging the reprints should also be avoided when possible. Naturally, in the large page of the weekly journal, repaging is necessary. We sometimes question whether reprints are as valuable as their authors are apt to think, but, however this may be, we are convinced that they may be put to far better use than is usually their fate.

## DENTISTRY AS A CHARITY.

It is reported that the Associated Charities of Boston have recently been considering a new department of service to the poor. Recognizing the fact that very much is done for the poor of the city in the way of medical attendance and dispensary facilities for the slightly ill, and actual hospital care for those more seriously incapacitated, it has seemed to those interested in the matter that some such public service should also be rendered to the poor in regard to the care of their teeth. As our knowledge grows, it is certainly more apparent that a goodly number of the ills from which people suffer is more or less directly attributable to the condition of the teeth. It is also certain that among the poorer classes no part of the body is so absolutely neglected as the mouth. The result from a practical and an esthetic point of view is sufficiently lamentable. It is said that there is no place in the country where teeth may be properly treated free of charge, excepting at certain dental schools.

Before entering upon any new phase of charity, it is desirable to consider whither it is all leading. The vital questions connected with public medical charities and their abuse have long been before the public eye. While we are indisposed to increase unduly this type of relief for the poor, we must clearly recognize its necessity under certain restrictions. From this point of view we are inclined to be in favor of a movement which will render possible a better care of the teeth among the very poor. This is particularly desirable inasmuch as the proper treatment of the teeth is under ordinary circumstances not obtainable at slight cost. Poor treatment of the teeth is probably worse than none at all, and it is unfair that the poor should be absolutely prohibited from the comfort and improved health which a proper condition of the teeth permits. It is, however, not to be forgotten that work done at dental schools under the jurisdiction of instructors is oftentimes of a high quality of excellence and fills a certain need in the community which this further extension of free treatment would simply enhance. We hope that something more than discussion may come of the proposed plan.

## THE CONTROL OF SMALLPOX IN CHICAGO.

We have already alluded to the admirable work done by the Chicago Health Department in relation to smallpox. Certain figures are now at hand which are of very great interest as showing what may be done by a vigorous propaganda of vaccination. Last February the attempt was made to control the disease over an area of about six hundred thousand square miles, including a population of twenty-five millions, in the territory immediately tributary to Chicago. The figures cover a period of seventeen weeks. On Jan. 31, when a preliminary conference of railway managers and physicians was held, it was demonstrated that in the thirty days following Dec. 28, 1901, there had been an increase, as compared with the same period of the previous year, of more than 900% in the number of smallpox cases reported in ten states of which Illinois is the southern centre. Between Jan. 31 and April 25 of this year it appears that a total of 10,598 cases were reported in the Chicago territory as contrasted with 10,464 during the corresponding period a year ago, being an increase of a little more than 1¼% during the thirteen weeks as against 911% increase of the first four weeks. The reason for this extraordinary showing apparently lies simply in the intelligent and vigorous work done by the Board of Health and also entered into with great willingness by the railways in and about Chicago. It will be remembered that the Chicago Board of Health during the prevalence of smallpox in that city and the surrounding country published a so-called vaccination creed setting forth in clear and forcible language what constituted a true vaccination and under what conditions a person might regard himself as immune. This creed was widely circulated, and unquestionably to it, as well as to the co-operation of all concerned, is to be attributed the very remarkable control over the disease which the foregoing figures seem to demonstrate. Certainly the Chicago Board of Health is to be congratulated upon the outcome of what for a time promised to be a very serious situation.

## MEDICAL NOTES.

Resignation of Dr. Abraham Jacobi.— It is reported that Dr. Abraham Jacobi, after a service of thirty-two years in the College of Physicians and Surgeons, New York, as professor of diseases of children, has tendered his resignation. Dr. Jacobi became lecturer on infantile pathology in the College of Physicians and Surgeons in 1857, and in 1860 the first chair upon diseases of children established in America was instituted in the

New York Medical College, with Dr. Jacobi as professor. In 1865 he was professor of diseases of children in the University of New York, but resigned to become clinical professor of diseases of children in the College of Physicians and Surgeons. In 1895 he received an offer of the clinical professorship in the University of Berlin, Germany, which he declined to accept.

TWO CENTENARIANS.— The death of James Ross at St. Martins, N. B., is announced at the reputed age of one hundred and eleven years. Patrick Hearney of Portland, Maine, is also reported to have died at the age of one hundred and six years.

BOSTON AND NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON.— For the week ending at noon, May 14, 1902, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: Diphtheria 29, scarlatina 19, measles 158, typhoid fever 12, smallpox 38.

BOSTON DEATH-RATE.— The number of deaths reported to the Board of Health for the week ending May 10 was 206 against 238 the corresponding week last year, showing a decrease of 32 deaths and making the death-rate for the week 18.7.

PETER BENT BRIGHAM HOSPITAL CORPORATION. — Under this title a corporation has been formed for a hospital under the provision of the will of Peter B. Brigham, who died about twenty-five years ago. Organization has been effected with the following incorporators: Alexander Cochrane, Eben S. Draper, Henry S. Howe, Walter Hunnewell, William Ropes Trask, Edmund D. Codman and L. H. H. Johnson. In the organization Mr. Cochrane was chosen president, Mr. Codman treasurer and Mr. Johnson secretary. The amount available for hospital construction will probably be about $4,000,000.

AWARD OF BOYLSTON MEDICAL PRIZE.— The Boylston Medical Prize of Harvard University for this year has been awarded to Robert L. Randolph, M.D., associate professor of ophthalmology and otology in the Johns Hopkins University, for an essay on "The Rôle of the Toxins in Inflammations of the Eye."

OPENING OF NEW WARD AT FREE HOSPITAL FOR WOMEN.— A new surgical ward has recently been opened in connection with the Free Hospital for Women at Brookline. The ward is finished with the greatest regard for modern aseptic ideas, and is intended to accommodate twelve patients.

CHAIRMAN OF BOARD OF INSANE HOSPITAL TRUSTEES.— Dr. Philip Coombs Knapp has been elected chairman of the Board of Insane Hospital Trustees. Dr. Knapp has for several years been secretary of the board of which he now becomes chairman.

APPOINTMENT OF JOHN T. BOWEN, M.D.— Dr. John Templeton Bowen has been appointed assistant professor of dermatology in the Harvard University Medical School, succeeding Professor James C. White, who has recently resigned.

DEFEAT OF OSTEOPATHY BILL.— A bill before the Massachusetts Legislature, to permit the Boston Institute of Osteopathy to grant the degree of doctor of osteopathy, has been defeated.

NEW YORK.

HOME FOR AGED AND INFIRM HEBREWS.— The annual meeting of the Home for Aged and Infirm Hebrews, in West 106th Street, was held on May 4. The report of the attending physician, Dr. S. N. Leo, presented on that occasion, is of considerable interest in regard to the inmates of such institutions. In the course of it he said: "The class of applicants who have of late presented themselves for admission were, with few exceptions, in the very worst state of health. Peculiar malformations and deformities, the result of chronic diseases and of accidents, were common. Our record of longevity has been reduced slightly, owing to the extra-hazardous condition of life presented by inmates accepted of late years. One of our oldest male inmates passed away, aged 102 years, after having been with us 26 years. Others whose demise I note were with us respectively 30 years and 23 years. In the effort to safeguard and provide for those intrusted to our care according to the most approved modern tenets, no means have been spared or left untried. During the past year there have been 26 deaths, the average age at death being 76 years."

THE GRAVE OF DR. PHILIP TURNER.— It has been recently discovered that a small and inconspicuous tombstone in a corner of the old graveyard of St. Paul's chapel on Broadway is that of the distinguished Dr. Philip Turner, who was the first surgeon in America to ligate the femoral artery. Born in Norwich, Conn., in 1740, he served as an assistant surgeon under Lord Amherst in the campaign culminating in the capture of Fort Ticonderoga. In the Revolution he served in the Continental Army, was at the siege of Boston, and shared in Washington's campaigns in New York, New Jersey and Pennsylvania. He was made surgeon-general of the Eastern Department, and was specially commended for his skill and ability by General Jedediah Huntington, to whose division he was attached. After the war he removed to New York and took charge of the

Government Hospital. He died in 1815, at the age of seventy-five. His Norwich home, where he had his office, bore a quaint relic of ancient customs, a curious sign on which was painted the Good Samaritan aiding the injured man, while the priest and Levite pass by with averted eyes.

Memorial to Dr. A. J. C. Skene.— As a memorial of her husband, the widow of the late Dr. Alexander J. C. Skene has presented to Miss Mary Fisher the building on President Street, Brooklyn, erected by Dr. Skene for a private hospital and valued at $100,000, to be used as a Mary Fisher Home for the aged in Brooklyn. Three other of these homes, which are designed for persons of education and refinement, have already been established, one in Manhattan, one in the borough of the Bronx, and one at Tenafly, N. J. Mrs. Skene will also endow one room in the Brooklyn home for the use of a needy retired physician.

Cirrhosis of Liver from Gunshot Wound. — A case of unusual interest was presented in Col. Etienne St. George, formerly of the British Army, who died at his residence in New York on May 1. While serving with the First Bengal Fusileers in India, during the mutiny of 1857, he received a gunshot wound of the liver and the bullet was never extracted. Although his suffering from the effects of the shot was partially alleviated, he became permanently invalided, but lived to the age of nearly seventy-five. The ball is said to have produced cirrhosis of the liver, and from this disease he finally died.

Hebrew Benevolent and Orphan Asylum.— The annual meeting of the Hebrew Benevolent and Orphan Asylum, at 138th Street and Amsterdam Avenue, which cares for nearly a thousand children, was held on April 27. In his report the president stated that the new Emergency Hospital, subscribed for by patrons and members of the society, had been completed, and that during the past three months, when a number of the inmates had been attacked with scarlet fever and other infectious diseases, the necessity for such an isolated building had been demonstrated to the fullest extent.

Lincoln Home and Hospital.— On May 3 a bronze tablet was unveiled at the Colored Home and Hospital in the Bronx, in memory of the late Alfred Van Santvood, who was one of the founders and principal benefactors of the institution. An accident ward and ambulance service have just been added, and the name has been changed to the Lincoln Home and Hospital. At the close of the memorial services it was announced that a gift of $10,000 had been received from the Sweetzer estate.

## METEOROLOGICAL RECORD

**For the week ending May 3, in Boston, according to observations furnished by Sergeant J. W. Smith of the United States Signal Corps:**

| Date | Barometer | Thermometer. | | | Relative humidity. | | | Direction of wind. | | Velocity of wind. | | We'th'r * | | Rainfall in inches. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Daily mean. | Daily mean. | Maximum. | Minimum. | 8.00 A.M. | 8.00 P.M. | Daily mean. | 8.00 A.M. | 8.00 P.M. | 8.00 A.M. | 8.00 P.M. | 8.00 A.M. | 8.00 P.M. | |
| S...27 | 29.75 | 54 | 61 | 47 | 39 | 58 | 48 | S W | W | 24 | 15 | C. | F. | |
| M..28 | 30.12 | 58 | 71 | 46 | 50 | 43 | 46 | W | S W | 12 | 3 | C. | C. | |
| T..29 | 30.24 | 64 | 75 | 53 | 43 | 50 | 46 | N | S | 3 | 12 | C. | F. | |
| W.30 | 30.07 | 54 | 58 | 50 | 97 | 91 | 94 | S | S | 20 | 3 | R. | O. | .75 |
| T...1 | 30.00 | 57 | 64 | 50 | 70 | 65 | 68 | W | N W | 13 | 15 | O. | F. | .27 |
| F...2 | 30.12 | 58 | 69 | 48 | 56 | 59 | 58 | N | S | 12 | 12 | C. | O. | |
| S....3 | 30.13 | 48 | 50 | 46 | 96 | 83 | 90 | S E | N E | 4 | 10 | R. | C. | T. |
| ☞ | 30.06 | | 64 | 49 | | | 64 | | | | | | | 1.02 |

*O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow. † Indicates trace of rainfall.
☞ Mean for week.

## RECORD OF MORTALITY

**For the Week ending Saturday, May 3, 1902.**

| Cities. | Population Estimated, 1902. | Reported deaths in each. | Deaths under five years. | Percentage of deaths from | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | Infectious diseases. | Acute lung diseases. | Diphtheria and croup. | Typhoid fever. | Cerebro spinal meningitis. |
| New York | 3,665,352 | 1,359 | 481 | 24.35 | 14.86 | 3.45 | .73 | .29 |
| Chicago | 1,852,828 | 504 | 122 | 17.05 | 18.94 | 1.13 | — | — |
| Philadelphia | 1,349,624 | 459 | 124 | 21.02 | 16.35 | .87 | 3.05 | — |
| St. Louis | 603,717 | — | — | — | — | — | — | — |
| Baltimore | 525,330 | 190 | 44 | 20.85 | 12.10 | .52 | 1.57 | .52 |
| Cleveland | 411,826 | — | — | — | — | — | — | — |
| Buffalo | 375,742 | — | — | — | — | — | — | — |
| Pittsburg | 341,401 | 142 | 46 | 26.75 | 21.82 | 3.52 | 9.05 | — |
| Cincinnati | 332,032 | — | — | — | — | — | — | — |
| Milwaukee | 304,975 | — | — | — | — | — | — | — |
| Washington | 289,537 | — | — | — | — | — | — | — |
| Providence | 185,870 | 60 | 14 | 16.66 | 18.33 | 1.66 | — | — |
| Boston | 588,736 | 225 | 70 | 24.00 | 12.89 | 3.00 | .44 | .44 |
| Worcester | 127,337 | 30 | 11 | 12.33 | 13.33 | — | — | — |
| Fall River | 111,872 | 37 | 16 | 24.30 | 21.60 | .27 | .27 | — |
| Lowell | 99,574 | 42 | — | 19.05 | 14.28 | 9.52 | — | — |
| Cambridge | 96,334 | 24 | 7 | 25.00 | 16.67 | 12.50 | — | — |
| Lynn | 71,144 | 21 | 7 | 14.28 | 14.28 | — | — | 4.76 |
| Lawrence | 67,275 | 24 | 7 | 25.00 | 12.50 | 4.16 | — | — |
| Springfield | 66,854 | 12 | 5 | — | 16.67 | — | — | — |
| Somerville | 65,882 | 13 | 3 | 30.80 | 46.20 | — | — | 7.70 |
| New Bedford | 65,574 | 35 | 10 | 17.14 | 17.14 | 2.85 | 2.85 | — |
| Holyoke | 48,065 | 13 | 4 | 30.80 | — | — | — | — |
| Brockton | 43,208 | 10 | 1 | 30.00 | — | — | — | — |
| Haverhill | 40,392 | 9 | — | 22.22 | 11.11 | — | — | — |
| Salem | 36,567 | 5 | 2 | — | — | — | — | — |
| Newton | 36,336 | 9 | 1 | — | 22.22 | — | — | — |
| Malden | 35,390 | 12 | 4 | 16.67 | 16.67 | 8.33 | — | — |
| Chelsea | 35,264 | 15 | 3 | 6.67 | — | — | — | — |
| Fitchburg | 33,848 | 10 | 1 | 30.00 | 10.00 | — | — | — |
| Taunton | 32,759 | 12 | 2 | 8.33 | 16.67 | — | — | — |
| Everett | 27,114 | 7 | 2 | — | — | — | — | — |
| North Adams | 26,583 | 10 | 4 | 10.00 | 10.00 | — | — | 10.00 |
| Gloucester | 26,121 | 5 | — | — | 20.00 | — | — | — |
| Quincy | 25,307 | 3 | — | 33.33 | 33.33 | — | — | — |
| Waltham | 24,612 | 2 | — | — | — | — | — | — |
| Pittsfield | 22,311 | 3 | 3 | — | 100. | — | — | — |
| Brookline | 21,679 | 5 | — | 40.00 | — | — | — | — |
| Chicopee | 20,390 | 9 | 3 | 33.33 | 11.11 | 11.11 | — | — |
| Medford | 20,014 | 5 | 2 | — | 20.00 | — | — | — |
| Newburyport | 14,478 | 7 | 1 | 28.60 | 14.30 | 28.60 | — | — |
| Melrose | 13,384 | 3 | — | 33.33 | 33.33 | — | — | — |
| Westfield | 13,038 | 4 | 1 | 25.00 | 25.00 | — | — | — |
| Attleboro | 12,846 | — | — | — | — | — | — | — |
| Adams | 12,813 | — | — | — | — | — | — | — |
| Milford | 12,516 | — | — | — | — | — | — | — |
| Framingham | 12,109 | 1 | — | — | — | — | — | — |
| Peabody | 11,957 | — | — | — | — | — | — | — |
| Revere | 11,894 | — | — | — | — | — | — | — |
| Gardner | 11,544 | 2 | 2 | 100. | — | — | — | 50.00 |
| Weymouth | 11,337 | 4 | 2 | 25.00 | — | — | — | — |
| Southbridge | 10,838 | 5 | 3 | 40.00 | 20.00 | — | — | 20.00 |
| Watertown | 10,600 | 4 | 2 | — | 25.00 | — | — | — |
| Plymouth | 10,336 | — | — | — | — | — | — | — |

Deaths reported 3,379; under five years of age, 1,015; principal infectious diseases (smallpox, measles, scarlet fever, cerebrospinal meningitis, diphtheria and croup, diarrheal diseases, whooping cough, erysipelas, fevers and consumption) 744, acute lung diseases 538, consumption 343, scarlet fever 63, erysipelas 15, typhoid fever 43, whooping cough 34, cerebrospinal meningitis 11, smallpox 20, measles 32, diarrheal diseases 85.

From whooping cough, New York 18, Chicago 4, Philadelphia 7, Baltimore 3, Pittsburg 1, Boston 1. From measles, New York 22, Chicago 2, Pittsburg 4, Boston 4. From erysipelas, New York 3, Chicago 4, Philadelphia 2, Baltimore 1, Pittsburg 1, Providence 1, Boston 3. From smallpox New York 14, Philadelphia 1, Boston 4, Brookline 1.

In the seventy-six great towns of England and Wales, with an estimated population of 14,862,003, for the week ending April 19, the death-rate was 18.3. Deaths reported 5,224; acute diseases of the respiratory organs (London) 316, whooping cough 144, diphtheria 63, measles 150, smallpox 72, scarlet fever 36.

The death-rate ranged from 6.2 in Hornsey to 27.6 in Burnley; London 18.1, West Ham 19.9, Croydon 14.4, Brighton 17.2, Portsmouth 19.5, Southampton 15.0, Bristol 17.6, Birmingham 19.5, Leicester 15.4, Nottingham 19.5, Birkenhead 16.2, Liverpool 23.7, Manchester 22.0, Salford 20.0, Bradford 15.7, Leeds 18.1, Sheffield 19.2, Hull 17.2, Newcastle-on-Tyne 22.9, Cardiff 16.4.

## OFFICIAL LIST OF THE CHANGES OF STATION AND DUTIES OF COMMISSIONED AND NON-COMMISSIONED OFFICERS OF THE U. S. MARINE HOSPITAL SERVICE FOR THE SEVEN DAYS ENDING MAY 1, 1902.

BAILHACHE, PRESTON H., surgeon. Detailed to represent the service at American Congress of Tuberculosis at New York, N. Y., May 14, 15 and 16. April 30, 1902.

AUSTIN, H. W., surgeon. Granted leave of absence for seven days from April 23, 1902, under paragraph 179 of the regulations.

BANKS, C. E., surgeon. Granted leave of absence for two days from May 2. May 1, 1902.

CARRINGTON, P. M., surgeon. Detailed to represent the service at American Congress of Tuberculosis at New York, N. Y., May 14, 15 and 16, reporting at Washington, D. C., en route to New York and on return to Fort Stanton. April 30, 1902.

GEDDINGS, H. D., passed assistant surgeon. Detailed as supervisor of repairs and alterations of the steamer "Neptune" at Baltimore, Md. April 29, 1902.

PERRY, J. C., passed assistant surgeon. Relieved from duty as chief quarantine officer of the Philippine Islands, and directed to proceed to San Francisco, Cal., and await orders. April 25, 1902.

THOMAS, A. R., passed assistant surgeon. Relieved from duty in office of U. S. consul-general at London, Eng., and directed to proceed to Manila, and assume the duties of chief quarantine officer of the Philippine Islands, relieving Passed Assistant Surgeon J. C. Perry. April 25, 1902.

CUMMING, H. S., passed assistant surgeon. Detailed as inspector of unserviceable property at office of plague commission at San Francisco, Cal. April 30, 1902.

MCMULLEN, JOHN, assistant surgeon. Relieved from duty at Baltimore, and directed to proceed to Boston, Mass., and report to medical officer in command for duty and assignment to quarters, relieving Assistant Surgeon M. W. Glover. April 30, 1902.

GRUBBS, S. B., assistant surgeon. Bureau letter of April 18, 1902, directing Assistant Surgeon Grubbs to assume command of the Gulf quarantine station, amended so that he shall visit New Orleans, La.; Pascagoula, Miss.; and Mobile, Ala., en route. April 28, 1902.

PARKER, H. B., assistant surgeon. Relieved from duty in the Hygienic Laboratory, and appointed chairman of board of medical officers for the investigation of yellow fever, malarial fevers and dengue, at Vera Cruz, Mex. April 25, 1902.

ANDERSON, J. F., assistant surgeon. To proceed to Norfolk, Va., for special temporary duty. April 30, 1902.

HEISER, V. G., assistant surgeon. To proceed to Quebec, Can., for duty in the office of the U. S. commissioner of immigration. April 28, 1902.

BILLINGS, W. C., assistant surgeon. Granted leave of absence for two months from May 1. April 26, 1902.

GOLDBERGER, J., assistant surgeon. To report at Washington, D. C., for special temporary duty. April 25, 1902. Bureau letter of April 18, 1902, directing Assistant Surgeon Goldberger to proceed to Tampico, Mex., amended so that he shall visit Norfolk, Va.; New York, N. Y.; Havana, Cuba and Vera Cruz, Mexico, en route. April 26, 1902.

MCLAUGHLIN, A. J., assistant surgeon. Upon being relieved from duty at the immigration depot by Assistant Surgeon M. W. Glover, to proceed to Washington, D. C., and report to the director of the Hygienic Laboratory for duty. April 30, 1902.

GLOVER, M. W., assistant surgeon. Upon being relieved from duty at Boston, Mass., by Assistant Surgeon John McMullen, to proceed to New York, N. Y., and report to Surgeon G. W. Stoner, immigration depot, for duty, relieving Assistant Surgeon A. J. McLaughlin. April 30, 1902.

BURKHALTER, J. T., assistant surgeon. To proceed to Scranton, Miss., for special temporary duty. April 25, 1902.

BEAN, L. C., acting assistant surgeon. Granted leave of absence for three days from April 30. April 29, 1902.

BURFORD, R. E. L., acting assistant surgeon. Granted leave of absence for thirty days from May 15. April 23, 1902.

KINSELL, B., acting assistant surgeon. Granted leave of absence for seven days from May 12. April 26, 1902.

WETMORE, W. O., acting assistant surgeon. Granted leave of absence for seven days from April 19, 1902, under paragraph 201 of the regulations.

### PROMOTION.

Junior Hospital Steward F. L. Gibson promoted to the grade of senior hospital steward from June 11, 1901. April 24, 1902.

### BOARDS CONVENED.

Board convened to meet at Washington, D. C., April 28, 1902, for the physical examination of candidate for the position of second assistant engineer R.C.S. Detail for the Board: Surgeon R. M. Woodward, chairman; Assistant Surgeon B. S. Warren, recorder.

## CHANGES IN THE MEDICAL CORPS OF THE NAVY FOR THE WEEK ENDING MAY 3, 1902.

R. M. YOUNG, assistant surgeon. Detached from the Cavite Naval Station and ordered to duty at Guam, L. I.

W. R. DUBOSE, surgeon. Detached from the "Wisconsin" and ordered to the "Solace."

C. F. STOKES, surgeon. Detached from the "Solace" and ordered to the "Wisconsin," and on arrival of that vessel at the Puget Sound Navy Yard, ordered to the "Oregon."

## SOCIETY NOTICES.

ASSOCIATION OF MILITARY SURGEONS.— The Association of Military Surgeons of the United States will hold its eleventh annual meeting in Washington, D. C., June 5, 6 and 7, 1902.

MEDICAL ASSOCIATION OF MISSOURI.— The Medical Association of Missouri will ho d its forty-fifth annual meeting at St. Joseph, May 20, 21 and 22, 1902.

AMERICAN LARYNGOLOGICAL SOCIETY.— The twenty-fourth annual congress of the American Laryngological Association will be held at Boston, Mass., May 26, 27 and 28, 1902. The sessions will be held in the Boston Medical Library Building and the Harvard Medical School.

THE MASSACHUSETTS MEDICAL SOCIETY.— The one hundred and twenty-first annual meeting of the Massachusetts Medical Society will be held at 9.30 A.M., Wednesday, June 11, 1902, in the Building of the Massachusetts Charitable Mechanic Association on Huntington Avenue, Boston.

Meetings of sections will be held in the Medical Library, 8 The Fenway, on the preceding day, Tuesday, June 10.

## BOOKS AND PAMPHLETS RECEIVED.

A Case Illustrating Plastic Surgery of the Eyelids. By Cassius D. Wescott, M.D., Chicago. Illustrated. Reprint. 1902.

Optic Neuritis in the Young, with Report of Five Cases. By William Cheatham, M.D., Louisville, Ky. Reprint. 1902.

Detroit College of Medicine. Announcement for Session of 1902-1903. Illustrated. Published by the Board of Trustees. 1902.

Selected Essays and Addresses. By Sir James Paget. Edited by Stephen Paget, F.R.C.S. New York: Longmans, Green & Co. 1902.

The Surgery of the Rectum. By Charles B. Kelsey, A.M., M.D. Sixth edition. Illustrated. New York: William Wood & Co. 1902.

## Original Articles.

# AN ABSTRACT OF SOME OF THE PREVAILING OPINIONS ON THE PERIODS OF INCUBATION, OBSERVATION AND ISOLATION OF SOME OF THE INFECTIOUS DISEASES.[1]

BY ELBRIDGE G. CUTLER, M.D., BOSTON.

### TYPHOID FEVER.

*Incubation.*— Murchison concludes as follows: (1) The period of incubation of typhoid fever is most commonly above two weeks; (2) instances of a longer duration are more common than in typhus or relapsing fever; (3) it is often less than two weeks, and may not exceed one or two days.

Leibermeister considers the average period of incubation as three weeks.

Professor Quincke[2] says, in a series of accurately observed cases, the shortest period was eight days, the longest certain period between 16 and 18 days.

In the Marylebone milk epidemic of 1873 a child was taken ill five days after drinking the infected milk (Cayley).

Hilton Fagge says that it has been conjectured that incubation is shorter when the poison is inhaled with the breath, longer when it is swallowed in drinking water. During this latent period the patient may feel quite well, or, on the other hand, may complain of being out of sorts. There may be languor or tendency to diarrhea, and vague feelings of discomfort and chilliness, with headache and anorexia.

Wilson[3] says this period is variable. In general, it may be set down as from two to three weeks. In some well-authenticated cases it has not exceeded four or five days. He mentions a case of only four days' incubation.

Williams[4] says the determination of the incubation period of typhoid fever has always presented much difficulty, owing to the paucity of cases affording evidence on the point and the difficulty of settling exactly the date at which an attack begins. During the period of incubation the patient is apt to suffer from various ill-defined symptoms, and this condition merges gradually into a developed attack. In other cases, however, the onset of the disease is sudden; and the Report of the Clinical Society, based on analyses of reports of outbreaks down to 1890, has provided a considerable mass of information which is found to confirm the opinions of the best authorities published previously to that date. Their conclusion is: "The interval between exposure to infection and the development of distinct symptoms is probably most often 12 to 14 days. It is not very infrequently 9 or 10 days, occasionally 8, and possibly less. In rare cases it is prolonged to 15, 18 or even 23 days." There is some reason to believe that, when the "dose" of the infection is large, the incubation is short.

Brannan[5] says the usual duration of incubation period is from 8 to 14 days. In rare instances it may not exceed one or two days. Still more rarely, it may extend three or even four weeks.

Ballard (Report of Committee appointed by Clinical Society of London, 1892, to investigate periods of incubation and contagion of certain contagious diseases) found in one typhoid epidemic 43 cases infected from milk. Of these, 19 used the milk freely as an article of diet, and all but four of them applied for medical aid within the first fortnight of the outbreak. Twenty-four of the persons attacked used very little milk; and 17 of these sought medical aid in the third and fourth week of the outbreak, three only in the first, and five in the second week. Power (same report) reports a case where typhoid followed a single draught of infected milk in three weeks, whereas large milk drinkers in the same outbreak suffered early.

Chantamesse asserts, on the authority of Dawson Williams, that certain individuals retain for a long time in their intestines, or perhaps even in the substance of their tissues, typhoid germs, which develop ill until the occurrence of some favoring circumstance. A similar retention of the infective agent in a condition of quiescence for long periods is not very infrequent in diphtheria, pneumonia, and suppurative diseases, until some general deterioration of health or of the local power of resistance enables it to become established, grow, and produce characteristic effect.[6]

With regard to the period of *observation* in the majority of instances, in epidemics at least, the infection is derived indirectly from the patient through the medium of water or milk. Experience shows that an epidemic due to contamination of milk with the typhoid bacillus will come to an end at or about the end of the second week after the supply of the infected milk for consumption has been stopped. When water is the distributing medium, a much longer time may elapse before the cases cease to appear. Thus, when a public water supply has been contaminated, cases have often continued to occur until the fourth week after the source of the specific pollution has been removed, and in cases of well water the length of time is apt to be very much greater, owing probably to the fouling of the soil and the difficulty of insuring thorough disinfection. The period of observation, therefore, is somewnat uncertain; and, if the water supply cannot be entirely changed, it should extend over a month at least.

A patient suffering from typhoid fever is capable of transmitting it to others throughout the entire course of his illness, from the date of the

[1] The accompanying abstract was prepared for the committee of the Boston Society of Medical Improvement appointed to consider the "Periods of Incubation, Observation and Isolation of certain of the Infectious Diseases," and forms the basis of their report to the society. The report was read at the meeting of the society on Jan. 20, 1902, and was accepted. The committee consisted of S. H. Durgin, M.D., Chairman; J. H. McCollom, M.D., E. G. Cutler, M.D., J. L. Morse, M.D., and R. C. Cabot, M.D.

[2] Correspondenz-Blatt f. schweizer Aerzte, 1875, No. 8.

[3] American System of Practical Medicine, Loomis, 1897, i, 179.

[4] Twentieth Century Practice of Medicine, xiii, 381.

[5] Twentieth Century Practice of Medicine, xvi, 615.

[6] Washbourn: Proceedings of the Royal Medical and Chirurgical Society, London, meeting of Nov. 26, 1895.

earliest symptoms down to the end of the second week of convalescence at least; and his capability returns during a relapse. Infection can be conveyed by fomites, and retained by them for two months at least. Washerwomen have frequently been infected by washing the linen of patients, the nature of whose illness had not been recognized at first, so that no disinfection had been practised. Richardson[7] found typhoid bacilli in the urine of a number of cases of typhoid. They were apt to appear in the later stages of the disease, and also persisted in the great majority of cases far into convalescence.

MUMPS.

*Incubation.*— The period of incubation of mumps is a somewhat variable one, and different estimates of its length are given. In general, it would seem to vary from one to three weeks, with an average of about two weeks.[8]

An incubation period of six weeks has been reported (Nicholson), and as short as three or four days (Leitzen). There are, as a rule, no symptoms during this time.

Eustace Smith[9] gives the report of the Clinical Society[10] in which mumps incubation was said to vary from 14 to 25 days. When the complaint begins it is infectious from the very first, and can be communicated while the patient is merely ailing and before any signs of glandular swelling are to be detected. Its duration is ten days to a fortnight, but the patient must be considered unsafe to others for at least a week longer.

Kauders[11] gives the incubation stage as from 9 to 25 days. The contagion is usually over at the end of three weeks.

Williams[12] says the incubation period in epidemic parotitis is long, the usual period being 21 days, but periods of 19, 18 and 17 days are frequent. There is some evidence that the period tends to be shorter when the person infected has been exposed to infection continuously, or at least for several days at the commencement of the illness of the infector. The shortest period is probably 14 days, though some writers have believed that it might be only 8 days (Biedert, Demme). The longest period known is 25 days.

*Observation.*— The period of observation mentioned by the "Code of Rules for the Prevention of Infectious and Contagious Diseases in Schools" is 24 days, but it probably would be safer to extend this to 25 days.

Mumps is very infectious at the earlier stage, and during the prodromal symptoms, if they occur. The prodromal stage, before the parotids begin to swell, should be taken to last four days, although it is not often so long. The risk of infection diminishes progressively from the onset of parotitis, and, as a rule, has ceased in three weeks from the beginning, probably in most cases in a fortnight, if all swelling of the parotids and all other glands have subsided.

*Isolation.*— The "Code of Rules[13] for the Prevention of Contagious and Infectious Diseases in Schools" directs isolation for four weeks, when the patient may mix with others, if all swelling have subsided.

It should be borne in mind: (1) That mumps is infectious in the prodromal stage; and persons who have been in contact with the patient during this stage, which must be assumed to comprise the four days before the onset of the swelling, even though no illness have been complained of, must be regarded as possibly infected, and kept under observation. By isolating persons first seen 10 days after exposure to infection, it may thus still be possible to limit the spread of the infection by such persons, even if they subsequently develop the disease themselves. (2) Since the incubation period is most likely 19 to 21 days, and is sometimes 24 or 25 days, it is well worth while to isolate a person who has been exposed to infection a fortnight or even three weeks earlier. (3) Isolation of mumps is easy, since the infection does not appear to be readily carried far from the body of the infected individual. Confinement of the patient to his own room is commonly effective in preventing spread through a household, if other children are excluded from all communication.

SCARLET FEVER.

*Incubation.*— This period is very short, probably never extending beyond a week, and rarely lasting so long. It may be only 24 hours, but, on an average, it varies from three to five days. In 1861 Trousseau declared that neither in measles nor in scarlet fever could "the duration of the latent period be rigorously determined in the present stage of our knowledge." While, still later, Obermeier gave it as his opinion that the incubation period of scarlatina was unknown.

Murchison[14] collected 75 cases of scarlet fever, having any bearing on the question, which had either come under his own observation or been communicated to him in the 20 years ending 1878. Of the total 75 cases in not one did the incubation period exceed six days. In 73 cases it could not have exceeded five days. In 54 cases it could not have exceeded four days. In 20 cases it could not have exceeded three days. In 15 cases it could not have exceeded two days. In three cases it could not have exceeded twenty-four hours. It also appears that the longest period of incubation made out in any of the cases was four and one-half days, and that in only two of the cases was it certain that it was as long as four days. Murchison's conclusions are as follows: (1) The duration of the incubation stage may be only a few hours; (2) probably in a

[7] Bacteriological Studies upon the Urines of Persons Sick with Typhoid Fever. Mark W. Richardson, Massachusetts General Hospital, 1898.

[8] Griffith: American System of Practical Medicine, Loomis 1897, i, 726.

[9] Allbutt's System Practical Medicine, 1897, ii, 233.

[10] Supplement to vol. xxv, 1892.

[11] Diagnostisches Lexikon, 1894, p. 621.

[12] Twentieth Century Practice of Medicine, xiii, 379.

[13] Code of Rules for the Prevention of Infectious and Contagious Diseases in Schools, issued by the Medical Officers of Schools Association, London, 1886.

[14] Observations on the Period of Incubation of Scarlet Fever and of Some Other Diseases. Clinical Society's Transactions, 1878, xi, 238.

large proportion of cases it does not exceed 48 hours; (3) it very rarely exceeds seven days; (4) consequently, a person who has been exposed to scarlet fever, and does not sicken after a week's quarantine, may be pronounced safe.

Moore gives the following: A gentleman, age 20, went from Dublin into the country Nov. 2, three weeks after the disappearance of the rash of scarlet fever. On his arrival, the same day, he saw two sisters, both of whom took to bed with scarlet fever Nov. 8, that is, in six days; incubation in five days.

A boy, age 8, sickened with scarlet fever on Jan. 12. His sister took ill on the 17th, and five days later another sister sickened.

Two girls, cousins, slept in the same bed on April 5 and 6. One of them complained of sore throat in the night of April 5, and showed the rash of scarlatina on the morning of the 7th. The other sickened on April 10, that is, on the fourth day.

Of two sisters, one took ill on Dec. 27, 1871, and was at once isolated. The other remained under the same roof, but without seeing her sister until they met by accident on Feb. 4, 1872. She sickened with scarlet fever seven days later, on Feb. 11.

Caiger[15] says: In the large proportion of cases between a single definite exposure and the first appearance of the febrile symptoms, it has been either two, three or four days. In some well-authenticated cases it has been less than forty-eight hours, but not much less. On the other hand, it is sometimes as long as five days, and, in rare instances, even six. If the first case in a family was properly isolated and the necessary measures for disinfection scrupulously carried out, the safety of the other members is practically assured, if no second case has arisen before the end of a week.

Robinson[16] accepts the report of Williams for the Clinical Society of London,[17] who tabulates the opinions as follows:

| | Usual Time. Days. | Minimum Time. Days. | Maximum Time. Days. |
|---|---|---|---|
| Committee of the Clinical Society, 1892 . . | 2 or 3 | 1 | 7 |
| Bristowe, 1887 . . . | 6 to 8 | Often less | Occasionally longer |
| Guinon, 1892 . . . . | 4 or 5 | — | — |
| Strümpel, 1887 . . . | Less than 4 | — | 7 |

Hamilton,[18] from an experience of a severe epidemic among troops, claims that the period of incubation of scarlet fever is three or four days. In some inoculation experiments the time of incubation has been seven days. Bokai[19] reports two cases of tracheotomy in which scarlet fever developed sixteen hours after exposure. Soerensen[20] states that in 10 cases operated upon by Paget, in which scarlet fever developed, the period of incubation was one day in 2 cases, two days in 3, and three days in 3 cases. He also says that in 9 out of 12 cases of puerperal scarlet fever the period was three days. It would seem probable from these figures that where infection occurs through a wound the time of incubation is shortened.

Unger[21] says the period of incubation may be less than twenty-four hours where it enters the body through a wound. In other cases it is two to four days, or four to seven days, but seldom more.

Crandall[22] says the extremes in authenticated cases varies from a few hours to fifteen days. In 84% of cases Holt found the period to be less than six days, and in 66% between two and four days.

Williams[23] says scarlet fever usually comes on during the second or third day after exposure.

Reimer believed that in more than two-thirds of the 3,624 cases which he collected the disease came on within the first three days after exposure.

The Clinical Society's Committee collected 28 cases of disease following exposure for the usual time to a known source of infection. In 16 the earliest symptoms were observed before the end of the third day; in 10 before the end of the second day. In 2 the interval was seven days, and in 1 eight days. Including other cases observed with precision, there were 106 cases, in which 52, or nearly one-half, began before the end of the third day after exposure, while 47 began on the second or third day. Eight days must be taken to be the extreme limit of the period of incubation.

*Observation.*— The period of observation given in the "Code of Rules for the Prevention of Infectious and Contagious Diseases in Schools" is 14 days; but 10 days would probably be sufficient if care were taken to make certain that the person was free from all fever and sore throat, and if the fomites which have been in contact with the infection be disinfected.

*Isolation.*— Scarlet fever is infectious from the appearance of the earliest symptoms, and until desquamation has ceased and all signs of inflammation of the mucous membrane shall have passed away. Infection may be conveyed by the suppurating discharge of middle ear disease until a late period. The urine in consecutive albuminuria is also said to be infectious. The period of isolation should not be less than six weeks, and the patient should receive a series of baths and should not be liberated unless "desquamation have completely ceased, and there be no appearance of sore throat" (Code). Under exceptional circumstances, however, the individual may be actively infectious as long as eight weeks after the commencement of an attack, and it is not safe to lay down any absolute rules on which lay-

[15] Allbutt's System of Medicine, 1897, ii, 132.
[16] American System of Practical Medicine, 1897, i, 584.
[17] Practitioner, July, 1894.
[18] British Medical Journal, June 3, 1894.
[19] Pester medicinisch-chirurgische Presse, v, 990.
[20] Internationaler klinische Rundschau, 1889, Nos. 6 and 7.
[21] Diagnostisches Lexikon, 1895.
[22] Cyclopedia of Children's Diseases, Supplement, 1899, v, 237.
[23] Twentieth Century Practice of Medicine, xiii, 376.

men can be allowed to act on their own responsibility.

WHOOPING COUGH.

*Incubation.*— During this period no symptoms of the disease present themselves. Statistics are at variance regarding its length, and the fact that the incubation takes place so insidiously makes the determination of the exact duration of the incubation difficult in most cases. It probably lasts from two to seven days, with an average of three to four days.[24]

Eustace Smith[25] says it probably varies in different individuals. In one very clear case, noted by Dr. Bristowe, the period was exactly a fortnight, but according to some writers it may be as short as four days. The infectiousness begins with the earliest symptoms. Indeed, it is in the early non-spasmodic stage that the child is most likely to be a source of danger to others; for, when the whoop appears, his power of communicating the disease begins to decline. Still, it is not at an end until a period of at least six weeks has elapsed from the beginning of the attack.

Williams[26] says the period of incubation is somewhat uncertain. The usual period between exposure and beginning of catarrhal symptoms is 7 to 10 days. The characteristic whoop appears seven days later, as a rule, so that the interval between exposure and whooping is usually about 14 days.

Sticker[27] says a period of incubation varying from two to five or eight days in length, without symptoms, precedes the actual disease.

*Observation.*— The "Code of Rules for the Prevention of Infectious and Contagious Diseases in Schools" recommends the period of observation to be 21 days; but probably 15 days would be sufficient if the individual were examined carefully at the expiration of that period, and found to be free from all trace of catarrh of the fauces and pharynx and of all signs of bronchitis.

The infectiousness is marked in the earlier stage, and before the characteristic whoop begins. It declines rapidly after the acute stage has passed. On the authority of Williams, Weill, who in 1894 expressed the opinion that whooping cough was contagious only during the premonitory catarrhal stage, has since[28] put his opinion to the test. On various occasions he permitted nearly 100 young children, who had not previously suffered from whooping cough, to be associated in the same ward for 20 days or more with children suffering from the disease during the stage of whooping. In only one case was the disease contracted, and in this instance the patient from whom the infection was derived was in the very earliest period of the whooping stage. In three small epidemics he was able to satisfy himself that infection was contracted from children who had not yet begun to whoop. Weill concludes that infection ceases very soon after the characteristic whoop commences, and that therefore in a family it is not the patient who is already whooping, but his brothers and sisters who have not begun to whoop, that ought to be isolated.

That the disease is highly contagious at the height of its course seems certain, but that the patient is dangerous as long as he coughs, as some writers affirm, is doubtful, though for the sake of prudence it is better to assume this.[29] According to Rosenstein, Schönlein and others, in different epidemics the contagiousness is very different (Sticker).

Although the greatest risk of contagion is during the catarrhal stage, and although the patient at the height of the convulsive stage is seldom dangerous, it may be taken as a rule that the person is to be avoided as long as he coughs (Sticker).

*Isolation.*— The "Code of Rules for Prevention of Infectious and Contagious Diseases in Schools" says that the patient should be kept isolated from susceptible persons for six weeks from the commencement of the whooping, and should then be allowed to mingle with others only if the whoop and all characteristic spasmodic cough have ceased. If all cough have completely passed away earlier, which is not often the case, this rule may be relaxed and the period of isolation shortened.

*(To be continued.)*

[24] Griffith: American System of Medicine, 1897, i. 715.
[25] Allbutt's System of Medicine, ii. 229.
[26] Twentieth Century Practice of Medicine, xiii, 378.
[27] Nothnagel's Encyclopedia of Practical Medicine, W. B. Saunders & Co., 1902, p. 550.
[28] Lyon Médicale. May 9, 1897.
[29] Sticker: Nothnagel's Encyclopedia of Practical Medicine, W. B. Saunders & Co., 1902, p. 550.

## GUNSHOT WOUNDS OF THE KNEE-JOINT BY THE PROJECTILE OF REDUCED CALIBRE.

BY LOUIS A. LA GARDE, M.D.,
*Major and Surgeon, U. S. Army.*

WITH the use of the old armament, wounds of the knee-joint constituted 3% of all wounds observed in military practice, and because of its exposed position and the extent of its synovial sac, it gave us 28% of all joint wounds that came under treatment in war hospitals. Gunshot wounds of this joint were then, as they may be today, divided into five classes, as follows: (1) Simple perforation of the synovial sac without accompanying lesions of any bone; (2) injury to the joint with lodged ball; (3) injury to the joint exhibiting guttering of the articular ends of the bones; (4) complete perforation of the bones traversing the joint in different directions; (5) implication of the joint by fissuring and comminution of the bones entering into its formation.

The treatment employed in the preantiseptic era was: (1) Amputation; (2) conservation; (3) excision. The first of these — amputation — was the rule, and the surgeon who failed to amputate in all gunshot wounds of the knee failed in his duty to his patient. Conservation

and excision were at times practised when patients refused amputation, but even in those cases in which the joint capsule alone was involved, the results of this plan of treatment were so disastrous that it was universally condemned.

When antisepsis came into vogue our first observations in military practice of the value of clean wound treatment, as it was then understood, was given to us by Reyher and von Bergmann in 1877 and 1878 during the Russo-Turkish War. Reyher reports eighteen primary aseptic cases of wounds of the knee, regardless of the extent of the joint involvement treated by antiseptic dressings, of whom three died, a mortality of 16.6%. The treatment was strictly conservative without excision or amputation. The cases ending in recovery are said to have had movable joints. He employed irrigation in severe cases, while the simple cases were cleansed externally and dressed with wet carbolic gauze. von Bergmann employed the same method of treatment with the following results: Out of fifteen gunshot wounds of the knee, one of which had suffered injury to the bony articulation, fourteen recovered, in two of whom amputation was required. The fatal case was one in which amputation was practised. Nothing is said of the amount of motion remaining in those who recovered. The majority of them more than likely got well, as did those of Reyher with movable joints. The cases so treated by Reyher and von Bergmann occurred before the change in the armament of the nations had taken place. They represent therefore the result of injuries by the old soft leaden bullet of 45 calibre, weighing approximately 480 gr., treated conservatively under antiseptic methods. Grouped together we find that the mortality was for the two sets of cases only 11.1%. Compared to the results of treatment of gunshot injuries by the old arm in the preantiseptic era the results of Reyher and von Bergmann were certainly a revelation. In looking over the statistics given us by Otis, we find that gunshot wounds of the knee in the Civil War under all methods of treatment then in vogue gave a mortality of 53.7%, which, compared to the results of Reyher and von Bergmann, places to the credit of antisepsis a total of 41.6 lives saved in every 100 men hit in the knee.

In late years changes have come about in the manufacture and composition of rifle bullets to enhance the satisfactory results already alluded to both as to life and limb. The character of gunshot wounds of bones especially is very much influenced by the density of the metals which inflicts them. Longmore, among the older writers, ventured to explain thirty-five years ago what would be the special features of gunshot wounds as soon as it became practicable to use steel bullets. The evolution of the military rifle and the missile it propels today have given us a factor which in a humane sense stands next in importance to antisepsis.

For military and ballistic reasons which do not concern us in this instance, dating from 1886 to 1893, all the governments changed their armament from rifles of larger calibre and lower velocities propelling leaden bullets easily deformed upon impact with resistant bone, for those of smaller calibre and higher velocities propelling steel-clad bullets that very seldom deform against the most resistant tissues. Following the example of the other governments, the United States adopted the Krag-Jorgensen rifle as its military hand weapon in 1893. Before doing so, however, the War Department caused to be instituted certain experiments with the bullet of the proposed weapon which I had the pleasure of conducting at Frankford Arsenal in 1892. The experiments consisted in firing into ten cadavers with simulated velocities for all the ranges from 100 up to 2,000 yards.

The results of these experiments and those of military surgeons in Germany and France engaged in similar work demonstrated marked differences between the destructive effects of the old and new arm, and these differences were specially noted after firing into tissues of varying resistance. As a broad principle it may be stated that the amount of destruction was invariably proportional to (1) the velocity, (2) the sectional area of the projectile, and (3) to the resistance which the ball encountered on impact.

In the soft parts, like the skin, muscle and lung, tissues offering a minimum amount of resistance, the area of destruction was limited to the channel wound, which as a rule only equaled the sectional area of the bullet. The more resistant tissues, like the diaphyses of the long bones and those anatomical parts containing a great deal of water, or soft parts enclosed in rigid walls, showed destructive effects which were proportional to the velocity and sectional area of the bullet. For instance, close shots with the two bullets were alike severe in the shafts of the long bones, the intestines loaded with fluid contents, the heart, head, etc. In the mid and remote ranges where we commence to see a marked falling off in the velocity of the two bullets, the amount of destruction accomplished by the reduced-calibre bullets was always less than that inflicted by the bullet of the old arm, due doubtless to the smaller frontage of the former.

The epiphyseal ends of the bones, compared to the compact substance, showed destructive effects in proportion to the sectional area of the projectile. In the close ranges the old leaden bullet showed marked destruction, not only because it was primarily greater in sectional area, but because its diameter was usually made greater still by deformation. On the other hand, the smaller calibre bullet showed a marked tendency to make clean-cut perforations in the spongy ends of the bones, due doubtless to its sectional area, which was primarily less, and which was never increased by deformation.

The humane features of the new bullet having been so thoroughly established upon the articulation by experimentation, the results of the actual conditions in war were naturally awaited with

the greatest interest concerning these results upon the knee.

Makin, in his "Surgical Experiences in South Africa," referring to joint wounds, states that, in spite of the fact that the knee was the most frequently wounded among the articulations, such injuries gave less anxiety and attained a more favorable result than is the case in civil practice. Limitation of movement was slight or absent in most cases, and he remembers of only one case — a man shot at 300 yards — in which serious anchylosis resulted. He never saw a case of lodged Mauser or Lee-Metford ball in a joint, a condition that bears so significantly on prognosis.

The staff of a Civilian War Hospital report that joint wounds gave no serious complications. The wounds healed without difficulty and gave rise to but little synovial effusion. In eight cases of wounds of the knee in which perforation of the patella occurred a perfectly movable joint resulted, although in some there were complications from wounded vessels and nerves.

Sixty-two cases of gunshot injury were reported to the Surgeon-General's office since July, 1898, from various missiles, as follows: Thirty-calibre Mauser, 17; 45-calibre brass-jacketed Remington, 8; 30-calibre Krag-Jorgensen, 2; character of missiles not stated, 27; revolver bullet, calibre not stated, 3; small shot, 1; shrapnel, 3; shell fragment, 1.

We find that five died, making a mortality of 8%. Two of the deaths resulted after amputation. Of the 57 who recovered 45.6 were restored to duty. If we compare these 62 cases with the group of 33 cases given us by Reyher and von Bergmann, we find that our mortality was only 3% less than theirs. This is doubtless due in part to the large number of cases by the reduced-calibre weapon in our group of 62 cases. We may admit, for the sake of comparison, that gunshot wounds of the knee under our present system of wound treatment in war gives us a mortality of 8 to 11% irrespective of the character of the missiles concerned in the production of the injury, and, further, that 45.6% of those who recovered are fit for duty.

In order to study the full benefit likely to arise from the use of antisepsis and the reduced-calibre bullet, a study of the results of wounds from the latter alone should be made. Of 19 cases occurring in the Santiago campaign we find that none died, that 14 were restored to duty, and five were discharged on surgeons' certificate of disability, or otherwise disposed of.

The following table shows at a glance the successive results of gunshot wounds of the knee from the days of the Civil War to the present time.

GUNSHOT WOUNDS OF KNEE JOINT.

CIVIL WAR. 1861-1865.

LARGE CALIBRE, ANTISEPSIS.

| | | | |
|---|---|---|---|
| Mortality | 53.7% | | |
| Recovery | 46.3% | | |
| Total, | 100.0% | Fit for duty | 00.0% |
| | | Unfit for duty | 100.0% |

33 cases by Reyher and von Bergmann.

RUSSO-TURKISH WAR. 1877-1878.

LARGE CALIBRE, ANTISEPSIS.

| | | | |
|---|---|---|---|
| Mortality | 11.1% | | |
| Recovery | 88.9% | | |
| Total, | 100.0% | Fit for duty | —— |
| | | Unfit for duty | —— |

62 cases.

REPORT SURGEON-GENERAL'S OFFICE SINCE 1898.

VARIOUS CALIBRES, ANTISEPSIS.

| | | | |
|---|---|---|---|
| Mortality | 8.0% | | |
| Recovery | 92.0% | | |
| | | Fit for duty | 45.6% |
| Total, | 100.0% | Unfit for duty | 54.4% |
| | | | Total, 100.0% |

19 cases.

SANTIAGO CAMPAIGN. 1898.

REDUCED CALIBRE, ANTISEPSIS.

| | | | |
|---|---|---|---|
| Mortality | 00.0% | | |
| Recovery | 100.0% | | |
| | | Fit for duty | 73.6% |
| Total, | 100.0% | Unfit for duty | 26.4% |
| | | | Total, 100.0% |

To recapitulate them: (1) We find that the mortality of gunshot injury of the knee-joint in the Civil War was 53.7%, and as amputation was universally done all those who recovered escaped with the loss of a limb, unfit for duty; (2) that 33 cases of gunshot wounds of the knee produced by the larger calibre lead bullet in campaign, reported by Reyher and von Bergmann, treated antiseptically, gave a mortality of 11.1%; (3) that 62 cases produced by a variety of missiles reported by the Surgeon-General since 1898, similarly treated, gave a mortality of 8%, and that 45.6% of those who recovered were restored to duty; (4) that of 19 cases in the Santiago campaign by the reduced-calibre bullet the mortality was *nil*, and that 73.6% of the wounded recovered fit for duty. It is thus seen that the humane features of the reduced-calibre bullet have operated not only in diminishing the mortality in gunshot injuries of the knee from about 8 or 11% to *nil*, but that it has increased restorations to duty 28%, as shown by comparing the last two tables.

The foregoing figures relating to the humane features of the reduced-calibre bullet established fully the predictions of von Coler, who said at the conclusion of his experiments with the German Mauser that if it be found that wounds by the small bore are aseptic, joint wounds will be the most favorable of all bone injuries to treat.

## NOTES IN CUBA.[1]

BY CHARLES C. FOSTER, M.D., CAMBRIDGE, MASS.

LAST February I attended a meeting of the Pan-American Medical Congress at Havana. The congress itself was rather disappointing. It was a young organization, and the papers were apt to be of the didactic class, or perhaps had previously been read before other societies. Some very good

[1] Read before the Cambridge Medical Improvement Society Feb. 24, 1902.

new work was reported upon public health and yellow fever. Some of the side-shows, so to speak, were interesting, for various reasons. One night a large public meeting of welcome was held in the largest theatre, the Tacon, attended by the authorities and the high society of Havana. A long and detailed disquisition on obstetrics was delivered before an audience consisting largely of ladies, who, I trust, were duly edified, though they seemed a bit puzzled.

One day the whole congress took luncheon with a large sugar planter, at his estate about fifty miles from Havana. We went by special train, at our host's expense, through the beautiful rolling upland country, with its groves of palms and fields of sugar cane. This part of the island, by the way, is thoroughly healthy and has a delightful climate. A hot night is almost unknown in Havana. On reaching the estate we visited the mill, where grinding was in full swing; then, while you at home were in the midst of a blizzard, we had luncheon out of doors in a beautiful grove of palms and orange trees — a most excellent luncheon, in which the favorite local dishes — chicken cooked with rice and roast young pig — were important items.

If the congress had been held this year instead of last we should not have got that luncheon, for then the planters were very hopeful and very fond of us. This year they feel differently. Even then conservative men were not increasing their investments, but waiting to see what we were going to do. Two different planters told me that all through the war they had continued to run their plantations, presumably by paying one or both sides for protection, but they said that if we left the island they would have to leave, too. For the same reason the conservatives were taking no active part in politics; their lives would not be safe an hour after we left.

Cuba is now being well governed, but there is no guarantee of permanence. Much money is being spent, chiefly on schools, hospitals, roads, police, etc., but it is being spent honestly and to good advantage, and the island can well afford it as long as times are fairly good. If we bring back the old hard times as they existed under Spanish rule, even if we do it in a different way, the result will be the same — revolution. The Cuban cares little whether the cause of his poverty is official corruption or congressional enactment. Havana is today far cleaner than New York, and public order is better; but that will not feed the country laborer when the sugar mills shut down, or help his employer.

To us the most interesting work done in Cuba is that connected with public health. At first, at Santiago, the natives refused to work as scavengers, though offered good pay. They felt sure they would never get it, and considered such work absurd. So some of them were forced to work under guard; and when they received their money that night, and every night, they were the most astonished men in Cuba. Since that time they have worked willingly.

The cleaning of Havana was a notable piece of work, for the city is a hard one to sanitate. It is very compactly built, the houses of one street backing directly on to those of the next, with no yards, alleys or other open spaces between. In the centre of each house is a courtyard, and in this usually a cesspool. This courtyard and the rooms on the ground floor are often below the street level. There are few sewers, and these few do not carry off rain-water, which, during the tremendous tropical showers, rushes along the streets until it reaches the harbor. The pavements are very old and irregular. After the city was cleaned, the people were gradually taught to keep it clean by a system of inspections and fines, which will certainly not be so efficiently kept up under any civilian administration.

The Spaniards left many fine public buildings behind them — barracks, courts, jails, charitable institutions and hospitals; the schools were of little account. These were without modern sanitary appliances and were horribly filthy. Most of the expense of refitting them was for cleaning and for washbasins, bathtubs and water-closets. Many of the walls had to be scraped and whitewashed, and floors had to be taken up and wholly or partly replaced. Now a Cuban floor is built as follows: First, heavy beams are laid, not more than a foot apart; these are covered with thick tiles; upon these is spread a foot or more of earth, and above all is laid a pavement of tiles or stone slabs. This is necessary for comfort in hot weather.

After an institution has been refitted for its purpose, General Wood secures the best native staff he can, and sets them to running it. He gives them help if necessary, such as head teachers and head nurses, from the United States, but his idea is to have them standing on their own bottom as soon as possible. A good example of this is his management of the police and gendarmes, whom he has patterned largely after those of President Diaz, and recruited almost entirely from the late Cuban army. A year ago the Americans connected with the force had been reduced to two, and they were simply inspectors, exercising no command. With kind treatment, strict discipline and good backing, the force soon became efficient, and has maintained order all over the island without any help from the American soldiers. Various brigand bands in the south were broken up, sometimes in sharp fights. The capture of certain brigand chiefs was a difficult matter, for no man dared give any information about them. Finally, men who knew them by sight were selected, given rations for several days, and hidden in couples where they could watch various trails along some of which, sooner or later, the much-wanted men must pass. In this way they were finally secured.

The general makes frequent personal inspections of all institutions in and about Havana, and makes them without warning. He also makes frequent trips of inspection to other parts of the island.

You may remember that a year ago the papers were full of contradictory reports on these matters, many of them accusing Wood and other officials of all sorts of corruption and inefficiency, and usually started by disappointed persons, Cubans and others, who had not succeeded in getting places they wanted, or had lost them for cause. Finally, *Harper's Weekly* sent John Kendrick Bangs to Havana with orders to see everything he could and to report just what he saw. He came in a quite suspicious state of mind, but went away much relieved, for General Wood showed him all he wanted to see, and sometimes more. One day when I was with them, before he knew where he was going, he found himself in the middle of a ward of the leper hospital, filled with advanced cases, repulsive wrecks of humanity, and all with the same hopeless, apathetic air. When a patient enters the San Lazaro he stays there until he dies, which may mean years of waiting. The gate is guarded, and he is a life prisoner. Bangs got out of that ward as soon as possible, and utterly refused to enter another.

The jails were very interesting. The cell system is not used — the climate forbids. The prisoners sleep in large dormitories, white men in one, negroes in another, and Chinese in a third. I was struck by the fixity of the prison types. The white men were so exactly, so startlingly like those at Charlestown or Concord, and also like the pictures I have seen of English and Italian criminals.

The convicts all work, even in the women's prison, where washing and sewing have been introduced. A very advanced system is followed. The man is paid for his work, one-third of the money being turned over to the state, one-third to the man's family and the remainder to him. In the prison is a canteen, where a man whose conduct has been good is allowed to buy various extras. Cigar-making and shoemaking are the chief industries. One of General Wood's first acts as governor was to have all prisons investigated by two independent commissions, to make sure that no man was unjustly confined. Many were released, who had completed their terms, or had never been tried, or whose convictions seemed to have been unjust. Convicts have the right at any inspection to make complaints to the inspector, orally or in writing; and this is often done.

The law in Cuba is still Spanish law, and the Spanish "garrote," which General Wood considers the most humane of all known methods of capital punishment, is still in use. The executioner is a prisoner under sentence of death, who receives a pardon after doing a certain number of executions. He does not get it as quickly now-a-days as under the old régime.

Yellow fever was to me the most interesting of any of the things I hoped to see in Cuba. I had thought about it ever since 1898, when I expected to have to deal with it in my own regiment. At that time I worried a good deal over my own inability to make a differential diagnosis between it and the so-called pernicious malarial fever. In Cuba I learned that the men there could not make such a diagnosis, and they declared that certainly in nine cases out of ten, and probably always, the disease is just yellow fever.

The Yellow Fever Commission of the Army Medical Department had just finished its investigations, and Major Read read his report to the congress. The experiments were carried out with great care and thoroughness and were very convincing. Healthy subjects were chosen, and were carefully quarantined for three weeks. Then they were divided into squads, and exposed to all the various supposed methods of infection. Some slept for three weeks in the beds and wore the pajamas of men who had died of the fever, both beds and pajamas being filthy with black vomit. Others inhabited a hut divided across the middle with mosquito netting. One side was hung about with a great quantity of the filthiest obtainable clothing and bed linen from fatal cases, but mosquitoes were carefully kept out. The other end was made thoroughly clean and wholesome, but a number of infected mosquitoes were let loose there. In the dirty-clothes end of the hut not a man caught the fever; in the mosquito end all caught it, thus proving that the mosquito can and does transmit it. Only one non-immune was found whom the mosquitoes did not succeed in infecting. Every new bit of information as to the distribution of the disease or to the habits of the mosquito fits in perfectly. For instance, the mosquito does not rise far above the ground. Two years ago at the palace in Havana almost everybody who slept on the middle or lower floors took the fever during the summer. The servants' quarters are in a small building set on top of the roof of the main palace, and not a single servant had the fever.

Again, in outbreaks on ships far out at sea careful search has found the mosquito living on board and breeding in the bilge-water. If some of these came aboard freshly infected just before the ship sailed, it would be nearly two weeks before they could infect anybody, and very likely the best part of another week before the disease developed. Of course the first case would give an opportunity for the whole cycle to begin again.

I saw several interesting diagrams (prepared before the mosquito theory was demonstrated) showing the beginning and spread of yellow fever in certain small towns. It seemed to come down the main road, and the first case or cases would appear in one of the first houses as you enter the town. The next ones would occur in houses close by. Undoubtedly some patient in the early stages stayed long enough in that first house to be bitten by mosquitoes, which a fortnight later transmitted the disease to members of the family.

I saw one very typical case, showing the characteristic yellowing of the skin and eyes, and the great restlessness. This was one of the severest of the mosquito-bite cases, had probably been bitten by three or four insects. Experimental

injections of blood had then been given up, as the resulting cases were altogether too severe.

As to the treatment of yellow fever, there is nothing new. No successful serum, either curative or preventive, has been developed, and the bacillus of Sanarelli is a failure. The patient should be put to bed as early as possible, protected from mosquitoes — to prevent spreading the disease — and kept just as quiet as possible. The bowels should be cleared out well once with salines; after this absolutely nothing should be given by the mouth, except perhaps a little ice to suck; all food by the rectum, and occasionally a laxative enema; cold sponging for the temperature. Large ice-water enemas have been tried, but they cause great discomfort and shock, doing more harm than good. The convalescent patient must be kept in bed a good deal longer than he wishes to stay, otherwise fatal relapse is very likely to follow.

Interest in the medical care of troops in the tropics led me to visit Columbia Barracks, the station of the Seventh Cavalry, a few miles out of Havana. It is well situated, on a hill, with a view of the sea and a first-rate water supply. The health of the men was excellent. Very few were sick, and most of those only slightly so, while the well men looked thoroughly strong and hearty. All said that Cuba, in the north at any rate, was a first-rate place to live, if a man took care of himself. In making route marches through the country, bad water, infected with typhoid, was apt to be found in the towns and villages. This was always boiled, and made palatable by squeezing into it the juice of wild oranges and lemons, which were generally plenty.

The care of the men was much the same as at home, but the system of treating men who were only slightly sick in their own quarters had been given up, and every man excused from duty for medical reasons was taken into hospital. During the summer men visiting Havana on pass were required to leave the city before sunset.

I found the trip a most satisfactory one, both as to weather and matters of professional interest, and can recommend it to anybody who can spare a fortnight in winter. I left New York in a snowstorm and returned in a blizzard, and the beautiful summer weather I enjoyed in the interval seemed almost like a dream, as I looked back upon it.

## BIRTH- AND DEATH-RATE AS INFLUENCED BY OBSTETRIC AND GYNECIC PROGRESS.*

BY GEORGE J. ENGELMANN, M.D., BOSTON,
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(Concluded from No. 20, p. 508.)

(3) *Death in Childbirth.*— The same progressive methods which facilitate the delivery of the child and would be expected to lessen the number of stillbirths serve to minimize the dangers of parturition for the mother, and should decrease the mortality; in addition, the introduction of aseptic practices has eliminated the greatest element of danger to the parturient women — the ever-threatening invasion of the dreaded puerperal fever. We know that hospital mortality has been reduced to almost *nil*, and in these institutions desperate cases of all kinds are concentrated, every contracted pelvis seeks their aid, patients are hurried in when in convulsions or flooding to death, and are often received in a moribund condition. In view of the splendid results which hospital statistics prove attainable, deaths should be few indeed in the community at large where the normal physiological act of parturition prevails, but as compared with the low mortality of .2 to .6% in some of the great maternities the vital statistics of our large cities present most unsatisfactory results.

*Hospital death-rate.*— Hospitals all clearly indicate the advent of the antiseptic era by a practical disappearance of puerperal fever and a prompt and marked decline of mortality, but this improvement has not everywhere continued, and many now show no better results than those recorded one hundred years ago.

I can but recall facts already well known, as there is absolutely nothing new to report since the admirable papers of Garrigues,[14] [15] unless it be that in some of our great American maternities the *death-rate* is *again increasing*. In the New York Maternity[14] we find a mortality of 6% in 1882, or, for a longer period, 1875-1883, 4.17%, and after the reform inaugurated by Garrigues this promptly declined to .18% throughout the ten years from 1884-1893. In the Lying-in Hospital of Boston this same high mortality prevailed in 1883, a death-rate of 6%, and in the ten preceding years, 1874-1883, as in New York, 4%; the antiseptic era was inaugurated by a decrease of the death-rate to .8%, 1884-1893. Since this time a marked increase is observable, the mortality averaging 1.3% in the next six years up to 1900. The lowest mortality is observable here, as in the New York hospitals, in the earlier years of the antiseptic era (1884-1893); best, .18% in the New York Maternity, .2 to .6% in the Clinique Baudelocque, and yet in many it is *now* .8%, and in some over 1%.

There is no doubt as to the great reduction of the hospital death-rate, even if we exclude the fearful years of epidemic invasion, because it would appear that in the period preceding the antiseptic era these institutions, which had become saturated with the deadly germ, were never free from its ravages; 4% was a frequent death-rate; not exceptional were such figures as 10% in the Vienna Lying-in wards (1841-1846), or 11% in the Paris Maternité, and during the most serious epidemics 15% and even 20% was reached. The general hospital average is best represented by the grand total of 2,000,000 confinements in public institutions collated by Le Fort,[16] which show a mortality of 3.4%.

In the previous century, strange to say, we often find conditions much more favorable and

* Read before the Obstetrical Society of Boston, Jan. 21, 1901.

very good indeed as compared with results of the present day. In the Dublin Rotunda, the death-rate is only about 1% in the half-century from 1757 to 1814. In the Marion Street Lying-in Asylum of New York, in the twenty-one years from 1866 it was but 1.1%, and Goodell, under the favorable conditions of the Preston Retreat, reduces his mortality to .8%. Such favorable results were obtained in the days before the era of post-mortem study and of frequent examinations by students, or if after such time, by the avoidance of these dangers; but when compared with some of the present-day maternity records these results are certainly astonishing, and lead us to wonder why the death-rate in some of our hospitals and in the community at large has not been lowered far more by modern progress. It is now about what it was over 100 years ago (Table IV).

TABLE IV.

DEATHS IN CHILDBIRTH PER 100 BIRTHS.

A.— HOSPITAL RECORDS.

| | Pre-antiseptic Period. Earlier Records. Hospital. | | Antiseptic and Aseptic Period. Modern Records. | |
|---|---|---|---|---|
| Rotunda, Dublin | 1757–1814 | 1. | | |
| Copenhagen | 1867–1881 | .5 | | |
| Marion Street Hospital, New York | 1854–1866 | 1.1 | | |
| Preston Retreat | — | .8 | | |
| 2,000,000 births, all hosp., LeFort | — | 3. | | |
| During epidemic 8-20% | — | 10. | | |
| New York, Maternity | — | 4.2 | 0.18 | |
| Boston, McLean | — | 4. | 1.3 | |
| Dorpat | — | — | 1.5 | 1888–1893 |
| Berlin | — | — | 1.9 | 1888–1895 |
| Wurzburg | — | — | .7 | |
| Paris, Baudelocque | — | — | .2-.6 | |
| New York Infirmary, Women and Children | — | — | .1 | 1901 |
| Blackwell's Island, New York | — | — | 2.6 | 1901 |
| Flower Hospital | — | — | 5. | 1901 |

B.— COMMUNITY AT LARGE.

| PRE-ANTISEPTIC PERIOD. | | | ASEPTIC PERIOD. | | |
|---|---|---|---|---|---|
| Paris (hospital epidemic year) | 1856 | .26 | | | |
| Paris, St. Petersburg, Edinburgh, Duncan | 1860–1865 | 0.6–.8 | | | |
| Copenhagen, stadfeldt | 1850-1874 | .8 | | | |
| New York, Irish | 1867-1875 | 1.1 | | | |
| Baden, Hegar | 1864-1866 | .7 | | | |
| England, county | 1867 | .43 | | | |
| England, towns | 1867 | .49 | | | |
| England, private practice, Duncan | — | 1. | | | Out-Patient Department, New York Lying-in Hosp. |
| New York | — | 1.1 | .42 | 1890–1896 | |
| Berlin | 1877–1884 | .4 | .5 | 1898–1900 | Out-Patient Department, Boston. |
| Rhode Island | — | .8 | .27 | 1884–1894 | |
| Michigan | — | 1.7 | .6 | — | |
| | | | 1.4 | — | |
| | | | .3 | 1896 | Budapest. |

*Community at Large.*— Great as are the numbers involved in hospital practice, they are yet but an insignificant fraction of those confined in their homes among the population at large, as shown by the data found in the vital statistics of the entire country, and here we must find the figures by which fairly to gauge the results secured and the practical value of obstetric progress. As far back as 1856, in that year when the death-rate in the Maternité of Paris reached 5.3%, it was but .26% [16] in the twelfth district, one of the poorest of the city. Lusk [17] records a mortality of 1.1% in the city of New York, for the nine years from 1867 to 1875. Florence Nightingale [18] cites the report of the Registrar General of Great Britain (1867) to show that the mortality in childbirth in sixty-four of the healthier districts of England was but .43% and .49% in eleven large towns. Hegar [19] finds it to be .73% in healthy districts of Baden (1864-1866).

But these are scattered records, which only suffice to recall the well-known fact that the mortality in the community at large at one time was far less than that of the hospital. To observe closely the effect of obstetric progress, it will be necessary to follow the statistics of a given locality for a number of years, and these should be the years immediately before and after the general introduction of antiseptic practice. This era varies. It is earlier in one country than it is in another; earlier in the hospital than in the community at large. In Austrian hospitals this was in 1879; in those of Paris, in 1882; in Germany, throughout the community at large, in 1883; in this country in 1884, and here it appeared at the same time in the hospital records and in the vital statistics of the community.

In the city of Berlin,[11] the death-rate in childbirth from 1877 to 1888 was .4%, and from 1884 to 1895, it was reduced to .27%. The figures for the corresponding period in the State of Rhode Island are .67% and .51%, a reduction at the same time but not so marked, and the death-rate higher in both periods than in the Prussian capital. In the State of Michigan, from 1875 to 1884, it was 1.7%, and from 1885 to 1894 1.4% — a distinct reduction in each case.

I will say that other of the large cities of Europe show about the same percentage as Berlin, which gave an average of .27% for recent years; in 1898, .29%, almost the same as Budapest,[20] .3%. This, moreover, corresponds well with the English data given, although Lusk's observation in the city of New York shows 1% (1867-1875), Matthews Duncan [21] records Paris (1862) with .63%, St. Petersburg .68%, Edinburgh .64%, and calculates the actual results by correction for the invariable omissions, to be respectively .83%, .9% and .82%, and Stadfeldt [22] finds a death-rate of .8% in Copenhagen for the twenty-five years from 1850 to 1874.

* These figures cannot be looked upon as absolutely correct, by reason of the great variety of classification. Many of the deaths in childbirth are concealed under other headings such as "convulsions," pelvic inflammation," "peritonitis," "albuminuria," and others; yet I take them to be relatively correct and indicative, as the same proportion will probably escape proper classification year after year, and the results given serve well for purposes of comparison. The figures of Lusk and Garrigues are carefully compiled and I also have endeavored as far as possible to verify the figures given under deaths in childbirth by comparison with all found under separate classification such as puerperal fever, puerperal eclampsia, puerperal sequences, rupture of uterus, extra-uterine pregnancy, uremia, etc.

If we consider these figures, between .6% and .8%, during the preantiseptic era and the more recent ones of Berlin, of Budapest and of Rhode Island, for the modern era, .3 to .6%, we cannot help but look upon the mortality as excessive and unduly high when compared with modern progress and with the modern maternity with desperate cases of all kinds, and its mortality of from .2 to .6%.

The lying-in hospital is the haven of refuge for all who are in danger at the time, who have once experienced difficult labor, or have any fear of complications, yet, with all the life-endangering conditions and the serious operations necessitated, the death-rate is below that of the community at large; let me add, in *most* hospitals, *not in all* by any means.

*Private practice.*— Some slight progress is evident in vital statistics of cities and countries, a slight decrease in the death-rate, due to a lessening of the cases reported as puerperal fever or puerperal sepsis. In private practice mortality is about the same, but higher than it is in the best-managed hospitals, much as it was in preantiseptic days. The only records of private practice I can recall are those of Matthews Duncan and McClintock,— 16,108 cases with a mortality of .75%,— while the private practice of Duncan himself shows the higher mortality of 1.08%. As Garrigues says: "Leaving out the exceptional results of prominent obstetricians with a wealthy clientele, the mortality in private practice is about 1%." This is likewise unduly high, and not at all in keeping with the results of the best lying-in hospitals. In the Out-Patient Department of the Lying-in Hospital, where exceptional care is given the parturient, and where we have practically an average class of cases, the mortality is fully equal to, if not greater than, that of the best hospitals, where a far greater number of difficult confinements occur, and it is no better than in the community at large. In 10,000 cases of the Out-Patient Department of the Lying-in Hospital of the city of New York, a mortality of .4% is recorded, and among 5,040 cases of the corresponding department of the Boston Lying-in Hospital, from 1898 to 1901, the mortality is .3%; really .5%, if we include, as must be done, the more serious cases which were sent to hospitals for the completion of labor.

*Résumé.*— Practically the mortality of the Dublin Rotunda throughout an entire half-century to 1814 is even now exceeded by some hospitals: Boston, 1.3% (1894-1900); Berlin, 1.9% (1885-1895); Dorpat, 1.5% (1888-1893). As a rule it is less, .6% or thereabouts; in many as low as .2%, but then, we must remember that the Copenhagen Maternity, even in pre-antiseptic days, yielded similar results, varying in 1867-1881 from .3 to .6%, once only attaining as high a figure as 1.1%. The death-rate throughout the city of New York was 1.1% in pre-antiseptic years, and is that given by Duncan for private practice. During the same period less than 1% (.6 to .8%) is reported for the great cities of Europe, less than .5% for country districts and many towns of England — practically the figures observed in Berlin at that time, .4%; since then, with the advent of antiseptic practices, it has decreased to .3%,— as it is now also in Budapest. In this country the mortality is higher, higher than it was in England or in Prussia under the old régime: in the State of Rhode Island, .7% before 1884, .5% since, and now 1.4% in Michigan. Mortality in childbirth in the community at large has decreased with the antiseptic era, but not to the extent we should expect from the low death-rate of some maternities, which should serve as a standard as to what *can* be accomplished with the means now at our command: with this standard of .2 to .8%, and the great number of desperate cases included in view, we should expect a much lower mortality in the community at large.

Progress is evident; puerperal fever has been banished from the hospital, and yet when we compare the results of the Copenhagen and Dublin institutions, .5 and 1%, with the Boston, Berlin and other hospitals at the present day, with 1.3 and 1.9%, the facts are confusing and correct deductions difficult. Large numbers only are conclusive, and the total hospital mortality of the present is probably nearer 1%, while that of forty years ago was 3%.

### CONCLUSION.

A careful review of the figures here presented clearly shows that obstetric and gynecic progress has left no distinct impress upon the record of vital statistics comparable to the decreasing death-rate and the control of epidemics which mark the development of medical science. The birth-rate, the fecundity of woman, has not increased, it has decreased; stillbirth is decreasing to some extent in Europe, very little in this country; the death-rate in childbirth has been reduced somewhat by the introduction of antiseptic practice, less in this country than in Europe, notwithstanding the still prevailing supremacy of the midwife abroad. But on both sides of the Atlantic it is still greater by far than it should be, greater by far than it is in many maternities, where desperate cases of all kinds are concentrated. In hospitals the results of modern practice stand clearly revealed, but the splendid record made in the early years of the antiseptic era is not everywhere maintained, and in some of the leading maternities of this country the death-rate is again increasing.

Vital statistics show that in the community at large the effect of antiseptic precaution is distinctly marked, but by a very trifling decrease only in the death-rate, more especially by a diminution in the deaths from puerperal fever; those from eclampsia are more frequent. The death-rate in the community, the death-rate in private practice, which in the light of modern scientific medicine should be an inappreciable figure, is still greater than that of most maternities. All in all, mortality in childbirth shows with some distinctness the evidence of obstetric progress,

but the number of stillbirths and the birth-rate show fluctuations which are controlled by contrary factors, totally different in character, and completely obscuring the influence of medical science.

In the high death-rate of the child in illegitimate labor, the results of criminal interference appear distinctly evident. In decreasing fecundity we see the deteriorating influences of refinement, of the higher civilization, of luxury and of social aspirations,—all in part accountable for the low birth-rate. But, whatever the motive, the distinct cause of diminishing fecundity is the intentional limitation of the family, the determination not to be troubled with children at all, or only in such numbers as are deemed appropriate by husband and wife to their comfort, to their social and financial status. In the unequal contest, medical science yields to human vanity and desires and its influence is completely effaced so far as the population at large is concerned. Only in the somewhat lessening death-rate of child-bearing women and in the sporadic decrease of stillbirth do we see an evidence of its progress.

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A CENTENARIAN. Mrs. Bridget McCormick, a native of Ireland, died in Flushing, borough of Queens, May 14, at the reputed age of 105 years.

## Clinical Department.

### TWO CASES OF TETANUS FOLLOWING VACCINATION.


BY LYMAN ALLEN, M.D., BURLINGTON, VT.,

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THE present epidemic of smallpox and the consequent large amount of vaccination make of added interest any cases of infectious disease that may seem to have been inoculated at the time of vaccination.

The occurrence in Camden, N. J., of eleven cases of tetanus in those who had recently been vaccinated has been fully published and discussed in various medical journals. Other cases of tetanus in patients who had recently been vaccinated or who had used diphtheria antitoxin have been reported from other cities, and for the purpose of making the record more nearly complete I wish to add the report of two cases of tetanus following vaccination which occurred last fall in Burlington, Vt.

CASE I. Mary E. C., age eleven years, was vaccinated Oct. 2, 1901, and developed an ulcer the size of a fifty-cent piece. This was dressed by the family and kept covered with a clean linen cloth, no antiseptic being used. While the ulcer was in this condition the patient helped her mother to pot some garden plants. On Oct. 21, 1901, symptoms of tetanus appeared, and she died two days later. Twelve bottles, each containing 20cc. of Mulford's antitoxin, were used, beginning twenty-four hours after the onset of symptoms, which was as early as the serum could be obtained. There was no autopsy.

CASE II. Minnie B., age twelve and one-fourth years, was vaccinated Oct. 4, 1901, and twenty-one days later developed symptoms of tetanus. She died in thirty-eight hours. No antitoxin was used and there was no autopsy. As far as can be ascertained the ulcer of vaccination was unprotected in this case.

These two are the only cases of tetanus that have developed in this city following vaccination, and the only deaths from tetanus since Sept. 20, 1900. The number of vaccinations during this epidemic was approximately 8,000.

To endeavor to locate the cause of the infection in these two cases samples of soil were taken from several localities and tested by Dr. B. H. Stone of the Vermont State Laboratory of Hygiene. These samples were obtained as follows: No. 1: Soil from garden, 46 North Winooski Avenue, where a horse died of tetanus six months previously. No. 2: Soil from side of walk, same address. No. 3: Soil from street in front of 16 Smith's Lane, the home of Mary E. C. No. 4: Soil from alley, 16 Smith's Lane. No. 5: Soil from street, 27 Convent Square, the home of Minnie B. No. 6: Soil from north side yard, 27 Convent Square.

After growth in sterile bouillon for seventy-two hours at 37° C., the cultures were subjected to a

temperature of 80° C. for one hour and then transfers were made to fresh tubes of sterile bouillon and grown three days as above. All these samples except No. 1 showed bacteria identical morphologically with the tetanus bacillus (not pure cultures). A guinea-pig was inoculated with fifteen minims of No. 4. This animal died with symptoms of tetanus after four days, and upon autopsy showed the presence of an abscess about the size of a small shot, at the point of inoculation, with a slight blackening of the surrounding tissue.

The tubes were again subjected to a period of incubation, after which white mice were inoculated with small portions of Nos. 1, 2, 3, 4 and 5 respectively (Dec. 26, 1901). At 5 P.M., Dec. 27, the mouse inoculated with No. 4 showed marked symptoms of tetanus and the one inoculated with No. 3 showed slight symptoms of tetanus. At 6 P.M. the one inoculated with No. 2 showed marked symptoms.

From these tests it is evident that the bacillus of tetanus is to be found in the soil in many localities, and the only wonder is that more cases of tetanus do not occur from ordinary wounds. The fact is well known that the tetanus bacillus when inoculated into animals in pure culture is frequently destroyed by the activity of the tissues and fluids of the body, but that it is more likely to grow when the tissues are weakened by infection with the pus-producing organisms. Any other suppurating wound of the size and appearance of the ulcer following vaccination would receive some surgical care or at least some protective dressing, but the laity seem to think that the ulcer of vaccination is different from other ulcerations, and that it should be left unprotected and untreated. Again, the itching that attends vaccinia invites infection from dirty finger nails more than do other ulcerations.

The period of incubation in acute tetanus is from five to nine days, and rarely if ever is it as long as 21 days, and the longer the incubation period the milder the disease and the more favorable the prognosis. In these two cases nineteen and twenty-one days respectively intervened between the vaccination and the onset of symptoms of tetanus, and the rapid course of the disease in each case and the fatal result point to a short period of incubation. It is, therefore, almost impossible that the germs were inoculated at the time of vaccination. This fact, with the positive findings in the animal experiments above mentioned, makes it practically certain that the disease was caused by lack of care in the after treatment of the ulcer of vaccination.

Finally, I can but reiterate the conclusions reached by others writing upon this subject — vaccination should be considered a surgical procedure and be safeguarded by all aseptic precautions. The ulcer of vaccination should be protected from infection and trauma as carefully as any other surgical wound, and to accomplish this all vaccinated persons should either report regularly to their physician for the proper cleansing and dressing of the ulcer, or be carefully instructed at the time of vaccination as to the precautions necessary to be taken to avoid serious complications.

To my mind the evidence is overwhelmingly against the possibility of the lymph in these cases being infected with the germs, spores or toxins of tetanus, and it is not too much to say that no case of tetanus will occur following vaccination if simple aseptic precautions are taken.

## Reports of Societies.

### BOSTON SOCIETY FOR MEDICAL IMPROVEMENT.

ARTHUR K. STONE, SECRETARY.

Regular meeting, Jan. 20, 1902, Dr. W. T. Councilman in the chair.

Dr. E. G. Cutler presented

AN ABSTRACT OF SOME OF THE PREVAILING OPINIONS ON THE PERIODS OF INCUBATION, OBSERVATION AND ISOLATION OF SOME OF THE INFECTIOUS DISEASES.[1]

Dr. J. L. Morse: Before speaking of measles I want to speak of a point which has not yet been brought up regarding these diseases, and that is that with one or two exceptions we do not know their cause. We think that they are caused by some organism, but we do not know what the organisms are. We think that in these diseases the source of contagion is contained in the desquamation or in certain secretions. Now, if that is so, I believe that the patient should be isolated until the desquamation or the catarrhal symptoms or whatever the thing is which we think carries the contagion has ceased. That should fix the limit of the isolation, and no fixed time should be set. I certainly should feel that I was being misused if, after scarlet fever, all desquamation had ceased, all catarrhal symptoms had disappeared and I was well, I was kept in isolation a week or two more in order to fill out a certain number of prescribed weeks. Such a rule is not consistent with common sense. We either know something or we do not. If we believe we know we ought to act on that belief and not on general principles.

Analogy leads us to believe that measles is due to a specific micro-organism. Tschaikowsky and others have described an organism which they isolated from the secretions and the blood of measles patients. They succeeded in cultivating this organism, but they did not make inoculations on men. Other observers have failed to verify their results, so that we must conclude that at present the cause of measles is not known. We suppose that the organism of measles is contained in the sputum, in the discharges from the nose and eyes and possibly in the breath. We also

[1] See page 533 of the Journal.

suppose that it is contained in the scales of desquamation. The vitality of this organism must be small, but its area of distribution is certainly large.

The contagion of measles is probably usually conveyed by direct contact, but the area of contagion is a large one. It probably can be carried in clothing and be conveyed by a third person. Measles is contagious from the first appearance of the catarrhal symptoms. The activity of the contagion diminishes with the activity of the symptoms. How long it lasts I do not think we can be sure. The contagiousness certainly diminishes rather rapidly. There is no absolute proof as to how long the contagion exists in the secretions or whether or not the desquamation is contagious; that is to say, it seems to be impossible to determine in a case where we think the contagion was due to the desquamation, whether it really was due to it or whether it might not have been due to organisms contained in the secretions which were mixed with the desquamation or caused the contamination. We may think we know, but I do not believe that we really do.

Measles is an extremely contagious disease. It is rare under six months, but does occur at that age and may even be congenital.

Owing to the extreme contagiousness of measles in the catarrhal stage, anything which would help us to make the diagnosis of measles during the stage of incubation would be of the greatest importance. Two signs have been described which may help us in this direction, especially in institutions. Meunier has found a very constant loss of weight in the incubation stage of measles beginning five or six days before the catarrhal symptoms and eight or ten before the eruption. Reynaud has found a hyperleucocytosis during the stage of incubation which commences at the beginning of incubation, increases rapidly and reaches its maximum about six days before the appearance of the eruption; from that time on it diminishes.

Several other signs have been described as occurring in the catarrhal stage before the eruption. Bolognini described a peculiar crepitation in the abdomen which he found in all cases of measles in the catarrhal stage. Other observers have found this crepitation in only a small percentage of cases and these cases all had diarrheal complications. They also found the same crepitation in cases of diarrhea in which there was no question of measles. Koplik's sign is found in about 90% of cases of measles and usually appears in the catarrhal stage. Unfortunately, however, although a valuable sign in diagnosis, it occurs too late to be of much value in limiting the spread of the disease.

In the attempt to get some exact data as to the duration of the stage of incubation, I looked over my cases. I was able to find but one in which I could feel sure of the duration of incubation. This case occurred at the Infants' Hospital. The baby had been in there six weeks, running a perfectly normal temperature. Another baby was admitted to the ward at two o'clock in the afternoon and stayed there until about four, when it was taken out because of a suspicious cough. That baby developed a measles eruption during the night. The baby which was exposed developed a temperature and coryza ten days later and the eruption twelve days later. I think we can rule out any other exposure in this instance. In order to get some more accurate data I wrote letters to twenty or more physicians in neighboring cities whom I know had had a large experience and were careful observers. I received replies from nearly all. I asked for any accurate data that they had as to the incubation stage of measles and also for data as to the contagiousness of measles during the stage of desquamation after the catarrhal symptoms had ceased. Most of them said that they had no data. Two or three, however, furnished me with some. Dr. Peirson of Salem found the incubation fairly constant at ten days. He states that he has had a few cases in which the contagion was received without any doubt during the desquamative stage after all catarrhal symptoms had ceased. Dr. Twombly of Boston has had the opportunity of observing several epidemics of measles at the Gwynne Home. He thinks that the incubation is in general ten days and that measles is not contagious in the desquamative stage. Dr. Houghton of Brookline feels very sure from his experience that the stage of incubation is 12 days. Dr. Spooner of Hingham has recently had the opportunity of observing a small epidemic in Hingham. In one case the incubation was 8 days; in another, 11 days; in two, 13 days; and in one, 15 days.

Just one more thing, and that is, it seems to me that measles is a serious disease and that we should not look at it from any other point of view. I think the position taken by a Dr. Wahrer of Fort Madison, Iowa, at the meeting of The American Medical Association at Atlantic City two years ago, that while measles is a very slight disease in children it is severe in adults, and hence that all children should be exposed to measles in order to have it over with in childhood, is entirely wrong. The hemorrhagic form is very severe. Then there are the complications of eye, ear and lungs, which are extremely severe. In addition, I have seen acute nephritis, hemiplegia, aphasia and laryngitis. As to the laryngitis in measles, the question is whether laryngitis in measles is or is not diphtheritic. The only case of my own which came to autopsy was diphtheritic, and Northrup's experience at the Foundling Asylum seems to show that it is diphtheritic. I feel pretty strongly that laryngitis in measles should be considered to be diphtheritic and treated as such. Less chances are taken in this way.

DR. J. C. WHITE: Will Dr. Morse give us his personal knowledge of instances of measles conveyed by a third person.

DR. J. L. MORSE: I have no personal experience. I have found several cases in literature where the evidence seemed quite clear.

Dr. T. M. Rotch: The report of the committee has very thoroughly covered the ground, but in presenting such a report in print it is often supposed by those who read it to be more authoritative than it really is, and in this way it greatly influences the public. We should, therefore, be careful as to the wording of such a report, and it seems as though the report might be somewhat elusive in regard to what it says concerning the isolation of scarlet fever, and the long period of isolation which has just been recommended. For instance, certain complications of scarlet fever, such as nephritis, evidently should not necessitate the isolation of the patient until recovery. Great harm might come to children having the complication of scarlatinal nephritis, if they were isolated for a long period, for what they need is to be free from isolation as soon as possible. Then, again, each case differs materially as to the length of time during which it should be isolated. As I have studied cases of scarlet fever in private practice, the period of desquamation is often so short and the catarrhal symptoms so soon pass away, that it is perfectly safe to thoroughly disinfect and bring the isolation to an end. After having done this, I have allowed the children to go among the other children in the house, and have never seen any spread of the disease.

If we really wish to stamp out these diseases by means of isolation and thorough disinfection, we shall be much more likely to accomplish our purpose by not giving the impression to the public that this long period of isolation is always necessary, for if we do insist upon it the public will be more apt to refuse to have their children isolated.

In regard to what has just been said as to the length of time during which pertussis should be considered to be contagious, as depending upon the time that the characteristic cough exists, I should say that in many children, unless there is an actual whoop, there is no characteristic cough, and that children will cough for an indefinite time after whooping cough, simply because the nervous reflexes are easily affected by any atmospheric change, and that in all probability these children are not a source of contagion.

In regard to the contagium being carried by a third person in measles, it is very doubtful that this has been proved. It is true that it is very contagious in its earlier stages, and that the area of contagion is great; it is also evident, however, that the contagium soon passes away, and that the members of households who are affected by the contagium are so affected in the very early stages of the disease. The period of incubation in measles has, in my experience, been about ten days; we should, therefore, warn the public that measles is very contagious in the prodromal stage, before the efflorescence has appeared; also, that a child may have only a slight amount of fever, scarcely any cough, and feel perfectly well in the prodromal stage of measles, and yet be a marked source of contagion to others. I have seen children who were feeling so well on the second day of the prodromal stage that an idea has arisen among the laity that unusually good spirits is one of the prodromal symptoms of measles.

Dr. Theobald Smith: This is not a subject in which the laboratory can give much assistance to clinical and preventive medicine at the present time, for two reasons: The micro-organisms of only two of the diseases mentioned are known, namely, diphtheria and typhoid, and much — very much — has been added to the sum of knowledge of these two diseases by careful laboratory investigations. Of the rest, the agents are morphologically unknown to us. The second and weightiest reason for the inadequacy of the laboratory is the fact that the eruptive diseases are (with the exception of vaccinia) not known to attack animals and hence quite inaccessible to more profound study. It seems as if the organisms that produce these diseases stand quite apart from the bacteria. There are many indications to support this view. Among others, the cyclic course of all these eruptive diseases, as compared with the more irregular course of the bacterial diseases, suggests to us that we probably have to do with organisms which have certain characteristics which the bacteria do not possess, and I do not think that the laboratory is going to add very soon to the knowledge you have today. I believe that the hospital and the bedside are going to clear up whatever questions arise concerning the period of incubation, etc., and it seems to me that every physician, with the greatest care, should note and record cases where this period can be absolutely established, because it cannot be established in any other way. I do not think that anything is going to take the place of the practical experience of the physician on this particular subject.

The period of incubation has been stated in the report and by the speakers to be quite variable, especially with reference to scarlet fever. It seems to me, speaking entirely from a theoretical point of view, that the period of incubation must be fairly constant, and where there is a wide variation something else must be brought in to explain it. In the case of the long incubation of scarlet fever there may have been a latency of the organism on the mucous membranes, and the disease did not begin until the proper time arrived for the virus to be absorbed.

Some ten years ago I was engaged in the study of bovine malaria. At that time the period of incubation in that disease was supposed to be 40 to 60 days. It was discovered, however, that the actual period was not over 10 days and that the micro-organism had to go through some evolutional stages outside of the animal in a secondary host. Whenever, therefore, the period of incubation departs from the average, our investigation should be more thorough and we should be on the alert for secondary influences that may be concerned.

Another subject bearing upon our theme is the persistence of infection after recovery. Fortunately much has been learned on this subject through bacteriological study. Some seven years

ago, I think, it first became generally known to the profession that diphtheria bacilli could, and frequently did, persist in the throat of recovered cases. But even earlier than this was this tendency to persist known to investigators.

In 1893 the German government was trying to protect its eastern territories from the cholera, and great efforts were made to locate infected individuals and it was found that there were carriers of the comma bacillus, although such carriers might not become diseased at all. Then came the discovery of the typhoid bacillus in the urine after recovery. With the eruptive diseases there is an exit provided for the micro-organisms. Evidently the skin is the final place for the bacteria to localize, multiply, and that is probably the place from which the bacteria escape in order to continue their life in another individual. It is easy to understand how this persistence of the infectious agents after recovery may enter to befog our information concerning the actual period of incubation of the succeeding case. The period of incubation is of great interest to students of disease, for they do not know what goes on during that period. It seems to me that if we knew precisely what takes place in that period, medicine could make itself a hundred times more useful than it is today. In tetanus everything is done during the period of incubation, which decides the fate of the individual. It is probable that in other diseases the period of incubation is of equal significance. It seems that in this period (and I mean the real period and not the apparent period) there is a slow multiplication of the micro-organism going on. The slowness of the multiplication is probably due to the normal bactericidal or microbicidal powers of the body cells and fluids. This multiplication of the organisms and their destruction goes on up to a certain point, when there suddenly appears in the body a new or an augmented bactericidal force. This, setting free a large amount of poison locked up in the micro-organisms, suddenly causes symptoms which usher in the disease. The disease really starts in at the beginning of incubation, and the fate of the individual is often decided during that period. If we could recognize infection during this latent period, many lives otherwise doomed could be saved.

DR. E. M. BUCKINGHAM: The difficulty in determining the incubation stage of measles is that the apparent prodromal stage varies greatly in length and in intensity. Incubation may glide into a mild prodromal stage so gradually that it is hard to determine when symptoms begin. I have formed the impression, in seeing cases at the Children's Hospital, that they are less contagious at the beginning if the patient is not coughing very much; perhaps he is not throwing the measles poison, whatever it may be, into the air. It is more easy to fix the time of the eruption than the beginning of the prodromal stage. In the only three cases in which I have been able to fix the time of exposure to contagion, that is, cases in which there had been a known exposure with no possibility of exposure afterward nor for a long time before, in these cases the time from exposure to eruption was 13 days, 14 days and 15 days.

The point Dr. McCollom made with reference to the difficulty of stamping out scarlet fever because of the impossibility of recognizing very mild cases, is well taken. It is not such a very uncommon thing to find acute renal disease in which there is no history of previous illness, but in which inquiry develops the fact that a brother or a sister had scarlet fever at a time which is very suggestive in connection with the case under examination. Scarlet fever is also occasionally found in private practice under conditions that would not be observed but for a careful examination of the family. I mean cases with slight appearances in the mouth, including perhaps a little enlargement of the tonsil but without soreness; a mild but characteristic rash under the clothing, one which disappears before the second visit; a rise of temperature not great enough to be recognized without a thermometer; and the patient not sick.

DR. R. H. FITZ: The question to be decided is distinctly practical. Very positive statements have been made as to what ought to be done. These statements are likely to be made public, and on account of the very decided differences of opinion among physicians, if too hard-and-fast, will meet with so much opposition as to be of but little value. In two only of the diseases concerned is there, at present, the means of scientific control; in the others we are dependent upon a series of assumptions which carry weight in proportion to the number of cases represented. Individual statements are open to so many possibilities of error, of influences which cannot be controlled, that they at the best represent more or less plausible theories. It may be stated in general that during the past thirty years there have been no material advances in our knowledge of the conditions which demand preventive isolation. Longer periods of isolation are easily advised as additional precautions, but they are suggested rather through fear than knowledge. If we yield too much to fears we shall lose some of the ground we already have gained. I have in mind a doubtful case of scarlet fever occurring without obvious cause in a patient who has been a number of weeks in the hospital. After recovery the child, apparently well, is kept isolated for a long time in a room much needed for more serious cases because it has had what may have been scarlet fever. If many such cases were to occur, and the prolonged isolation advocated by Dr. McCollom were insisted upon, more harm than good might result, because the community will not accept so long a period of isolation unless its need is demonstrated without question. It seems to me the report should be so worded as not to err so far on the side of safety as to be impracticable.

DR. GEO. B. SHATTUCK: I was unfortunate enough not to hear the report. I want to ask Dr. Morse one question. He spoke of Koplik's sign being manifest in 90% of cases of measles. I

would like to ask whether that is drawn from personal observation or whether taken from the literature and applies to the European experience, whether it is a personal and American experience, or an experience of the books and foreign experience?

Dr. J. L. Morse: The figures were based on American reports. My own experience leads me to believe that it is present in more than 90%.

Dr. Geo. B. Shattuck: I take it, when Dr. Fitz says the community will not stand such a prolonged isolation, and that was referred to by one of the other speakers, he means really that such recommendations will have the result of very much increasing the tendency of the community to conceal these diseases even more than they do now.

Dr. Cutler: The committee had in view the difficulties of the subject, and the main object was to get some sort of ground on which practitioners could meet somewhat in common. It was understood that the report was simply provisional and to serve as a working formula. The matter has not been definitely settled in most of the instances, as the speakers have already said. One object was to see what the experience of this society was in these different matters, and this report was made, hoping it might be used not as a standard, but as something which their experience could correct, and after a time we might form a set of conclusions which could be given out as the belief of this society.

I want to say one or two words about what Dr. McCollom said about the time when the first contagiousness of scarlet fever begins. I have had in my own experience a number of cases which proved very conclusively to me that it is not contagious, in what I might call the prodromal eruptive stage. One case I remember particularly, that Dr. McCollom was kind enough to see with me. It was this: A woman who in a family looked over the clean clothes, sewed on buttons, etc., had a cold, or at least had catarrhal symptoms, and a certain eruption on the backs of her hands and on the wrists. She looked over the clean clothes, sewed on buttons, folded the stockings, put her hands in the stockings, looked at the toes and heels, took her hands out and rolled up the stockings. These were put on by the children. I heard at night that this woman was ill, or had something suspicious about her. I saw her late at night. She had the eruption as above stated. I had her isolated, that is to say, tried to keep her from going among the other servants, and tried to have her sleep where nobody was in the room. The next morning she went back into the sewing-room and went to work again. I saw her at nine o'clock and ordered her away. Dr. McCollom saw her an hour or two later. We isolated her and she got along perfectly well. The characteristic eruption of scarlet fever did not appear until some hours afterwards. There was no other case of scarlet fever in that family at all. There were, I think, four children, none of whom had the disease, and each child put on the stockings that this woman had carefully stuck her hands into. The eruptions I saw were on the wrists and hands.

Another case I saw at a children's party. A child lay on the lounge and was surrounded by children who were very sympathetic. This child was talked to close to his mouth by different individuals, and I do not remember whether he was kissed or not. He had some sort of eruption. I saw him after he had been in that position two hours at least. I carried him in my arms to a carriage and carried him home. This was in the afternoon, about four o'clock. A physician saw him about half-past eight that evening. He thought it was scarlet fever. The next day he was sure it was. That child, although there were forty other children at this party, was not the centre of any contagion. No other cases, so far as I know, occurred in that town.

With reference to what Dr. Rotch said about whooping cough, I think the evidence is, that when the stage of whooping begins then the contagiousness has already commenced to lessen, and it lessens very rapidly. As I understand it, it is just before you are quite sure it is whooping cough that it is most contagious, according to the evidence I have obtained.

## ASSOCIATION OF AMERICAN PHYSICIANS.

Abstract Report of the Seventeenth Annual Meeting, held in the New Willard Hotel, Washington, D.C., April 29 and 30, 1902.

(Concluded from No. 20, p. 526.)

### First Day.—Afternoon Session.

Meeting was called to order by the president, Dr. Wilson, at 2.30 P.M.

### A Case of Hodgkin's Disease with Recurrent Fever.

Dr. H. F. Vickery presented this case. The patient, a girl, age nineteen, had a pseudoleukemia with chronic relapsing fever. She was under observation seventy-eight days, presenting febrile periods of from six to eight days, with afebrile intervals of about the same length. There was no distinct evidence of tuberculosis and no reaction to tuberculin. The case terminated fatally after a short period of coma and no autopsy was obtained.

In discussion, Dr. Starr referred to the paper on this subject published last year by Dr. Musser, but said that he believed the condition described has not yet been generally recognized by the profession. He reported a case occurring in a patient thirty-six years of age, who had twice been operated upon for enlarged glands in the neck; the first time the glands were believed to be tubercular, but those examined after the second examination showed no such lesions. The patient was suffering from febrile attacks lasting from seven to ten days, with a temperature of from

101° to 104°, and non-febrile intervals of from ten to forty days. Believing the case to be one of Epstein's disease and out of his line of practice, Dr. Starr retired from the consultation and the patient afterward came under the care of Dr. Kinnicutt, who reported further upon this case.

DR. KINNICUTT stated that under his observation the patient had passed through three periods of hyperpyrexia, and that at the present time the glands in the neck and axilla were again enlarged, and the spleen and liver were large, hard and irregular.

DR. MUSSER thought that it is not yet proven that tuberculosis is not the cause of this disease, and did not consider the tuberculin test a sufficient means of determination. Unless inoculation was done he thought it not quite fair to put tuberculosis aside as a possible cause.

SPLENIC ANEMIA AND ITS VARIETIES.

DR. WILLIAM OSLER read this paper. He discussed the general question of splenic anemias, but paid particular attention to one group of cases which he thought could be separated from the general class as a distinct type. The particular features of this group are (1) the chronicity of the anemia and splenic enlargement; (2) the absence of any enlargement of the lymph glands; (3) the blood changes are those of chloro-anemia, the red cells in some cases being above 4,000,000, while the hemaglobin is as low as 30%, and in some of the cases there is an exceedingly low leucocytic count; (4) pigmentation of the skin is sometimes a characteristic feature, being mottled in some cases and in others resembling argyria; (5) in the late stages the liver is involved and cirrhosis has been found post-mortem. Dr. Osler thought that this group, with the symptoms referred to, was quite distinct from the cases of pernicious anemia with enlarged spleen, from certain cases of cirrhosis of the liver, particularly syphilitic forms, and from Hodgkin's disease. The name of splenic anemia was used simply for the want of a better one. Treatment of these cases is not very satisfactory. There may be improvement for a time and the red cells increase in number, but the hemaglobin remains low. The nature of the disease is unknown. Whether due to the spleen or not is unsettled, but some cases have recovered after removal of the spleen. With the aid of other members of the association Dr. Osler had collected forty-two cases of this character.

DR. MUSSER, in discussion, reported two cases of this character, but did not believe they should be considered as a separate disease.

DR. BILLINGS reported two cases, one of which followed a severe hemorrhage.

DR. RICHARD C. CABOT said that he had seen eight cases that followed the type presented by Dr. Osler, but he was not convinced that these cases should be grouped under a separate special heading.

DR. STYLES of the Agricultural Department asked if any of these cases had been subjected to intestinal examinations to exclude the presence of the strongyloides or the *uncinaria Am.*, both of which have been found in cases of anemia with enlarged spleen.

A CASE OF ALBUMOSURIA ASSOCIATED WITH PERNICIOUS ANEMIA.

DR. H. F. VICKERY reported this case. The patient was a man, age forty-seven, who had passed through the general course of a progressive pernicious anemia and had albumosuria. There were no symptoms or external evidences of bone disease. Death occurred rather suddenly, and post-mortem was refused.

In discussion DR. JACOBI asked whether he understood the gentleman to mean that albuminuria should in most cases draw attention to the condition of the bones. He had seen it a number of times in pernicious anemia, and thought it not uncommon in all the grave anemias, but did not consider it due to bone disease.

DR. VICKERY replied that from his reading on the subject he had gained the impression that the most common cause of albumosuria was multiple myeloma of the bones.

A REPORT OF THE CASES OF THERMIC FEVER TREATED AT THE PENNSYLVANIA HOSPITAL IN THE SUMMER OF 1901.

DR. M. J. LEWIS made this report.

There were ninety-one cases of thermic fever seen at the Pennsylvania Hospital during the hot weather of July, 1901, which showed a temperature of 100° F. and over. Nearly all these cases came in during the hours between 11 A.M. and 5 P.M., a majority between 3 and 5 P.M., showing the effect of fatigue and long exposure. There were thirty-one females and sixty males. The temperature of the patients varied from 100° to 113°, no patient with a temperature of under 106° dying and no case with a temperature of 111 or more recovering. The cases with very high temperatures usually showed convulsions with retraction of the head. Examinations of the urine showed nothing special beyond the presence of slight amounts of albumin and sometimes casts. Blood examinations were made in seventeen cases, but with such varying results that it was impossible to draw any valuable conclusions. Milder cases were treated with rest in a cool portion of the ward, the application of an ice cap and stimulants. The more severe cases were treated in a large open tent containing two large electric fans and movable bathtubs. In a few cases the hose was employed to direct a stream of water from a distance over the patient's body. Rubbing the body with ice seemed to be easier and more satisfactory than the use of the tub. The advisability of bleeding as a routine practice was discountenanced and the intravenous injection of normal saline solution strongly endorsed.

In discussion DRS. BILLINGS, MUSSER and PACKARD all related their experiences during the past summer and advocated the use of saline injections.

FIRST DAY.— EVENING SESSION.

The evening session was held in the large hall of the Cosmos Club, and was presided over by Dr. James A. Stewart, the vice-president.

In the absence of Drs. Dock and Warthin, Dr. Flexner presented their

LANTERN SLIDE DEMONSTRATION OF THE HEMO-LYMPH GLANDS.

He referred briefly to the work done on this subject by Gibbs, Robertson, Clarkson and others, and described the beginning of Dr. Warthin's work. He took the first eighty autopsies available at the University of Michigan and searched for these glands. In about the first half of this number he only studied the structures about the spinal column, the kidney and the mesentery, but in the next group he searched also in the mediastinum and the neck. He found them extremely numerous, but difficult to distinguish from ordinary lymph glands because after death the blood leaves them to a great extent. He then studied them in the lower animals and found them regularly in cattle and sheep. He estimates that in the human subject they bear about the relation of one to ten as compared to ordinary lymph glands. Dr. Flexner believed that the most valuable part of his work, however, was to be found in the consideration of the histological structure of these glands. He separates them into two classes, one following the general type of the spleen, and for the other the bone marrow might be taken as the type. They all contain structures similar to the ordinary lymph glands with the additional features peculiarly their own. The trabecular spaces were filled with blood and throughout the whole of the gland there is a reticulum containing spaces lined with spindle cells and filled with blood. The glandular areas resemble the Malpighian bodies of the spleen, except that only very rarely can a vessel be found comparable to the branches of the central splenic artery. He was not able to find evidences of blood formation in these glands, but on the contrary found evidences of blood destruction. In the marrow type he found in addition to these peculiar appearances the presence of fat globules or spaces from which fat had been absorbed. He thinks they have nothing to do with blood formation under normal conditions, but that under pathological conditions they may act quite vigorously to assist in the formation of blood. (The lantern was used to show some very beautiful specimens of these glands.)

Dr. C. S. Bond exhibited lantern slides showing the presence of mitosis in the circulating blood.

Dr. Frank Billings gave a demonstration of sections showing the anguillula aceti obtained from a specimen of urine.

Dr. James Ewing exhibited some slides showing the blood changes in some smallpox cases. He had been studying particularly the development of the so-called vaccine bodies. He was inclined to think these bodies are always the result of the fragmentation of red corpuscles.

SECOND DAY.— MORNING SESSION.

Meeting was called to order by the president, Dr. Wilson, at ten o'clock.

The first paper presented was that by Dr. Richard C. Cabot on

THE PROGNOSIS OF PLEURISY WITH SEROUS EFFUSION.

Dr. Cabot had carefully sought out the 300 patients treated for serous pleurisy at the Massachusetts General Hospital during two decades. He succeeded in finding either by letter or a personal visit 152 of these patients, who had been discharged, apparently recovered. Considering their conditions when treated and their progress after dismissal from the hospital he concluded: (1) That 80% of the cases of uncomplicated serous pleurisy are in good health after five years or more (more than half of his cases had been followed more than ten years); (2) 90% are apparently in full health at the end of from two to five years, that is, the pleurisy has no immediate connection with any other affection; (3) 15% of the cases have sooner or later developed tuberculosis, but in only 3% has this manifested itself within two years of the date of pleural effusion; (4) the type of tuberculosis was as a rule mild and of slow course; nevertheless a very rapid form of tuberculosis may develop many years after the pleurisy. Of those who develop tuberculosis, more than two-thirds presented tuberculous family histories.

His figures tended to prove that whether pleurisy means tuberculosis or not, the outlook is bright, provided no family history of tuberculosis clouds it. If pleurisy means tuberculosis, it is a very mild form and usually yields to proper treatment.

Dr. Osler expressed the thanks of the association to Dr. Cabot for his great labor in securing such statistics, and said that they proved that pleurisy with effusion is not such a grave matter as it has always been considered.

Dr. Harris of Manchester, England, took part in the discussion, and stated that the practice in England was based upon figures much more unfavorable than these. Life insurance companies there, as a rule, declined to accept any applicant who has had pleurisy within five years. He thought these rules were probably too strict, and that Dr. Cabot's figures would cause a reconsideration of the prognosis in this disease.

Dr. Jacobi stated in support of Dr. Cabot's figures the fact that it is so very common when examining healthy patients, or patients who complain of some other trouble, to find the evidences of an old pleurisy.

A CLINICAL STUDY OF ONE HUNDRED AND THIRTY-FIVE CASES OF EMPYEMA BASED UPON THE BACTERIOLOGICAL FINDINGS IN THE EXUDATE.

Dr. Charles F. Withington read this paper. The author found that while empyema may be caused by manifold infections within and without

the chest, in the majority of cases it is the result of pneumonia. Some cases certainly recover without operation, but it is difficult to determine in advance which these will be. The particular organism present is a less cogent factor in determining the need of operation than the fever, prostration, chills, quantity of pus present and the tendency to refill after aspiration. The great difficulty in securing healing in operative cases is in the bringing of opposite pleural surfaces into permanent contact.

DR. OSLER asked whether the author had found any great increase in the number of cases of pyemia following pneumonia during the past five years. It was reported to be so by Dr. White of Guy's Hospital, and Dr. Osler had had the same experience at the Hopkins.

DR. WITHINGTON stated that his experience had been the same; that there appears to be a great increase, and that his books showed a marked increase during the last two years.

SPONTANEOUS NON-TUBERCULOUS PNEUMOTHORAX.

DR. M. H. FUSSELL presented this paper. The definition given was: "A pneumothorax occurring suddenly in healthy individuals, without the cause being discoverable by physical examination or by the history of the case, and in which there is no formation of liquid." He reported in detail the histories of two cases and reviewed the literature of the subject. He finds that aspiration is a certain and safe means of relief and should be resorted to in severe or prolonged attacks. He believes this form of pneumothorax to be benign, since all but one of the reported cases have recovered.

DR. KINNICUTT reported a similar case, which made a good recovery after aspiration. In this case he could find no evidence of a lesion, either tuberculous or traumatic.

DR. COHEN had seen one case, but was not sure that he could exclude tuberculosis.

DR. F. C. SHATTUCK believed that in most of these cases there is probably a latent tuberculosis, and did not believe the absence of any physical signs of tuberculosis or the patient's recovery were sufficient to exclude its possible presence.

DR. JANEWAY remarked that he had seen several of these cases, and considered it a difficult problem to determine the etiological factor.

DR. PEABODY reported one case in which tuberculosis had been determined, and he believed it to be the likely cause in most cases.

DR. OSLER reported a case in which he had used the tuberculin test, but secured no reaction. He also called attention to the disproportionate signs in the early stages, that is, that there may be a very full chest, which is still very easily flattened.

DR. BILLINGS reported a case which had caused some dispute among consultants, the diagnosis resting between spontaneous pneumothorax and a hernia of the diaphragm — a point sometimes very difficult to determine.

SOME PULSATIONS IN THE CHEST OTHER THAN ANEURISMAL.

DR. A. R. EDWARDS read this paper. This consisted in the report of a case of pernicious enemia in which there was a diffuse expansile pulsation in the chest and upper abdomen, and a second case in which there was a sarcoma of the lungs with pulsation. The first case presented many symptoms of aneurism, but autopsy examination failed to disclose any anatomical explanation for these symptoms.

DR. LAFLEURE remarked in discussion that within the past two months he had had a similar experience. The case was one of secondary anemia, and the phenomena those usual for aneurism. But the autopsy showed an ulceration of the stomach which had not been previously recognized.

HEALED ULCERATIVE ENDOCARDITIS.

DR. J. B. HERRICK read this paper. He stated that we might, *a priori*, expect occasional recovery in ulcerative endocarditis, and that a review of the literature shows that such occasional recoveries do occur. Post-mortem findings also indicate the possibility of healing of the valvular lesion, and he reported clinical histories, together with the description of some autopsy specimens from other cases which seemed to confirm these views. He thought it important to make bacteriological blood examinations in these cases, since it would enable one to make a more careful prognosis and perhaps to secure better treatment.

In discussion Dr. Thayer reported a case, the symptoms of which justified the diagnosis of malignant endocarditis, and yet the patient recovered.

DR. KINNICUTT reported a somewhat similar case and Dr. JANEWAY added another.

DR. SHATTUCK said that he had seen two cases of ulcerative endocarditis recover, one under the use of antistreptococcus serum.

THE CONDITION OF THE HEART IN PREGNANCY.

DR. ALFRED STENGEL presented this paper. A demonstration of diagrams was given to show that the supposed hypertrophy of the heart was in most instances due simply to the dislocation of the apex. He thought the murmur so frequently heard in the later months is due to distention of the right heart and the conus arteriosis. He could find no change in the blood pressure before and immediately after delivery.

A CASE OF PANCREATIC LITHIASIS, WITH RECOVERY OF THE CHARACTERISTIC CALCULI FROM THE STOOLS, FOLLOWED BY AN ATTACK OF COLILITHIASIS A YEAR LATER, WITH THE PASSAGE OF CHARACTERISTIC BILIARY CALCULI.

DR. F. P. KINNICUTT reported this case. The history of this case is pretty well condensed in the title of this paper. Only six cases have been recorded in which either a positive diagnosis of pancreatic lithiasis was made, or such a patho-

logical process was suspected during life. The diagnosis of occlusion of the pancreatic ducts is difficult from the clinical symptoms, inasmuch as none of the subjective symptoms are characteristic, and the pain differs neither in kind nor location from that of colilithiasis. The only decisive evidence is the recovery of the characteristic concretions from the stools, and this is exceedingly rare.

Dr. Janeway said that he had seen a case of this kind with another physician, and the only way in which the diagnosis could have been made was by the chemical examination of the calculus, which, however, even to the naked-eye examination, looked different from the ordinary biliary calculus.

### A further contribution to the subject of vasomotor ataxia.

Dr. S. Solis Cohen contributed this paper. The author called attention to the condition of essential instability of the controlling apparatus of the vasomotor nervous system as a large factor in the defective reaction of the individual toward environmental changes, so that persons of the type described exhibit upon slight excitation, physical, chemical or psychic, certain phenomena which in other persons require causes of greater moment. These phenomena depend upon irregular and sometimes widely distributed contractions and dilatations of the capillaries and smaller blood vessels, and may be divided into three classes: (1) Those dependent upon excessive relaxation, or paresis of the vessels; (2) those dependent upon excessive constrictions of the vessels; (3) those in which phenomena of the two opposite groups are commingled, and this group is the more common. Graves' disease presents an extreme type of the first group, with paresis of cardiac inhibition. Its exciting causes are various and its toxico-pathologic mechanism undetermined. Raynaud's disease presents an excessive type of vascular constriction, and of it the same may be said concerning the causes and mechanism. Between these two extremes are many varieties differing much in severity and locality of symptoms: Simple urticaria; angioneurotic edema; migraine of the spastic type and migraine of the paretic type; anomalous eruptions of various kinds; drug idiosyncrasies; hay fever, and other more or less closely related phenomena. As definite exciting causes and definite toxico-pathological mechanisms are determined, definite nosological groups may be separated, and certain syndromes, like those of Graves and of Raynaud made into diagnostic entities. Over and above these remain many vague and ill-defined conditions arising in response to any one of a number of different stimuli, among which temperature, weather, toxins and emotion are most prominent. Essential vasomotor ataxia is usually a congenital condition, affecting in different ways several members of one family. At times it seems to be acquired in sequence to disease or accident.

### Intestinal hemorrhage; its relation to duodenal ulcer.

Dr. Henry Jackson read this paper. He reported the histories of several cases in which there had been symptoms suggestive of impending death from the immediate effects of profuse hemorrhage, and which illustrated well the difficulties of diagnosis and the determination of the location of the hemorrhage. He found that large hemorrhages, either from the stomach or bowel, are more likely to be dependent upon ulcer of the stomach or some other pathologic lesion than upon ulcer of the duodenum, but perforation is more common in ulcer of the duodenum than in ulcer of the stomach.

## Second Day.— Afternoon Session.

### The prognosis and treatment of tuberculous peritonitis.

Dr. F. C. Shattuck read this paper. He presented an analysis of ninety-eight cases of tubercular peritonitis treated in the Massachusetts General Hospital between 1889 and 1900, with special reference to the treatment. This was divided into purely medical treatment — tapping for the relief of effusion and surgical measures. Treatment by surgical means seemed to secure better results than by purely medical remedies.

### Some clinical manifestations of hepatic cirrhosis in the light of eighty autopsies.

Dr. G. G. Sears read this paper. Persistent jaundice and hemorrhage from the digestive tract seldom occurred until the connective tissue formation had well advanced. Hemorrhage was found to be almost invariably due to some gross lesion which in most cases was an esophageal varix. Ascites was also a late symptom, and its early appearance was usually due to other conditions than simple portal obstruction. Degenerative changes in the heart and probably in the vascular system were contributing factors. Continuous fever was never found except with complications. No evidence was found to show that the course of the disease is not always progressive. Operative treatment is indicated in a very small percentage of cases, and it is doubtful whether it is any more effective than early and persistent tapping.

### Clinical manifestations of the early stage of cirrhosis of the liver.

Dr. Frank Billings presented this paper. He presented an elaborate consideration of this subject, with the presentation of cases to illustrate the points brought out, but a comprehensive abstract of the paper is scarcely possible. It should be read in full.

### Experimental glycosuria from adrenalin chloride, and its relation to other forms of glycosuria dependent on the action of reducing substances on the cells of the pancreas.

Dr. C. A. Herter presented this paper. In this communication evidence was brought forth

to show that many and probably most forms of glycosuria and diabetes are due to the action of substances or conditions which interfere with normal oxidation in the cells of the pancreas. When adrenalin is brought in contact in unaltered form with the cells of the pancreas, a transient glycosuria results, associated with an increase in the glucose of the blood. This experimental glycosuria is most pronounced when the adrenalin is painted on the pancreas, and it was shown that similar applications to other organs does not produce glycosuria. Extended experimental inquiry brought to light the striking fact that substances possessing strong reducing power are capable of inducing glycosuria when applied directly to the pancreas.

The bearing of these facts upon various clinical matters relative to human glycosuria were discussed.

## Recent Literature.

*The Accessory Sinuses of the Nose.* Their Surgical Anatomy and the Diagnosis and Treatment of their Inflammatory Affections. By A. LOGAN TURNER, M.D., F.R.C.S., Surgeon for Diseases of the Ear and Throat, Deaconess Hospital, Edinburgh. With 40 plates and 81 figures. New York; Longmans, Green & Co. 1902.

This is a very attractive book to anyone who is interested in the subject of the title. It contains 200 pages, well and clearly printed, with many excellent anatomical plates. The first 50 pages are given to the anatomy of the sinuses and the nasal chambers. This is in every way good, clear and concise. The second 50 pages are devoted to the comparative anatomy of the frontal sinuses in human crania, a subject which the author has investigated at length, and which is taken up with a detail out of proportion to the other subjects in the book. Then follows an excellent chapter on transillumination, another subject of special research by the author. As explained in the preface, essays on these subjects form the basis from which the rest of the book has grown. The chapter on etiology and pathology, and the last, on treatment, are good but too short, especially on the subject of the ethmoid cells. The chapter on diagnosis is a simple review of the methods commonly used. As a whole the book is eminently satisfactory as a manual on the accessory sinuses, not overburdened with references and discussion, but giving judicially all important points.

*The International Medical Annual.* A Yearbook of Treatment and Practitioners' Index. By many contributors. New York and Chicago: E. B. Treat & Co. 1902.

Another edition of this well-known medical annual is before us, to which thirty-six writers have contributed. It preserves both the form and approximately the size that it has had for a number of years, and certainly fills a useful place in detailing the more recent advances in a wide field of medical practice. The illustrations are well executed, on special paper when necessary. In general, we cordially recommend the book to our readers, as we have done in preceding years.

*Quain's Dictionary of Medicine.* By Various Writers. Third edition. Largely rewritten and revised throughout. Edited by H. MONTAGUE MURRAY, M.D., F.R.C.P., assisted by JOHN HAROLD, M.B., B.Ch., B.A.O., and W. CECIL BOSANQUET, M.A., M.D., M.R.C.P. New York: D. Appleton & Co. 1902.

This third edition of "Quain's Dictionary of Medicine" is a bulky volume of 1,892 pages. The object in preparing this new edition is to produce a book which shall serve as a reliable and readily available work of reference for the practitioner and student of medicine. The plan of the book as originally outlined by Sir. Richard Quain has been preserved, of laying stress upon the diagnosis and treatment of disease, including a discussion of pathology and etiology. Certain articles appearing in former editions have been omitted and many new ones added. In general it may be said that the editors and contributors have clearly made every effort to produce a concise, accurate book relating to the broad field of medicine and surgery. The illustrations are for the most part entirely adequate, though not particularly numerous. Fourteen full-page plates in colors add to the attractiveness and usefulness of the book. The list of contributors, containing as it does many of the best known names in the profession in England, is a sufficient guarantee of the accuracy of the subject matter. We can unhesitatingly recommend this valuable work, which, though far less complete than "Buck's Handbook of the Medical Sciences," now appearing, has the accompanying advantage of less bulk. The publishers have done their work well.

*Manual of Childbed Nursing with Notes on Infant Feeding.* By CHARLES JEWETT, A.M., M.D., Sc.D., Professor of Obstetrics and Diseases of Women in the Long Island College Hospital. Fifth edition, revised and enlarged. New York: E. B. Treat & Co. 1902.

This small manual of 85 pages on obstetric nursing was originally prepared for use in connection with the author's lectures to his own nurses, and was afterwards adapted and published for general use. The book is an excellent one for its size, and in its use it should be remembered that it was not intended as a textbook, but as an aid to the nurse in remembering the more important teachings of her hospital training, and the plan of the author in putting the text into condensed and concise paragraphs has been adopted with success with that end in view.

The author ventures the hope that the book may be of service to mothers as well as nurses, a position with which we must disagree, as the less the average mother knows about the processes and technique of confinement work, the better it is for her peace of mind.

THE BOSTON

# Medical and Surgical Journal.

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283 Washington Street, Boston, Mass.

## THE YELLOW FEVER INSTITUTE.

We are in receipt of the first bulletins on the organization and progress of the Yellow Fever Institute, published from the United States Marine Hospital Service under the direction of Surgeon-General Walter Wyman. These bulletins are extremely interesting reading, from various points of view. In the first place, it must be a gratification to all physicians to feel that so deep an interest and such admirable work is being done by the official arms of the government in investigating the cause and spread of disease. In the second place, we are convinced that work undertaken in this manner and published abroad will not only be of the greatest value in the elucidation of the problems of disease, but will also tend to attract more and more young medical men of brilliant attainments to the service of the government. The object of the organization of this institute is to stimulate the spread of scientific investigation among officers of the corps and to secure the co-operation of all interested in the solution of the important problems of disease, in this instance, of yellow fever. The first meeting of the executive board was held Oct. 11, 1901, when, without dissenting voice, it was agreed that it was a matter of vital importance to investigate thoroughly all theories as to the origin and spread and methods of treatment of yellow fever. Invitations for membership were sent to various men prominent in bacteriological, pathological and clinical lines of work, with the result that the institute now numbers among its members men of the first standing in the profession, including many outside, as well as within, the ranks of the service. The various bulletins before us represent individual work on the subject of yellow fever in its various aspects. The question is considered from an historical point of view, and the appearance of the disease in various countries of the world, in Europe as well as in America, is discussed at considerable length. An experimental research on mosquitoes in baggage constitutes the sixth bulletin, and the occurrence of yellow fever and its quarantine management at Marseilles, France, concludes the pamphlet. We have no doubt that this work so auspiciously begun will grow to proportions which it is difficult now to estimate, and that most valuable information regarding this disease and, we hope later, of other allied disorders, may result.

## ANNUAL REPORT OF THE PAUPER INSTITUTIONS' TRUSTEES.

This city document is each year attaining a greater and greater importance to the medical profession. We have frequently before commented on the fact that out of an almshouse a hospital in the best sense of the term is gradually being evolved at Long Island. We have also alluded to the fact that this hospital provides for a certain class of patients who otherwise have practically no refuge, namely, the chronically sick of the city. A perusal of this fifth report of the trustees gives one an idea of how much has been accomplished in raising the standard of the entire institution, and particularly of its hospital department. In the course of their discussion of the present situation, the trustees remark that the greatest and most striking change is in the growth of the hospital department; that, whereas formerly the city maintained an almshouse to which a small hospital was attached, the requirements of the hospital now render it the most important feature of the Long Island Institution. The absolute need of such a hospital has long been apparent to those who have looked beneath the surface. Not only from the point of view of the sick who are sufficiently unfortunate to be afflicted with a chronic form of disease, but also from the broader point of view of medical study and teaching, it is apparent that such a hospital is absolutely demanded if the best work in many of the most subtle problems of medicine is to be accomplished. This opportunity the Long Island Hospital now certainly in a measure offers. Its disadvantages are manifest: it is difficult of access; it is closely associated in the popular mind with pauperism; it is only slowly gaining the recognition which it deserves, both from the community and from the profession at large. We are very sure, however, that the failure of adequate recognition is becoming a thing of the past and that the future will see even a fuller development of the hospital than is at present the case.

We note with gratification that the trustees, influenced possibly in a measure by the visiting staff, are seriously considering the possibility of removing the stigma of pauperism which attaches to the inmates of the hospital by changing its name and separating it more distinctly from the almshouse department. The justice of such action must be unquestioned, and it would certainly redound to the credit of the city if such a change could be made without accompanying drawbacks. We beg leave to direct the attention of our readers to the report of which we have been speaking, as an instance of the development of a much needed type of hospital in this community.

## INDUSTRIAL SCHOOL FOR CRIPPLED AND DEFORMED CHILDREN.

LIKE many institutions which are doing a large amount of good without much ostentation the Industrial School for Crippled Children in Boston finds itself in need of funds adequately to carry on its work. The object of this school is certainly a most worthy one. It aims to give a certain amount of preliminary education in primary and grammar school studies, as well as in certain industrial branches, to those who, through the misfortune of disease leading to deformity, are unable to take their places with other children. The school at present has not sufficient accommodations, with pupils numbering fifty-five and with a waiting list which is almost as large. The institution is broad in the dispensation of its charity. It is open to all crippled children regardless of race, color or religious belief. It is said that in spite of the inadequacy of the present building on Newbury Street, the pupils progress marvelously in their studies. They are apparently quick to learn, and, cut off as they are from many of the ordinary amusements of childhood, they naturally take a still deeper interest in their studies. It is hoped by those interested in the school that enough money may be raised for a new building which will not only be adequate to the present needs, but will permit of an enlargement of the school work in the future. It is estimated that a building suitable for one hundred pupils may be erected at a cost of $100,000. We have no doubt that this amount of money will be forthcoming, for it has certainly been shown that this work, with its many drawbacks and discouragements, is one which should be very much further developed. Such children are practical outcasts from society, and when they reach adult life it is altogether desirable that they should have some means of independent support. Experience has already justified the hope that this may be accomplished in large measure.

## MEETING OF THE AMERICAN LARYNGOLOGICAL ASSOCIATION AND PEDIATRIC SOCIETY.

WE are glad to make note of the fact that this year the American Laryngological Association and the American Pediatric Society will hold their annual meetings in Boston. It is probable that as the years go by this city will become a more and more popular place for these annual gatherings of medical men. With the new Medical Library Building, with the prospective buildings of the Harvard Medical School, together with the fact that Boston is not apt to be overwarm in the early spring and summer, the city should become a popular centre for this purpose. The fellows of the two associations will no doubt meet with a cordial welcome not only, we hope, from those particularly interested in the branches of medicine under discussion, but also from the profession at large, who are cordially invited to attend the various meetings. The programs, naturally, are somewhat technical in character, but, nevertheless, contain many papers which are always of interest to practitioners in other lines. One of the sessions of the Laryngological Association is to be held at the Harvard Medical School, where papers on general matters regarding the development of the tonsils and anatomical points relating to the face and the bones of the nose are to be given by Drs. Minot, Dwight and Lothrop of the Harvard Medical School. We wish the associations every success in their Boston meetings.

## MEDICAL NOTES.

THE CAMPAIGN AGAINST MOSQUITOES IN NEW JERSEY.— It is reported that the governor of New Jersey has assigned $1,000 from the State Emergency Fund to Prof. John B. Smith, the State entomologist, for the purpose of beginning a campaign against mosquitoes. A considerable area will be covered and other experts will be brought into the work, particularly with relation to the propagation of malaria, and also to a study of the vertebrates which feed upon mosquitoes.

COMPLIMENTARY DINNER TO SURGEON-GENERAL STERNBERG.— A committee composed of twenty-six prominent physicians has tendered a dinner to Surgeon-General Sternberg in recognition of his long-continued, varied and important scientific and professional labors and of his high personal character. The dinner will be held at New York on June 13, 1902.

SMALLPOX IN CHICAGO.— Ten out of the 19 new cases of smallpox discovered in Chicago last week were among negroes, and since the first of the year this factor of the population, numbering

only 1.3% of the total, has furnished 35% of all cases. The colored pastors, physicians, lawyers and other influential leaders of the race, having been made acquainted with these facts, are taking steps to secure general vaccination and to promote sanitation among their people, in order that this stigma may be removed.

An Epidemic of Smallpox.— An epidemic of smallpox among the 2,000 patients in the Long Island State Hospital for the Insane at Kings Park, L. I., is reported.— *American Medicine.*

BOSTON AND NEW ENGLAND.

Acute Infectious Diseases in Boston.— For the week ending at noon, May 21, 1902, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: Diphtheria 27, scarlatina 22, measles 109, typhoid fever 13, smallpox 38.

An Enlargement of the Lynn (Mass.) Hospital.— It is proposed to add to the Lynn hospital by a building of brick about 83 feet in length and 37 feet in width. This new wing of the hospital will be two stories in height and provided with various modern conveniences. The upper story will be used for private patients. This addition is to be built with funds secured by private subscription, and it is hoped that $50,000 may be raised for the purpose. The hospital facilities in Lynn for some time have been inadequate to meet the demands made upon them.

The Mosquito Question in Brookline, Mass. — Dr. H. Lincoln Chase, agent of the Brookline Board of Health, plans to attempt the extermination of mosquitoes in Brookline. Economy is urged, and from the report at hand a very small force will be available for this important work, which it is hoped may be carried out in spite of an apparent lack of co-operation on the part of the town government.

Additions to Newton (Mass.) Hospital.— Two additions to the Newton (Mass.) hospital were formally opened May 16. These were the new north pavilion of the contagious ward and the new Thayer ward for men. Both buildings are of one story and built of fireproof red brick. One of these buildings takes the place of the Thayer ward which was destroyed by fire a year ago.

A Centenarian.— Jarvis B. Bardwell, one of the oldest men in the State, has died at his home in Shelburne Falls at the reputed age of 100 years.

NEW YORK.

Mortality Statistics.— In the quarterly report of the Bureau of Records, New York Health Department, for the three months ending March 31, 1902, which has just been issued, it is stated that the comparative mildness of the periodic visitation of influenza during the first quarter of the present year resulted in 609 fewer deaths, attributed directly to this cause, than in the corresponding quarter of 1901, and, judging from past experience, a corresponding decrease in the number of deaths from diseases of the respiratory tract was to be looked for. There were, however, 344 more deaths from pneumonia and acute bronchitis during the quarter just passed, this increase being explainable by an epidemic of measles, commencing in the early part of December and reaching its height in March, which caused 349 deaths in this quarter, as against 63 deaths from measles in the corresponding quarter of last year. The increased mortality from pneumonia and acute bronchitis following in the train of this outbreak of measles was confined entirely to deaths of children under five years of age. Apropos of this, there were 6,228 deaths under five years during the first quarter of 1902, and 5,169 deaths under five years during the first quarter of 1901, a difference of over 1,000 deaths. It is gratifying to note that there were 262 fewer deaths from pulmonary tuberculosis, as compared with the corresponding quarter of last year. Another noteworthy fact is that the deaths from cancer are lower by 8% than in the corresponding quarter of 1901, making the first break in the long line of continually increasing mortality from this disease. During the first quarters of the years 1898 to 1902 the figures in this disease have been as follows: 1898, 447 deaths; 1899, 496; 1900, 592; 1901, 612; 1902, 565.

Meeting of American Therapeutic Society. — The annual meeting of the American Therapeutic Society was held at the New York Academy of Medicine on May 13, 14 and 15. Prominent features of the proceedings were symposia on "Valvular Diseases of the Heart" and on the "Treatment of Pulmonary Tuberculosis," and a series of reports on "Recent Advance in Special Therapeutics," by eminent specialists in the various departments of medicine and surgery from different cities. On the evening of May 13 the president, Dr. Reynold W. Wilcox of New York, entertained the society at a reception and supper at the Metropolitan Club, and on the evening following the annual dinner was held at the Waldorf-Astoria. The following officers were elected: President, Dr. T. E. Satterthwaite, New York; First Vice-President, Dr. H. H. Barker, Washington; Second Vice-President, Dr. J. N. Hall, Denver; Third Vice-President, Dr. O. T. Osborne, New Haven; Secretary, Dr. N. P. Barnes, Washington; Recorder, Dr. W. N. Sprigg, Washington; Treasurer, Dr. J. S. McLain, Washington; Curator, Dr. Geo. C. Ober, Washington.

Damages for Death of a Child.— On the trial of an action brought against a certain contracting company by George Terhune, to recover damages for negligently causing the death of his six-year-old daughter, the jury gave the plaintiff a verdict for $600. A decision of Justice Leventritt, before whom the case was tried, which granted a motion of plaintiff's counsel to set aside the verdict as inadequate, has now been reversed by the Appellate Division of the New York Supreme Court. It is held that under the statute giving a cause of action to the administrator or executor of a person whose death is caused through the alleged negligence of another, it is within the province of the jury to award what they think is a just compensation. Justice Ingraham, in giving the opinion of the court, said that whether the child's continued life would have been a pecuniary advantage to her father, over and above the outlay necessary for her support, was most problematical, and it could not with any certainty be said that her death caused a pecuniary loss to her father.

Health Report for April.— The reports of the Health Department show that during the month of April the mortality in the city represented an annual death-rate of 19.83, against 19.76 in March, and 20.67 in April, 1901. The corrected death-rate for the month, excluding nonresidents and infants under one week old, was 18.95, against 18.86 in March. Among the diseases which showed an increase in mortality were the following: The weekly average of deaths from diphtheria and croup increased from 38.75 in March to 45 in April; the weekly average from smallpox, from 9.5 to 13.25; from whooping cough, 11.75 to 12.75; from cancer, 47 to 48.5; and from diseases of the urinary system, 119 to 122. Among the diseases which showed a decline in mortality were the following: The weekly average of deaths from scarlet fever decreased from 25.5 to 23.5; from measles, 23.5 to 22; from pneumonia, 161.25 to 146.5; from phthisis, 170.5 to 158.5; and from influenza, 8 to 4.25.

Sidewalk Expectoration a Misdemeanor.— At a meeting of the Board of Health held May 15 its code was amended so as to make it a misdemeanor to spit on the sidewalks, as well as on the floors of cars, railway stations, ferry-houses and other public places. This action was taken on the recommendation of Dr. H. M. Biggs, the medical officer of the board, who stated in a letter that the action of the department taken six years ago had been productive of much good, and that there was still less excuse for spitting on the sidewalks than in the other places mentioned. A grave feature of such pollution, he said, is the inevitable transmission of the always objectionable and dangerous material on the footwear, clothing and particularly the skirts of women, into private houses, where it is a constant menace to the welfare of the occupants, whose attempts to maintain salubrious conditions are thus rendered futile.

Resignation of a Medical Staff.— The entire medical staff of the Jamaica Hospital, at Jamaica, borough of Queens, consisting of nine members, has resigned because of the refusal of the women board of managers to rescind a resolution providing for a double staff, including homeopathic as well as regular physicians. About two years ago three homeopaths, the only ones in the town, were appointed on the staff, but, in consequence of the objections raised by the other members, they soon resigned. At the present time these three, reinstated in their positions, are said to be in charge of the hospital. The physicians of the old staff, after sending in their resignations, organized a Jamaica Medical Association, to be devoted to the interests of the regular profession in the town.

Mr. Charles M. Schwab as Philanthropist. — Mr. Charles M. Schwab, president of the United States Steel Corporation, has purchased the property known as Richmond Beach, Staten Island, for the purpose of making it a summer resort for the poor and sick children of New York. It comprises a mile of ocean beach, a fine fresh water lake, and a considerable amount of high wooded land. The buildings on the property will be altered to meet the requirements of such a charity, and it is expected that from 1,500 to 2,000 children can be cared for daily. They will probably be conveyed to the beach on a large steamer, and will thus have the additional benefit and pleasure of a fine salt water sail.

Bequest to Long Island College Hospital. — Among the bequests of Henry W. Maxwell, a well-known financier and philanthropist of Brooklyn, who died on May 11, is $20,000 to the Long Island College Hospital. Some time ago he gave $60,000 to the hospital for the erection and equipment of an operating theatre, and a like sum for a nurses' domitory in connection with the institution. He also liberally endowed Maxwell House in Brooklyn, and was said to donate $300,000 annually to charitable purposes. At the time of his death he was president of the Long Island College Hospital and treasurer of the Polhemus Clinic.

Appointment of Police Surgeons.— Drs. Frank R. Oastler and Charles A. Elsberg have been appointed police surgeons. In the recent civil service examination for the two positions vacant in the board of surgeons the name of Dr. Oastler was at the head of a list of a very large number of applicants.

# Miscellany.

## PHYSICAL CULTURE IN ITALY.

The Royal Commission, consisting of Professor Angelo Mosso, chairman, Deputy Luigi Credaro, and Commendatore Gennaro, appointed by the Italian government some time ago to investigate the means of improving physical training in Italy, has finished the first part of its labors. In their report the commissioners unanimously recommend that the Minister of Education should order an inquiry into the existing conditions of physical education in Italy. They have drawn up a schedule of questions to be sent by the minister to heads of institutions, asking why effect has not been given to the De Sanctis law of 1878, which made gymnastics compulsory. The commissioners also call the attention of the minister to the fact that the law of 1878 no longer corresponds to the standard required by the progress of medicine, hygiene and social pedagogy. They lay stress on the need for new legislation, as in the old law there is no provision for the physical education of the people. They urge that Italy should follow the example of other civilized nations, in which universities are the most active centres for the development of physical education. They propose that every pupil should have a book in which his physical condition at different periods may be recorded. This is necessary in view of the ordinance making gymnastic compulsory, and as a means of prophylaxis against infectious diseases, and obtaining a better knowledge of the physical development in youth. The commissioners further urge that the government should exercise a more active supervision over physical education in private schools, and suggest that strict rules should be established as to meals and other things connected with the maintenance of health in schools.—*British Medical Journal.*

## METEOROLOGICAL RECORD

For the week ending May 10, in Boston, according to observations furnished by Sergeant J. W. Smith of the United States Signal Corps:

| Date | Barometer | Thermometer. | | | Relative humidity. | | | Direction of wind. | | Velocity of wind. | | Weather* | | Rainfall in inches. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Daily mean. | Daily mean. | Maximum. | Minimum. | 8.00 A.M. | 8.00 P.M. | Daily mean. | 8.00 A.M. | 8.00 P.M. | 8.00 A.M. | 8.00 P.M. | 8.00 A.M. | 8.00 P.M. | |
| S....4 | 30.20 | 48 | 52 | 44 | 75 | 90 | 82 | N E | S E | 12 | 7 | F. | R. | T. |
| M...5 | 29.98 | 58 | 69 | 47 | 91 | 72 | 82 | S W | N | 15 | 7 | O. | C. | .14 |
| T...6 | 30.14 | 56 | 63 | 49 | 59 | 50 | 54 | N | S | 7 | 15 | C. | O. | |
| W...7 | 29.79 | 61 | 73 | 49 | 88 | 52 | 70 | S | N W | 12 | 15 | O. | O. | .05 |
| T...8 | 29.84 | 62 | 72 | 53 | 56 | 46 | 51 | N W | W | 13 | 8 | C. | C. | |
| F...9 | 29 70 | 52 | 65 | 40 | 58 | 49 | 54 | W | N W | 21 | 22 | C. | C. | T. |
| S...10 | 30.05 | 42 | 51 | 34 | 54 | 42 | 48 | W | N W | 24 | 14 | C. | C. | |
| ☞ | 29.96 | | 64 | 45 | | | 63 | | | | | | | .19 |

*O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow. †Indicates trace of rainfall. ☞ Mean for week.

## RECORD OF MORTALITY

For the Week ending Saturday, May 10, 1902.

| Cities. | Population Estimated, 1902. | Reported deaths in each. | Deaths under five years. | Percentage of deaths from | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | Infectious diseases. | Acute lung diseases. | Diphtheria and croup. | Typhoid fever. | Cerebro spinal meningitis. |
| New York . . | 3,665,352 | 1,344 | 419 | 25.59 | 15.62 | 3.27 | 1.04 | .22 |
| Chicago . . | 1,852,828 | 549 | 152 | 17.17 | 17.84 | .91 | 1.09 | .18 |
| Philadelphia. | 1,349,624 | 456 | 106 | 22.14 | 12.27 | 1.53 | 3.29 | — |
| St. Louis . . | 603,717 | — | — | — | — | — | — | — |
| Baltimore . . | 525,330 | 188 | 51 | 24.47 | 12.23 | 1.06 | 1.06 | — |
| Cleveland . . | 411,826 | — | — | — | — | — | — | — |
| Buffalo . . . | 375,742 | — | — | — | — | — | — | — |
| Pittsburg . . | 341,401 | 134 | 49 | 22.38 | 19.39 | — | — | — |
| Cincinnati . | 332,032 | — | — | — | — | — | — | — |
| Milwaukee . | 304.975 | — | — | — | — | — | — | — |
| Washington . | 289,537 | — | — | — | — | — | — | — |
| Providence . | 185,870 | 61 | 13 | 26.24 | 9.84 | 1.64 | — | 1.64 |
| Boston . . . | 588,736 | 206 | 49 | 23.76 | 17.94 | .97 | 1.94 | — |
| Worcester. . | 127,337 | 33 | 10 | 9.09 | 24.24 | — | — | 3.03 |
| Fall River. . | 111.872 | 35 | 18 | 14.28 | 17.14 | 2.86 | — | — |
| Lowell . . . | 99,574 | 30 | 9 | 2.33 | 20.00 | — | — | — |
| Cambridge . | 96,334 | 19 | 6 | 31.56 | 10.52 | 5.26 | — | — |
| Lynn. . . . | 71,144 | 22 | 3 | 22.72 | 13.63 | 9.09 | — | — |
| Lawrence . . | 67,275 | 21 | 10 | 28.57 | 14.28 | 4.76 | 4.76 | — |
| Springfield . | 66,854 | 39 | 9 | 20.52 | 10.26 | 5.12 | — | — |
| Somerville . | 65,882 | 19 | 2 | 15.78 | 15.78 | — | — | 5.26 |
| New Bedford. | 65,574 | 29 | 12 | 13.79 | 13.79 | — | 3.44 | 3.44 |
| Holyoke . . | 48,065 | 14 | 5 | 7.14 | 7.14 | — | — | — |
| Brockton . . | 43,208 | 12 | — | 33.33 | — | — | — | — |
| Haverhill . . | 40,392 | 17 | 12 | 35.28 | 23.52 | 5.88 | — | — |
| Salem . . . | 36,567 | 14 | 2 | 14.28 | 21.42 | 7.14 | 7.14 | — |
| Newton. . . | 36,336 | 14 | 1 | 14.28 | — | — | — | — |
| Malden . . . | 35,390 | 7 | — | 28.60 | 14.30 | — | — | — |
| Chelsea. . . | 35,264 | 13 | 3 | 15.40 | — | 7.70 | 7.70 | — |
| Fitchburg. . | 33,848 | — | — | — | — | — | — | — |
| Taunton . . | 32,759 | 8 | 1 | 37.50 | 25.00 | 12.50 | — | — |
| Everett. . . | 27,114 | 5 | — | — | — | — | — | — |
| North Adams | 26,583 | 5 | — | 20.00 | 40.00 | — | — | — |
| Gloucester . | 26,121 | 5 | 2 | 20.00 | — | — | — | — |
| Quincy . . . | 25,307 | 7 | 1 | 57.20 | — | — | — | 14.30 |
| Waltham . . | 24,612 | 8 | 1 | 12.50 | — | — | 12.50 | — |
| Pittsfield . . | 22,311 | 8 | — | 25.00 | 25.00 | — | — | — |
| Brookline. . | 21,679 | — | — | — | — | — | — | — |
| Chicopee . . | 20,390 | 8 | 4 | — | 37.50 | — | — | — |
| Medford . . | 20,014 | 5 | 2 | 20.00 | 20.00 | — | — | — |
| Newburyport | 14,478 | 4 | 2 | — | 25.00 | — | — | — |
| Melrose . . | 13,384 | 2 | 1 | 50.00 | — | — | — | 50.00 |
| Westfield . . | 13,038 | 3 | 1 | — | 33.33 | — | — | — |
| Attleboro . . | 12,846 | — | — | — | — | — | — | — |
| Adams . . . | 12,813 | — | — | — | — | — | — | — |
| Milford . . | 12,516 | — | — | — | — | — | — | — |
| Framingham | 12,109 | 3 | — | — | — | — | — | — |
| Peabody . . | 11,957 | — | — | — | — | — | — | — |
| Revere . . . | 11,894 | 4 | — | — | — | — | — | — |
| Gardner . . | 11,544 | 3 | — | 33.33 | 33.33 | — | — | — |
| Weymouth . | 11,337 | 2 | — | — | — | — | — | — |
| Southbridge . | 10,838 | 3 | 2 | — | 66.67 | — | — | — |
| Watertown . | 10,600 | — | — | — | — | — | — | — |
| Plymouth . . | 10,336 | — | — | — | — | — | — | — |

Deaths reported 3,393; under five years of age, 965; principal infectious diseases (smallpox, measles, scarlet fever, cerebrospinal meningitis, diphtheria and croup, diarrheal diseases, whooping cough, erysipelas, fevers and consumption) 763, acute lung diseases 522, consumption 344, scarlet fever 68, erysipelas 16, typhoid fever 46, whooping cough 28, cerebrospinal meningitis 11, smallpox 19, measles 37, diarrheal diseases 67.

From whooping cough, New York 13, Chicago 3, Philadelphia 7, Baltimore 2, Pittsburg 2, Gloucester 1. From measles, New York 20, Chicago 1, Philadelphia 5, Baltimore 1, Pittsburg 6, Boston 1, Haverhill 3. From erysipelas, New York 7, Chicago 2, Philadelphia 2, Pittsburg 2, Boston 2, Quincy 1. From smallpox New York 9, Chicago 1, Philadelphia 2, Pittsburg 1, Boston 6.

In the seventy-six great towns of England and Wales, with an estimated population of 14,862,003, for the week ending April 26, the death-rate was 17.0. Deaths reported 4,851; acute diseases of the respiratory organs (London) 315, whooping cough 158, diphtheria 74, measles 132, smallpox 55, scarlet fever 43.

The death-rate ranged from 6.9 in Hornsey to 33.3 in Merthyr Tydfil; London 17.4, West Ham 14.0, Croydon 7.2, Brighton 17.2, Portsmouth 14.1, Southampton 11.1, Bristol 15.7, Birmingham 19.0, Leicester 13.3, Nottingham 16.5, Birkenhead 11.6, Liverpool 21.1, Manchester 19.7, Salford 21.4, Bradford 16.5, Leeds 18.5, Sheffield 18.6, Hull 17.4, Newcastle-on-Tyne 20.5, Cardiff 15.4.

## OFFICIAL LIST OF THE CHANGES OF STATION AND DUTIES OF COMMISSIONED AND NON-COMMISSIONED OFFICERS OF THE U. S. MARINE HOSPITAL SERVICE FOR THE SEVEN DAYS ENDING MAY 8, 1902.

GASSAWAY, J. M., surgeon. Leave of absence for three days under paragraph 179 of the regulations.

STONER, G. W., surgeon. Leave of absence for one day, May 2, 1902, under paragraph 179 of the regulations.

WASDIN, EUGENE, surgeon. Leave of absence for seven days from May 2, 1902, under paragraph 179 of the regulations.

CARRINGTON, P. M., surgeon. Bureau order of April 30, 1902, detailing Surgeon Carrington to represent the service at American Congress of Tuberculosis, revoked. May 7, 1902.

GUITERAS, G. M., passed assistant surgeon. Relieved from duty at Matanzas, Cuba, and directed to proceed to Philadelphia, Pa., and report to medical officer in command for duty. May 5, 1902.

WERTENBAKER, C. P., passed assistant surgeon. Leave of absence for three days from May 3, 1902, under paragraph 179 of the regulations.

ROSENAU, M. J., passed assistant surgeon. To proceed to Wilmington, Cape Fear Quarantine (Southport), and Beaufort, N. C., as inspector; and inspector of unserviceable property at Wilmington and Cape Fear. May 2, 1902.

VON EZDORF, R. H., assistant surgeon. Upon being relieved by Acting Assistant Surgeon A. B. McDowell, to proceed to Matanzas, Cuba, relieving Passed Assistant Surgeon G. M. Guiteras. May 5, 1902.

FRICKS, L. D., assistant surgeon. Relieved from duty at Chicago, Ill., and directed to proceed to Boston, Mass., and report to medical officer in command for duty and assignment to quarters, relieving Assistant Surgeon John McMullen. May 7, 1902.

VOGEL, C. W., assistant surgeon. Leave of absence for fifteen days granted Assistant Surgeon Vogel by Bureau letter of April 18, 1902, revoked. May 3, 1902. Relieved from duty at San Francisco, Cal., and directed to proceed to Dutch Harbor, Alaska, and assume command of the service. May 3, 1902.

LLOYD, B. J., assistant surgeon. Relieved from duty at San Francisco Quarantine, and directed to proceed to Nome, Alaska, for special temporary duty, assuming command of the service. May 3, 1902.

BORFORD, HUGH, acting assistant surgeon. Granted leave of absence for two weeks from May 5. May 7, 1902.

FOSTER, A. D., acting assistant surgeon. Granted leave of absence for fourteen days from May 17. May 6, 1902.

MCCONNELL, E. F., acting assistant surgeon. Relieved from duty at Havana, Cuba, and directed to proceed to Nuevitas, Cuba, relieving Acting Assistant Surgeon O. W. Stone. May 5, 1902.

MCDOWELL, A. B., acting assistant surgeon. Relieved from duty at Havana, Cuba, and directed to proceed to Santiago, Cuba, relieving Assistant Surgeon R. H. von Ezdorf. May 5, 1902.

STONE, O. W., acting assistant surgeon. Upon being relieved by Acting Assistant Surgeon E. F. McConnell to proceed to his home and await annulment of appointment as acting assistant surgeon. May 7, 1902.

WALKER, AGNES, acting assistant surgeon, Granted leave of absence for fourteen days from May 17. May 6, 1902.

WALKLEY, W. S., acting assistant surgeon. Granted leave of absence for seven days from May 7. May 2, 1902.

HUME, LEA, sanitary inspector. Granted leave of absence for thirty days from May 1. May 3, 1902.

MASON, M. R., senior pharmacist. Relieved from duty at San Francisco, Cal., and directed to proceed to Dutch Harbor, Alaska, and report to Assistant Surgeon C. W. Vogel for duty. May 3, 1902.

HOLT, F. M., junior pharmacist. Granted leave of absence for thirty days from May 1. May 2, 1902.

SPANGLER, L. C., junior pharmacist. Granted leave of absence for fifteen days from May 10. May 2, 1902.

### BOARDS CONVENED.

Board convened to meet at the marine hospital, Baltimore, Md., May 5, 1902, for the physical examination of certain officers of the Revenue Cutter Service. Detail for the Board: Surgeon H. R. Carter, chairman; Passed Assistant Surgeon J. A. Nydegger, recorder.

Board convened to meet at the marine hospital, New Orleans, La., for the physical examination of such officers of the Revenue Cutter Service as may present themselves, May 12, 1902. Detail for the Board: Passed Assistant Surgeon C. P. Wertenbaker, chairman; Assistant Surgeon J. W. Schereschewsky, recorder.

Board convened to meet at the marine hospital, Boston, Mass., May 12, 1902, for the physical examination of such officers of the Revenue Cutter Service as may present themselves. Detail for the Board: Surgeon Fairfax Irwin, chairman; Assistant Surgeon John McMullen, recorder.

## SOCIETY NOTICES.

AMERICAN PEDIATRIC SOCIETY.—The American Pediatric Society will hold its annual meeting in Boston on May 26, 27 and 28, 1902.

BOSTON SOCIETY FOR MEDICAL IMPROVEMENT.—A special meeting of the society will be held at Sprague Hall, Medical Library, on Friday evening, May 23, at 8.15 P.M., to consider the report of the committee on the formation of an academy of medicine.

ARTHUR K. STONE, M.D., Secretary,
543 Boylston Street.

MAINE MEDICAL ASSOCIATION.—The fiftieth annual meeting will be held in Common Council Chamber, City Building, Portland, Me., Wednesday, Thursday and Friday, June 4, 5 and 6, 1902.

AMERICAN LARYNGOLOGICAL, RHINOLOGICAL AND OTOLOGICAL SOCIETY.—The eighth annual meeting of the American Laryngological, Rhinological and Otological Society will be held in Washington, D. C., June 2, 3 and 4, 1902.

AMERICAN GYNECOLOGICAL SOCIETY.—The twenty-seventh annual meeting of the American Gynecological Society will be held at Atlantic City, New Jersey, May 27, 28 and 29, 1902.

## RECENT DEATHS.

DR. JOHN G. ELLIOTT, assistant physician at the Hudson River State Hospital for the Insane at Poughkeepsie, N. Y., died suddenly of cardiac disease on May 12, at the age of thirty-one. He was a native of England and a graduate of the University of Buffalo Medical School.

DR. LYMAN BEECHER TODD of Lexington, Ky., is dead at the age of seventy. He was a cousin of President Lincoln's wife and was in attendance at the bedside when Lincoln died. Dr. Todd was one of the best known men in Kentucky, having been closely associated with President Lincoln for many years.

DR. MARIE E. ZAKRZEWSKA, one of the pioneer women physicians of Boston and founder of the New England Hospital for Women and Children, died last week at her home in Jamaica Plain, Mass. Dr. Zakrzewska in her earlier life was associated with the other pioneers in medicine among women, Drs. Elizabeth and Emily Blackwell of New York. From that time on her life had been active in the cause of medical education for women, and she met with a hearty response from various men and women of Boston in her efforts to found the New England Hospital for Women and Children. She took an extreme interest in her profession and all that pertained thereto, and devoted the working part of her life of about seventy-three years to the development of hospital facilities for women and to her medical practice, which was at one time large.

## BOOKS AND PAMPHLETS RECEIVED.

An Introduction to Physiology. By William Townsend Porter, M.D. Part IV. Physiological Optics. Cambridge: The University Press. 1902.

A Laboratory Guide in Elementary Bacteriology. By William Dodge Frost, M.S. Illustrated. Second revised edition. Madison, Wis. 1902.

Ophthalmic Myology. A Systematic Treatise on the Ocular Muscles. By G. C. Savage, M.D. Illustrated. Nashville, Tenn.: Published by the Author. 1902.

Transverse Supra-Pubic Division of the Skin in Performing Abdominal Section. By Henry J. Kreutzmann, M.D., San Francisco, Cal. Reprint. 1901.

Superheated Compressed Air in the Therapeutics of Chronic Catarrhal Otitis Media. By George W. Hopkins, M.D., Cleveland, O. Illustrated. Reprint. 1902.

The Diagnosis of Surgical Diseases. By Dr. E. Albert. Authorized translation from the eighth enlarged and revised edition by Robert T. Frank, A.M., M.D. Illustrated. New York: D. Appleton & Co. 1902.

Progressive Medicine. A Quarterly Digest of Advances, Discoveries and Improvements in the Medical and Surgical Sciences. Edited by Hobart Amory Hare, M.D., assisted by H. R. M. Landis, M.D. Volume I, March, 1902. Philadelphia and New York: Lea Brothers & Co. 1902.

# Original Articles.

## AN ABSTRACT OF SOME OF THE PREVAILING OPINIONS ON THE PERIODS OF INCUBATION, OBSERVATION AND ISOLATION OF SOME OF THE INFECTIOUS DISEASES.*

BY ELBRIDGE G. CUTLER, M.D., BOSTON.

(Concluded from No. 21, p. 536.)

### MEASLES.

*Incubation.*— Ten days, as a rule, elapse between the reception of the poison into the system and the manifestation of the earliest febrile and catarrhal symptoms, or 14 days between the infection and the appearance of the rash. These are Panum's estimates, based on his observations in a newly infected community of the Faroe Islands in 1848.

Hebra successfully inoculated with the nasal mucus, and found the symptoms showed themselves in eight days, the difference in time representing the effect of the resistance offered to the invading virus by the skin and mucous membrane. The stage of incubation is shortened after inoculation.

Moore gives the following experiences of March 26, 1876: A married lady, age 21, fell ill of measles. Her parlor maid had sickened with the same disease 10 days previously, that is, on March 17. At 3 P. M. on the 26th inst. she felt thirsty, chilly and fatigued, and her appetite failed. The rash appeared on the face of the patient on the 30th (fifth day). The fastigium, 103.4° F., was reached at 1 P.M. of April 1 (seventh day), when the eyes were suffused. Defervescence was complete on April 3. In this case the duration of the latent period was almost certainly 10 days.

In the spring of 1877 both measles and scarlatina were prevalent in Dublin, and it was difficult effectually to isolate the incoming cases in the epidemic wards of the general hospitals. In two instances, at the Meath Hospital, scarlatina patients unfortunately contracted measles while convalescing. In both cases the symptoms of measles were detected on the eleventh day after exposure, that is, on the eleventh day after admission to the hospital.

Owing to the fact that measles is infectious from the outset, and that the first case in a household may be readily mistaken for a common cold, the attempt to arrest its spread by adopting preventive measures, especially isolation, is practically futile. Hence the difficulty of arresting an outbreak of this disease in a family or community. Should an individual have been exposed to the infection of measles, at least 16 days' quarantine will be necessary before he can be pronounced safe.

A patient who has passed through an attack of measles should not be declared free from infection until at least three, and preferably four, weeks have elapsed from the first symptoms. It will be remembered that the stage of desquamation generally lasts until the eighteenth day (Moore).

Williams[30] says the interval between exposure and the prodromal symptoms is usually 10 days, but may be as short as five and perhaps four. On the other hand it may be as long as 14 days, in which case the rash would not appear until the seventeenth or eighteenth or even nineteenth day after infection. Though the period of about 14 days from exposure to the appearance of the rash is that met with in the vast majority of cases, it is important to recognize that it may be four or five days longer, since such exceptional cases must be taken into account in estimating the period for which a susceptible person who has been exposed to infection should be isolated from other persons who have not had the disease. An interval of a full fortnight must be allowed, and at the end of that time the person must be free from fever, catarrh and photophobia before it can be said that he has escaped infection.

Griffiths[31] says the majority of observations agree in fixing the incubation period at 10 to 12 days.

Hochsinger[32] gives 10 days as the period of incubation.

Crandall[33] says it may range from 9 to 21 days. Among 144 cases Holt found it to be between 11 and 14 days in 66%. Crandall has seen repeatedly the initial symptoms appear 12 days after exposure. He thinks 12 days is the most common period of incubation. Except in complicated cases, in which the catarrhal symptoms are prolonged, the period of infection is not over 28 days.

Williams[34] says the duration of the interval between exposure to the infection and the appearance of the rash is usually 14 days. Almost as often it is a day more or a day less. The pre-eruptive, or prodromal, stage is of uncertain duration. It may be one day or may extend to five days. The incubation period of measles is therefore two or three days; as a rule, less than the interval above mentioned, and probably in most cases it is 11 or 12 days. It is believed to have a tendency to be short in cases where the subsequent attack is severe, with high and protracted pyrexia; and, on the other hand, a long period of incubation is said to be followed usually by a mild attack. When produced by inoculation, the period of incubation is said to be seven or eight days.

*Observation.*— The period of observation recommended by the Report of the London Clinical

* The accompanying abstract was prepared for the committee of the Boston Society of Medical Improvement appointed to consider the "Periods of Incubation, Observation and Isolation of certain of the Infectious Diseases," and forms the basis of their report to the society. The report was read at the meeting of the society on Jan. 20, 1902, and was accepted. The committee consisted of S. H. Durgin, M.D., Chairman; J. H. McCollom, M.D., E. G. Cutler, M.D., J. L. Morse, M.D., and R. C. Cabot, M.D.

[30] Allbutt's System of Medicine, 1897, ii, 102.
[31] American System of Practical Medicine, i, 627.
[32] Diagnostisches Lexikon, 1894, p. 155.
[33] Cyclopedia of the Diseases of Children, 1889, Supplement, v, 245.
[34] Twentieth Century Practice of Medicine, 1898, xiii, 374.

Society is 14 days, and at the end of that time the patient must be free from fever or catarrh.

The "Code of Rules for the Prevention of Infectious and Contagious Diseases in Schools" fixes 16 days as the period of observation.

*Isolation.*— The infectiousness of measles exists from the earliest period of the developed disease. There is no notable diminution of the power of infectiousness during the whole acute stage, and there is no doubt that a patient may often be capable of conveying measles to another after convalescence has advanced far enough to allow him to go back to his usual avocations. It is well established that infection is more often spread during the prodromal period. The period of isolation should extend to three weeks at least, and the patient should be free from all desquamation and cough before being allowed to mix with susceptible children. The infective principle has a low power of maintaining itself outside of the body, and does not survive long in fomites under ordinary circumstances.

CHICKEN-POX.

*Incubation.*— Moore states: The stage of latency is believed to be, on an average, about as long as that of smallpox, namely, 12 days. Makuna states that it varies from 8 to 17 days. Bristowe says that in some cases it lasts exactly a week, but perhaps more commonly a fortnight. According to Thomas, it varies from 13 to 17 days; while Trousseau extends the duration to from 15 to 27 days. On the other hand, Gregory limited it to from 4 to 7 days. The discrepancy, in Dr. Hilton Fagge's opinion, arises from the fact that the length of the incubation has in general been calculated upon the very precarious basis of the interval between the dates at which different children of the same family have been successively attacked. Towards the close of this stage there is, according to Thomas, in some cases, a slight rise in temperature.

MacCombie [35] says that it varies from 11 to 19 days, 14 being most common. He has not seen it in less than 13 or longer than 17. If inoculated, the incubation period is stated to be 10 days.

Welch [36] says, when the disease breaks out in a private family or an institution for children, the time that elapses between the appearance of the eruption in the first and second cases is usually from 13 to 17 days. This may, therefore, be regarded as about the usual period of incubation, although a much shorter period has been reported by some observers.

Unger [37] gives the stage of incubation as from 13 to 19 days.

Williams [38] gives the interval between exposure to infection and the appearance of the eruption of varicella as usually 14 days; and, since prodromal symptoms are very inconstant, this must be reckoned as the usual incubation period. It may be one day less; possibly, in exceptional cases, three days less. A period of 19 days has frequently been established. The incubation period in inoculation is said to be 10 days.

von Jürgensen [39] says the average period of incubation for the usual method of infection is about 13 or 14 days, with a maximum of 19 days, but accurate observations are wanting. In the inoculations by Steiner the period of incubation was eight days.

*Observation.*— The period of observation given by the "Code of Rules for the Prevention of Infectious and Contagious Diseases in Schools" is 18 days.

Williams considers it safer to prolong it to 20 days.

*Isolation.*— During the period of incubation the patient, as a rule, presents no symptoms, but for a day or two before the eruption comes out there may be some malaise, and it is probable that infection may be contracted from the patient at this time. The patient continues to be infectious until convalescence is over and all scabs have become detached, especially of the scalp. Infection can probably be carried by fomites.

GERMAN MEASLES (ROETHELN).

*Incubation.*— J. Lewis Smith, in the epidemic of 1874 in New York, did not find the stage of incubation to be uniform. In some instances it appeared to be from 7 to 10 days, and in other instances from 18 to 22 days.

Thomas gives to this stage a duration of from two and a half to three weeks.

Moore observed in 1878 two cases, a brother and sister, the latter of whom sickened twelve days after her brother.

Williams [40] admits that the incubation period is not well determined, and says it is probably most often 17 or 18 days; but it may be two or three days more, or five or even, perhaps, seven days less. A person who has contracted the disease is capable of conveying the infection to others two or three days before the rash appears; that is to say, while he is himself quite free from any obvious symptoms of illness. The capability of infecting others remains during the presence of the rash, but declines rapidly, and in mild cases disappears in a week, though it may persist a little longer after more severe attacks or, perhaps, when there is much desquamation.

Griffiths [41] gives as an average estimate, based upon the experience of many observers, a period of from one to three weeks.

Unger, in the *Diagnostisches Lexikon* for 1895, gives the incubation period as 18 to 20 days.

Edwards [42] says the period is between 7 and 14 days.

Williams [43] says the period of incubation is, as a rule, rather longer than measles. Prodromal symptoms are not always present or are so slight as to

[35] Allbutt's System of Medicine, 1897, ii, 179.
[36] American System of Practical Medicine, 1897, i, 570.
[37] Diagnostisches Lexikon, 1895, p. 471.
[38] Twentieth Century Practice of Medicine, 1898, xiii, 374.
[39] Nothnagel's Encyclopedia of Practical Medicine, 1902, W. B. Saunders & Co., p. 291.
[40] Allbutt's System of Medicine, 1897, ii, 118.
[41] American System of Practical Medicine, i, 640.
[42] Cyclopedia of the Diseases of Children, Supplement of 1899, v, 264.
[43] Twentieth Century Practice of Medicine, 1898, xiii, 375.

escape observation, and it is therefore necessary to reckon the incubation period to the date of the appearance of the rash. This is given by the Clinical Society's Report as 18 days, but it may be more than two and less than three weeks without being at all exceptional. It is occasionally as short as five days. It seldom or never exceeds 21 days, although Baginsky [44] admits 24 days.

Tobeitz [45] observed 27 cases in which the incubation period could be definitely fixed, and he found this to range from 4 to 25 days, so he concludes that personal and other influences are so powerful that there is no regular period of incubation.

*Observation.*— The duration of the period of observation, according to the "Code of Rules for the Prevention of Infectious and Contagious Diseases in Schools," should be 16 days. The Clinical Society's Report is probably safer, which gives "two days more than three weeks."

German measles may be infectious for two or three days before the rash appears. It is in all cases infectious while the rash is out; but the infection declines rapidly, and in mild cases has probably ceased at the end of a week. In more severe cases it lasts longer, and risk cannot be considered as past so long as any desquamation continues.

*Isolation.*— The "Code" prescribes an isolation of two or three weeks, the exact time depending upon the nature of the attack.

SMALLPOX.

*Incubation.*— Moore says: Incubation begins with the reception of the virus into the system, and ends at the appearance of the earliest symptom. Its average duration is twelve days, except in cases of inoculation, when it is only eight days, or still shorter, forty-eight hours, according to Curshmann. As a rule, there are no symptoms in this stage, but towards its close the patient probably feels unwell and out of sorts — what the French aptly call "malaise."

MacCombie [46] says it varies between extremes of 5 days and 20 or more. Usually it is 12 days, but not infrequently 10, 11, 13, or sometimes 9. In a few exceptional cases symptoms of malaise occur from the date of reception of infection. Armstrong [47] has given particulars of a case in which it appeared to be 21 days.

Welch [48] gives it as from 10 to 12 days.

Hebra, in the *Diagnostisches Lexikon* for 1898, gives the stage of incubation as between 10 and 14 days, seldom under that time.

Williams [49] says the initial symptoms come on, in a large majority of cases, on the eleventh or twelfth day, and the eruption appears on the fourteenth day. An interval of ten days only between the exposure and the initial symptoms is not very uncommon; and then the eruption appears on the thirteenth day. An interval of only eight days is rare; but Eichhorst has recorded three cases, one in a physician and two in medical students, in which the initial symptoms commenced in two of the individvals in nine days and eight hours after exposure, and in the third, nine days and four hours. So short an interval is rare, but when the disease is conveyed by inoculation, the initial symptoms appear on the eighth or ninth or, occasionally, on the seventh day. It is said the short periods are observed more often in hot countries than in temperate climates. There is some evidence that the incubation period of hemorrhagic smallpox is rather shorter than that of the discrete form of the disease. Longer intervals are rather more common. Thus periods of 13, 14 and 15 days between exposure and the initial symptoms are not very rare; and cases have occurred which appear to prove that it may be prolonged to 20 days.

Immermann [50] says the period of incubation is generally 10 to 13 days in variola; very rarely more, even to 15 days; more frequently less, 5 to 10 days, especially in the very severe primarily hemorrhagic cases.

*Observation.*— The Report of the Clinical Society of London gives 15 days as the period of observation, provided the individual at that time shows no signs of indisposition and presents no elevation of temperature. The "Code of Rules for the Prevention of Infectious and Contagious Diseases in Schools" gives 18 days. Williams says it will be safer to put the period of observation at three weeks.

*Isolation.*— The infection can be preserved for a long period in clothes and other fomites, and in the hair of a person who has been in intimate contact with a smallpox patient. Cases are recorded in which the infection has thus been carried by nurses.

The disease is infectious from the onset of symptoms until all scabs have become detached and until all desquamation has ceased. Great care should be exercised in any case in which a suppurating discharge is left as a sequel to the disease. (Dr. Durgin has never seen any infection follow such a condition.)

DIPHTHERIA.

*Incubation.*— Osler [51] gives the period of incubation as from two to seven days, generally two days.

Wood and Fitz say it is two days or more.

Hilton Fagge and Pye-Smith [52] give as follows:

Trousseau puts the period at from two to seven days.

Oertel puts the period at from two to five days, but he quotes cases in which it was longer.

Jenner relates a case of eight days.

Senator says that the interval may be as much as three or four weeks. Where there has been a direct transference of the poison from one person's fauces to another, the period seems to be much shorter.

[44] Lehrbuch der Kinderkrank.
[45] Arch. f. Kinderkrank., Bd. xxviii, H. 5, u. 6.
[46] Allbutt's System of Medicine, 1897, ii, 187.
[47] Lancet, 1886, i, 715.
[48] American System of Practical Medicine, 1897, i, 522.
[49] Twentieth Century Practice of Medicine, 1898, xiii, 373
[50] Nothnagel's Encyclopedia of Practical Medicine, W. B. Saunders & Co., 1902, p. 30.
[51] Practice of Medicine.
[52] Loc. cit.

Valleix had a pellicular deposit on the tonsil the day after he became infected with the disease, and died in forty-eight hours.

Oertel supposes that the incubation period is likely to be less prolonged during the prevalence of an epidemic, especially where the type is malignant.

Williams[53] gives the usual period of incubation of diphtheria of the throat or larynx as two days, and not often exceeding four days, although it really never exceeds this period, and is seldom less than two days.

*Observation.*— The "Code of Rules for the Prevention of Infectious and Contagious Diseases in Schools" gives twelve days as the period of observation, which is ample, if the infection is spread by personal intercourse, and not by other means.

The infection of diphtheria may hang about a house in carpets, beds, etc., for months or perhaps years. A person may be infected by a patient in the incubation stage during the whole of the attack, and for a period of long but uncertain duration after apparent recovery. These conclusions, based on the study of the history of cases observed clinically, are fully confirmed by bacteriology, which has shown that the specific bacillus may persist in the throat for many weeks and even for months. As a rule, where infection has been thus transmitted at a late period, after the symptoms of the disease have passed away, some unhealthy condition of the tonsils or pharynx has persisted; and all cases in which such morbid states continue after diphtheria should be regarded as possible sources of infection to susceptible children brought into intimate relations with the patient. The infection may be contracted by intimate contact with the body of a person who has died of the disease.

*Isolation.*— The period of isolation, after an attack of diphtheria which has satisfied the medical officers of school associations is not less than three weeks after convalescence is completed, provided there is no longer any form of sore throat nor any kind of discharge from the throat, nose, eyes, ears or other parts, and no albuminuria. The termination should depend on the disappearance of all local lesions and the bacillus from the throat.

INFLUENZA.

*Incubation.*— The period of incubation is brief, varying from a few hours to two or three days. This period is usually unattended by subjective symptoms.[54]

Drozda[55] gives the period of incubation from a few hours to one or two days.

Jennings[56] says the period is from one to four or five days, and many cases develop within a few hours.

[53] Twentieth Century Practice of Medicine, xiii, 377.
[54] J. C. Wilson: American System of Practical Medicine, 1897, i, 467.
[55] Diagnostisches Lexikon, 1883.
[56] Cyclopædia of the Diseases of Children, 1899, v, 342.

Williams[57] says the usual period is probably two or three days. The Clinical Society's Report concludes that it varies from one day or a few hours less to four or five days, but that the usual period is three or four days.

Parsons[58] estimates it at two or three days. Periods as long as seven days have been reported, but during an epidemic of influenza it is exceedingly difficult to exclude the possibility of unrecognized exposure, owing to the number of ambulatory cases, and of mild attacks which the sufferers call common colds, and for which they do not undergo any period of isolation.

In the German Collective Investigation Report, some cases are recorded in which the disease originated in a family in consequence of a definite importation; and in a number of instances physicians were able to determine in their own persons how many days after they had visited their first and only case of influenza they were themselves attacked. Based on these observations, the period of incubation was decided to be from two to six days in length. Very rarely it was as short as one or two days. The longest period that has been positively determined is seventeen days.

*Observation.*— The period of observation after an exposure Williams concludes should be six or seven days.

*Isolation.*— "The patient is infectious throughout the acute attack, and may continue infectious until convalescence has advanced far enough to permit him to return to his ordinary avocations; and it is probably in this way that influenza is most generally spread. The period of isolation ought to be a week to ten days after the commencement of the disease, according to the severity of the attack. In cases complicated by pneumonia it should be extended to the end of convalescence."[59]

The committee have the honor to make their report in the form of the following conclusions:

TYPHOID FEVER.

(1) The period of incubation is most often 12 to 14 days, frequently 9 or 10 days, occasionally 8 and possibly less. In rare cases it is prolonged to 15, 18 or even 23 days.

(2) The period of observation is uncertain, and under some circumstances should extend over 28 days, namely, where the water supply cannot be changed.

(3) The period of isolation, in the ordinary acceptation of the term, should extend through the period of convalescence; and proper disinfection of the stools and urine, and possibly of the sputum, should be practised for at least a month after the symptoms have ended. (Recent observations have shown that the bacilli may persist in the urine for a much longer time, hence to ensure absolute safety the patient should be considered a possible source of danger until the bacilli have disappeared from the urine.)

[57] Twentieth Century Practice of Medicine, 1898, xiii, 382.
[58] Report on the Influenza Epidemic of 1889 and 1890, Local Government Board of England, 1891, pp. 63, et seq.
[59] Finkler: Twentieth Century Practice of Medicine, xv, 51.

MUMPS.

(1) The usual period of incubation is three weeks. The shortest period is probably 14 days. The longest period known is 25 days.

(2) The period of observation should be 25 days.

(3) The period of isolation should be 28 days, and, if all glandular swelling have subsided, and there is no tenderness of the breasts or other parts of the body, the patient may be released.

SCARLET FEVER.

(1) The period of incubation is two to three days as a rule, but it may be eight (and possibly twenty — McCollom).

(2) The period of observation should be 10 days, provided there is absence of fever and sore throat and all fomites are disinfected.

(3) The period of isolation so far as danger to others is concerned should be from the appearance of the eruption, and desquamation should have ceased, the nose and throat should be healthy, all complications should be over, and thorough disinfection of house, patient and belongings should have been done before the patient is released.

WHOOPING COUGH.

(1) The duration of the incubation stage is 4 to 10 days.

(2) The period of observation should be 21 days.

(3) The period of isolation should be from the commencement of the whooping or spasmodic stage, and should last till the characteristic cough has ceased.

MEASLES.

(1) The incubation period is 11 or 12 days. It may be 10 or, possibly, shorter. On the other hand, it may be as long as 14 days.

(2) The period of observation should be 16 days.

(3) The period of isolation should last till desquamation and catarrhal symptoms have come to an end.

CHICKEN-POX.

(1) The period of incubation is usually 14 days. It may be from 11 to 19 days.

(2) The period of observation should be 20 days.

(3) Infectiousness lasts until convalescence is over, and all scabs, especially of the scalp, have been detached. This, then, should be the period of isolation.

GERMAN MEASLES (ROETHELN).

(1) The incubation period is 18 days usually, but it may be possibly 5 to 21 days.

(2) The period of observation should be 23 days.

(3) The isolation period should be 14 to 21 days, according to the severity of the attack.

SMALLPOX.

(1) The stage of incubation is 11 or 12 days usually. It may be 8 days and perhaps 20 days.

(2) The period of observation should be three weeks.

(3) The patient may be released from isolation when all primary crusts have fallen off and patient's hair and surface has been thoroughly disinfected, as well as all infected articles.

DIPHTHERIA.

(1) The period of incubation of diphtheria of the throat or larynx is usually two days. It does not often exceed four days, but occasionally reaches seven.

(2) For a single exposure the period of observation should be 12 days.

(3) The period of isolation after an attack of diphtheria should last till two consecutive negative cultures from the nose and from the throat have been obtained before release of the patient.

INFLUENZA.

(1) The period of incubation is two or three days usually.

(2) The period of observation after exposure should be six or seven days, according to the virulence of the epidemic.

(3) The period of isolation of the sick should last till catarrhal symptoms are ended.

Samuel H. Durgin, *Chairman*;
J. H. McCollom,
Elbridge G. Cutler,
John Lovett Morse,
Richard C. Cabot.

## REMARKS ON INTESTINAL OBSTRUCTION BY BANDS, FOLLOWING OPERATIONS ON THE PERITONEAL CAVITY, WITH REPORT OF CASES.[1]

BY F. B. LUND, M.D., BOSTON.

When one considers the complicated character of the peritoneal cavity and its contents, the importance of the mobility of its contained viscera, of the lubrication afforded by the smooth, shining peritoneal covering which invests them, the irregular shape and frequent changes in size, shape and position of the intestines, and the ease with which it would seem that single coils of intestine could be forced under bands and into pockets, the rarity of intestinal obstruction by adhesions following laparotomy seems remarkable. We are all aware of the numerous laparotomies which are being performed nowadays, for appendicitis, diseases of the female pelvic organs, diseases of the gall bladder and biliary ducts, affections of the stomach, and yet the occurrence of intestinal obstruction by bands is a rarity in surgical experience.

[1] Read before the Norfolk South District Medical Society March 6, 1902.

Wherever the peritoneum has been incised, it heals by the deposit of fibrin, which becomes organized into granulation tissue and finally into fibrous tissue, and almost invariably the organs which are situated immediately under the abdominal wall (notably the omentum) become adherent to the incision. Adhesion of the omentum is of course a matter generally of minor importance, in fact, the omentum acts in this way as a protection to the bowel beneath by interposing itself and preventing adhesion of the bowel to the abdominal wall. If adhesion of the bowel took place it might result in kinking and obstruction, hence the importance, before the closing of laparotomy wounds, of drawing down the omentum beneath the incision, if possible, in order to cover and protect the bowels.

We know very little about the subsequent fate of the adhesions which must follow laparotomy, but observations made on reopening the abdomen indicate that in the course of time they frequently become attenuated and perhaps entirely disappear. The operations which are followed by the largest number of adhesions are naturally those done upon acute infective conditions, notably suppurative disease of the Fallopian tubes and suppurative appendicitis.

We are here dealing with conditions in which the parietal peritoneum, the peritoneum covering the pelvic organs and that of the adjacent intestines and omentum are in an inflamed condition, and frequently covered by deposits of fibrin, so that after the operation the intestines and omentum fall into the pelvis, the fibrin covering their surface becomes organized, and they become bound together by a mass of adhesions which it would seem to the inexperienced observer ought to cause obstruction of the bowels much more frequently than is actually the case. Operations, such as those done for the removal of the myomatous uterus, or for appendicitis in the interval, deal with organs covered with healthy peritoneum, and unless this membrane is unduly injured by rough or violent manipulation they ought to result in the formation of the minimum amount of post-operative adhesions. It is especially important to adopt all devices to leave the field of operation covered by smooth peritoneum, such as inversion of the appendix into the bowel, leaving a smooth peritoneal surface, with no raw stump projecting into it, or in pelvic operations folding the broad ligaments over the stumps of the amputated tubes and ovaries. Care and neatness in the technique, especially in the finishing of operations, is the duty of the surgeon, if he would avoid as far as possible post-operative complications.

Cases of incomplete removal of a septic organ, as, for instance, where the inflamed stump of a Fallopian tube is left projecting into the abdomen, result in a constantly acting focus of infection, causing the deposit of fibrin and its subsequent organization, and have resulted, in the writer's experience, in the most extensive formation of post-operative adhesions. When one infected Fallopian tube is removed and the other, although noted to be slightly infected, is left behind, the result may be disastrous. The remaining tube keeps up a constant low-grade infection in the operative field and results in the formation of extensive obstructive adhesions in the vicinity, and finally becomes acutely inflamed and requires removal. In three cases in which the writer has removed a Fallopian tube at a second operation, which had been left behind at the first, he has encountered adhesions of the appendices epiploicæ and of the intestines to the pelvic organs which have rendered the subsequent operation extremely difficult and serious. The complete removal of all infected tissue should be carried out wherever possible, if these complications are to be avoided.

Certain organs in the abdominal cavity, notably the omentum and the appendices epiploicæ, which consist simply of connective tissue covered by peritoneum, on adhesion to the parietes or the viscera, themselves form bands which may cause strangulation of the intestines.

The frequency of strangulation by Meckel's diverticula is explained by the fact that here we have a fibrous band attached by one end to the abdominal wall and by the other to the movable intestine, affording the best possible conditions for angulation of the bowel. The coil of intestine to which it is attached may become rotated on itself and thus twisted and strangulated. This form of strangulation, caused by the twisting of a bowel which is attached at one point to a band which runs to the abdominal wall at its other end, is exemplified by Case III, reported in this paper.

The writer has observed two cases of strangulation by adhesions due to the bending over of a bowel and attachment to its own mesentery at the point where that mesentery covered an inflamed mesenteric gland. Thus the mesentery and the bowel form a ring into which another coil of intestine projects, as through the ring of a hernia.

The omentum may become adherent at several points in the abdominal wall, leaving spaces between these points through which coils of intestine may pass and become so tightly wedged that their circulation is cut off.

The appendices epiploicæ of the large intestine have been observed by the writer in some instances to be abnormally long, and he has found two of them stretched tightly across the pelvic brim and adherent at their extremities to an inflamed dermoid cyst, conditions extremely favorable to the strangulation of the bowel which might pass beneath or between them.

Dr. J. W. Elliott reported at the Suffolk District Medical Society, Surgical Section, last winter, a case of strangulation of the large intestine by the twisting around it of an inflamed adherent epicloic appendage.

Operations upon the lower part of the peritoneal cavity are naturally more likely to be the cause of internal strangulation of the bowel, because the loops of intestine gravitate into that portion of the cavity. This explains the rarity

of strangulation by adhesions after operations upon the gall bladder and stomach.

The symptoms of strangulation by adhesions are those of acute obstruction of the bowels from other causes. They are somewhat dependent upon the obstruction of the current of gas and feces in the bowel, but in greater degree upon the obstruction of the circulation of the blood in the bowel. If the intestine is not wedged beneath the band, the fecal current may at first be only partially obstructed, but the movements of the bowel to escape from beneath the obstruction which hinders its muscular motion frequently result in the wedging of more bowel through the ring and the onset of acute symptoms due to the obstruction of the circulation in the mesentery. The symptoms characteristic of such strangulation are pain of the most acute character, vomiting, general pallor and sweating of the skin, and something in the general appearance of the patient which suggests that serious trouble is present. I do not mean by that the pallor, sweating, cold, clammy skin and bright eyes surrounded by dark rings which indicate general peritonitis or septicemia, but an appearance less marked, although no less characteristic, which should indicate to the surgeon that serious trouble is present. The pain and vomiting are followed by a distention of the abdomen, which in strangulation by a band is at first local. The intestine becomes distended at first just above the seat of the constriction, so that at that time only a single coil is obstructed, and if the abdomen is not too thick and muscular the surgeon may in rare cases have an opportunity to note the distention of a single coil of intestine, followed later by general distention, with corresponding increase in the severity of the symptoms. The surgeon, however, will generally be called too late to see this symptom. My only observation of it is described in Case I in connection with this paper. Where it can be found this symptom is one of very great diagnostic importance.

Abdominal tenderness will at first be noted directly over the seat of the trouble, namely, the obstructing band. It will later become more general and will be attended by spasm of the abdominal muscles. Even this spasm of the abdominal walls is far less marked in cases of acute obstruction than in cases of general peritonitis, and may be very slight in character even where the obstruction has lasted for hours or days.

Obstruction to the passage of feces is of course complete at the point where the bowel is strangulated by the band, but this symptom may be wanting, and may be the cause of fatal delay in calling the surgeon or in operating for relief of the condition. If the intestines are fairly full at the time of the onset of the disease, enemata, which are naturally first administered, may result in the passage of a considerable amount of feces and gas from the bowel below the obstruction, but the careful observer cannot help noting that instead of relieving the symptoms and improving the general condition of the patient, no real relief is afforded by such bowel movements. In Case II, reported in this paper, the patient had two large movements of the bowels on the third day after the onset of the symptoms and while the operator was preparing to open the abdomen. Laparotomy showed that the obstruction was high up in the small intestine, and these movements had simply resulted in the emptying of the colon. If the operator had been deceived by these movements the result would certainly have been disastrous to the patient. In Case III, reported in this paper, three movements of the bowels took place, and the abdomen was *not* generally distended on the third day of complete obstruction by a band. It therefore becomes evident that a careless observer may be easily deceived by movements of the bowels which empty the intestine only below the point of obstruction.

The vomiting which generally denotes the onset of acute obstruction may and frequently does subside when the patient is put to bed and starvation by the mouth is enforced. This cessation of vomiting also should not be interpreted as a sign that the obstruction has been permanently relieved. This also occurred in Case III of this paper, and with the bowel movements resulted in a delay of operation on the part of the surgeon, which might have cost the patient his life and which the writer would be unwilling to see repeated in his own experience. In the majority of these cases of acute obstruction the appearance of the patient will be such and the relief afforded by enemata will be so slight that the surgeon will have little doubt that there is serious mischief within the abdominal cavity, but occasionally unless he is very careful and acute in his observation he may be deceived. To the writer's mind there is no question that in cases where there is serious doubt as to whether obstruction exists the abdomen should be opened. This is the condition which existed in Case III. The patient's appearance and general condition gave so little indication that there was a serious condition present in the abdomen that it was with the greatest difficulty and with the feeling on his own part that he was perhaps unduly zealous that the writer persuaded the man to consent to operation. At the time, the patient felt so well that he was anxious to go home. The operation, as will be seen in the description of the case, resulted in the finding of a large coil of gangrenous bowel which was not resected and which recovered its circulation, contrary to the expectation of all who saw the operation. I am more and more convinced as time goes on that in cases of doubt it is far better to open the abdomen than to stand about and wait for something to happen, for if one waits even an hour or two too long the point of safety may be passed. Cases of obstruction by bands when operated upon early are among the simplest and most satisfactory which are presented to the surgeon. It is simply a matter of quickly opening the abdomen, dividing the band, watching the intestine

change from dark purple to bright red, and sewing up again. As soon as the patient comes out of the ether he is relieved of his pain, his general appearance is that of a well man, and the progress of the case is as rapid and favorable as can be imagined. When the obstruction to the circulation has not been complete, such an operation may be all that is required even after the lapse of two or three days. In cases, however, such as Case IV of this paper, where the blood supply has been absolutely shut off, necrosis may take place within a very few hours, and the operator may find the bowel so completely gangrenous that resection of the intestine is the only alternative. As the patient is suffering in a high degree from septicemia and peritoneal shock, this operation has to be done rapidly in order to give him any opportunity to recover. The emergency is one of the most serious which confronts the surgeon, and he and the patient are both fortunate if recovery ensues. An instance in which gangrene of the intestine had occurred within twenty-four hours of the onset of obstruction is reported in Case IV of this paper.

CASE I.—Acute obstruction by a band extending from one portion of the intestine to another, coming on three weeks after laparotomy. Operation twelve hours after the appearance of the first symptom. Operation: Division of band. Recovery.

M. O., a girl of nine years, was admitted to the City Hospital on Aug. 21, having suffered for four days from pain in left side of the abdomen and bloody stools, containing considerable pus and mucus. There was slight spasm of the muscles on the left side of the abdomen and marked tenderness and a sausage-shaped tumor was felt. In view of the probability of the presence of intussusception, an incision was made by a colleague of the writer through the outer portion of the left rectus muscle. The abdominal cavity was carefully inspected but no intussusception or other abnormality was found. After the operation the tenderness diminished and the blood disappeared from the stools. The patient was apparently having a good convalescence. On Sept. 11 at seven in the morning, three weeks after the operation, she was suddenly seized with severe abdominal pain and repeated vomiting. When I saw her at ten o'clock a single coil of intestine could be seen and felt to be distended. This coil was just above and to the right of the incision. The presence of this isolated coil seemed to the writer pathognomonic of acute obstruction by a band, but owing to the possibility of an error in observation, deemed it wiser to wait for a few hours, and try treatment by enemata. Two were given during the day without result. The vomiting ceased but the pain increased, and her general appearance became rather worse during the day. At eight o'clock in the evening, or thirteen hours after the first symptom, the patient was etherized and the writer made an incision along the inner border of the former one. On opening the abdomen, a considerable amount of bloody serum escaped. A coil of intestine about thirty inches long was found to have slipped beneath a band extending between two parts of the small intestine beneath the upper end of the wound. This bowel was dark purple in color and some of its mesenteric veins contained thrombi. The peritoneum over the coil had not lost its lustre. This band was divided, and on its relief there was a free escape of flatus from it into the contracted portion of the bowel below the constriction. The congested coil rapidly became light red in color and gave evidence that the trouble had been relieved. The operation, which had taken less than ten minutes, was completed by a suture of the abdominal wound by through-and-through sutures of silkworm gut. The next morning the patient felt as well as ever, and was discharged from the hospital seventeen days after the operation in first-rate condition.

CASE II.—Obstruction of upper part of the small intestine by a band eight weeks after an operation for acute appendicitis. Gangrene of a narrow ring of bowel beneath the obstructing band. Operation: Division of band, inversion of gangrenous portion of bowel. Recovery.

H. D., a school boy twelve years old, was admitted to the City Hospital on May 25, 1901, on the second day of an acute attack of appendicitis. An operation was performed by Dr. J. T. Bottomley which showed pus free in the peritoneal cavity, and the intestine in the neighborhood of the appendix injected and covered with flakes of fibrin. The appendix, which was adherent to the abdominal wall, was ligated and removed. A piece of gangrenous omentum was also ligated and removed. The whole cavity was washed out with salt solution. Numerous fresh adhesions were present and were easily broken up. The pelvis was drained by a glass tube and wicks of iodoform gauze. On the third day after the operation consolidation was noted at the base of the right lung. The patient, however, gradually recovered and was discharged on June 22, the wound having entirely healed. Two days after discharge, on June 24, he was brought back to the hospital on account of a sharp attack of epigastric pain after an indiscretion in diet, followed by vomiting, slight fever and pyrosis.

Physical examination showed the abdomen to be soft and not tender. The attack was attributed to indigestion, and three days later the patient was discharged. On July 13, about eight weeks after the first operation, the boy was sent into the country for a week. While on the train he was attacked with pain and vomiting, which continued until July 16, when he was seen by the writer in consultation with Dr. F. E. Tilden of North Easton. His bowels had not moved during that time, though cathartics and enemata were administered. When the writer saw him his temperature was 101°, face flushed, covered with clammy sweat, and eyes bright and surrounded by dark rings. The abdomen was distended. There was tenderness at the umbilicus and above and to the left of it. The diagnosis of acute obstruction by a band was made, and while we were preparing for the operation two copious movements of the bowels took place, resulting in some diminution of the distention.

The patient was etherized and the abdominal wall incised above and to the left of the former incision, over the tenderest point. A tough fibrous band was found extending from the free border of the intestine to an inflamed mesenteric gland close to the upper end of the appendix incision. This band had so strangulated a loop of bowel at the point where it passed beneath it as to cause gangrene of a narrow strip encircling the bowel. After division of the band this gangrenous strip was enfolded into the bowel so as to be entirely buried by healthy peritoneum. It was recognized that this measure might slightly narrow the lumen of the bowel, but it was deemed the quickest and safest way of proceeding, as the boy's condition was so poor that it was not thought wise to do anything further. After washing out the abdominal cavity the wound was sutured with interrupted through-and-through silkworm gut sutures.

The patient made an uninterrupted recovery. In November, 1901, he was brought to the writer's office, looking well and in good flesh. He had had an occasional attack of colic which may have been due to slight constriction at the point where the bowel had been inverted. He was instructed to return to the hospital in case these attacks persisted, but has not been heard from since.

CASE III. This case has been previously reported, but chiefly with reference to ulcer of the stomach. The second operation for obstruction by a band has, however, not been previously reported in detail, and

certain features of it seem to the writer to make it worth while to mention.

W. L., twenty-nine years of age, married, was operated on by the writer on June 20, 1899, for perforation of a gastric ulcer. General peritonitis was found at time of operation, and after suture of the ulcer and lavage of the abdominal cavity, performed through a median incision above the umbilicus, a second incision was made below the umbilicus in order to more thoroughly drain the pelvis, which contained pus and fibrin.

On Feb. 12, 1901, one year and seven months after the first operation, while at work at the bottom of a manhole, he was overcome by gas so that he became unconscious. He was lifted to the surface and on recovering consciousness vomited several times. He was taken home, where he again vomited and was attacked by pain in the epigastrium. He sent for a physician, who administered morphin, which relieved the pain. There was no more vomiting on that day or the next. But on Feb. 14 he had another attack of pain which was also relieved by morphin. At this time he was brought to the hospital, and when seen by the writer had a normal pulse and temperature, and looked perfectly well. The abdomen was soft, not distended, and not anywhere tender. He had a large ventral hernia in the seat of the upper incision. He was put to bed and given no food by the mouth. During the next day his condition remained the same and his bowels moved freely as the result of enemata.

On Feb. 16, four days after the first attack of pain, he began to have hiccoughs, and there was slight tenderness in the upper part of the abdomen, causing apparently slight bulging of the ventral hernia. When he was told that operation was advisable he refused, and could with great difficulty be persuaded to have his abdomen opened. He finally yielded, however, and the writer made an incision through the old scar. The stomach was found to be normal and not dilated, but in the pyloric region was adherent to the under surface of the liver. On lifting the great omentum a coil of jejunum was found, greatly distended, with edematous walls, dark purple in color, and filling about one-half of the abdominal cavity. The incision was extended downward and a tough, fibrous band was found attached to the border of the jejunum at one end and at the other to the inner surface of the small scar made at the previous operation to drain the pelvis. This first band, however, was not the cause of the constriction, but several inches below it was found another similar to it adherent to the scar at the same point, completely obstructing the bowel. These bands were divided, but no relief of the obstruction resulted. No gas was passed and the bowel did not collapse. The man had suddenly taken to vomiting a dark-brown fluid, and his condition became so poor that it was thought that resection of the bowel was impracticable. The table was tipped so as to lower his head and elevate the pelvis, and thus vomiting into the trachea was prevented. It was thought that incising and emptying the gut might relieve its distention so that it could take care of itself, therefore the coil was hung out over the side of the patient and incised, allowing a large amount of feces and gas to escape. A still larger amount escaped from the mouth. The incision in the bowel was quickly closed and a dark-blue patch which was thought to be gangrenous was folded in. The abdominal wound was quickly sutured with a continuous suture of silkworm gut, the completion of the operation being made difficult by constant vomiting. On coming out of the ether, the vomiting ceased and the patient made an uninterrupted recovery. He was discharged from the hospital on March 13.

This case is especially interesting as showing, in the first place, the slight and deceptive character of the symptoms which may indicate a severe abdominal lesion. The man's recovery was extremely fortunate, but under similar conditions it could not be counted on. The opening and emptying of the gut the writer hardly expected would be successful, considering the grave nature of the conditions present.

Case IV. Intestinal obstruction by a band six months after operation for peritoneal cysts. Rapid gangrene of the intestine. Operation twenty-four hours after the first symptom. Resection of gangrenous bowel. Recovery.

D. M., single, twenty-seven years of age, domestic, was operated on Jan. 3, 1901, by Dr. J. C. Munro in Newburyport. He found and broke up several peritoneal cysts which seemed to be formed by adhesions and had no definite lining membrane. They were probably connected, however, with an inflammatory condition of both tubes and ovaries, which was found at operation. The right tube was removed. The patient made a good recovery and was discharged, relieved, on Jan. 30, and immediately went to work.

On June 5, 1901, while running for a car, she had a sharp attack of pain in the abdomen, which increased in severity as time went on. When seen by Dr. R. C. Hurd of Newburyport she complained only of pain. The pulse and temperature were normal. She was given calomel, which was vomited. The bowels did not move. In the morning she was given an ounce of tincture of rhubarb. At this time a tumor appeared in the lower part of the abdomen (localized distention of the bowel) which was very sensitive. Manual palpation gave a sensation of fluctuation through the tumor, which seemed to be more on the left than on the right. In the afternoon the pulse rose to 120, temperature to 101°. The tumor increased in size and the bowels did not respond to a high enemata of salts, glycerin and turpentine.

At eight o'clock in the evening, about thirty hours after the first symptom, the writer saw her in consultation with Dr. A. B. Brown and Dr. Hurd, at the Newburyport Hospital, and opened the abdomen, making an incision three inches long, just to the left of the scar of the former incision. On opening the peritoneum a large amount of bloody serum escaped. Several considerably distended coils of intestine presented, some of which were markedly injected. There were numerous bands attaching the intestine to the parietal peritoneum and pelvic wall. On following up the distended intestine and enlarging the incision, a coil was found which was absolutely black in color. Its mesenteric veins were thrombosed and its peritoneum had lost its lustre. A tough band was found compressing the mesentery of this coil, and was divided. Numerous other small bands in other parts of the abdomen were also broken down. The condition of the constricted coil did not improve on removal of the band, but the patient's condition was so poor that it was thought best to incise and empty the bowel, as was done in the preceding case reported in this paper. It was, therefore, incised, and much gas and some fluid feces allowed to escape. On attempting to close the incision the bowel was found to be so necrotic that the sutures would not hold. There was, therefore, no alternative except resection of the gangrenous coil. Clamps were applied above and below this portion and the black bowel quickly cut away. The bleeding from the mesentery was stopped by rapid over-and-over sutures of coarse silk. Two single sutures brought the mesenteric borders together and the ends of the bowel were united by four coarse sutures of silk, passing through all the coats, these being placed on the mesenteric border, on the free border and half-way between on either side. The peritoneal coat of the bowel was quickly closed by a single layer of interrupted right-angled suture of fine silk. As soon as the suture was found to be tight, the abdominal cavity was thoroughly washed out and the sutured bowel returned to it and the wound was closed with through-and-through sutures of silkworm gut.

In spite of stimulation the patient was in collapse and almost died on the table. She was hastily put to bed and given a quart of hot salt solution under the breasts, besides copious enemata. She responded to

this somewhat, but her condition was poor all night, and at four in the morning she had another fainting spell, when the above measures were repeated. From this time on she made a rapid and uneventful recovery. The bowels moved four days after the operation. The patient was discharged from the hospital on July 16. Since her discharge she has gone back to work and feels perfectly well.

The portion of bowel removed measured twenty-one inches in length. This case illustrates the fact that the most radical type of operation may be necessary in these cases, even where a comparatively short time—twenty-four to thirty hours—has elapsed since the first symptom. It also illustrates the fact that the most serious and numerous adhesions are formed in cases of pelvic disease where only one inflamed tube is removed.

## Clinical Department.

### PAPILLOMA OF BLADDER, WITH OPERATION; REPORT OF A CASE.[1]

BY G. H. WASHBURN, M.D., BOSTON.

TUMORS of the bladder are usually benign. They are usually not very extensive. Judging from the literature on the subject, suprapubic operations on the female bladder are rather rare. As this case offered several unusual features, it seemed as though it would be of interest.

The patient, Mrs. M., came under my care at St. Elizabeth's Hospital, Dr. Johnson's service, which I was taking to give him a rest. She was forty-nine years old: had been married twenty-eight years and had five children. Her oldest child was twenty-five and the youngest nine years old. Menstruation began at 14; came regularly every four weeks, lasting four days, and soiling twelve napkins; no pain. Catamenia ceased entirely two years previously.

Family history negative as far as any bearing on this ailment. Since birth of last child nine years ago has had more or less trouble with her bladder. Has been at the Providence Homeopathic Hospital for several weeks every year for the past five years. Was given some sort of local treatment with irrigations. Finally, in April, 1900, had a tumor removed from the bladder through the vagina. Since that time has had no control over urine, which has come away constantly through the vagina. In June of the same year, the growth having returned, the bladder was cauterized through the vaginal opening.

She entered St. Elizabeth's Hospital the latter part of December, 1900. She then complained of "straining pains" in region of bladder and urethra. These had been present more or less for three years and had not been relieved by the operations. This spasmodic pain was always started up by the slightest straining in moving the bowels, and lasted several minutes, doubling her up with the pain. Complains, too, of passing blood with the urine. Bowels are constipated since operation. Appetite and digestion good; sleeps well. Bladder does not seem to dribble so constantly while lying down.

Examination shows a well-developed, well-nourished woman of medium size. Rather large, fat abdomen. There was an opening between vagina and bladder about one to one and one-half inches long. Urine escaped through this, containing flakes of lymph and some calcareous matter; urethra normal. Urine: cloudy, alkaline; specific gravity, 1,016; albumin, ⅛ %. Thick, mucous, stringy sediment, containing triple phosphates; large numbers of squamous epithelial cells, mostly in clumps; few spindle cells; some blood and pus. Bladder was irrigated twice a day, and urotropin given three times a day.

I first saw her about ten days later, when her symptoms had improved a little. Urine was about the same, except specific gravity, 1,025, and no blood. Examination of the bladder through the fistulous opening showed a large, soft, flattened mass covering the anterior bladder wall. Posteriorly the healthy bladder wall could not be reached by the examining finger. One of the extremely painful spasmodic attacks followed the examination. The principal characteristic of this was a violent straining, such as you see in the last stages of labor. A radical operation was advised. The patient wished to go home for a few weeks before having it done. She returned to the hospital Feb. 8. Urine about the same as at last examination, except specific gravity 1,010.

Feb. 15. After the usual preparations for abdominal operation she was etherized. Dr. Johnson very kindly assisting, the abdominal wall was incised from the symphysis halfway to the umbilicus. Just behind the symphysis the opening was carried down to the bladder, the peritoneum stripped back from the bladder, so as to expose its whole upper surface. This was very vascular, several large vessels entering. The bladder wall was seized and drawn up. An incision was made to the right of the median line so as to avoid cutting through the tumor. Within the bladder, especially from the anterior wall and extending to the left, was a papillomatous growth as large as a good-sized hen's egg. Other smaller growths of the same character were scattered all over the bladder wall. An oval piece of the bladder wall to which the large tumor was attached was cut out. The edges of the bladder were held apart by forceps, while the small scattered growths were thoroughly removed by cautery. The whole inside surface of the bladder was beautifully exposed to view and to touch in this way. There was considerable hemorrhage, especially from the cut edges of the bladder but also from its surface. Iodoform gauze was packed into the bladder and the incision in its wall was sewed up with No. 2 chromicised catgut all except a small opening in the lower part left for suprapubic drainage. A number of vessels were tied with catgut and the abdominal wall was sewed up in layers. Some silkworm gut sutures were passed through to the

[1] Read before the Obstetrical Society of Boston, Feb. 18, 1902.

peritoneum. The lower portion was of course left open for the drain from the bladder.

Patient recovered well from ether. On the second day the gauze was taken out from the bladder, and an effort made to have the abdominal wound close. The urine, however, seemed much more inclined to drain out through the abdominal opening than through the vaginal fistula. Various methods were tried to carry off all the urine from below: Gauze passed into the bladder from the vagina; catheter passed in the same way and left in; catheter through the urethra. They either would not work or caused intense pain. Patient was propped up in bed, and dressings over upper part of abdominal wound protected by rubber tissue, while dressings over lower part were frequently changed.

Feb. 22, a week after the operation, most of the sutures in abdominal wall had to be removed. There was hardly any attempt at healing. The wound gaped widely; dressed frequently with iodoform gauze.

Feb. 26. Considerable urine still escaping through abdominal opening. Bladder being irrigated right through twice a day.

March 5 showed a much more healthy looking wound, Bismuth formic iodide being used as dusting powder. Wound still gaping quite widely. A number of crusts washed out from bladder.

March 10. Healing progressing rapidly. Very little discharge; sitting up in bed. A week later patient out of bed. The incision closing in.

Progress continued steadily, so that by the first of April the incision was entirely healed. General condition was excellent. There was absolutely no discomfort in bladder region.

The woman had been in the hospital so long that she was not willing to have the vesico vaginal fistula repaired. She promised to return in the fall but has not come yet. I heard from her, however, a short time ago. She said there was no discomfort except from the escape of urine by vagina.

Another time I should be inclined to omit the suprapubic drainage. If packing the bladder is really needed, the drain can be carried through the vagina, and the abdominal wound allowed to heal promptly. The bladder itself can certainly be sutured tightly enough to avoid leakage, if there is free vent for the urine from below.

The temperature rose to 100.8° for several evenings after the operation; 99.5° in mornings. It then dropped to normal and stayed there.

PATHOLOGIST'S REPORT.

Specimen was sent to Dr. Leary, who reported as follows: "Received for examination a large, soggy mass of tissue, 7 x 5 x 3 cm., having for a base an oval, solid, central portion, 3 x 3 x ½ cm. On section, central portion is made up of retracted voluntary muscle fibres and the ragged mass surrounding it consists of thickened submucosa and mucosa, the latter being folded so as to form papillary projections which in places are massed so that an apparently solid surface is presented. The projections can be separated and followed in many cases for a distance of 1 to 1½ cm. from the surface. The submucosa is thickly infiltrated with lymphoid and plasma cells. The mucosa, although increased in thickness through the formation of these papillary masses, does not show increase in the number of cell layers, nor does it show at any point a tendency to invade underlying tissues.

"*Diagnosis.*— Simple papilloma, probably of inflammatory origin."

## THREE CASES, TWO OF PAPILLOMA OF THE BLADDER, AND ONE IN WHICH THE DIAGNOSIS OF PAPILLOMA WAS MADE, BUT WHICH TURNED OUT TO BE SOMETHING ELSE.[1]

BY F. B. HARRINGTON, M.D., BOSTON.

Case I. J. P. K., age forty-nine, male. Entered hospital Aug. 20, 1900. Ten weeks ago streaks of blood in urine; rapid increase in amount; constant desire to urinate; anemic. No palpable tumor; lithotrite introduced; a feeling of soft tumor. Lithotrite opened and closed, and a piece of tumor resembling papilloma removed. Suprapubic cystotomy. Pediculated friable tumor at base of bladder in region of left trigonum — base the size of a silver dollar — removed with prostatome to a level with the bladder wall. The base was then curetted. Suprapubic wound in the bladder was closed, as there was little bleeding. The wound closed, and the patient was discharged Sept. 16. Soon there was a recurrence of the symptoms. The patient died a month later, the disease having rapidly returned with great loss of blood.

Dr. J. H. Wright made the following report of the tumor. "The microscopic examination shows that the tumor is of the nature of a villous growth, originating from the mucous membrane of the bladder with invasion of the bladder wall by the growth. The growth is to be regarded as malignant for the following reasons: (1) Because fairly satisfactory evidence was found of the presence of atypical epithelial cells, arranged loosely and in columns, in the submucosa; (2) because of the great variability in size and shape and abnormalities in appearance of the cells. Diagnosis: Villous carcinoma."

Case II. H. H., fifty-nine years of age, male. Two years ago began to have hematuria. This gradually increased in amount. Occasionally the urine was clear. There was no odor to the urine and no great amount of discomfort in passing it. Examination of urine gave no sign of renal disease. No stone could be detected by the searcher. By bimanual examination an indistinct feeling of a soft tumor existed. Suprapubic cystotomy. A small, soft, pediculated tumor the size of a marble was found on the floor of the bladder. This mass was seized with forceps and removed by cutting with scissors, a portion of the bladder wall being incised with pedicle of the tumor. The bladder

[1] Read before the Obstetrical Society of Boston, Feb. 18, 1902.

was closed at once, as there was little bleeding. The patient made a rapid recovery and has had no trouble since. The operation was done one year and eight months ago.

Dr. J. H. Wright made the following report of the tumor: "The specimen from the bladder sent to me July 2 is a papilloma. It consists of branching masses of epithelium supported upon a delicate vascular framework. The epithelium is many layers deep and has more or less resemblance to that of the bladder. In a portion of one of the specimens some of the bladder wall is included. So far as the section shows, this is not invaded by the growth. I think the tumor is not malignant."

CASE III. E. S. A., sixty-five years, male. Frequent micturition and some pain for the past five to six years. For the last six months there has been constant hematuria of moderate amount. The searcher shows a hard rounded mass, giving a grating sound, situated on the left side near the neck of bladder. Small bits of calculi have been passed, with shreds of tissue suggesting papilloma. Suprapubic opening made. A small tumor was found on the left bladder wall near the opening of the urethra. It looked like an encrusted papilloma. It was cut out. Patient made a good recovery and was relieved.

"Histologically, this tissue consisted of islands of lymphoid cells, with considerable new-formed blood vessels and connective tissue with granular exudate intermingled with a few leucocytes. Diagnosis: Chronic inflammatory tissue with incrustation."

## SMALL PAPILLOMA OF BLADDER CHARACTERIZED BY AN EXCESSIVE HEMORRHAGE; REMOVED BY SUPRAPUBIC CYSTOTOMY.[1]

BY MAURICE H. RICHARDSON, M.D., BOSTON.

A MAN of thirty-six, referred to me by Dr. Temple, gave a twenty-five year history of intermittent hematuria, in which the loss of blood was at times so rapid and so excessive that the face presented a startling picture of anemia. He first came to me after a period of bleeding which had left his face, lips and nails without a particle of color. The loss of blood must have been indeed great to produce so excessive an anemia, for he was a large, robust man of unusual vigor.

The urine had been examined by Dr. Woods a number of times, with negative results as to the source of the hemorrhage. Dr. Whitney finally found in a clot evidence of a papilloma (villous cancer).

There were no physical signs of tumor in the genito-urinary tract or in the urine. Suprapubic cystotomy in the Trendelenburg position, performed on Dec. 12, 1901, showed at the left of the trigonum a long, slender-stemmed papilloma with numerous small branches. The bladder at the point where the tumor was attached seemed perfectly normal. The base of the tumor was tied with a catgut ligature, which immediately slipped, but with no resulting hemorrhage. The base of the tumor was cauterized with the platinum at a red heat. The bladder wound was sewed up with catgut, which gave way the second day. A urinary fistula resulted, which rapidly closed. The patient was discharged well on Jan. 4, 1902. The change for the better in his strength, weight and color was extraordinary.

The diagnosis by Dr. W. F. Whitney was simple papilloma of the bladder, and his report was as follows:

"The specimen removed from the bladder of Mr. W. consists of a papillary growth measuring about 8 cm. in length, rising by a narrow, half-centimetre stalk, from the mucous membrane. Immediately above the surface of the bladder it divides extensively into numerous, long papillary projections. There are small secondary divisions.

"*Microscopic examination* shows the whole surface of a branch to be covered by microscopic elevations, over all of which is a single layer of rather large, slightly irregular epithelial cells. The base of the papilla is fibrous in character, with numerous small blood vessels."

Suprapubic explorations are to be recommended in all cases of hematuria in which, from the urinary examination, there is reason to suspect bladder tumors. Preliminary examinations with the cystoscope and the lithotrite should be made when the patient's strength is good. Exploration by suprapubic cystotomy is indicated early in the history of hemorrhage, for then the patient's powers of resistance are best, and the tumor is more easily and thoroughly extirpated. Prolonged delay is responsible for most of the failures, immediate and remote, that follow suprapubic cystotomy for bladder tumors.

[1] Read before the Obstetrical Society of Boston, Feb. 18, 1902.

# Medical Progress.

## RECENT PROGRESS IN NEUROLOGY.

BY PHILIP COOMBS KNAPP, A.M., M.D., BOSTON.

### MUSCULAR TONUS.

AT the congress of French alienists and neurologists at Limoges, Crocq[1] opened an interesting discussion upon muscular tonus. Muscular tonus is the result of two factors, the muscular elasticity and the permanent excitation coming from the nervous centres. Section of the posterior spinal roots abolishes this tonus, and, in man, complete transverse lesions of the cord, in the cervical or upper dorsal region, abolish permanently and completely the tonus of the voluntary muscles, but exaggerate the tonus of the sphincters. Destruction of the cerebral lobes gives varying results in different animals. In the frog muscular tonicity is an elementary reflex, purely medullary; in man, however, the tonic currents to the voluntary mus-

[1] Rev. Neurol., Aug. 30, 1901.

cles are borne by the long tracts, and the centre is exclusively cortical, the short tracts having no part in it; but the tonus of the sphincters is governed by the short tracts. In the new-born, where the long pyramidal tracts are undeveloped, the muscular tonicity is governed by the short tracts. Muscular tonus varies in different individuals, and it is difficult to define absolutely normal tonicity, hypertonicity, hypotonicity and atony. Excitation of a voluntary muscle inhibits the tonus of its antagonist, and inhibition of the tonus of a voluntary muscle provokes hypertonicity of its antagonist. Complete destruction of the central or peripheral motor neurons or of their axis cylinder prolongations provokes atony of the corresponding muscles, and partial destruction causes hypotonicity. Pericellular or peri-axillar changes of the motor neuron cause hypertonicity. In muscular dystrophy there is hypotonicity or atony from alteration of the muscles or the nerve endings, which may be accompanied by a relative hypertonicity of the antagonistic muscles. In neuritis there is hypotonicity or atony from the alteration of the axis cylinders of the nerves, with hypertonicity, due either to the hypotonicity of antagonistic muscles or direct irritation of the axis cylinders. In poliomyelitis or polio-encephalitis there is hypotonicity or atony from lesion of the cell body of the peripheral motor neurons, with hypertonicity of the antagonistic muscles. In tabes there is hypotonicity from the affection of the peripheral sensory neurons, as is also the case in Friedreich's ataxia; but in hereditary cerebellar ataxia there is no alteration of the tonus. In organic hemiplegia the muscles are atonic or hypotonic when the function of the cortical motor neurons is wholly or partly destroyed, but they are hypertonic when the tonus of the antagonistic muscles is enfeebled or abolished or when the cortical motor neurons or their axis cylinder prolongations are irritated. In spastic paraplegia and multiple sclerosis there is hypertonicity from irritation of the pyramidal fibres. In amyotrophic lateral sclerosis there may be hypertonicity from the irritation of the pyramidal fibres or hypotonicity or atony from the destruction of the peripheral motor neuron. In combined sclerosis the condition varies according as the type is more like tabes or like spastic paraplegia. In compression of the cord the condition also varies as the pressure irritates the pyramidal tract (hypertonicity) or destroys the peripheral neurons (atony); later, when the fibres of the pyramidal tract are destroyed, there may be hypotonicity below the seat of the compression. In the spastic paralysis of childhood there is hypertonicity due to the continued functioning or the re-education of the short tracts, when there has been imperfect development of the long pyramidal tracts. In the neuroses and in general paralysis the muscular tonus varies; usually hypotonicity is due to states of cerebral exhaustion and hypertonicity to states of cerebral erethism. Grasset, in continuing the discussion, maintained that in man, as in the lower animals, there is also a centre in the cord and in the nuclei of the mesencephalon, the pons, the red nucleus and the cerebellum. Brissaud contended, also, that total destruction of the central neurons did not inevitably lead to absolute atony, with a flaccid paralysis and a loss of reflexes, but that this condition arose only when the destruction was sudden.

### COMPLETE TRANSVERSE SECTION OF THE SPINAL CORD AND SPASTIC PARAPLEGIA.

Ever since Bastian, in 1890, showed that complete section of the upper part of the spinal cord was followed by loss of reflexes and flaccid paraplegia, his doctrine has received confirmation by later observers, although it contradicted the theories and observations on the reflex inhibition by the cerebrum. Bastian explained this loss of reflex by the theory that the muscular tonus and the tendon reflexes were dependent on the cerebellum, which exerted an action on the ganglion cells of the anterior horns. The cerebrum inhibits the reflexes through the pyramidal tract. If the influence of the cerebrum is cut off, both the tonus (causing contracture) and the reflexes are increased, as is also the case in isolated disease of the pyramidal tract. When the cerebellar influence is also cut off, as in complete transverse lesion of the upper cord, there is flaccid paralysis and complete loss of the reflexes. Various writers have found also changes in the anterior roots and anterior horns at the level of the reflex arc after a complete transverse lesion of the cord higher up. Winter[2] confirms Bastian's theory in reporting a case of fracture of the upper dorsal vertebræ involving the third dorsal segment, which was almost completely destroyed, only about a hundred normal nerve fibres being present. The patient lived four and a half months after the accident. The knee jerks were absent at first, then they could be obtained by reinforcement, but later they disappeared again. The plantar reflexes were lost at first, but later they were obtained; their character (extension or flexion) is not described. The pyramidal tract below the lesion was wholly degenerated, so that reinforcement could have no effect upon any influences coming from the cerebrum, and its effect must therefore be due to its influence upon the cerebellum, increasing muscular tonus and bringing the cerebellar influence, through the few remaining fibres, to the anterior horns.

Brissaud admits that a sudden complete section of the cord may be followed by a permanent flaccid paraplegia, but he and Feindel[3] report a case of spinal caries in which there were three attacks of paraplegia. The first attack lasted seven or eight years, was attended with pain, and recovery was complete; the second attack was spastic in type, without any sensory disturbances; the third attack terminated fatally in about seven months, was spastic in character, and was attended with loss of sensibility to pain and temperature and diminished sensibility to contact. The paralysis

[2] Arch. f. Psych., 1902, xxxv, 428.
[3] Arch. de Neurol., January, 1902.

was nearly complete. The autopsy showed at the eighth dorsal segment a sclerosis of the cord so complete as to be equivalent to a section. It is difficult, however, to accept the hypothesis that the sclerosis was equivalent to a section when there was still some preservation of both motor and sensory functions.

A subsequent case reported by Brissaud at a recent meeting of the Société de Neurologie[4] is more conclusive. A woman was stabbed between the second and third dorsal vertebræ. This was immediately followed by complete paralysis and anesthesia, incontinence of urine and loss of the plantar and patellar reflexes. Two months later a Babinski reflex appeared, followed in a few days by a return of the patellar reflex, which gradually became exaggerated, and this exaggeration persisted until a few days before death. She lived seven months. The autopsy showed a spongy tissue connecting the two portions of the spinal cord, but no traces of cord tissue for a centimetre in length, nor even any continuity between the circulation in the two portions of the cord. Even if the knife had divided only the posterior portion of the cord at first, the division of the cord had become complete. This case, therefore, may fairly be said to sustain Brissaud's thesis: that slow compression of the cord, even if it lead to complete transverse destruction, may give rise to spastic paraplegia.

### TRAUMATIC (?) SYRINGOMYELIA.

Kienböck[5] has made a critical study of 140 reported cases of syringomyelia in which the trouble was supposed to follow an injury. He limits the term syringomyelia, however, to the chronic progressive disease of the central portion of the spinal cord with glia proliferation, vascular changes and cavity formation,—to a primary central gliosis, as distinguished from other affections attended with cavity formation, such as hydromyelus, gliomatosis, myelomeningitis and sclerosed cicatrices following injury. In one group of cases the lesions are severe and come on immediately after the injury, in an apoplectiform manner. There may be at the same time some injury to the bony canal. The lesion is either a hemorrhage, which is most apt to involve the central gray matter, or a necrotic softening in the same region, to which he gives the name of "traumatic myelodelesis." When, as is often the case, the lesion involves the cervical gray matter, the clinical picture may be like that of syringomyelia: muscular atrophy of the arms, with exaggerated knee jerks, inequality of the pupils, partial anesthesia and deformity of the spine. In these cases of traumatic myelodelesis, however, the onset of the symptoms is sudden, while central gliosis is chronic and progressive from the start. In twenty-four cases with autopsy the paralytic symptoms came on immediately after the injury, and, after the first development, the condition remained stationary. Cavities were found in the cord, but they were associated with injury of the vertebræ or a transverse lesion of the cord, and were often limited to one horn or one-half of the gray matter or in the white matter, and showed no traces of proliferation of the glia. There was very rarely any communication with the central canal and there were often secondary degenerations elsewhere in the cord. In the few cases where there was also alteration in the central canal the author thinks these changes due to pre-existing anomalies in the cord. In a second group of cases the diagnosis of syringomyelia was indisputable, but the traumatic origin of the affection was not established, and sometimes there was a strong probability that symptoms of syringomyelia had been present before the injury. In other cases still the diagnosis of syringomyelia is doubtful or the symptoms came on too long after the injury to be fairly attributed to it. There yet remain a few cases (eighteen in number) where the clinical diagnosis seems assured, which developed within a reasonable time after the injury and manifested a steadily progressive character. In all these cases there is wanting a careful examination to prove that syringomyelia had not existed before the injury, and it becomes impossible to determine absolutely whether the violence done to the cord was the special cause of the development of syringomyelia or merely gave occasion for the onset of the first symptoms.

As an aid in solving this problem Kienböck has investigated eighty cases of severe apoplectiform spinal lesions, where there was probably a central hemorrhage or necrosis, to determine whether true central gliosis might develop about such a lesion as a late result. In none of them does he find any evidence of a chronic progressive trouble, but in every case the condition remained stationary. When a central lesion arises in the cord from severe injury, with a marked paralytic condition of apoplectiform onset, a chronic progressive disease never develops. After the injury, whether there be vertebral compression or not, whether there be a complete transverse lesion or not, no matter what the longitudinal extent of the lesion or whether there be cavity formation or not, the result is always the formation of a simple scar with contracted sclerosed tissue, which may or may not become cystic, but which always remains quiet and never leads to progressive disease. After careful study he has failed to find proof that true syringomyelia (central spinal gliosis) of the chronic progressive type may arise from injury.

### THE PROGNOSIS OF TABES.

At a recent meeting of the Société de Neurologie[6] in Paris, Brissaud stated that in his experience the cases of tabes which came under his observation were, as a rule, less severe than formerly, that complete tabes, the progressive locomotor ataxia described by Duchenne, Trousseau, Charcot and Vulpian, was much rarer. This held

[4] Rev. Neurol., Feb. 15, 1902.
[5] Jahrb. f. Psych., 1902, xxi, 50.
[6] Rev. Neurol., Jan. 15, 1902, x, 66.

true both for hospital cases and cases in private practice. The disease seemed to be of slower evolution, whether of the abortive or the complete type, and there were many more cases where the evolution was arrested and the tabes remained as an infirmity more or less grave or more or less slight. Furthermore, the disease seems to have much less of the progressive character than was described by Duchenne; there is often a regression, though not a remission, of all the symptoms. He inquired whether the greater efficacy of the newer methods of antisyphilitic treatment could account for the greater benignity of tabes today. We know that syphilis is of extreme virulence among the Arabs and Chinese, yet tabes with them is of extreme rarity. It may be that the variations in the course of tabes are due to variations in the previous infection, possibly brought about by treatment.

Pierre Marie agreed that the cases of tabes are less severe, and that there is occasionally a complete arrest of all the symptoms. The reflexes do not reappear and the Argyll Robertson pupils persist, but the lightning pains, the visceral crises and the motor inco-ordination grow less or wholly disappear. This amelioration he thinks due to the antisyphilitic treatment. Raymond agreed that the cases of tabes were now less severe, but he had seen no benefit from antisyphilitic treatment when tabes had once declared itself. The disease had been known to exist for fifty years without appreciable change in patients who avoided fatigue and alcohol, even if antisyphilitic treatment were never given. Babinski thought the benign cases much more frequent at present, and cited one case where the trouble had probably come on within four years after infection, yet the patient for forty-five years had had no symptoms except unequal and Argyll Robertson pupils and loss of reflexes. He believed, however, that many abortive cases are now revealed by more careful methods of examination, and these are certainly much more common. Out of two or three hundred tabid patients in his service not more than a score are frankly ataxic. Nevertheless, he thought that the antisyphilitic treatment, especially the protracted use of mercury so often employed in the early stages of tabes, was responsible for the greater number of benign cases. Joffroy, on the other hand, was not only doubtful of the efficacy of antisyphilitic treatment, but he believed that too vigorous treatment might aggravate tabes. He cited a number of cases, many of them observed years ago with Vulpian and Charcot, where there had been very marked improvement in the symptoms under rest, abstinence from alcohol, baths, etc., but where no antisyphilitic treatment had been given. In other cases such treatment had been wholly without benefit. Ballet also believed that tabes was more benign today than formerly, but it is impossible to say whether it is due to a diminished gravity of the disease or to antisyphilitic treatment. Many cases which never receive such treatment show an equally benign course. We can, however, detect abortive cases much more easily than we could twenty-five years ago. Marie, however, called attention to the fact that twenty years ago at least we could detect the abortive cases by means of the Argyll Robertson pupil and the loss of knee jerk, and that few new signs had been added to aid us in diagnosis. He therefore believed that tabes was actually less severe and that we know better how to treat it.

[It is interesting to note, as Ballet hinted in the above discussion, that the type of general paralysis has also grown much more benign in the last twenty-five years. Mendel a few years ago [7] pointed out the increased frequency of the demented type, and the violent cases with pronounced delusions of grandeur, as originally described by Calmeil, are comparatively rare.]

*(To be continued.)*

## Reports of Societies.

### THE OBSTETRICAL SOCIETY OF BOSTON.

MALCOLM STORER, M.D., SECRETARY.

Meeting of Feb. 18, 1902, the president, Dr. Engelmann, in the chair.

REPORT OF COMMITTEE ON MIDWIVES.

Dr. J. G. Blake: At a former meeting of the society I called attention to the number of deaths occurring in cases where only midwives are employed. These are for the most part among the poorest Italians. These women are many of them filthy and uninstructed, and the conditions are most deplorable generally. I have consulted Dr. Harvey in the matter, and suggested that some improvements could be made in existing legislation. It was pointed out to me that the present law provides a sufficient remedy. But as, according to it, each individual midwife would have to be sought out and prosecuted, the law is practically ineffectual. In other cities progress is being made, and I hope that at the next meeting I shall be able to report that a movement in the right direction has been made here also.

Dr. H. E. Marion reported orally a case of

ADENOMA OF THE NIPPLE

and showed the specimens from the same.

Dr. G. H. Washburn read a paper entitled

PAPILLOMA OF BLADDER, WITH OPERATION; REPORT OF A CASE.[1]

Dr. M. H. Richardson reported a case of

SMALL PAPILLOMA OF BLADDER, CHARACTERIZED BY EXCESSIVE HEMORRHAGE; REMOVED BY SUPRAPUBIC CYSTOTOMY.[2]

Dr. W. L. Burrage: I remember a case in which I made the diagnosis of papilloma with

[7] Neurol. Centrbl., Nov. 15, 1898.

[1] See page 570 of the Journal.
[2] See page 572 of the Journal.

the cystoscope. Dr. Conant operated upon the case and will perhaps tell us about it.

DR. W. M. CONANT: The chief point of interest about the case was the fact that shortly after the cystoscopic examination a part of the tumor was passed. Microscopic examination of this piece showed it to be a papilloma with beginning degeneration. This brought up the question of how the tumor should be dealt with. I decided upon the suprapubic route. The operation thereby is easier. The whole tumor was removed and its base sewed up and the bladder wall closed with three layers of catgut, which lasts long enough for union, and the abdomen closed. Recovery was uninterrupted. There have been no symptoms since. The pathologist reported that most of the mass removed was a degeneration of a papillary affair; if it had not been pedunculated the operation would have presented great difficulties.

Another case of mine shows the great need of careful diagnosis. In a man of sixty a mass could be felt, very much like a third lobe of a prostate or a large left lobe, but yet not entirely so. Consequently I decided against doing an Alexander's prostatectomy, and opened the bladder from above. It then appeared that the case was one of malignant adenoma, and further interference was abandoned. If an attempt had been made to remove it by the Alexander operation, with the idea that it was a prostate, the consequences would have been most serious. I think the dirtier the bladder the tighter it should be sewn up. It is not good surgery to allow dirty urine to trickle over a clean wound. There is little hemorrhage as a rule, and packing for a short time will control it.

DR. G. J. ENGELMANN: I agree with the importance of closing the bladder. In operating for malignant disease of the bladder it seems to me that a far more reaching procedure than mere removal of the tumor is indicated.

DR. F. B. HARRINGTON: I feel about cancer of the bladder much as I do about cancer of the tongue — that the outlook is most unfavorable. Nevertheless, one can often accomplish something, and cases that are thought to be malignant may prove not to be so at operation. We certainly are justified in operating. Palliative treatment often renders what is left of life more endurable. In such cases it is my custom to close the bladder but not the abdomen, so that if there be leaking of urine it may be recognized.

DRS. STORER and WASHBURN said they had seen cases where the entire bladder had been removed.

DR. WASHBURN: I have been surprised to find how seldom the suprapubic operation is done in women. Mann makes the statement that in women the bladder always should be opened from the vagina. In my case the operation could not have been done by the vagina. The bladder wall could not have been pulled down sufficiently to bring into sight the separate places invaded by the growth which had to be removed. I do not now feel that the suprapubic wound should have been left open. Hemorrhage can be controlled perfectly from below. In this case the intolerance of the catheter was conspicuous, morphia had to be given, whether passed through the urethra or the vaginal wound. Generally the self-retaining catheter gives little trouble. This case made me feel strongly the necessity of clearing out all the growths in the bladder if a permanent cure was aimed at.

DR. F. B. HARRINGTON reported

THREE CASES, TWO OF PAPILLOMA OF THE BLADDER, AND ONE IN WHICH THE DIAGNOSIS OF PAPILLOMA WAS MADE, BUT WHICH TURNED OUT TO BE SOMETHING ELSE.[3]

DR. J. B. SWIFT: I should like to ask why Dr. Harrington used the rectal tube, whether he would treat such cases by the tube alone.

DR. HARRINGTON: I merely meant to say that it might be well in such cases to make a routine practice of using it to tide patients over acute attacks if possible, and get them into condition for a later operation.

DR. SWIFT: I had a similar case two years ago, when the symptoms had extended over twenty years. The history was one of chronic constipation. At no time were there symptoms of absolute obstruction, but the abdomen would be enormously distended by flatus. The rectal tube and cleansing out the impacted feces would give relief for a time. During the last week of her life there seemed to be a complete paralysis of the intestines. No cause for the condition could be found, and an exploratory laparotomy was refused.

DR. J. G. BLAKE: Thirty years ago I saw a case of dilated intestine who time after time was rescued from imminent death by puncture of the intestine by a fine trocar. In all, his intestines were punctured over 150 times, I frequently doing it twice a day. As soon as the intestine filled up with gas and the breathing became embarrassed the trocar would give complete relief for a few hours. After nineteen weeks, the obstruction, whatever it was, gave way, and after a violent diarrhea the patient died. During that time, the frequent punctures, together with a diet of exclusively champagne and brandy, had kept him alive. There was never any ill effect from the puncture. In those days medical feeling was strongly against opening the abdomen, and now an operation would be done in the first of such a case, but I speak of the case to show what could be done before the days of operating.

DR. M. H. RICHARDSON: While the cause of these dilations is absolutely a matter of conjecture, I have several times seen in the dissecting-room and during operations a very tortuous condition of the colon. My theory is that this is caused by constipation. There is an acquired inability of the large intestine to empty itself; hence, this tortuous condition, with sagging in the region of the liver and spleen. The intestine becomes the seat of immense collections of gas and feces, which can be removed only partially by the rectal tube, as only so much will be obtained as is

[3] See page 571 of the Journal.

expelled by the contraction of the abdominal muscles. I have passed tubes into such dilated intestines where nothing could be obtained without milking the tube, as it were. Possibly pumping out the intestine would have worked, though I did not try it. One of my cases shows well the tendency of this condition to recur. Some years ago I removed her whole sigmoid, fourteen inches in length. In a year she grew another, which I removed. Later, a large number of transverse pleats in the new sigmoid were made, followed still later by an anastomosis between the sigmoid and the rectum. An ovarian tumor was then removed, and shortly after that I opened her again to separate a number of adhesions, and recently I have done a colostomy. Incidentally, Christian Science, mind cure and electricity have been tried, along with everything else. The trouble in this case seems to be due to a nervous failure of peristalsis.

Dr. F. T. Hyde: In a case of mine for some thirty years a ring of tissue has been felt in the region of the cecum. For the last two years he has had only one movement every two weeks. Occasionally he swells up, but everything quiets down with the use of a tube combined with free catharsis.

Dr. Harrington: Treves says that most of these cases are due to stricture by some mechanical obstruction. I feel sure, however, that there are cases in which there is no stricture, in the ordinary sense. Dr. Richardson's explanation explains to a certain extent. I think, however, that a case such as mine, with such small lungs, presupposes a condition existing from infancy, if not congenital.

Dr. Worcester: Does Dr. Harrington think that the condition demanding operation was merely an acute exaggeration of a trouble existing for years or a new inflammatory development?

Dr. Harrington: I think that the condition had existed for many years, and that a sudden increase in the quantity of the retained feces and gas had produced, by valve-like action, a complete obstruction.

Dr. Worcester: I am trying to imagine just why she died after an operation that should have given her relief, unless, possibly, the pressure being removed, there was sufficient filling of the portal vessels to allow her practically to bleed to death into them.

Dr. Harrington: The cause of death, I think, was exhaustion from complete obstruction of the bowels, following upon a condition of chronic partial obstruction. It is remarkable that, with such a condition, she should have borne five children and done ordinary housework.

Dr. Engelmann: It would seem worth while in such cases to try electricity, used in the manner that is so effective in chronic constipation with a moderately distended bowel. The bowel is filled with water, which forms one pole, into which the electrode is introduced through the tube, while the other pole is placed on the abdomen over the sluggish bowel. Thus the water in the bowel conducts the electricity to every part of its wall.

SPECIMENS.

Dr. Richardson showed (1) uterus, said to have been seat of a Cæsarean section eighteen years previously, removed on account of uncontrollable hemorrhages; (2) a uterus removed for cancer; (3) a case of fibromyoma.

## THE AMERICAN ASSOCIATION OF GENITO-URINARY SURGEONS.

Sixteenth Annual Meeting, held in Atlantic City, N. J., April 29 and 30, 1902, the President, William T. Belfield, M.D., in the chair.

FIRST DAY.

THE TECHNIQUE OF PROSTATECTOMY: CASES AND SPECIMENS IN ILLUSTRATION.

Dr. John P. Bryson of St. Louis read this paper, reporting several cases and presenting to the association a large number of specimens. After considering the etiology and pathology of the vesical conditions in prostatism he stated that an adequate technique must include the removal, not only of the urinary, but equally that of the circulatory obstruction, and that an operation that dealt only with one of these was incomplete. With such modifications as seemed to be demanded by special conditions the technique was as follows: The anesthetized patient, whose perineum and abdomen had been prepared as for a celiotomy, is placed in a lithotomy position, a catheter introduced, the bladder irrigated with warm boric acid solution and filled with warm salt solution to a point just below that which produces distention reflex. A broad, grooved staff is introduced and a free perineal incision made in such a way as to open the urethra just in front of the apex of the prostate. Most frequently the bulb is split, in which case a vessel is clamped, or the oozing is staunched by a catgut suture *en masse*. The knife, after entering the groove of the staff, is pushed backward far enough to incise the ring at the apex of the prostate, which is one of the least distensible parts of the duct. The forefinger follows well into the prostatic urethra, usually tearing it somewhat, and the staff is withdrawn. The finger quickly exposes the prostatic urethra, and ascertains whether the vesical outlet can be reached; after which the forefinger of the right hand in the rectum permits bimanual examination of the part of the prostate within reach. Guided by the finger a blunt instrument is now passed into the urethra and made to puncture from the urethral side the most prominent part of the mass. This puncture is always made in the lower posterior quadrant, and the instrument is pushed well into the swelling. On its withdrawal the finger tears its way into the centre of the mass, which, even in fibrous prostates, is comparatively friable. The mass is

now opened through to its capsule, the finger swept round its periphery without tearing the prostatic capsule or fibrous sheath of the gland. In the meantime the urethra is felt to tear longitudinally. After the lobe has been loosened all around there remains the attachment to the urethra, in detaching which care must be had not to take away too much of the sides nor any of the roof of the urethra. The floor may be disregarded if necessary. The hypertrophied lateral lobe is then removed, to do which one has often to go well up behind and beside the neck of the bladder; yet it is possible to do this and keep within the capsule. Very little bleeding follows, but what there is appears to come from the torn mucous membrane, the lower part of which is often brought away. If there is any difficulty in delivering the detached mass, which is very smooth and slippery, an ordinary lithotomy forceps may be employed. If it is too large it may be broken up with the finger or divided with scissors. This process is repeated on the opposite side, after which a median posterior segment remains to be dealt with. This can usually be done by sweeping the finger from side to side, its dorsal aspect towards the capsule, pushing it backwards in such a way as to detach it well up behind the bladder and roll it downward. One may be surprised to find that he may get behind and excochleate what he had just felt as a pedunculated intravesicular projection, or a growth *en collerette*, bringing it well down by use of the forceps, apparently without disturbing the fibrous ring at the vesical outlet. Most frequently one finds the attachment of this mass to the urethra quite firm, and, no matter how much care is taken, some of this membrane is brought away. The more the detached mass is rolled downwards by pulling upon its upper surface, the less mucous membrane is removed. In some cases the whole of the floor, including the colliculus and verumontanum, has been removed without harm; in fact, in most of these cases this has been necessary, the explanation of which may be found in the anatomical fact that the collecting tubes of the prostatic gland, passing from the lateral lobes and, if there be any, from the median portion, as well as the ejaculatory ducts, unite here and empty into the sulci on either side of the verumontanum, while the colliculus often passes deeply into the tissue; this shows, also, how it is that those who practice excochleation from the capsular side find it necessary to make a hole in the urethra at this point, or to cut the pedicle with knife or scissors. Usually, now, the finger may be passed through the ring into the bladder, which may be explored thoroughly. The cavity is now irrigated with a hot salt solution until the oozing ceases. If the finger be now introduced, the floor and the sides of the urethra will be found intact, the latter often hanging loosely against the outer wall or sides of the cavity from which the growths have been removed. A large cavity is made out between the lower part of which and the rectum there is felt a thin wall. Into the lower part of this, hinged posteriorly about the ring at the vesical neck, is an irregular flap of mucous membrane, which can be pushed up and back and often made to occlude the vesical outlet. The walls of this cavity feel rough and irregular and often shreddy; nevertheless, they do not seem to be a poor basis for "taking" of a graft; for it seems that, if properly managed, this tongue of mucous membrane readily becomes attached, behaving subsequently like an autoplastic flap. Care must be taken not to double backwards and push this flap into the bladder when the large drainage tube is introduced, the sound edges retracted and the cavity packed with gauze loosely or tightly, as may seem necessary, to provide against subsequent hemorrhage. In packing, one naturally takes into account any oozing point, usually found about the edges of the mucous membrane.

THE SURGICAL RELIEF OF PROSTATIC HYPERTROPHY.

DR. CHARLES H. CHETWOOD of New York read this paper, drawing the following conclusions which were based upon his personal observations: Palliative measures should not be persisted in when they fail, after reasonable duration, to produce and maintain an abatement of symptoms. A first infection of the bladder is not alone sufficient excuse for operation unless palliative measures fail to promptly subdue inflammatory conditions. Recurring infection of the bladder or ascending infection of the kidney is sufficient warrant for operative interference. There is a growing tendency toward earlier operation than was formerly practised. The greater number of cases of prostatic hypertrophy can be satisfactorily reached through a perineal incision. In the large majority of cases the requirements of any operation upon the prostate consist in the removal of the obstructing area and depressing the bladder opening into the prostate, so that the bas-fond may be properly drained. In many cases the obstructing area of the hypertrophied gland can be satisfactorily reached and effectually removed through a perineal opening by means of galvano-caustic incisions. Perineal galvano-prostatotomy is preferable to the Bottini operation, on account of its greater accuracy and lower mortality.

BOTTINI'S OPERATION.

DR. HENRY H. MORTON of Brooklyn, N. Y., presented a case occurring in a patient aged seventy-eight years, who for one year prior to the operation had been complaining of tenesmus and frequent and painful urination, and at the time of his admission to the hospital there was complete retention of the urine. At this time the prostate was observed to be 1½ inches in diameter, and the cystoscope revealed an enlarged middle lobe and trabeculated bladder. The urine was acid, cloudy, with a specific gravity of 1,016, and showed a slight sediment, which contained pus cells but no casts. Bottini's operation was performed, three incisions being made, the anterior one being 2 cm., the posterior 3 cm. and the left lateral 2 cm. in length. Catheterization was

necessary until the third day after the operation, when the patient began to urinate spontaneously.

Eleven days after the operation micturition occurred every hour during the day and five times at night, catheterization being performed once daily with a withdrawal of 3 to 4 oz. of residual urine.

One month after the operation the patient urinated six times daily and four times at night, and, although the stream was slow in starting, it was ejected with good force. The cystoscope at this time showed the posterior lobe of the prostate with a cleft in the middle made by the Bottini incision, and the patient continued to be in good general condition, being up and about the ward. Subsequently his appetite and general vitality began to deteriorate, and fifty-four days after the operation he died.

A complete autopsy was not permitted, but the bladder was examined and found to be contracted. It contained a small quantity of thick and foul pus; many small necrotic areas were scattered about the surface, and a number of small sacculi, one containing a small calculus, were observed. Traces of the posterior incision were very distinct. The interureteric fold of the mucous membrane had been divided, and the middle lobe of the prostate cleft in halves, necrotic areas being visible at the apex of each half. The left lateral incision had not split the prostate, but merely separated mucous membrane from superior surface of prostate, and no traces of the anterior incision were visible. The kidneys were not examined, but, as previous urinalyses had revealed the absence of casts, the cause of death was probably cystitis, which had been greatly aggravated by the operation. The middle lobe of the prostate was completely divided. The reduction in size of the prostate following Bottini's operation probably results from the sloughing subsequent to the burning. The difficulties of placing the instrument in a correct position are shown by the fact that the left lateral incision did not divide the left lobe of the prostate, as intended, but only lifted up the mucous membrane covering it, while the anterior incision was found not to be made at all. The obstruction to urination was relieved by a single incision through the posterior median lobe of the prostate, and death did not occur until seven weeks after the operation, at which time the relief was complete. The only reasons he was kept in the hospital until his death were for bladder washing and because he had no home, and had he left the hospital as soon as he was able to go after the operation, his case might have been reported as one of complete retention of urine in a man seventy-eight years of age entirely cured by Bottini's operation.

PROSTATECTOMY.

The same author reported the case of a patient aged sixty-two years, who entered the hospital suffering from retention of urine, due to prostatic enlargement. Attempts had been made by his physicians to introduce a catheter, and a false passage into the prostate had resulted. At this time no instrument could be passed into the bladder and external urethrotomy without a guide was performed. For three weeks subsequent to this the bladder was drained through a 30 catheter, at which time it was removed, but owing to the fact that the patient could not urinate, it was again introduced and allowed to remain two weeks longer, at which time prostatectomy was performed. The method employed was a suprapubic cystotomy to depress and hold prostate, and the perineal wound was used to shell prostate out from the capsule. No difficulty was experienced in enucleating three tumors $\frac{1}{2}$ to $1\frac{1}{2}$ inches in diameter, and there was no hemorrhage following the operation. Drainage was obtained through perineal and suprapubic tubes. Patient did well for three days, during which time the drainage was perfect, but later developed sepsis and died ten days after the operation. The autopsy showed suprapubic wound intensely infected; the cavity from which the prostatic tumors had been removed was healthy in appearance, and indicated that it would have healed entirely by granulation. The obstruction to urination had been entirely relieved by the enucleation of the prostatic tumors.

REMOVAL IN TOTO OF ALL THREE LOBES OF THE PROSTATE BY SUPRAPUBIC CYSTOTOMY.

Dr. Charles L. Gibson of New York presented this specimen, which was removed from a patient, sixty-two years old, who was admitted to the hospital July, 1901. There was a history of increasing obstruction of urine for past six years. Urine frequently dribbles away. Examination by rectum show a considerable degree of enlargement of both lateral lobes. There were 15 oz. residual urine obtained on several occasions. Moderate cystitis. No evident kidney lesion. Prostatectomy by the Alexander operation was undertaken, but the first step revealed the bulging of the prostate into the lumen of the bladder so distinctly that he determined to remove the enlarged portions by this direct approach. The vesical mucous membrane was incised over the urethral orifice, and he then found that his finger could be easily swept all around the prostate; so, in a few seconds he brought out the whole prostate *en masse*. The urethal outlet must have been avulsed, but of this he was not aware, so the prostate was simply shelled out without any force and without any bleeding. The operation was completed by adding a perineal boutonnier for drainage. The result promised to be favorable, as there was no reaction. On the fourth day the dressings were changed, the bladder washed out, and the patient's condition appeared to be admirable, with a normal temperature and a free secretion of urine. Yet, six hours later, the patient died without any particular manifestations. No autopsy.

The case was presented, not to recommend that the prostate should be removed *in toto* with the necessary drawback of destroying the urethral

outlet, but for the purpose of emphasizing how easily the prostate, or portions of it, can be removed without destruction of tissue or hemorrhage provided one clearly enters the essential line of cleavage.

THE USE OF THE CAUTERY UPON THE PROSTATE THROUGH A PERINEAL OPENING; NEW METHOD, WITH DEMONSTRATION OF INSTRUMENTS AND REPORT OF CASES.

This paper, by DR. WILLIAM N. WISHARD of Indianapolis, was read by DR. BRANSFORD LEWIS of St. Louis.

DR. EUGENE FULLER of New York said that during the last one and a half years he had performed twelve perineal prostatectomies with but one death, which occurred from delirium tremens. The oldest patient was eighty-one, and had atheromatous arteries and a mulberry calculus in his bladder, to remove which he was compelled to make a suprapubic opening. Another patient had tuberculosis of one lung and spinal anesthesia was given with good results, although the patient died seven or eight months after the operation from progressive tuberculosis.

DR. FRANCIS S. WATSON of Boston said that in 1888 he made the statement that two-thirds of all cases of prostatic hypertrophies would be found within the reach of the finger after a perineal incision through the urethra; the same statement held good today. He did not believe that an elaborate armamentarium was necessary; he used a little instrument made on the plan of the old gum-lancet, with which the mucous membrane was split, and then the forefinger was utilized in completing the work of removing the prostate.

DR. GEORGE CHISMORE of San Francisco said that for thirty years he had seen many operations advocated for the relief of this condition, and they had all been disappointing in their results; but of late he thought he would have to change his views. He had had an opportunity of observing eight cases operated upon by Dr. Goodfellow of San Francisco.

THE OPERATIVE TREATMENT OF HYPERTROPHIED PROSTATE; WITH PRESENTATION OF SPECIMENS AND MODELS ILLUSTRATIVE OF THAT CONDITION.

DR. BRANSFORD LEWIS of St. Louis said that, while claiming for prostatic surgery the merit of wonderful progress in the last fifteen years, he thought that the profession was not above criticism in certain respects, and that operators were much inclined to follow beaten tracks and routine procedures rather than base their operative treatment on the especial conditions found in each individual case.

The condition favorable for the several operations in vogue were summed up as follows:

*Favorable for the suprapubic route.*— (1) General enlargement of the prostate, with extreme intravesical projection of the median or lateral lobes, diminishing their accessibility from the perineum; (2) marked pedunculation of the intravesical tumors, with absence of obstruction from other sources.

*Favorable for the perineal route.*— (1) General hypertrophy, involving the lateral lobes, without extreme intravesical projection; (2) large or very thick bar formation; (3) severe compression of the urethra between massive lateral lobes; (4) excessive development of the prostate in the direction of the rectum; (5) in most cases, where the patient is in good general condition, is not too aged, and there is not a special indication favoring one of the other procedures.

*Favorable for the Bottini.*— (1) Cases of extreme debility, or of extreme age, unable to stand one of the severer operations; (2) cases of bar or median sessile obstruction, if not too great dimensions; (3) Horwitz says it should be employed as a prophylactic against further obstructive tendency, at the beginning of catheter life; (4) in complete collar formation.

DR. F. L. STURGIS of New York said that the removal of the prostate and ejaculatory ducts prevented the flow of the prostatic secretion which was so essential to the vitality of the spermatozoa and, therefore, tended to render the male sterile. Some partial operation, such as the Bottini, was preferable on this account.

DR. EUGENE FULLER of New York did not think we could group the different forms of hypertrophied prostates under such a small class as shown by Dr. Lewis. If one had to deal with 100 cases of prostatectomy there would certainly be 75 of them that would represent something new. In cases complicated with troublesome hernias many surgeons operated without having in mind the cause of the hernia, the straining, etc., consequent upon the urethral obstruction. No matter how severe the hernia seemed to be, if the bladder be opened and drainage instituted, the tenesmus ceases and the patient may not again be troubled with the hernia. This also applied to prolapse of the rectum incident to the straining and tenesmus.

DR. F. TILDEN BROWN of New York said that Dr. Lewis had failed to show how we were to know in advance just what form of prostatic enlargement we were to deal with. The use of the cystoscope for this purpose was very unsatisfactory. Again, it was very necessary that one should know the condition of the kidneys and what sort of urinary obstruction we had to deal with, and this was difficult to learn. It seemed to him that where there was the slightest excuse for making a suprapubic incision for drainage, such an incision should be made use of for the introduction of the cystoscope with which one could look directly down and learn the nature of the obstruction or growth. Recently he had the opportunity to examine two cases through a suprapubic opening in this condition, and he had learned a great deal that would have been impossible to learn if the cystoscope had been introduced through the urethra.

Dr. H. H. Young of Baltimore reported a case in which no enlargement could be found by rectal and cystoscopic examination, but was found by epicystotomy to have a small globular tumor of the verumontanum which was causing the obstruction. He had had several cases of so-called small sclerotic prostate, which also showed by rectal and cystoscopic examination very little evidences of hypertrophy, and on which a prostatectomy would be impossible, that was cured by the Bottini operation. In four cases which had previously been castrated he found with the cystoscope a collarette of mucous membrane and fibrous tissue around the prostatic orifice which continued to cause obstruction after the lateral lobes had atrophied. This, also, was relieved by the very small blade of the electro-incisor. He wished to reassert his adherence to the radical removal by prostatectomy in fit subjects. He had used both the perineal and suprapubic routes with but one death in fourteen cases. Many of his cases were so old that he feared the radical operation and general anesthesia, and found the Bottini operation eminently satisfactory. He had had nineteen cases over seventy years of age, three over eighty, and operated under cocain with the electro-cautery without a death and with good results.

Dr. Sturgis of New York said that in the case of the tumor of the verumontanum the endoscope would have shown what the cystoscope had failed to show.

Dr. Bryson of St. Louis said he had had three or four such cases where he did an epicystotomy and found a tuberculous condition; they were scraped and cure followed.

Dr. William T. Belfield of Chicago said that none had as yet penetrated beyond the threshold in our endeavors to relieve these obstructions. It must be admitted that nothing was known regarding the etiology of these conditions. We all know that some of the most violent cases of so-called prostatism occur when there is no prostate at all. We know of certain young men whose prostates are not enlarged; nevertheless they have symptoms of prostatism with residual urine, etc. Such cases have been described by Chetwood and others under the name of contracture of the vesical neck. There are cases occurring in women with all the symptoms of prostatism, with complete retention, residual urine, trabeculated bladder, showing the efforts of the bladder to overcome the obstruction, and yet there is no prostate. He thought we were overestimating the importance of enlargement of the prostate as a cause of the trouble. He thought more attention should be paid to contractures, or fibrous degeneration of the vesical outlet, that may be present without any prostatic enlargement whatever. Again, we know that the prostate has no function except that imposed upon it by the internal secretion of the testicle; if we remove the testicle the glandular part disappears by atrophy. If such is the case, and it be shown that the secretion of the testicle has anything to do with the production of the adenomatous enlargement, then it would seem rational to assume that no operation except a radical one would be of great benefit. The Bottini operation as a prophylactic one is unreliable. In the Bottini operation simply scratching offers no improvement which cannot soon be overcome by some causative agent which may be circulating in the blood.

### THE VALUE OF THE PHLORIDZIN TEST IN DETERMINING THE FUNCTIONATING CAPACITY OF THE KIDNEYS (PRELIMINARY REPORT).

Dr. Francis S. Watson of Boston read this paper.

### A NOTE UPON THE DETECTION OF STONE IN THE KIDNEY BY SKIAGRAPH, WITH SPECIMEN.

Dr. James Bell of Montreal exhibited photographs of a case in which the skiagraph had demonstrated a stone with perfect satisfaction. The patient was rather a slight, poorly nourished woman, forty-two years old. She had her first attack of colic when she was four months pregnant in 1897. She remained well until 1900 when, being three months pregnant, she had another attack. She then remained well until 1901 when she had other attacks occurring on the right side. She had observed no change in the urine, but she declared she had noticed some swelling on that side with each previous attack. After admission to the hospital skiagraphs were taken, which showed a small oval stone in the lower half of the kidney, which was removed by the loin incision, and it was shown to be of the size and shape as depicted in the skiagraph.

## SECOND DAY.

This session was devoted to a "General Discussion of the Surgical Treatment of Genito-Urinary Tuberculosis."

### RENAL TUBERCULOSIS.

Dr. F. Tilden Brown of New York opened the general discussion on this topic, and said that the results of necropsies were at variance with the clinical showings in the disease, as a rule, and that if we relied upon the evidence as produced at autopsies we would be convinced that there were but few cases of isolated renal tuberculosis which justified surgical intervention. He thought that a contribution from the hospital records extending over a period of ten years would be of value, although the statistics were incomplete. At the Presbyterian Hospital, New York, from February, 1892, to March, 1902, there were 1,427 necropsies, of which number 258 (18%) showed tuberculous lesions somewhere in the body, and 48 of them (18.5%) showed renal tuberculosis. Of these 48 cases 32 occurred in males and 16 in females. Of the 48 cases 39 had tuberculous lesions in both kidneys, while but 9 had tuberculosis of one kidney. Of these 9 cases 5 involved the right and 4 the left kidney. Of the 258 tuberculous bodies it was shown that the kidneys were more commonly involved than the spleen,

liver or adrenals (kidneys involved in 48, spleen in 32, liver in 32, adrenals in 8, etc). During the same time there were in the hospital 78 cases diagnosed as renal tuberculosis, if the authorities be given the credit of making such a diagnosis in 48 cases where the kidneys were found to be involved in tuberculous lesions at autopsy. Of these 78 cases 13 (16%) had nephrectomy performed, with one death occurring two months after the operation; at the autopsy the other kidney was found to be far advanced in the disease. That gave a mortality rate of 7.6%. Of these 13 cases 6 fell into the speaker's hands; he had no deaths. The vast majority of cases that come to autopsy which show tuberculous lesions in the kidney were of the disseminated general miliary type, and with such a class of cases, of course, the surgeons have nothing to do with. At the present time we are sure that there is no form of medical, hygienic or climatic treatment that is at all curative in renal tuberculosis. The evidences at necropsies show as high as 3 or 4% of healed cases of pulmonary tuberculosis; whereas, it is the rarest occurrence to find at autopsy any evidence of healed renal tuberculosis.

The speaker then showed photographs of Nature's efforts in the attempt to cure renal tuberculosis. From a surgical standpoint he was satisfied that no surgeon today would hesitate to perform an immediate nephrectomy when he was sure that one kidney contained the only appreciable focus of the tuberculosis. Through the courtesy of his colleague, Dr. Tuttle, he was able to show a picture of a case of pseudotuberculosis of the kidney, a very rare condition, which was first described in 1891.

TUBERCULOSIS OF THE SEMINAL TRACT.

DR. HUGH H. YOUNG of Baltimore said that although tuberculosis of the seminal tract had been the subject of much investigation and discussion during the past three years, there were still wide and important differences of opinion among prominent surgeons both as to the pathology and the treatment of the disease. The main questions at issue, he said, were these:

*The pathology.*— Is the primary localization in the epididymis, in the prostate, or in the seminal vesicles? In disease beginning in the epididymis how often does the testicle become involved, and how soon? Does the disease ever begin primarily in the bladder and from there travel to the genital organs?

*Treatment.*— In tuberculosis of the epididymis is castration or epididymectomy the better operation, and what are the limitations of each? Is double castration followed by important psychical or sexual disturbances? To what extent should the vas deferens be followed and removed? Is forcible avulsing advisable? With disease of the prostate and seminal vesicles what should be the treatment? What hygienic and climatic treatment should be employed? Should the patient rest or lead an active life?

*(To be continued.)*

THE BOSTON

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## THE FIFTY-NINTH REGISTRATION REPORT OF MASSACHUSETTS.

SOON after the establishment of a system of Registration of Births, Marriages and Deaths in England in 1838, Massachusetts followed with a similar plan in 1842, and from that time onward its reports constituted an authority of the highest value, this value increasing as the facts and observations essential to such work were accumulated, from year to year. The early work of Lemuel Shattuck, Dr. Jarvis, and Dr. Josiah Curtis in improving the character of these reports, had, in consequence of its accuracy and thoroughness, proved a useful model to the other New England States.

An examination of the meagre and untrustworthy reports of this series, which have been issued during the last few years, shows that this important work, so far as its publication for useful purposes is concerned, has fallen into the hands of the Philistines. It is not surprising that Dr. Wilbur, the noted Michigan expert, should have recently said of it:[1]

"An unfortunate history has befallen the once noble series of Massachusetts Registration Reports, the mother reports of this country, and to which we in Michigan, as well as vital statisticians generally throughout the country, owe a vast debt. For some years past, instead of being edited by some of the leading vital statisticians of the country, under the auspices of the State Board of Health, their editorial preparation has been conducted by those who were solely interested in cutting down the number of pages of printed matter, possibly in order to subserve some false notion of economy, and who were contemptuously proud of an entire lack of interest and knowledge pertaining to vital statistics. This is mentioned in order to afford additional illustration of how profoundly the value of statistical reports depends upon the editorial supervision, as well as upon the statistical material."

[1] Bulletin No. 2, Vol. 2, Vermont State Board of Health, Address of Dr. C. L. Wilbur, p. 29.

The following are some of the defects to which Dr. Wilbur undoubtedly alludes:

The entire work is archaic, and when compared with similar reports of other states, has an out-of-date appearance. As Mark Twain says in his latest effusion, it appears to be "sanctified by use and petrified by custom." For an example of its antiquated character, one needs only to turn to page 251 of this report of 1900, to find the date 1855, and the same old nosology of Dr. Wm. Farr which has been in use with but little change for nearly fifty years. It contains many words which have long since gone out of use and are unknown to the present generation. Every other state in the Union in which registration exists, as well as every other civilized country where it was ever used, has rejected it. Even in England, the home of its birth, this system has been so modified as to retain but little of its original character. And yet, until this year 1902, and in this report of the year 1900, no mention of any proposed change has been made.

Another relic of antiquity is the retention of county statistics. The importance of the county as a factor in statistical matters has steadily diminished during the last half-century, and that of the municipality has correspondingly increased. And yet the editorial portion of this report contains nearly thirty of these county tables, an utterly useless mass of material and a waste of printer's ink. No one ever asks for the vital statistics of counties, no one ever wants them, because they have absolutely no significance in a public document of this character.

Again, most of the tables of foreign statistics (Tables 9, 17, 28, 29 and 49) are old and out of date, being quoted second-hand from the compilations of Mayo-Smith, Newsholme and others, and not from the annual reports of the countries in question, as might easily have been done.

Secondly, the numerous and serious errors which disfigure the report make it a conspicuous example of careless editing.

The following are selected as examples:

In Table 2, page 133, all of the estimates of population from 1851 to 1890 are made by one method, and those from 1890 to 1900 in the same table are made by another method. Why this incongruity exists does not appear.

In Table 12, on page 154, the average for January and for the first quarter and first half-year in the first or upper half of the table should read 4,111, 12,230 and 24,390 instead of 4,011, 11,630 and 23,790, and the corresponding figures in the lower half of the table should read 5,824, 18,405 and 34,979 instead of 5,671, 16,895 and 33,469. Various clumsy attempts have been made in the past five years to patch this table without success.

In Table 18, page 163, are two ridiculous blunders such as Hoffman describes in his noted criticism upon these reports when he accuses the editor of blunders "which even a high school graduate trained in simple arithmetic would not be expected to make."[2] The editor here appears entirely oblivious of the fact that the last two columns consist of relative and not of absolute figures. Consequently neither result is correct, that of the latter column varying from the truth by at least several thousands, and the blunder is only exaggerated by the unnecessary addition of two decimal figures. The same blundering method of averaging has been employed in more than a score of other instances in the same report as well as those of its immediate predecessors.

On pages 223 and 224 a table is presented which was introduced many years ago, and as originally presented, constituted a table of great practical value, but in the present report its value has been entirely destroyed by the omission of the relative or significant figures which had invariably been published with it.

Another instance of an utterly valueless table is that upon page 212, presenting average ages at death. The average age at death depends upon the ages of the living in a given community and has no practical significance. Nantucket, Dukes and Barnstable counties have high average ages at death, simply because there is a large ratio of old people living in those counties.

By what process of reasoning the editor arrives at the conclusion that there were any exceptions to the fact that all the persons mentioned in Table 12, page 96, had been married, it is not easy to determine. No wonder that a noted physician of Worcester County says that he places the Massachusetts Registration Report upon the same shelf beside his copy of "Innocents Abroad," as affording him an infinite fund of amusement. The words "but four" on page 213 must have slipped in at the printing office. The foregoing few examples are selected out of a large number.

In another table published in one of the recent reports since 1893 a Technology student found more than 120 blunders upon a single page varying from 1 to 20% from the truth. Of what service is such a table to anyone in search of accurate figures?

The evolution of vital statistics in the older states of the Union is progressing, notwithstanding the fact that the work in Massachusetts is lagging behind. A thorough investigation of the whole subject by a board of experts, with authority to report present conditions and propose methods of improvement, would undoubtedly result in increased efficiency and economy of service.

[2] Boston Medical and Surgical Journal, December, 1900, p. 657.

## ANNUAL REPORT OF THE MASSACHUSETTS GENERAL HOSPITAL.

THIS year's report of the Massachusetts General Hospital is of rather more than usual interest, owing to the recent extensive additions which have been made to the hospital and to those which are now under construction. That these additions, among which the new Out-Patient Department should take a prominent place, will materially advance the usefulness of the hospital and lead to increasingly good work is unquestioned. Certainly, the present accommodations for the large out-patient service are wholly inadequate to meet the demands of modern skilled medical diagnosis and treatment. Both physicians and patients have suffered from the lack of adequate accommodation for several years past. It is a gratification, therefore, that the trustees of the hospital have seen fit to enlarge and render practicable the dispensary work of the hospital by an adequate building, which is now under construction at an estimated cost of upwards of $226,000. We note, also, that a new ward for the treatment of skin and other diseases at the general hospital is soon to be put into use. We have before commented on the desirability of further accommodations at this and other hospitals for the observation and care of special classes of disease, particularly those of chronic character. The beginning of this movement for a widening of the usefulness of the hospital appears to be evident in the building of this new ward.

As is usually the case, the statistics of the hospital for the year 1901 show an increase in the number of patients over the previous year. Total number treated was 5,353, as against 4,883 in 1900. The number of cases, on the other hand, treated in the Out-Patient Department, was several thousand less than in 1900, owing, it is thought, to the fact that the fear of contracting smallpox during the last months of the year was sufficient to lead those not seriously ill to avoid going to the hospital. Another statistical fact of interest, and one which is well worthy of note, is that the average number of days during which patients remained at the hospital was still further reduced from the figures of previous years. During the past year it was only seventeen days. This demonstrates the increasing tendency toward the improvement in methods of care and medical practice, and also that patients quickly curable or benefited form the great bulk of those admitted to the hospital. The hospital, therefore, is becoming more and more, from this point of view, an institution for the treatment of acute disease. The opening of a ward for diseases of the skin and other diseases may, as suggested above, do something to counteract this tendency which, both from necessity and choice, has become firmly established.

Elaborate tables of statistics regarding the diseases treated in the general hospital occupy as usual the bulk of the report. We are glad to make note of the fact that in addition to the statistics of the house cases a report is also made of certain of the Out-Patient Departments. If great numbers constitute the value of statistics, it is to be regretted that more attention in the past has not been paid to these out-patient reports. We understand that a movement is on foot to systematize this branch of the work, which, if successfully accomplished, will certainly be of great value in the estimation of the minor forms of disease, as well as of the diseases of special branches of medicine. The latter part of the report is taken up with an admirable discussion of the needs and work of the McLean Hospital for the Insane, written by its superintendent, Dr. Edward Cowles. This department of the hospital, separated as it is by the nature of its work and by distance from the general hospital, should command the very deepest attention of all interested in medical progress. Much of the work done at this institution has been of the pioneer order, a statement which the perusal of these pages by Dr. Cowles will amply demonstrate. We look forward with assurance to a progress in this line of the hospital's work which will continue to compare favorably with the energy and progressiveness shown at the general hospital.

In general the report gives evidence of decided progress in all departments of the hospital work, which should be a source of congratulation not only to those connected with the institution, but also to the community at large, upon which the hospital is partially dependent for its continued growth.

## BULLETIN OF THE ASSOCIATION OF MEDICAL LIBRARIANS.

UNDER this title we have received an attractively printed quarterly devoted to matters relating to medical libraries. The association was organized in Philadelphia in 1898 for the express object of fostering medical libraries and maintaining an exchange of medical literature among its members. Membership to the association is open to any medical librarian or other person interested in medical libraries who shall receive the requisite number of votes of the members. Dr. William Osler is president of the association and Dr. George M. Gould vice-president. Under this leadership we may be assured that this new association, with its journal, will fill a significant place in the upbuilding of libraries relating to

medical subjects throughout the country. This first number of the *Bulletin* contains a large amount of information regarding libraries already organized. In addition to the more technical matter contained in this issue is an exceedingly interesting and readable paper by Dr. Osler on "A Visit to the Hunterian Library at Glasgow." Among other matters which are mentioned in the department of the journal devoted to "library items" is the recent departure in administration suggested by Dr. James R. Chadwick, librarian of the Boston Medical Library. Contrary to the usual custom of keeping on the shelves all editions of various medical works, Dr. Chadwick, with the consent of the executive committee, has seen fit to throw out every edition of general treatises and handbooks between the first and the last. This has led to a decided reduction in the number of books, and, it is believed, with no loss in efficiency.

The progress made in the development of medical libraries within the last few years has certainly been a very gratifying movement. The publication of a bulletin designed to keep the profession informed of changes and improvement in libraries, organized throughout the country, is a further sign of the literary tendency which is everywhere manifesting itself, and which must manifest itself more and more if medicine is to reach and maintain a proper position of dignity among the sciences.

## MEDICAL NOTES.

The Limit of Fanaticism.— It is reported that a daughter of Alexander Dowie, leader of the "Zion" movement in Chicago, has recently died as a result of serious accidental burns. No physician was summoned, and the girl died after suffering intensely. The treatment consisted in continuous prayer.

Medical Department of University of Nebraska.— The Omaha Medical College has recently become an integral part of the University of Nebraska.

### BOSTON AND NEW ENGLAND.

Acute Infectious Diseases in Boston.— For the week ending at noon, May 28, 1902, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: Diphtheria 32, scarlatina 21, measles 119, typhoid fever 5, smallpox 13.

Boston Mortality Statistics.— The number of deaths reported to the Board of Health for the week ending May 24 was 221, as against 273 the corresponding week last year, showing an increase of 8 deaths, and making the death-rate for the week 20.1. The number of cases and deaths from infectious diseases is as follows: Diphtheria 35 cases, 3 deaths; scarlatina 13 cases, 1 death; typhoid fever 10 cases, no death; measles 102 cases, 3 deaths; tuberculosis 31 cases, 28 deaths; smallpox 28 cases, 6 deaths. The deaths from pneumonia were 30; whooping cough, 2; heart disease, 24; bronchitis, 4; marasmus, 5. There were 15 deaths from violent causes. The number of children who died under 1 year was 30; under 5 years, 51; persons more than 60 years, 48; deaths in public institutions, 60.

A Centenarian.— Mrs. Nancy Washington, said to have been the oldest person in Boston, has died at the reputed age of one hundred and seven years, one month and eight days. Until this winter she enjoyed an active life and retained her faculties remarkably well. Her father was an Indian and her mother was an African. She was married six times, and most of her life was spent in the vicinity of Boston.

Officers of New Hampshire.— At the recent meeting of the New Hampshire Medical Society the following officers for the ensuing year were elected: President, I. A. Watson, Concord; Vice-President, Ezra Mitchell, Lancaster; Treasurer, M. H. Felt, Hillsboro Bridge; Secretary, Granville P. Conn, Concord; Anniversary Chairman, S. M. Dinsmoor, Keene; Necrologist, John J. Berry, Portsmouth.

Defeat of Bill to Restrict Vivisection.— The bill recently before a legislative committee to restrict the practice of vivisection in Massachusetts has been reported unfavorably and dismissed without argument.

Opposition to a Board of Osteopathy.— Leave to withdraw has been reported on the petition of C. E. Achorn and others for the appointment by the Governor of a board of registration in osteopathy.

### NEW YORK.

Verdict for Death Caused by Automobile. — On May 22 Frank E. Thies recovered a verdict of $3,125 against Edward R. Thomas in the Supreme Court, in a suit for $25,000 damages for the death of his son, seven years old, who, in February last, was run over and fatally injured by Mr. Thomas's automobile. This is the first case of the kind that has been decided in New York, and the charge of the presiding justice to the jury has attracted considerable attention as defining the statutes regarding the liability for personal injuries in such cases. In the course of it he said: Being or playing upon a street is not of itself contributory negligence in such

a child. If the automobile in question came upon the deceased under circumstances to produce fright or terror, and such fright or terror caused an error of judgment by which the boy ran in front of the automobile, the error was not contributory negligence. The mere rate of speed, whether high or low, lawful or unlawful, is immaterial, unless it entered into the cause of the accident. An automobile has the same duties to perform when meeting pedestrians or vehicles in the streets that other vehicles are subjected to. No owner or operator is exempt from liability by simply showing that at the time of the accident he did not run at a rate of speed exceeding the limit allowed by the law or the ordinances. On the contrary, no matter how great the rate of speed permitted by the latter, he still remains bound to anticipate that he may meet persons at any point in a public street, and he must keep a proper outlook for them and keep his machine under such control as will enable him to avoid a collision with another person, also using proper care and caution. If necessary, he must slow up and even stop. No blowing of a horn or whistle nor the ringing of a bell or gong, without an attempt to lower speed, is sufficient if the circumstances at a given point demand that the speed be slackened or the machine stopped, and such a course is practicable. On the other hand, every such operator of an automobile has the right to assume that every person he meets will also exercise ordinary care and caution according to the circumstances, and will not negligently or recklessly expose himself to danger.

FUND FOR PATHOLOGICAL RESEARCH.— The president of the General Memorial Hospital for the treatment of cancer and allied diseases, announces that Mrs. C. P. Huntington has proposed to put at the disposition of the hospital the sum of $100,000 to constitute the "Collis P. Huntington Fund," as a memorial of her husband, the income of which is to be used for pathological research. This institution, which has very fine buildings on Central Park, West, extending from 105th to 106th Streets, which were erected and endowed from bequests from the Astor and Cullum estates, was formerly known as the New York Cancer Hospital, and Mrs. Huntington's son, Mr. Archer M. Huntington, is a member of its board of managers.

MORE WATER.— The citizens of the borough of the Bronx seem to think that their allowance of water is rather short, and some of them have sent to the Department of Water Supply a unique petition, in which they say: "Unless we get relief soon we may be compelled to vacate our homes. We have only to cross the road to see monkeys and other animals enjoying an abundant supply of city water — also beautiful fountains playing — at the New York 'Zoo'; but we poor and humble taxpayers can only look on, longingly."

NEW BUILDINGS FOR LONG ISLAND COLLEGE HOSPITAL.— The announcement has been made that Mr. J. Rogers Maxwell of Brooklyn is to contribute $400,000 for the construction of new buildings for the Long Island College Hospital, in memory of his brother, Henry W. Maxwell, the recent president of that institution, who gave to it altogether $160,000 during his life and left it $20,000 in his will. The whole work of reconstruction will, it is said, cost about $500,000.

VACCINATION.— The president of the Board of Health is authority for the statement that under the present municipal administration a much larger number of vaccinations have been performed than were ever previously done in an entire year. In four months, up to May 10, the 200 vaccinators of the Health Department had vaccinated 528,865 persons. In 1901 there were 383,629 vaccinations, and in the year 1900, 147,942.

DEDICATION OF ST. BARTHOLOMEW'S CLINIC.— The new St. Bartholomew's Clinic, on East 43d Street, was dedicated on May 1. It is the most carefully constructed building of its kind in the city, and is thoroughly equipped with the most approved modern appliances. It differs from the ordinary dispensary in having hospital accommodations for the care of patients for a short time, when the necessities of the case require this.

BEQUESTS TO HOSPITALS.— Among the charitable bequests made by Miss Julia A. Low of New York, who died in April, are $1,000 each to St. Mary's Free Hospital for Children and to the House of the Holy Comforter.

## Correspondence.

### THE QUESTION OF VACCINE VIRUS.

PHILADELPHIA, PA., May 23, 1902.

MR. EDITOR: In an editorial entitled "State Protection of Vaccine Material," which appeared in your issue of May 15, 1902, page 527, I notice my name mentioned in a manner that leaves considerable doubt as to the position which I took when called as an expert to testify before the committee of the legislature, in regard to the testing of vaccine virus. The question which was asked of me on that occasion was, whether it was possible to test the purity and efficiency of vaccine virus and whether it was expedient so to do. In my testimony, I think I showed very conclusively that by determining the number and variety of bacteria contained in the virus, with the addition of animal inoculations made with the virus, it was possible to

determine the purity, or, rather, relative purity (as there can be no absolute purity) of the virus. I also showed that the efficiency of the virus could be satisfactorily tested upon rabbits and calves, and that a more certain method of determining the exact efficiency of the virus was upon the human arm. I think I not only showed the possibility of these procedures but also their imperative necessity, and at that time I mentioned the fact that the occurrence of a number of cases of tetanus strikingly indicated that carelessness in testing the vaccine was culpable. What I said was dilated upon by Dr. Huddleston of New York, who mentioned the fact that the New York Board of Health invariably tested its vaccine virus upon a human arm before permitting its general use.

Regarding the question of tuberculous cattle and vaccine virus, no such statement was made as that which you attribute to us, "that any old cow will answer the purpose." It was explicitly stated that sucking calves were for many reasons to be preferred, and we did say, what is perfectly true, that the probability of undiscovered tuberculous disease in a calf, causing serious or dangerous contamination of vaccine virus, is very improbable, and that, so far as we know, in no case have tubercle bacilli ever been discovered in vaccine virus, the natural conditions existing in tuberculosis being opposed to the occurrence of tubercle bacilli in the virus. None but tested animals, known to be healthy, should be employed for the manufacture of vaccine virus, and after the animals have been used for the purpose they should invariably be slaughtered and their bodies examined, in order that they may be known to be healthy before the virus was used. The wording of your editorial would make it appear that Dr. Huddleston and myself appeared before the committee possessed of facts which we purposely suppressed, and with the object of preventing the people of the State of Massachusetts being protected by any guarantee concerning the vaccine virus with which they are furnished. Whereas, in reality, the very object for which we were called, and concerning which we were interrogated, concerned the possibility of the State of Massachusetts protecting itself and securing the most satisfactory guarantees concerning its virus (1) by employing viruses which commercial competition require to be manufactured under the very best possible conditions, and (2) by adopting measures in their already existing laboratories by which the most careful investigation as to the quality of these viruses can be carried out.

Very respectfully yours,

JOSEPH MCFARLAND, M.D.

## METEOROLOGICAL RECORD

For the week ending May 17, in Boston, according to observations furnished by Sergeant J. W. Smith of the United States Signal Corps:

| Date | Barometer | Thermometer. | | | Relative humidity. | | | Direction of wind. | | Velocity of wind. | | We'th'r * | | Rainfall in inches. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Daily mean. | Daily mean. | Maximum. | Minimum. | 8.00 A.M. | 8.00 P.M. | Daily mean. | 8.00 A.M. | 8.00 P.M. | 8.00 A.M. | 8.00 P.M. | 8.00 A.M. | 8.00 P.M. | |
| S...11 | 30.20 | 48 | 58 | 39 | 49 | 61 | 55 | N W | S E | 12 | 8 | C. | C. | |
| M..12 | 30.19 | 53 | 62 | 44 | 66 | 59 | 62 | E | S W | 7 | 16 | O. | O. | |
| T..13 | 29.96 | 56 | 67 | 46 | 87 | 35 | 61 | W | N | 8 | 12 | O. | C. | T. |
| W..14 | 30.02 | 53 | 65 | 41 | 45 | 60 | 52 | W | S W | 14 | 6 | F. | O. | |
| T..15 | 30.15 | 52 | 56 | 48 | 62 | 59 | 60 | N E | S | 9 | 10 | O. | C. | |
| F..16 | 30.04 | 59 | 72 | 46 | 55 | 34 | 44 | S W | W | 10 | 6 | O. | O. | |
| S...17 | 29.92 | 60 | 70 | 51 | 45 | 77 | 61 | N W | E | 5 | 6 | C. | C. | |
| ☞ | 30.07 | | 64 | 45 | | | 56 | | | | | | | |

* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow. † Indicates trace of rainfall.
☞ Mean for week.

## RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, MAY 17, 1902.

| CITIES. | Population Estimated, 1902. | Reported deaths in each. | Deaths under five years. | Percentage of deaths from | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | Infectious diseases. | Acute lung diseases. | Diphtheria and croup. | Typhoid fever. | Cerebro spinal meningitis. |
| New York . . | 3,665,352 | 1,286 | 423 | 25.81 | 17.73 | 3.73 | .62 | .16 |
| Chicago . . | 1,852,828 | 471 | 118 | 27.60 | 16.35 | 1.27 | 2.33 | — |
| Philadelphia. | 1,349,624 | 396 | 108 | 25.25 | 9.59 | 3.28 | 2.77 | — |
| St. Louis . . | 603,717 | — | — | — | — | — | — | — |
| Baltimore . . | 525,330 | 167 | 47 | 22.80 | 19.20 | .60 | 1.80 | .60 |
| Cleveland . . | 411,826 | — | — | — | — | — | — | — |
| Buffalo . . . | 375,742 | — | — | — | — | — | — | — |
| Pittsburg . . | 341,401 | 148 | 44 | 33.10 | 11.48 | — | 9.45 | — |
| Cincinnati . | 332,032 | — | — | — | — | — | — | — |
| Milwaukee . | 304.975 | — | — | — | — | — | — | — |
| Washington . | 289,537 | — | — | — | — | — | — | — |
| Providence . | 185,870 | 76 | 23 | 23.68 | 9.21 | — | 1.31 | — |
| Boston . . . | 588,736 | 204 | 58 | 21.07 | 21.07 | .98 | .49 | .49 |
| Worcester. . | 127,337 | 29 | — | 10.34 | 6.89 | — | — | 3.44 |
| Fall River. . | 111.872 | 31 | 11 | 28.98 | 9.66 | — | — | — |
| Lowell . . . | 99,574 | 23 | 4 | 4.34 | 13.04 | 4.34 | — | — |
| Cambridge . | 96,334 | 24 | 8 | 25.00 | 12.50 | 4.16 | — | — |
| Lynn. . . . | 71,144 | 22 | — | 18.16 | 13.62 | 9.08 | — | — |
| Lawrence . . | 67,275 | 12 | 2 | 8.32 | 16.67 | — | — | — |
| Springfield . | 66,854 | 14 | 1 | 14.28 | 14.28 | — | — | — |
| Somerville . | 65,882 | 9 | 4 | 11.11 | 22.22 | — | — | — |
| New Bedford. | 65.574 | 23 | 7 | 21.74 | 17.32 | 4.34 | 4.34 | — |
| Holyoke . . | 48,065 | 14 | 5 | 21.42 | 7.14 | 14.28 | — | — |
| Brookton . . | 43,208 | 9 | — | 11.11 | — | — | — | — |
| Haverhill . . | 40,392 | 14 | 3 | 35.70 | 14.28 | — | 7.14 | — |
| Salem . . . | 36,567 | 10 | — | — | 30.00 | — | — | — |
| Newton. . . | 36,336 | 9 | 3 | 22.22 | 11.11 | — | — | — |
| Malden . . . | 35,390 | 14 | 2 | 14.28 | — | 7.14 | — | — |
| Chelsea. . . | 35,264 | 13 | — | — | — | — | — | — |
| Fitchburg. . | 33,848 | 9 | 1 | 22.22 | — | — | — | — |
| Taunton . . | 32,759 | 11 | 1 | 18.18 | 18.18 | — | — | — |
| Everett. . . | 27,114 | 6 | 2 | 33.33 | — | — | — | — |
| North Adams | 26,583 | 4 | 2 | — | 25.00 | — | — | — |
| Gloucester . | 26,121 | 12 | 1 | 16.67 | 16.67 | — | — | — |
| Quincy . . . | 25,307 | 7 | 3 | 14.30 | 14.30 | — | — | — |
| Waltham . . | 24,612 | 10 | 2 | 10.00 | 10.00 | — | — | — |
| Pittsfield . . | 22,311 | 5 | — | 20.00 | 40.00 | — | — | — |
| Brookline. . | 21,679 | 5 | — | 20.00 | — | — | — | — |
| Chicopee . . | 20,390 | 12 | 10 | — | 8.33 | — | — | — |
| Medford . . | 20,014 | 7 | 3 | 42.90 | 14.30 | — | — | — |
| Newburyport | 14,478 | — | — | — | — | — | — | — |
| Melrose . . | 13,384 | 6 | — | 33.33 | 16.67 | — | — | — |
| Westfield . . | 13,038 | 3 | — | — | — | — | — | — |
| Attleboro . . | 12,846 | — | — | — | — | — | — | — |
| Adams . . . | 12,813 | — | — | — | — | — | — | — |
| Milford . . | 12,516 | — | — | — | — | — | — | — |
| Framingham | 12,109 | 5 | — | 20.00 | — | — | — | — |
| Peabody . . | 11,957 | — | — | — | — | — | — | — |
| Revere . . . | 11,894 | 4 | 2 | — | 50.00 | — | — | — |
| Gardner . . | 11,544 | 3 | — | 33.33 | — | — | 33.33 | — |
| Weymouth . | 11,337 | 3 | — | — | — | — | — | — |
| Southbridge . | 10,838 | — | — | — | — | — | — | — |
| Watertown . | 10,600 | 2 | 1 | — | — | — | — | — |
| Plymouth . . | 10,336 | — | — | — | — | — | — | — |

Deaths reported 3,166; under five years of age, 903; principal infectious diseases (smallpox, measles, scarlet fever, cerebrospinal meningitis, diphtheria and croup, diarrheal diseases, whooping cough, erysipelas, fevers and consumption) 783, acute lung diseases 491, consumption 384, scarlet fever 51, erysipelas 9, typhoid fever 53, whooping cough 29, cerebrospinal meningitis 6, smallpox 19, measles 50, diarrheal diseases 87.

From whooping cough, New York 15, Chicago 7, Baltimore 5, Pittsburg 1, Boston 1. From measles, New York 19, Chicago 7, Philadelphia 2, Pittsburg 15, Boston 2, Haverhill 3, Cambridge 1, Lynn 1. From erysipelas, New York, Chicago, Philadelphia and Boston 2 each, Pittsburg 1. From smallpox New York 7, Chicago 1, Philadelphia 1, Pittsburg 2, Boston 6, Somerville 1, Everett 1.

In the seventy-six great towns of England and Wales, with an estimated population of 14,862,909, for the week ending May 3, the death-rate was 16.6. Deaths reported 4,724; acute diseases of the respiratory organs (London) 240, whooping cough 138, diphtheria 63, measles 98, smallpox 64, scarlet fever 48.

The death-rate ranged from 7.6 in Hornsey to 25.5 in St. Helens; London 15.7, West Ham 16.1, Croydon 15.5, Brighton 14.7, Portsmouth 14.4, Southampton 13.1, Bristol 15.4, Birmingham 18.7, Leicester 14.5, Nottingham 12.7, Birkenhead 16.7, Liverpool 22.0, Manchester 17.4, Salford 17.7, Bradford 19.1, Leeds 17.9, Sheffield 15.5, Hull 18.2, Newcastle-on-Tyne 20.5, Cardiff 18.5.

## CHANGES IN THE MEDICAL CORPS OF THE NAVY FOR THE WEEK ENDING MAY 10, 1902.

W. S. DIXON, medical director. Detached from duty on the retiring and medical examining boards, Washington, D.C., and ordered to continue other duty.

W. A. MCCLURG, medical inspector. Detached from the "Kearsarge" upon reporting of relief, and ordered to the "Olympia," for duty as fleet surgeon of the North Atlantic Station.

J. C. BOYD, medical inspector. Detached from the "Olympia," upon reporting of relief, and ordered to Washington, D. C., for duty as a member of the retiring and medical examining boards.

J. M. STEELE, surgeon. Detached from the Torpedo Station, Newport, R. I., upon reporting of relief and ordered to the "Massachusetts."

H. E. AMES, surgeon. Detached from the "Massachusetts," upon reporting of relief, and ordered to the "Kearsarge."

J. J. SNYDER, assistant surgeon. Detached from duty with recruiting party, when discontinued, and ordered to the Torpedo Station, Newport, R. I., temporarily.

J. E. PAGE, passed assistant surgeon. Granted sick leave for two months.

J. C. PRYOR, passed assistant surgeon. Ordered to the "Massachusetts," May 14.

I. N. HURD, pharmacist. Detached from the "Wabash" and ordered to duty at the Navy Yard, Portsmouth, N. H.

FOR THE WEEK ENDING MAY 17, 1902.

W. F. ARNOLD, surgeon. Detached from duty at Guam, and ordered to the Naval Hospital, Yokohama, Japan, for treatment.

W. H. BELL, assistant surgeon. Detached from the Naval Hospital, Norfolk, Va., and ordered to duty on board the "Chesapeake," when that vessel goes in commission.

E. M. BROWN, H. F. SHRINE, J. P. TRAYNOR, and R. E. HOYT, doctors. Appointed assistant surgeons, May 8, 1902.

FOR THE WEEK ENDING MAY 24, 1902.

Orders by Commander-in-Chief, Asiatic Station:

W. E. GRIFFIN and C. M. OMAN, assistant surgeons. Reported at Cavite, P. I., May 12 and May 2 respectively.

R. P. CRANDALL, surgeon. Detached from recruiting duty and ordered to San Francisco, Cal., and thence to Guam, L. I.

M. K. JOHNSON, passed assistant surgeon. Order of Oct. 5, 1901, modified; detached from duty at Guam upon reporting of relief, and ordered home to wait orders.

J. G. FIELD, assistant surgeon, retired. Ordered to recruiting duty.

D. B. KERR, passed assistant surgeon. Detached from the "Wabash" and ordered to the Boston Navy Yard.

R. E. HOYT, assistant surgeon. Ordered to the "Wabash."

J. P. TRAYNOR, assistant surgeon. Ordered to the Naval Hospital, New York.

J. F. STRINE, assistant surgeon. Ordered to the Naval Hospital, Norfolk, Va.

## RECENT DEATHS.

ALBERTO FRANCIS FERNALD, M.D., M.M.S.S., died in Shirley Feb. 17, 1902, age thirty-three years.

WILLIAM HENRY ANDREWS, M.D., M.M.S.S., died in Springfield May 19, 1902, age forty-seven years.

## BOOKS AND PAMPHLETS RECEIVED.

Massage and Movements in Hemiplegia. By Douglas Graham, M.D. Reprint. 1902.

La Fototerapia del Dott. Antonino Sciascia. Società Editrice Dante Alighieri. 1902.

Dynamic Aspects of Nutrition and Heredity. By Frank Horridge. New York: William Wood & Co. 1902.

The Peritoneum. By Byron Robinson, B.S., M.D. Part I. Illustrated. Chicago: Chicago Medical Book Co. 1899.

Twenty-first Annual Report of the State Board of Health of New York for the Year ending Dec. 31, 1900. Maps. Albany. 1901.

Acute Dilatation of the Stomach. By H. Campbell Thomson, M.D. (Lond.), M.R.C.P. New York: William Wood & Co. 1902.

Diagnosis of Medical and Surgical Diseases of the Liver and Biliary Passages. By John Herr Musser, M.D., of Philadelphia. Reprint. 1900.

Marrow and Spleen Cells, Considered in Their Relation to the Blood-Cells. By Edward T. Williams, M.D., of Boston, Mass. Reprint. 1902.

Transactions of the Chicago Pathological Society. From October, 1899, to June, 1901. Vol. IV. Chicago: American Medical Association Press. 1902.

Health, Speech and Song. A Practical Guide to Voice-Production. By Jutta Bell-Ranske. Illustrated. New York: E. P. Dutton & Co. 1902.

Hernia: Its Etiology, Symptoms and Treatment. By W. McAdam Eccles, M.S. (Lond.), F.R.C.S. (Eng.). Second edition. New York: William Wood & Co. 1902.

Thirty-third Annual Report of the Secretary of State on the Registration of Births and Deaths, Marriages and Divorces in Michigan for the Year 1899. Edited by Cressy L. Wilbur, M.D. 1902.

Principles of Sanitary Science and the Public Health with Special Reference to the Causation and Prevention of Infectious Diseases. By William T. Sedgwick, Ph.D. New York: The Macmillan Co. 1902.

A Manual of Surgical Treatment. By W. Watson Cheyne, M.B., F.R.C.S., F.R.S., and F. F. Burghard, M.D. and M.S. (Lond.), F.R.C.S. In seven volumes. Vol. VI. Philadelphia and New York: Lea Brothers & Co. 1902.

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# Original Articles.

## CYSTOSCOPIC APPEARANCES IN NON-TUBERCULAR CYSTITIS AND PYELONEPHRITIS IN WOMEN.

BY EDGAR GARCEAU, M.D., BOSTON,

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Without going too deeply into the subject of urinalysis it will be interesting to give the results of Brown's[1] careful investigations on the subject as to the relation that the urine has to the species of bacterium causing the inflammation.

### ACUTE CYSTITIS, TWENTY-SIX CASES.

Bacillus coli communis, fifteen times; acid urine.

Bacillus staphylococcus albus, five times, and aureus two times; urine usually acid, but less so than normal.

Bacillus pyocyaneus, once; reaction not taken

Bacillus typhosus, once; reaction not taken.

Bacillus proteus vulgaris, once; urine alkaline and ammoniacal.

### CHRONIC CYSTITIS, TWENTY-FIVE CASES.

Bacillus coli communis, fifteen times (eleven times alone and four times with pyelitis); urine always distinctly acid, usually markedly so.

Bacillus staphylococcus albus and aureus, two and three times respectively (cystitis alone); urine on some occasions neutral, exceptionally slightly alkaline in the case of staphylococci aureus.

Bacillus staphylococcus albus (slowly liquefying), four times (two each of cystitis alone, and cystitis with pyelitis); urine alkaline; decomposed urea quickly.

Bacillus proteus vulgaris, once; urine sometimes acid or neutral or alkaline.

### CHRONIC PYELITIS AND PYELONEPHRITIS, ELEVEN CASES.

Bacillus coli communis, six times; urine always acid.

Bacillus proteus vulgaris, three times; urine always alkaline on affected side, acid on normal side, and either acid, alkaline or neutral in bladder.

Bacillus staphylococcus albus (slowly liquefying), two times; urine alkaline.

It will thus be seen that the urine is always acid when the bacillus coli communis is the germ present, whether the inflammation is in the kidney, bladder or in both organs. Clinical experience carries this out, for it is the exception almost that urine in a case of chronic cystitis in women is found to be alkaline. In the case of tuberculosis the same is true, the urine almost always being found acid, unless there is a mixed infection late in the disease. An alkaline urine when met with may be expected to be associated with either the bacillus proteus vulgaris or the staphylococci. This constitutes a diagnostic point of some value with reference to the kind of calculi found in the kidneys, for Brown[2] also discovered that the uric acid and urate calculi are apt to be associated with the coli communis, while the phosphate and carbonate of magnesium and calcium are more apt to be present with the alkaline-producing bacteria.

### CYSTOSCOPIC APPEARANCES.

The cystoscopic appearances in the case of acute cystitis are those seen in inflammation of mucous membranes in other parts of the body. It is probable that the appearances do not differ, no matter which germ has caused the disease. In chronic cystitis, also, Brown is of the opinion that the germ does not have any relation with the visual appearances.

In a case seen in consultation, the author had the opportunity of examining an acutely inflamed bladder. The patient, a woman, had been operated upon for retroversion by the anterior vaginal method, and during the course of the operation the bladder had been accidentally opened. Acute cystitis followed. Through the cystoscope the whole bladder was seen to be intensely red, and the mucous membrane swollen and evidently elevated above the normal level. Flakes of fibrin were scattered about here and there. Individual large blood vessels were seen to be much larger than normal, but the fine reticulum of smaller blood vessels was entirely lost in the general edema. The ureteral eminences could not be identified on account of the swelling. The vesical neck and urethra partook of the general inflammation.

The visual appearances of chronic cystitis vary considerably with the extent of the urinary tract involved, and for purposes of clearness it is proposed to divide the subject into two classes. The first class will comprise those cases in which the bladder alone is involved, and the second, those in which the upper urinary passages as well as the lower are implicated.

### CASES IN WHICH THE BLADDER ALONE IS INFLAMED.

The normal bladder in a state of health presents a grayish yellow appearance by reflected light. Ramifying over its surface are numerous arteries and arterioles which, when seen through the cystoscope, present an appearance not unlike that observed with the ophthalmoscope of the retinal vessels of the eye. The trigone vesical neck and urethra have a pinkish or even a red color; likewise the ureteral eminences, which always stand out prominently and are easily recognized. Inflammations of the bladder may produce within it lesions of three kinds, namely, ulcers, patches of intense redness, and lastly a general diffuse redness. In addition to these, however, there is a fourth alteration which is observed in cases of long standing vesical ulceration. Reference is made to cicatricial contraction, seen frequently as the end result of violent inflammation.

[1] Johns Hopkins' Hospital Reports, 1901, vol. x, Nos. 1 and 2.

[2] Johns Hopkins' Hospital Reports, 1901, vol. x, Nos. 1 and 2.

Whether or not this contraction is due alone to cicatricial influences, or whether it may not also, in part at least, be the result of muscular hypertrophy due to constant tonic spasm, is uncertain. There seems to be good ground for supposing that the latter hypothesis may be correct.

If the inflammation has extended through the vesical walls we may sometimes have pericystitis with consequent adhesions to the surrounding pelvic walls or contiguous organs. This is a rare pathological change.

It is by no means uncommon for the ulcer and the patch to coexist, or for a diffuse inflammation to be associated with ulcerations. Various combinations may be observed. Ulcerations are always associated with some form of arterial engorgement. Occasionally ulceration has destroyed the whole vesical mucous membrane, and in such a case the cystoscope reveals a smooth, glistening, pyogenic membrane with white lines of scar tissue here and there, with occasional red patches. Such an event is liable to occur in both the tubercular and non-tubercular inflammations.

*The ulcer.*— Ulcers of the bladder of the non-tubercular type are quite uniform in appearance. In size they seldom exceed 1 to 2 cm. in diameter, although they may likewise be much larger. Kelly[3] describes a linear ulcer seen by him on the posterior wall of the bladder between the ureteral orifices; it appeared as a yellowish white surface 3 mm. broad and 3 to 4 cm. in length, surrounded by an area of intense injection. Such shapes must be rare, for generally the ulcer is circular or irregularly circular in outline. All ulcers are surrounded by areas of injection, which may be great or slight in degree. It is seldom that the ulcer extends deeply into the underlying tissue, and when it does, tuberculosis may be suspected. This is not always so, however, for at times the non-tubercular ulcer is of appreciable depth. The base of the ulcer is yellow or yellowish white in color and is usually smooth, but occasionally it is shaggy and sloughy, and necrotic shreds may be seen clinging to its surface. In the neighborhood the individual blood vessels are always dilated and have the appearance as if proceeding from it. The posterior wall of the bladder just above the trigone is frequently the site of these ulcerations, and less often the anterior wall. When situated on the trigone, probably on account of the harder tissue, they have a more excavated appearance and the areola of injection likewise is seen to be more intense. Ulcers are occasionally found at the summit of the bladder, but this is very rare.

As to the frequency with which ulcers occur in chronic cystitis of a non-tubercular nature, if we look at the table of cases we find that in the twenty cases ulcers occurred twelve times. In these twelve cases the ulceration was observed on the posterior wall alone, above the trigone, five times; on both anterior and posterior wall coincidently, three times; never on the anterior wall alone; on the trigone alone, three times; just to the inner side of the ureteral orifice, once, and finally, in five cases there were no ulcerations seen at the time the patient was under observation.

Fenwick[4] has described, under the title "Simple, Solitary Ulcer," a condition which he has observed in a few cases. It is a rare disease, he claims, and it has certain characteristics which seem to entitle it to a description by itself. The similarity which exists between the simple solitary ulcer and the stomach ulcer is most striking. Both are solitary; both have situations near an orifice, the gastric near the pylorus on the posterior wall (76%), the vesical near a ureteral orifice on the posterior wall; both may originate in lymph nodules; in both the chief symptom is hemorrhage (75.4% in gastric ulcer); both tend to result in the formation of scar tissue with puckering of the surrounding mucous membrane. Nothing definite is known of the etiology of the simple, solitary ulcer. It is possible that in women the pressure of the child's head in parturition, with concomitant accidental infections, due to rough and unclean catheterization, may have something to do with the origin of the disease, and Fenwick states that he has never seen the affection in nulliparæ. In the author's case[5] parturition and retention of urine were the undoubted cause. What influence in this case the pressure of the child's head, and what influence the exfoliative cystitis had in causation is a matter of conjecture.

The question is still an open one, so Fenwick says, whether these ulcers are not unrecognized tubercular ulcers. The visual characteristics are most similar, and the only vital point which separates them from the tubercular class is failure to find the tubercle bacillus.

The visual aspects of the ulcer are these: It is always situated on the posterior wall of the bladder just to the inner side of a ureteral orifice, never encroaching upon the trigone. In size it does not exeeed 4 or 5 cm. in diameter, and in outline it is circular or irregularly circular. The edges are raised and are a little thickened. The ulceration is superficial and extends almost to the muscular coat. The base is uneven and sloughy and is covered with necrotic tissue. It possesses exquisite sensitiveness. Eventually lime salts are deposited upon the ulcers, and when this occurs the gradual accumulation is proceeded with until the topmost layer is cast off and may be found in the urinary sediment as a scale. These scales possess many characteristics in common with the scales found in epitheliomatous disease of the bladder, and in calculous disease of the kidney; contact ulcers are sometimes found on the anterior wall of the bladder opposite the site of the solitary ulcer, and these secondary ulcers are due to the irritation of the rough phosphatic concretion: the secondary ulcers may likewise in time become encrusted

[3] Operative Gynecology, 1898, i, 365.

[4] E. Hurry Fenwick: Ulceration of the Bladder: Simple, Tubercular and Malignant. London, 1900, p. 6.

[5] See Case XX.

with lime salts. Cicatrization is the tendency in the history of the disease, but it takes a long time if treatment has not been instituted, for the process is retarded by the deposition of the lime salts. When healing has taken place contraction accompanies it, and as a result the bladder is thrown into folds which radiate from the original site of the ulceration as a centre: in appearance these folds resemble carcinomatous degeneration, especially if there is ulceration on top of them, which sometimes, though rarely, supervenes.

The forgoing are Fenwick's views on the subject, and as it is such an important one, a few words more may be added with reference to the differential diagnosis of the affection. In the case reported (Case XX) there was a well-recognized exciting cause, and there is no doubt whatever that tuberculosis could be excluded both from this fact and from others as well. Tubercular ulcers rarely have the deposition of lime salts upon them, while in Fenwick's ulcer this appears to be the rule. The location always in one spot is unusual, for in tuberculosis, ulcerations are found in any part of the bladder. The amenability to treatment is likewise suggestive, for in tuberculosis this result is not always attained. Too much stress cannot be placed on the fact that miliary tubercles are absent, for it is well known that the solitary tubercle may occur in the bladder, as in other parts of the body. As to visual aspects, barring out the deposition of lime salts, the two forms of ulcer are precisely similar. The positive diagnosis cannot be made unless the germ is isolated, and to this end the guinea-pig test may prove of value; likewise excision of a bit of the edge of the ulcer, which is easily done through the cystoscope. Paraffine sections of such a bit of tissue may show the bacilli.

*The patch.*— In the form of cystitis, in which patches of inflammation occur, these lesions may be readily recognized through the cystoscope. The patches are generally not larger than 2 or 3 cm. in diameter, and present an irregularly circular outline, although other shapes are also met with. In color the patch is intensely red, dull in appearance, and surrounding it the contiguous blood vessels are seen to be greatly distended. The patch itself represents the usual changes accompanying inflammation of mucous membranes. A piece of tissue excised from a patch in one of the cases described showed ordinary inflammatory changes: the superficial squamous epithelium was desquamated, and there was an intense round-cell infiltration which extended into the subjacent tissues; the blood vessels were all dilated.

Some authors have described these patches as ecchymoses: this is erroneous, as an ecchymosis consists of an infiltration of blood in the cellular tissue. There is no such lesion in the vesical patch of inflammation.

Usually the patches are found on the posterior wall, but they may also be observed on the anterior wall as well. They were found in the series given eight times in the twenty cases.

*Diffuse general inflammation.*— In this form of cystitis the whole mucous membrane of the bladder is involved. The membrane is diffusely red throughout, and appears as a smooth surface with or without ulcerations and patches. On the trigone and eminences the infection is somewhat more intense, and the vesical neck and urethra also show a marked degree of infection. The large individual blood vessels of the bladder stand out boldly on the surface as well as the smaller ones, which are usually invisible in the normal state. The general appearance of the bladder is dull-looking, which is to be expected when one considers the pathological changes, desquamation and round-cell infiltration.

Besides the appearances just described — the ulcer, the patch and diffuse inflammation — we may mention the occurrence of small granulations on the surface of an inflamed bladder. These are small elevations which rise above the surface, not more than 1 or 2 mm. in height, and about the same in diameter. In appearance they are red and shiny, and resemble granulations seen on the surface of the body in an open wound. They are of relatively infrequent occurrence.

The swelling of the lymph nodules is also sometimes seen in cases of severe cystitis. In the normal bladder these nodules are never seen, as they are even with the general vesical surface and have the same color as that of the surrounding tissue. But with an intense degree of cystitis which has lasted a long time, such as is sometimes seen in calculous disease of the kidney, these nodules swell up and appear in the bladder in great numbers. They are small bodies not more than 2 or 3 mm. in diameter, slightly elevated above the surface, of whitish translucent appearance, resembling sago grains. They have no significance beyond the fact that they represent a severe infection. They disappear when the cystitis subsides.

In all forms of cystitis the lesions are most frequently found on the posterior wall, either on the trigone or just above it. The trigone itself is always intensely injected, as well as the vesical neck and generally the urethra. It is intense injection with the consequent hypersensitiveness of the nerve endings that gives rise to the symptom increased frequency of micturition.

Among the rarer forms of vesical diseases may be mentioned what Kelly describes as "loculate bladder." Case I is an example of the disease[6] observed by the author. In this case the whole bladder was much injected and presented a velvety appearance with small superficial yellowish ulcers scattered about here and there. The bladder wall had several circular openings in it about ½ to 1 cm. in diameter, leading into small saccules or locules 1 cm. in depth, and which undermined the bladder wall for a very short distance underneath it (not more than 2 or 3 mm. all around the saccule). The pockets had smooth, shining

[6] See cases in which the bladder and upper urinary tract are inflamed.

interiors, and secreted a white mucus mixed with pus. In this case infection had taken place, and the whole bladder was inflamed as well as the right renal pelvis and ureter. The infection was undetermined.[7] The urine was alkaline.

Kelly[8] says that these locules are due to a defect in the development of the muscular wall of the bladder, and that, as a result, the mucosa is forced out between the muscles during contraction. Kelly further observes that these bladders are liable to be mistaken for supernumerary bladders of congenital origin. Such pockets may also be mistaken for similar pockets, the result of inflammatory disease, and which occasionally form a resting-place for calculi. Kelly[9] has seen two cases of loculate bladder. The first was a case in which there was a single opening situated above and posterior to the ureteral orifice on the right side. In the other case there were several openings in front of the broad ligaments; in this case the pits were from 3 to 8 to 10 mm. in diameter. He does not speak of their undermining the rest of the bladder wall, and there was no infection. Kelly says that loculate bladder may be readily distinguished from the pits left by inflammatory processes by the absence of scar tissue, which is hard and unyielding to the probe, while in loculate bladder the membrane is soft and yielding. Loculate bladder, not infected, requires no treatment, but if cystitis attacks such a bladder it is very difficult to cure, because of the recesses in the pockets, into which the disinfecting antiseptic solutions do not penetrate.

*(To be continued.)*

## SOME PROBLEMS CONCERNING VENEREAL DISEASES.[1]

BY MARSHALL H. BAILEY, M.D., CAMBRIDGE, MASS.

WHILE zeal in the study of other diseases must not be retarded, may we not hope to see the time when a still greater interest will be manifested in two diseases which are not only loathsome and deadly in their nature but demoralizing as well?

Dr. F. H. Hamilton of New York, in his "Principles and Practice of Surgery," states that their poisons have become so widespread and have contaminated the blood of so large a portion of the human race that in his opinion they are today retarding the physical and intellectual progress of man.

In 1874 Dr. F. R. Sturgis read before the American Public Health Association a paper on "The Relations of Syphilis to the Public Health," in which he estimates that out of a population of 942,292 persons 50,450 were suffering from syphilis in New York City (1:18.5), and adds: "I believe this number to be under, rather than above, the true amount." On June 3 of the same year, Dr. Gross of Philadelphia read a paper before the American Medical Association in Detroit, in which he estimated that in the United States one person in every twenty was infected with syphilitic virus.

According to Fournier, one-seventh of the population of Paris is syphilitic, and Morrow (from statistics gathered in New York) believes it is quite possible that Fournier's figures, with some modification, may apply to New York City.

For obvious reasons, the statistics of venereal diseases as related to the general public, unlike those for other contagious diseases, cannot be accurately computed, or, at least, never yet have been. In the army and navy, however, we may find data of definite scientific value. Sir H. S. Cunningham's report of the health of the British Army in India for the year 1895 shows that there were 36,881 hospital cases of venereal disease among 68,331 soldiers. This is a per cent. of 53.7, nearly half of which were syphilis (25.9%). Moreover, these figures do not represent the entire number of venereal diseases, numerous cases having been treated outside of the hospital. Further, the report shows that of the 13,000 annually sent home from India 25% are syphilitic. The recent report of Surgeon-General Sternberg for the American Army is of equal interest.

Of the horror and injustice of hereditary syphilis, to this professional audience there is no need to detail. Syphilis in all its phases is a disease dreaded by both laity and profession, but the importance of gonorrhea is ignored by the former and too lightly regarded by some of the latter. Will you pardon me if I take the time to state the opinions of a few leaders in our profession relative to gonorrhea? First, let me quote from Osler: "Gonorrhea, one of the most widespread and serious infective diseases, presents many features for consideration. As a cause of ill health and disability the gonococcus occupies a position of the very first rank among its fellows. While the local lesion is too often thought to be trifling, in its singular obstinacy, in the possibilities of permanent sexual damage to the individual himself, and still more in the grizzly troop which may follow in its train, gonorrheal infection does not fall very far short of syphilis in its importance." Neisser holds that gonorrhea is, with the exception of perhaps measles, the most widespread of all diseases. Other German authorities have computed that fully three-fourths of the adult male population and one-sixth or more of the adult females have contracted gonorrhea; that 80% of all deaths from disease of the uterus and its appendages is of gonorrheal origin. Leaving prostitutes out of the question, gonorrhea attacks a large number of reputable women. Sanger found out of 1,930 such women 12% infected with gonorrhea. Other authorities, notably Noeggerath, place the percentage much higher. It is a conservative estimate that 10 to 20% of pure women are infected with some sort of gonorrhea after marriage, so "that a license to marry may be a death warrant to a confiding

[7] Isolation of the germs — there were two — now being done.
[8] Operative Gynecology, 1897, I, 317.
[9] Loc. cit., 1897, I, 318.

[1] Read before the Middlesex South District Medical Society, Jan. 21, 1902.

bride." Neisser believes that gonorrheal infection of the male is responsible for one-third of the sterile marriages, and that gonorrhea is even a more potent factor than syphilis in the depopulation of countries.

Every physician knows the gravity of blenorrhea neonatorum. Holt of New York states that the best statistics show 26 to 30% of blindness in adults due to gonorrheal infection of the eye in the newborn infant. This has been estimated to be 40 to 60% before the adoption of Credé's method of treatment. Dr. Burnett of Georgetown University believes that 15,000 of the 50,000 blind in the United States lost their sight from this cause, which, according to his calculation, involves a financial loss to the commonwealth of $7,500,000 annually. When we add the cases of stricture, of epididymitis, endocarditis and joint affections caused by the gonococcus, it is easy to feel the truth of the opinion first quoted from Osler.

To my mind, these facts prompt especially the following questions:

(1) What are the causes of these conditions?

(2) Is it right that they should continue?

(3) If not right, then what can be done about it?

In answer to the first question, is not the male led to indulgence of his passions by three factors?

(*a*) By the strength of the sexual appetite common to every man?

(*b*) Selfishness — the fact that he ignores the moral and physical welfare of the girl who gratifies him?

(*c*) Ignorance — in that he has never learned true manhood, that chastity pays better than vice, that illicit satisfaction may have concealed in it great present dangers to himself and future ill for his wife and children?

Statistics and observation show that the female rarely adopts a profligate life to satisfy desire, but largely because she is driven to it through want, by seduction, perhaps by love of dress, and, like the male, through ignorance.

There being only one possible answer to the second question, we will take up the third, the consideration of which will occupy the balance of this paper.

If not right, then what can be done about it? In order to profit by the experience of others, we are naturally led to inquire: What has been done about it? A study of its history will show that effort has been directed especially as follows:

(1) The suppression of prostitution.

(2) The regulation of prostitution.

(3) The treatment of disease.

First, what has history taught us about the suppression of prostitution? In 1254 Louis IX directed that prostitutes should be exiled from the kingdom. This edict was partially put in force. "A large number of unfortunate females were seized and imprisoned or sent across the frontier. Severe punishments were inflicted on those who returned to Paris after their expulsion. A panic seized the customers of brothels, and for a few months public decency was restored. This was soon followed by new women taking the place of the exiles, clandestine prostitution succeeded the former open debauchery, and the evils of disease were increased." Moreover, "the number of virtuous women became less, and corruption invaded the family circle" (Sanger, p. 96). After two years the complaints of the evil effects of this law became so general that it was repealed. This is the general history of all such attempts. Sanger holds that it is a mere absurdity to assert that prostitution can ever be eradicated. Certainly not so long as men are passionate and selfish and women weak and destitute.

To quote again from Sanger: "The whole power of the church, when it possessed not merely a spiritual, but an actual secular arm, has been in vain directed against it. Nature defied the mandates of the clergy, and the threatened punishments of an after life were futile to deter men from seeking and women from granting sinful pleasures in this world. Monarchs, victorious in the field, and unsurpassed in the council chamber, have bent all their energies of will, and brought all the aids of power to crush it out, but before these vice has not quailed. The guilty women have been branded, scourged, banished, executed; their partners have been subjected to the same punishment; held up to public opinion as immoral; denuded of their civil rights; have seen their offences visited upon their families; have been led to the stake and burned alive, beheaded, and still prostitution exists."

Charles IX, in 1560, and Henry III, in 1588, attempted the suppression of prostitution. In 1635 an ordinance condemned all men concerned in the "traffic of prostitution" to the galleys for life, and all women and girls to be whipped, shaved and banished for life, without any formal trial. This law remained in force until late in the eighteenth century, in general a dead letter, except as taken advantage of for blackmail. The ordinance of 1560 was renewed in 1778, but never enforced, and this seems to have been the last attempt at suppression of prostitution by law in France. True, Napoleon cleared the Palais Royal of the prostitutes who had made it their headquarters, and broke up some of the larger brothels by harassing their inmates, but he made no law on the subject. Similar edicts for suppression were passed in Breslau in 1812, in Berlin in 1814 and again on Dec. 31, 1845. Sanger states that "Berlin became (nominally) as virtuous as an edict from the throne could make it. The majority of the prostitutes were either sent to their former homes, or supplied with passports for places out of the kingdom. A few were left houseless, friendless and destitute. History does not say whether the friends of enforced continence provided for these sufferers." This, like all other similar attempts at enforced suppression of prostitution, resulted in scattering broadcast clandestine prostitution.

Dr. Behrend, who made an extended study of the situation, reported that there were more cases of syphilis, that syphilis was introduced more frequently into private families, that unnatural crimes were more frequently met with. He contended that abolition (!) had produced the most injurious consequences on public morals, especially in the desecration of matrimony. He says: "It is common for persons of vicious habits to arrange a marriage for the purpose of ennabling them to avoid the police interference, the marriage bond being broken whenever convenient, and a new marriage formed." The king and his ministers lent all their energy for six years to crush out prostitution, when it was admitted to be a futile attempt and entirely abandoned.

Other countries have tried at different times to suppress prostitution with the same result.

While no thoughtful mind can question the impossibility of suppression, when we turn to the regulation of prostitution we find opinion divided as to its efficacy. If it could be clearly shown that regulation accomplished its purpose, probably few physicians would fail to endorse it; — and we might add that if suppression suppressed who would oppose it?

Regulation so far has meant inscription and periodic examinations of women prostitutes. We might inquire, in passing, why it has not included men as well?

But what has regulation of women accomplished? Let us see. The first record which I have found was the appointment of an officer in Rome, in the early days of the Christian era, whose duty was to arrest, punish, and drive out of the city all prostitutes who were not inscribed. It is recorded that this regulation was a dead letter; that "at no time in the history of the empire did there cease to be a large and well-known class of prostitutes who were not recorded."

Jane, of Naples, is said to have legalized prostitution at Avignon during the Middle Ages. Prostitutes were ordered to live in a brothel, to wear a red shoulder knot, and to be visited and examined weekly by the barber, who was to confine separately all who seemed infected. But history states that "the city was none the less a refuge for debauchees and a scandal to Christendom."

In the early part of the nineteenth century an elaborate method of inscription and examination of prostitutes was adopted in Paris. With the co-operation of the police very attempt was made to register all prostitutes, to periodically examine them, to treat their diseases, and to keep them out of active business until cured. Over 12,500 girls were inscribed. A similar plan is today in force in France, also in Germany, Russia, Belgium, Austria, Hungary, Spain and Portugal. It was tried in England from 1860 to 1881, and in this country for one year in St. Louis (1872). In Norway it was tried from 1860 to 1888. In Switzerland, it still exists in Geneva. It was introduced in Italy in 1860, abandoned in 1888, and re-established in 1891.

The theory of these systems of regulation presents clear argument in their favor, but put to the test of practice I think it has been universally found that a similar result followed as in attempted suppression, namely, clandestine prostitution, with a sufficient increase of disease to more than compensate for the protection given by inspection of the few who remained registered. Women dislike to be inscribed as prostitutes and are unwilling to submit to frequent examinations. Morrow, in the paper previously referred to, states that under the regulation system the number of brothels in Paris has diminished from 250 to less than 40, while the population has increased fourfold. In Marseilles there were in 1875 120 fast houses with 600 inmates, while in 1895 there were only 12 with 90 inmates. In Bordeaux the brothels have decreased from 60 to 21, and the same result has followed in all cities where regulation has been attempted. In place of the registered brothels there are hundreds of unregistered houses of assignation. Vice flaunts itself in theatres, music and dance halls and secretly flourishes in private lodgings. Morrow states that prostitution "simply changes its form and methods of business; it becomes clandestine, more elusive, less susceptible of control and infinitely more dangerous to the public health." Further, weekly examinations do not protect so much as might seem at first thought. Disease may show itself the day after the physician's visit, and the woman infect a dozen men before the next call. Moreover, every physician knows the frequent difficulty of making a positive diagnosis in women. I am aware of the successful use of this system in the German Army, but army control is one thing and public regulation another. On the other hand, the recent report of the Committee of Seven in New York states that "Without presenting an analysis of the mass of statistical evidence accumulated, a calm and impartial judgment of the practical results of regulation would seem to demonstrate that it does prevent a certain amount of infection in men. The much smaller proportion of infections which can be traced to regulated prostitutes, and the much larger percentage of venereal disease in women not regulated, are evidences of its value." *But*, "The fatal defect of this system is to consider public or professional prostitutes the almost exclusive source of contagion, when, as a matter of fact, they constitute only a small minority. . . . Not 10% of the public women can by any police intervention be collected, and of these about one-fifth annually disappear from observation and become clandestine prostitutes. Regulation cannot be effectively applied against the large body of private or clandestine prostitutes: it cannot reach the great mass of masculine spreaders of contagion. . . . For these and other reasons the committee does not recommend the Continental system of regulation as a remedial measure, etc., etc." Public sentiment in this country would never tolerate any such system. The public would look upon regulation as placing the sanc-

tion of the law on prostitution, and the public includes men, young and old, who would be the more readily led to indulgence by misinterpreting the example of the law, and also by a false sense of security from disease.

Whenever, or wherever, syphilis originated, there seems to be no doubt that it received a fresh impetus and was widely prevalent in Southern Europe during the latter part of the fifteenth century. Its venereal character was for a long time unrecognized. The first concept was that the affection was a new disease resulting from the conjunction of the planets Saturn and Mars. This theory was followed by several others, and it was not until the eighteenth century that the different diseases due to venery began to be distinguished one from the other. The differentiation between hard and soft chancre was not established until 1852 (by Bassereau, a pupil of Ricord). Roman doctors refused to treat venereal diseases, which were called by the generic term *morbus indecens*. The patients were left to quacks (who still thrive on it), to barbers and to old women. In Paris the parliament established a syphilitic hospital in 1614. We have no information as to the method of treatment. The patients received what was called a "welcome and a farewell," in the shape of a sound thrashing when they entered and another when discharged. In 1675 the managers of the hospital declared that this practice deterred many sick persons from coming forward and confessing their condition, but it prevailed apparently for twenty-five years longer.

What are our present facilities for the treatment of venereal diseases? Morrow states in his paper that there are fifty-six beds in the male venereal wards of the New York City Hospital and a small number in the Metropolitan Hospital. When one considers the population of New York City, it is easily appreciated that this provision is ridiculously inadequate. Even less provision is made for females. To quote again: "Incredible as it may appear, there are not hospital accommodations for 1 in 2,000 of the prostitutes in New York. That great city provides for the reception and treatment of women suffering from venereal diseases just twenty-six beds in the City Hospital on Blackwell's Island. There is not a single hospital on Manhattan Island where a syphilitic woman, whether she be a prostitute or an innocent victim of the disease, may be treated." So far as I know, the city of Boston has not a single bed in any one of its hospitals for the treatment of venereal disease, if we except the almshouse on Long Island and the penal institution at Deer Island. I understand that some provision is being made for such cases in one of the new wards at the Massachusetts General Hospital.

Is not treatment one of the most practical and important measures for decreasing the spread of venereal disease, and if so, ought not all our general hospitals to freely provide for such cases? Further, should we not multiply the number of our dispensaries with genito-urinary service, in order that patients may not be compelled to go far or wait long for treatment? Every physician knows that the great proportion of venereal cases do not receive treatment sufficiently prolonged. Forced hospital detention has not been successful, for it keeps too many patients away. By free treatment and ease in obtaining it can we not secure more cases and therefore better protect the public at large? It may be contrary to nature to spend money and time to provide such facilities for the treatment of individuals who voluntarily expose themselves to disease, but who knows what he might have done with the same environment, and, further, there is the great army of the innocent to be protected.

Without considering the lesser causes, the great majority of girls are driven to prostitution through want. This fact may be more marked in other countries than our own, but it is an appalling truth even in these United States. The stories of many of these poor creatures are heartrending. How can a woman support herself, and perhaps a family, on any income derived from the sweatshop system? How can she pay for room and board, and dress as well as a salesgirl must, on the three to four dollars a week paid hundreds of girls in our department stores? Some such stores do not hesitate to suggest how these girls may increase their income. I have direct information of such cases in at least two places in Boston. Such a girl may not be a common prostitute, but she is likely to increase the circle of her acquaintances, and doubtless hundreds ultimately find their way into common houses. Just think of the stores we patronize being training schools and recruiting offices for such a purpose! Thousands of these poor girls and more thousands of their paramours help to disseminate disease among the guilty and the innocent alike. Have we, in this glorious country, a great body of professional men, any duty to perform in this direction?

Statistician Hunt, of the census bureau, states that 66% of young men in the United States are unmarried. This fact, associated with another, that the young men who do marry defer it later than nature apparently intended, offers food for serious consideration. Further, the population of our country is being largely kept up by the children of the poorer classes, and it is from the ranks of the uneducated that the army of prostitutes is recruited. "A large number of young women are thrown on their own resources every year without the least education; untrained for good, fit only for evil. Ignorant of their duties to themselves or to the world; with no delicate sense of refinement or virtue because those attributes have never been cultivated; with faculties on a level with the inferior animals, they are expected to succeed in life." The same is true of a multitude of young men, to whom in addition nature has given a strong sexual appetite, for the control of which they have received no training. The education of the young on the laws of life, of more importance than almost anything else, is conspicuous by its absence among all classes and grades of society.

Not one in twenty of young men who have consulted me about such matters ever received from father or mother any instruction whatever upon the subject, and I venture to say the same is true of every physician present. What general would send his forces into the field with neither training nor ammunition, and without first studying the position and strength of his opponent? Yet we annually send a great army of young men into the battle of life with no knowledge of the strength of temptation and no means of self-defense. What wonder that the enemy so successfully assails their virtue and honor! I must confess it is inexplicable to me how so many parents can abandon their children to gather the all-important knowledge of the laws of life from erratic and prurient sources. Is not a heavy responsibility here shirked which might save ultimately an untold amount of suffering? There is not room in the scope of this paper to discuss the questions of how early and in what ways the laws of life should be taught to young people, but can there be any doubt that if these things were taught in some intelligent way at an early period of life that a great amount of good would be accomplished? In the exceptional cases where such instruction is given it usually comes late in the young man's life. If at eighteen to twenty years of age he hears for the first time something of the "social evil" in its true light, it may serve as a warning and determent, but how many young men have their ways and habits of looking at things so firmly fixed by this time that appeals and warnings are of little use! Every physician knows how many young men form the idea that sexual gratification is a necessity, and therefore they have a right to indulgence. They become so firmly fixed in this selfish view as to be undisturbed by any plea for the rights of others, and so every year they help to shorten and make miserable the lives of the girls they buy and the girls they marry. If, when these boys came to their mothers with inquiries as to where they came from, they had been answered with sense instead of twaddle, might not their confidence and respect have been continued for mamma and for all others of her sex?

Dr. Westcott has drawn public attention to the terrible yearly record of 600 children burned to death in London. "As a result of representations on this subject made by the Coroners' Society to the home secretary, the government is considering the advisability of legislation which would enable coroners to fine and imprison persons who leave children alone with fire, or with material for making a fire, if children are thereby burned to death." How would it do for Parliament to pass a law whereby persons could be punished who convey syphilis and other misery and death-dealing diseases to many times 600 a year? It has been shown that in the city of New York in the year 1900, when the morbidity of contagious diseases was unusually heavy, there were between five and six times as many cases of venereal disease as there were of measles, diphtheria, scarlet fever, chicken-pox, smallpox and tuberculosis combined! What was true of New York is probably a fair estimate for London, Boston and other cities.

If there were time it would be interesting to study what history shows of the influence of education on the "social evil," to consider the problems of the vast amount of venereal diseases treated by charlatans, the penalizing of the transmission of syphilis and gonorrhea, the protection of minors by raising the age of consent, etc. But I fear I have taxed your patience too much already, though I cannot resist asking you to bear with me while I bring up just one more point. In 1899 the legislature of North Dakota passed a law which does not permit marriage unless the applicants are able to secure from an examining board of physicians a certificate showing that they are free from contagious venereal diseases. On April 16, 1890, in the annual address of the president of the Iowa State Medical Society, he stated that "no license to marry should be granted except on a reliable physician's certificate that the parties are physically sound and qualified for the relation." Last year a bill passed the Minnesota Senate in which it is stated that "marriage licenses cannot be issued unless accompanied by a certificate from a reputable doctor testifying to the health of the candidates for matrimony, and so far as can be judged, to their good family history, etc." Ought every state and country to have some such law, or, must we continue to give our daughter's hand in marriage, saying to the prospective husband: "Here she is, fresh and innocent as a rose; take her. I know that you may be tainted with syphilis or a latent gonorrhea; that, if so, you will infect her and probably ruin her health; that very likely she will have to go upon the operating table some day, but you are as good a young fellow as I know, and there is nothing further that I can do about it?"

## Clinical Department.

### CLINICAL NOTES AND COMMENTS.

#### A CASE OF MENINGEAL HEMORRHAGE AND NEPHRITIS SUPERVENING UPON A PURPURIC DIATHESIS OF TWENTY-FIVE YEARS' DURATION.

BY ROBERT T. EDES, M.D., BOSTON.

THE following case, although one of a by no means rare disease, is sufficiently unusual in its termination to be worth putting on record, and besides, from the length of time it was under partial observation, makes interesting some of those slighter symptoms which may persist for years, and yet are forgotten when greater pathological disturbances have furnished the opportunity to suggest an explanation. *Purpura (peliosis) rheumatica* has been considered more or less akin to both the conditions involved in the name, being usually and correctly arranged in the text-books as a subspecies of purpura. The present

case appears to be most correctly classed under this head, although without the urticaria or erythema which mark the more typical cases. It was distinguished on the one hand from the almost trivial "purpura simplex," and on the other, the much severer "purpura hemorrhagica," by the presence of pain, usually in the joints,— though not always those joints having the most eruption, —and the absence of hemorrhages from the mucous membranes. The hemorrhagic tendency in purpura has been naturally ascribed both to some morbid but unknown condition of the blood, and also to a greater permeability or fragility of the vascular walls. Anemia is often spoken of in this relation, but in this case the blood was of full color, as compared with Tallquist's standard color scale, which it seems to me is quite as accurate for practical purposes as Fleischl and far more convenient. Neither did the "smears" or "wipes" show any marked departure from the average, not even any poikilocytosis, and although no corpuscular count was made it is fair to say there was no anemia.

There was evidently a greater fragility of the vessels or less resistance to mechanical injury, as was shown by the appearance of the hemorrhages —which were on the average a little larger than petechiæ, if this word is to be limited strictly to the "pin point" —at places exposed to pressure or movement.

On one occasion there were spots both in front and behind the knee-joint but not on its sides, that is, in the regions where from the flexure and extension of the limb the skin was subject to more stretching and compression. Frequently, however, as happens in most cases of the kind, no very definite connection could be observed between the localization of the hemorrhages and any special pressure. If we take into consideration the evanescent character of the cutaneous lesions, the seeming capriciousness of the distribution of many of them, and their very common association with urticaria and erythema, there is good ground for suspecting not only the strength of the walls of the skin vessels, but their vasomotor supply.

Mrs. ——, age forty and of slender build, delicate, but not an invalid, twenty-five years ago (1876) had an attack of purpura of which I have no further notes. In April, 1882, she was somewhat dyspeptic and run down. She had severe pain in her left hand, which was swollen. There was some pain in other joints and purpuric spots on the legs.

In 1883 the urine, of specific gravity 1,026, contained a very few casts, but no sugar or albumin.

In 1885 there was a tendency to diarrhea, nausea and headache. In December of the same year there were several hours of glittering before the eyes and seeing of only one-half of things. Rather weak.

In April, 1887, there was nausea, the face was swollen for some time, but no swelling of hands or feet. An undated note says that many years before she had had her face (and hands?) puffed up with a single dose of arsenic.

In 1897 there was sore throat; red, with no exudation. Pain in the wrists but no petechiæ, ecchymoses, edema or redness. In June, urine 1,029, with crystals of oxalate of lime and uric acid but otherwise normal. Less pain and no petechiæ. In December of the same year there was pain in the great toe, which grew pink and then black under the nail. Diarrhea; slight bloody discharges. Temperature normal. Very slight twinges of pain.

On Dec. 19, 1898, digestion out of order; "full of rheumatism." Joints puffy, but no spots discovered.

In April, 1899, not very well. Not decided dyspepsia. Attacks of hemiopia. Very slight vertigo. "Floating feeling." In December, uric acid.

In July, 1900, there was an attack of vertigo and hemiopia, with some gastric and cardiac disturbance and headache. The urine was normal. This condition improved during the summer, but a "floating feeling" lasted until October. The urine at this time contained no albumin but a few casts.

In September, 1901, not very strong. In November there were localized and painful swellings at various places which did not last. There were several ecchymoses about the ankles. A "wipe" of the blood gave no indication of anemia, nor did it differ as regards the character or proportions of the corpuscles from the normal. Salicylates were given for about six days; after this, iron. The urine was of specific gravity 1,021, without albumin, but having in the sediment some blood and a very few small transparent casts, with a few uric acid crystals.

Throughout December and January the same general condition continued with slight swellings at various places, leaving either nothing behind them or a discoloration like a bruise. Usually there would be distinct spots of varying sizes, but never more than a few millimetres in diameter. They lasted from a few hours to a day or two. On one occasion edema around one ankle lasted for a number of days. There was occasional diarrhea, never severe and never lasting, with no hemorrhage from the bowels. The pulse was increased in frequency but not in excess of the normal. There was no fever, and the general condition did not materially change except in the way of gradually increasing weakness. The blood retained its normal character, but unfortunately there was no examination of the urine during January, the last examination in December having shown neither casts nor albumin, but urates and uric acid.

On Feb. 3 she had a cold with a tickling cough, such as she had several times had before. It was attended with no physical signs and the temperature a few days later rose only to 99 and 99.8. There was some pain about the joints, with edema of the feet and ankles. The urine was considerably less in specific gravity (1,008 to 1,011), and

contained from this time on constantly more or less albumin with casts and a little blood. On the 12th, there was headache on the left side and vomiting. On the 16th, the pulse having been a little higher (84) and the temperature from 99° to 100°, she was dressing, with the intention of returning to her home, but before leaving the room, she complained of not being able to see, and had a convulsion in which she became cyanosed and passed urine involuntarily. On the 17th, very severe headache, complained of for the first time, and a convulsion with succeeding delirium. On the 20th two convulsions with delirium. At about this time there were appearances looking like hemiplegia, which continued with varying intensity until death. She lay most of the time with the head turned slightly to the left and looking toward the left. She could use either hand, but it seemed preferably the left. The forehead wrinkled alike on both sides, although a little later her friends said that she smiled only on one. She spoke but little and indistinctly, but there was no paraphasia. On the 20th she put her finger on her tongue and said "pallyzed." On the 25th there was an eruption all over the back, somewhat resembling scarlatina, though not so bright red.

On March 6 she died. For ten or twelve days before death the urine averaged about one litre per diem, of specific gravity from 1,008 to 1,011, always with a considerable amount of albumin and casts of various kinds except the waxy and those large ones composed entirely of degenerated epithelium; also usually uric acid crystals.

The autopsy was made eight hours after death occurred.

The thoracic and abdominal organs showed no decided abnormality except posterior congestion. The heart muscle was firm. The kidneys were of normal size, and not wrinkled or puckered or cystic, but the capsule was in places very slightly adherent, this being the only indication of any interstitial nephritis.

On removing the scalp the calvarium was found stained with a dark red, sharply defined patch of color, extending forwards with a curved outline two-thirds of the way from the nucha to the frontal eminence on the left and one-third on the right. The surface of the left hemisphere was more congested than the right, over a region not exactly corresponding to the blotched appearance of the calvarium, but having its greatest intensity over the posterior portion of the second frontal convolution. At this point, between the ascending frontal and second frontal, was an irregular black clot, as large as a chestnut, molded into the sulci. The surfaces of both convolutions were eroded and softened. On the right side, at the posterior extremity of the first occipito-temporal convolution,— or perhaps a litttle further from the median fissure,— at about the point marked P2′ on Ecker's diagram, was a similar clot, but smaller, and having eroded the surface of the convolutions somewhat less. No other lesions were discovered.

The exact point of origin of the hemorrhage was not determined, but from its situation and the large size of the superficial dilated vessels found immediately over it, it seems more likely to have been venous than arterial.

There are several points of interest in this case in connection with both pathology and therapeutics, not conclusive, to be sure, in regard to anything, but suggestive, as so many of our purely clinical facts must be. Of the former is the relationship to rheumatism, as shown by the pain and swelling existing at the same time as the petechiæ but not always at the same place and, on one occasion at least, where there were no petechiæ anywhere. On the other hand, the dissimilarity to rheumatism in the complete integrity of the heart and the absence of atheroma, notwithstanding the long existence and the repeated attacks for years, of which, I dare say, there were more than appear upon my notes.

After the convulsions had occurred, and in the presence of albumin and casts, the diagnosis of uremia was certainly a very probable one, and the suggestion of a chronic interstitial nephritis with but few symptoms and leading up either to the acute attack of nephritis or to the unsuspected outbreak of uremia was made. This, however, was highly improbable in face of the examinations which had been made over many years, and showed but little abnormal, except an occasional excess of urates. That chronic interstitial nephritis without urinary symptoms, which occupies so important a place in many articles, is, in my experience, more often talked about than seen.

The existence of acute nephritis was, of course, indisputable, but its importance as the cause of the convulsions was doubted, when the urine continued to be secreted in abundance at the rate of about one litre on each day up to within a day of death, and of a specific gravity (1,008 to 1,011) which, although below normal, was undoubtedly capable of taking care of all nitrogenous waste from the limited diet that was used. The autopsy fully confirmed this view.

Meningeal hemorrhage without cerebral and without arteriosclerosis is certainly an unusual occurrence in chronic nephritis. It may also be said to be rare in this form of purpura, in which there are usually, as in this case, no hemorrhages from mucous membranes.

Looking upon the clot in the motor region of the left side as the source of the right-sided hemiparesis, the interesting inquiry arises whether the other clot had anything to do with the recent defect of vision and also with a possible tendency to congestion of the same neighborhood, existing for many years. Unfortunately, the notes do not state the side of the earlier hemianopsia and the glitterings before the eyes. Also, the lesion, as found at the autopsy, is situated too far out to have been the seat of the distinct limitation of the visual field, although it may very probably have been connected with the last failure of vision, the nature of which the patient was unable to describe more accurately.

## A CASE OF THROMBOSIS OF THE CENTRAL VEIN OF THE RETINA COMPLICATING CARCINOMA OF THE UTERUS.

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The following case of sudden blindness of the left eye, resulting from the blood state present in carcinomatous disease, is unique and interesting alike from the standpoint of the practitioner, oculist and gynecologist. It is the only apology offered for its record.

Mrs. R., German, widow, age forty-six; has one child, a healthy young man. Except for this one child she was never pregnant. She was very healthy during her single life, and also has considered herself a very strong, robust woman until the last few years. Her family history is good, revealing no diseases which in any way might tend to diminish her own powers of resistance. About sixteen months ago she began to have attacks of uterine flooding and also slight hemorrhagic discharges between the menstrual periods. She was treated for "change of life." I was called to see her July 6, 1901, and found that she had been flowing almost continually for a period of about six weeks. She had no pain, was extremely anemic, her complexion was yellow, not a jaundice, rather giving the idea of a cachexia than anemia. The hemoglobin in the blood was diminished nearly 50%. She was plump, but weak and breathless.

Examination revealed an indurated crater-shaped os, with a mass of soft cauliflower excrescence grouped about the posterior border. A diagnosis of carcinoma of the uterus was made, which was later verified by microscopic examination by Dr. F. Y. Allen. Dr. C. B. Parker also examined the case and advised against operation, since he believed that the growth had extended too far into the tissues. Curetting and cauterization stopped the flooding for some time, she gained in strength, and once more took up her occupation as housewife and dressmaker. The effect of the curetting and cauterization, however, did not receive from the patient its true value, since she believed that her good condition and increase of strength was due to the clover blossom tea which she had been taking.

In the first week of February, 1902, she began flooding again, and it continued until the time I was called the second time. Her particular reason for calling me Feb. 24 was an accession of sudden blindness of her left eye. While straining at stool one week previous to my visit, she noticed a "film or flickering" in front of the eyes. This continued throughout the day, notwithstanding the fact that she had no headache. The next day she could not see with the left eye "except in spots." The day following the eye was blind to everything but light. There were no ocular palsies, pupils reacted to light and accommodation and were of equal size. She suffered from no headache nor anything suggesting intracranial disturbance. Ophthalmoscopic examination revealed a marked hemorrhagic retinitis in the left eye, which was thought to be due to the obstruction of the central vein of the retina. The slow onset of the blindness, the fibrinous condition of the blood so commonly present in carcinomatous disease, seemed to argue for a thrombosis rather than embolism. Dr. E. S. Lauder very kindly examined the case for me and pronounced it an undoubted case of thrombosis of the central vein of the retina.

March 25: She is recovering some sight in the eye. She is able to distinguish forms of persons moving about the room. The ophthalmoscopic appearances are following in the usual course. It is possible that she may regain considerable vision, which event is not uncommon in thrombosis in contradistinction to blindness due to embolism.

April 3: In company with Dr. W. E. Bruner her eyes were again examined. She is now able to see forms moving about the room, count fingers, and see the frames, but not the pictures hanging on the wall. Her visual fields are contracted somewhat. The hemorrhages are practically absorbed; the vessels are now hard to differentiate; edema about the disk is present, and the whole retina appears throughout much paler than its fellow.

## A CASE MISTAKEN FOR PHTHISIS PRODUCED BY HALF OF A SMALL DENTAL PLATE LODGED IN THE RIGHT PRIMARY BRONCHUS.

BY GEORGE F. POPE, M.D.,

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In the *Boston Medical and Surgical Journal* for April 10, 1902, I noticed the report of Dr. H. F. Vickery and Dr. F. B. Harrington on a case where a bean lodged in the right primary bronchus producing atelectasis. I should like to report a case where half of a small dental plate lodged in the right primary bronchus, remained there two years and one-half, and produced symptoms which were mistaken for phthisis by many physicians in good standing.

Charles M., aged thirty-five, on the afternoon of April 24, 1902, had a violent fit of coughing, during which he coughed up a large quantity of blood; he continued to cough up blood that night and all of the 25th, with great pain referred to the right apex and trachea. On the morning of the 26th, at daylight, he gave a slight cough and raised half of a small guttapercha plate, as shown in the figure, which is an exact outline of the piece, showing by the serrations where two of the incisor teeth had been attached. It actually measured $\frac{7}{8}$ inch in the longest diameter and $\frac{11}{16}$ inch in the opposite.



*Previous history.*—Two years and one-half ago, while wearing a small plate for the four upper incisor teeth, he received a blow in the mouth of great violence. The false teeth were all knocked out of the plate and it was fractured in halves. In the excitement of the moment he said he thought he had inhaled one of the teeth, but the doctors he went to at the time "laughed at him, so he never mentioned it again." After this he developed pain in the apex of the right lung and a troublesome cough, losing flesh and strengh. This cough seemed to get worse if he lay on his back. "There seemed to be a valve shutting off his wind on the right side," as he said.

He went from one physician to another, and all but one told him he had phthisis. This one had examined the sputa twice and told him it was not consumption. At one time he lost thirty pounds in weight, and always had more or less coughing.

I find on physical examination that the chest symptoms are clearing up and he has gained four pounds in weight since the expulsion of the foreign body one week ago.

## Medical Progress.

### RECENT PROGRESS IN NEUROLOGY.

BY PHILIP COOMBS KNAPP, A.M., M.D., BOSTON.

[Concluded from No. 22, p. 575.]

#### EPILEPSY.

CENI,[8] in continuing his researches upon the toxic nature of epilepsy, has published some interesting results. As the etiology of epilepsy seemed to be intimately connected with a toxic principle of endogenous nature, he has endeavored to find out whether this toxin, like toxins of microbic origin, could develop a therapeutic or immunizing principle. He first tried whether the injection of the blood serum of one epileptic had any effect upon another epileptic, with the result that in two cases out of six, acute poisoning was produced with an aggravation of the morbid conditions. Injection of serum from healthy individuals in these and subsequent experiments had no effect. He next tried repeated injections of serum in progressive doses, to see if he could increase the organic resistance or produce a state of immunity. He tried the injection of serum from another epileptic in six cases and injection of the patient's own serum in four cases. All the patients were severe cases with more or less severe psychical and psychosensory symptoms. In five of the cases injected with serum of other epileptics and in three cases injected with their own serum there was a notable and rapid improvement in the general nutrition and an amelioration in the morbid condition. In six cases the morbid motor psychical and psychosensory manifestations diminished notably in number and intensity. The organic disturbances improved or disappeared, there was a gain of fifteen or twenty pounds in weight, and the mental faculties revived. After the discontinuance of the injections the epileptic manifestations increased, although they were less pronounced and the increase was slower. In two cases there was a still greater gain; the morbid manifestations ceased wholly, the organic disturbances disappeared, there was a still greater gain in weight and a complete transformation of the psychical personality from a reawakening of the mental faculties. In these cases the improvement has now continued for two years. In two cases the injections, instead of showing therapeutic and restorative powers, had a toxic and epileptogenous effect, with symptoms of severe general intoxication and an increase in the epileptic manifestations. These two patients had hereditary congenital epilepsy. As a result of these experiments Ceni thinks that he has demonstrated the existence in the blood of epileptics of two active principles which, from their differing and opposing properties, must be considered of different nature and origin. Of these principles one circulates in a free state in the blood of epileptics and is endowed with purely toxic properties which can manifest their effects directly or indirectly by injection of the blood serum of one epileptic upon another epileptic even in small doses. The activity of this toxin varies in individuals and the phenomena which it can determine are acute and transitory in character. The other active principle circulates in the blood of epileptics only in a latent state, and it is endowed with stimulating properties upon these cellular elements which preside over the functions of metabolism and which constitute the probable seat of the elaboration of toxic epileptogenous agents. These stimulating properties are manifested only as indirect and distant consequences, by repeated and long-continued injections of blood serum from an epileptic, either in the organism of the person whose blood is used or in that of another epileptic. These principles, endowed with stimulating properties, can modify profoundly the metabolic changes and the epileptic manifestations, exercising a slow and progressive action. They have a therapeutic and restorative action upon metabolism and a debilitating and harmful action on the epileptic manifestations. These different and opposing modes of reaction are connected particularly with special organic conditions, almost wholly unknown to us, in the individual injected; while it seems that the organic conditions of the individual in whom these active principles are elaborated, have no notable consequences upon the different and opposing action which these principles can explain. In the cases in which the stimulating principles can act upon the physiological activity of the cellular elements of nutritive metabolism and thus acquire restorative and therapeutic properties, we have, as a constant result of continued injections, a notable and sometimes great increase in weight, an amelioration or total

[8] Rev. Sper. di Fren., December, 1901, xxvii, 761.

disappearance of any disturbances of the functions of organic life or of the life of relation. At the same time the disturbances of the psychical functions improve or disappear. The epileptic manifestations, whatever be their nature, diminish notably in frequency and intensity or disappear completely. The stability of these positive results is in direct relation to the degree of physiological reaction of the elements of nutritive metabolism. In the cases where these active principles can not act upon the physiological activity of the elements of metabolism, it is not possible to obtain any benefit from injections of serum; but, when these injections are continued in the same manner as in the preceding cases, we have as a final, though transitory result, a diminution in weight and an increase of every disturbance in organic life and in the life of relation. The mental functions are performed worse and the epileptic manifestations increase, sometimes notably, in frequency and in intensity.

### NEUROSES IN CHILDHOOD.

The majority of writers have held that hysteria and neurasthenia are rare in childhood, but this opinion has recently been combated by Saenger,[9] who maintains that they are as common, if not commoner, than in adult life. Out of 30,759 eye patients he found 1,029 children suffering from nervous asthenopia, and in these cases he found that the visual disturbance was one symptom of a general nervous condition. This nervous condition was usually neurasthenia, hysteria, a mixture of the two, or a hereditary neuropathy (a psychopathic defect). The children of the first group (neurasthenia) are usually anemic, irritable and disposed to cry. Their anxiety often prevents them from answering the physician's questions. They are readily fatigued, as can easily be determined by testing the visual field or making the child read. Almost all complain of angioneurotic symptoms, palpitation, vertigo, praecordial anxiety, and show an increased vasomotor excitability. They are sad, are averse to food, and are obstinately constipated. The sleep is disturbed, they are restless, talk in their sleep, and have night terrors. Phobias are common. Many such children show a pronounced tremor of the lids on closing the eyes. The second group (pure hysteria) is also quite common. In most cases there is no psychical abnormality, and most of the cases are decidedly intelligent and never feeble minded. The child often has a decidedly older look, and the forehead may show lines. Hysteria in childhood is often monosymptomatic, but many hysterical stigmata sometimes may be found in the same patient. The third class is the largest, and in it nervous asthenopia is especially common. The eye is sensitive to light, near vision can not long be maintained, and the pain in the head and eyes gives rise to a characteristic expression. Both the muscles of accommodation and the retina are speedily exhausted. Fatigue is a prominent symptom, but hysterical stigmata are also present. Somnambulism is common. Mentally such children are more stupid and less anxious than those of the preceding classes. Adenoid growths are also common. The fourth group shows a decided neuropathic heredity; convulsions are common in infancy and tics and choreic movements in later life. Fears and night terrors are common, they complain of the slightest ills, they are pronounced egoists, and the sexual impulse is prematurely developed, leading to unconscious and excessive masturbation. The moral impulses are ill developed, the child may be dirty, ugly, dishonest and the like, or show signs of well-marked moral insanity, yet he may show great precocity in some special line. In all four classes both sexes are about equally affected, and the trouble is apt to come on between the tenth and fourteenth years, which points to the injurious influence of school life. In the first three groups the prognosis is good if the trouble be recognized early, if the first symptoms can be energetically uprooted, and if the injurious influences can be removed and proper treatment instituted. Removal from school, treatment of the anemia, fresh air and suggestion in the waking state by static electricity, work, etc., are to be recommended. Hypnotism is wholly to be avoided. In severer cases, institution treatment, with baths, gymnastics, and forced feeding, becomes necessary. Anemia is an important factor in the etiology. From a study of hysteria in childhood Saenger opposes the view that hysteria is due to disturbances of ideation or to psychical changes, but its basis depends upon alterations of functional conditions in the central nervous system. Furthermore, from a study of nervous asthenopia, he is led to the belief that the disturbance in neurasthenia is not purely cortical, but that a defective efficiency of the peripheral neurons in different regions may be the basis of the varieties of neurasthenia. This accounts for the efficacy of many therapeutic measures applied to the nerve endings — massage, electricity, hydrotherapy, baths and gymnastics. Exhaustion of the various sensory organs, without time to assimilate sufficient nutriment in the terminal apparatus, is one of the conditions of modern life leading to neurasthenia, while the centres of understanding and judgment are often so intact that the patient can be an intelligent critic of his own condition. Phobias and imperative ideas are not a part of acquired neurasthenia but of a hereditary neuropathy. Beside bad hygienic conditions, anemia and defective nutrition, overwork in schools is responsible for much of the nervousness of childhood. Many of the cases of suicide in childhood, which are steadily increasing and are commoner in Germany than elsewhere, are due to the dread of failure in school, shame and fatigue. The appointment of school physicians is an urgent need to improve the defective conditions of our schools, and, furthermore, the ordinary physician should pay greater attention to the nervous diseases of childhood.

[9] Monats. f. Psych. u. Neurol., May, 1901.

NEURASTHENIA.

Although attention is often directed to increased irascibility as one of the manifestations of the increased excitability of neurasthenia, Pick[10] thinks that little attention has been paid to an increased excitability in the affective domain also met with in that condition, although Morel had, under the much more comprehensive heading of "emotional delirium," given a full description of such a case as an example of excessive impressionability and emotivity. In Morel's case a man of high intelligence would burst into tears on hearing certain musical motives, or on exhibiting certain pictures in his collection. His emotional manifestations were in no relation either to the causes which produced them or to the exaggerations to which a naturally kindly soul might for a moment deliver itself. In Pick's case a woman of seventy-nine, who was in no way hysterical, manifested excessive sorrow about everything,— a condition which had existed for fifty years in greater or less degree, and which she claimed to inherit from her father, who would be beside himself for days if his son brought home a bad report from school. She herself would be so beside herself, if her brother were corrected, that she would have to be sent away. Later in life, if any order committed to her in business were not ready at the appointed time, she would fall into terrible grief, asking God what would become of it; if her husband stayed out late she would become intensely anxious lest he were drunk or arrested; if her relatives did not visit her regularly, she would mourn because they had ceased to love her, and the like. This exaggerated emotivity was manifested not only about her own concerns but about those of total strangers, the sad lot of beggars, etc. This condition finally increased to such a pitch that she had to be sent away to the hospital. If her anxieties were temporarily appeased there was no permanent state of depression and no indication of mental failure. The condition is characterized by an excessive reaction to all ideas having any painful character; the "psychical tonus" is so diminished that the slightest impressions of a particular class lead to a reaction beyond the normal. It is a pathological increase of the condition which, when within physiological limits, is characteristic of the emotional or sentimental man, or the "man of feeling." As a result the patient's disposition becomes permanently painful, yet clearly distinct from melancholic depression, which is not paroxysmal and is not excited by the reaction to painful impressions. It is also to be distinguished from imperative ideas, which the patient recognizes as something foreign coming from without, while these ideas seem an integral part of his consciousness. As a manifestation of "irritable weakness" it therefore is to be regarded as an emotional disturbance of neurasthenia. [Although comparatively little attention has been paid to this condition in medical literature, it is, however, an extremely common condition in real life and one with which the physician should be familiar. As the manifestation of an abnormal disposition it is often a state which lasts through life, and thus, although a source of distress to the patient and especially to the patient's family, it is a condition for which the physician may rarely be consulted.— REP.]

[10] Arch. Psych., 1902, xxxv, 393.

## Reports of Societies.

### MIDDLESEX SOUTH DISTRICT MEDICAL SOCIETY.

ALBERT AUGUST, M.D., SECRETARY.

MIDWINTER meeting at the United States Hotel, Boston, Jan. 21, 1902, Dr. C. H. COOK presiding.

DR. MARSHALL H. BAILEY read a paper entitled

SOME PROBLEMS CONCERNING VENEREAL DISEASES.[1]

DR. S. W. DRIVER: Dr. Bailey has covered the ground in a most admirable manner, and the most I can do is to tell you how certain points strike a man who has been in practice in this community about forty years, who must have had a vast number of instances to illustrate the various points of this paper, must have felt in all its woefulness the sorrows that come from these two diseases, who must have tried to think of means of remedying the evil. I wrote down briefly — and the reader has pretty much covered the whole ground — what possible means might be used to counteract and combat these terrible evils, and they sum themselves up as follows: (1) The influence of the home; (2) the influence of the school and the college; (3) the influence of religious training at the hands of the ministers, Protestant and Catholic; (4) the doctor's influence both on his patients and on the parents; (5) the effect of early marriage; (6) the question of the regulation of the social evil; and, finally, who shall marry?

Now, under the first head, the influence of the home, I will only speak of a few points. It seems to me the great failure has been in the home influence, the influence which should be strongest by perfect confidence between the mother and the daughter and son, and the father and son, and their influence used to its best in combating the terrible evil of all,— ignorance,— that permeates everything. Ignorance: Any man who has been in practice as I have for so many years, finds the majority of young men and young women who come under his care for these diseases have fallen into trouble through ignorance.

I am going to give one illustration of what can be done and how early the influence can be brought to bear. Within three weeks I attended in confinement with her fifth child a mother who represents the great, good, civilized, middle class of

[1] See page 592 of the Journal.

New England, the very marrow of American society. She told me about her little boy. She said: "Will has known all about this baby, and Will and I have perfect confidence. He understands all about it. He knows where the baby has been, and every night he has come to me and kissed me once for mamma and once for the baby." That shows that the mother can begin young — this boy is nine years old — and have perfect confidence between her son and herself and inform him of those things which he ordinarily learns from vicious companions.

Another illustration to show how this influence can be used. A mother, before her son started to go abroad to spend a year, said: "My son, you will have temptation presented to you in its most alluring form on every side. I want you to write to me the history of each day, tell me if you come in contact with any great temptation, and moreover, I want you should remember that some day you will come across some lovely woman you will desire to make your wife, and you will want to say to her that you come to her in the confidence and honor of a pure man." What happened? He went abroad, kept himself straight, came back, went into business, met a beautiful woman and made his proposal. She wrote and said: "If you come to me as pure as I come to you, yes; otherwise, no."

The influence of the father is immense. He can do the same thing when his son goes to college. I have just been reading Professor Briggs' work on "School and College," and I am rejoiced to know that the influences that can counteract not only the effects of disease itself, but the spread of it, are at work in a great institution like Harvard University. There is a stated purpose carried out on the part of the governing body and of the older men in Harvard to come in contact frankly and freely with every man as he enters college, and try to hold him free from temptation, and help him to break away from it when he has fallen. They can use an immense influence.

As to religious training, I believe the time will come when the religious influence on the part of the minister will be made stronger and more potent than now. In reflecting over my forty years' experience as to how much I had seen Protestant ministers use their influence with young men and women I never have seen anything direct, never any good, fair, square teaching or preaching on the subject; only indirect preaching against sin. I think, as far as I have known, the Catholic Church has more merit because, although we who are Protestants have our natural prejudice against the confessional, I believe a potent influence has been used in that church to keep their women from the disasters of these diseases. It used to be a saying among us that we rarely found a young Catholic woman who had fallen. We felt that the influence of their clergy had held them against temptation. In later years, however, this does not seem to be the case, for I have said to some of these young women: "How did this come about? Did not your minister say so-and-so to you? Did you not tell him?" "No, we did not tell him anything." I believe if the clergy would use all the power they have, that would be another potent influence.

The doctor's influence: I put this as the most potent because he can do two things. First, he can use his influence in the family with the parents. The moment he enters a family he can use his influence with the young couple and his knowledge to tell them exactly what they ought to know, and how they ought to train their children; how they ought to teach their children something of the evils that can come from this. Then, again, the doctor can use his influence on the children as he comes in contact with them. It is rather an evil thing to lock the stable door after the horse is stolen. Time and again a young man or young woman comes to me who has fallen through ignorance, who has not the most disastrous form of the disease, has escaped as by fire, but the men I know — the older men — never allowed one of those men or women to go out of our offices until we gave them a clear statement of the possibilities that might come from these diseases. I know a man in the ministry today who was saved in that way. He fell into temptation. He is now a good man and doing good work. The doctor has a most wonderful power if he will only use it and on all occasions. We look upon these things sometimes as a commercial matter, a matter of indifference, but the doctor should appreciate his power and never fail to use it. The young men in the profession are perhaps more likely than we to come in contact with a class of men suffering with these diseases and can do more good. I have, I know, helped men and women out of the mire in my early years.

One more thing: The question came up in my mind whether it was not incumbent on a great society like this, which discusses this question gravely, to prepare a manual, as was done fifty years ago by the best men in Boston, on the evils that come from interfering with conception, from abortion, etc.,— a proper work to be put in the hands of laymen; why it might not be encumbent on this society to prepare a manual that would give a plain and clear statement of the possible evils that would come from so insignificant a thing as it is often considered, as gonorrhea, or from syphilis, to remove from the community the pitfall of ignorance. With such a manual we could say to a father or mother: "You ought to have this book to help you bring up your children."

I have not time to say what I would like on early marriage, but I firmly believe that the custom of early matrimony, as soon as the young man could gain income sufficient to maintain a wife in a modest, simple way, beginning as our fathers and grandfathers began, would do more for social purity and real happiness than any other thing. The custom is all the other way: to wait until an establishment can be set up at the very beginning, as fine as the father and mother end with. The happiest couple I know are a

young Harvard graduate and his wife, who started in a small, neat and convenient suite of rooms,— now so numerous,— in a quiet suburb. They made a love match. Love and contentment have followed them ever since. They would not to-day exchange ten years of this for thirty years of later life with all that wealth and fashion could give.

I was asked by the reader of the paper what I thought of "regulation." I think it is absolutely inefficient and damnably unfair — that is what I think of it. It deals with repressing women, treating women, and every woman represents half a dozen men, when she is an ordinary public prostitute, and even in case of private prostitution sometimes, and the men are allowed to go free. I was once called into a fine Methodist family where the father and mother were everything good and the daughter sick, and I was called to see what was the matter. The back of the hand was swollen and very painful. I requested the mother to leave the room. I then asked a few questions and obtained the facts. She had a young man lover who took her here and there. She acknowledged how she had fallen and he was "sick." This man had been going round and came to her and led her astray, and she was suffering from gonorrheal rheumatism. How absurd to regulate the woman and let the man go free! No, sir. How unfair! But I do think well of another thing. If the community, through the parents and the doctors and ministers, has clearly defined knowledge of the evils of this thing and the consequences of it, that there be enacted a law regulating marriage, a law that shall require a certificate of soundness before a man or woman can marry, the community asserting its right to protect itself from pauperism, insanity, tuberculosis, and also such a thing as chorea. A young man, a choreic, in Cambridge, married a few years ago, and they now have choreic children. I believe the State has a right to say to such, "You shall not marry." If a man has syphilitic taint, "You shall not marry;" gonorrhea, "You shall not marry;" and tuberculosis, "You shall not marry;" inherited insanity, "You shall not marry." I think the time will come when the community will have arrived at this. It must, to preserve its existence, regulate marriage; and when the young man and young woman know the consequence of these failings, I think it will have a powerful restraining influence. That I would advocate most of all, as a legal restraint.

Lastly, I have considered the question of whether punishment will help. I think that will help the other. An action for damages against the man who gives a syphilitic taint to the woman would be another restraining influence.

To sum up: one thing cannot do this work. You must have every means brought to bear to combat the evil, and the medical profession have got to be the pioneers. For your encouragement I will say this: the minister does not always succeed in saving the soul; the doctor does not always succeed in saving the body,— but sometimes, the doctor saves both body and soul.

DR. ARTHUR G. GRIFFIN: It seems to me rather superfluous for anyone to stand up and discuss a question that has been so admirably presented by the reader, and also by the remarks of Dr. Driver, but these problems must be met, discussed and acted upon, if the human family is ever to be relieved of its burden. We should look upon them as curable diseases, both I believe so considered at the present time, and as such not only the moral phase and the home phase and the religious phase can be looked upon and acted upon; but I think the State can also do something to help the matter along. It was my fortune or misfortune to be associated with some of the city institutions for a number of years, and one especially where there were between 10,000 and 12,000 commitments in a year — a large number of women and a larger number of men; also boys and children. We used to discuss the question among the medical fraternity as to some means being provided whereby these people in the contagious or infectious stage can be commanded to remain in the hospital until in a condition to go out and associate with people. We discussed it with the officers and trustees of the hospital, and even asked them to present some bill to the legisture whereby something might be enacted so that we could compel them to remain with us, but never accomplished anything. I think a law could be passed, and I think it would be a great help in our large cities, if those people in the infectious and contagious stage could be compelled to remain in the hospital until thoroughly cured, or, at least, so that they would not spread contagion so generally throughout the city, and that seems to me to be the only entering wedge we can have as far as legal enactments go at the present time, and if that could be done it would save the city of Boston a great deal of misery if those people were cared for. We used to have sometimes fifteen or twenty a day in the acute stage, many of whom were committed for only ten days and could not be compelled to remain until they ceased to be a source of danger to the community. I think that something can be done in that direction which would help a little toward eliminating part of the community from the trouble.

DR. LEWIS M. PALMER: If I were to attempt to speak any length of time at this hour and after these able papers and discussions, I am afraid you would feel like saying what my good old college president did in my presence a few years ago. I was asked to give a lecture to my alma mater on the medical profession. I spent lots of time on it; I thought I had a pretty good thing, in fact, I had a little big head on the subject, and I gave it with considerable pleasure and pride. You can imagine my feelings when I got through to hear the old college president say: "Dr. Palmer has now finished his address. Praise God from whom all blessings flow!" I am afraid you would feel like saying the same if I were to speak any length of time.

In a manual furnished by the State Board of Health I found today what seems to contradict my brother on the right, for I find in that a state law — I cannot give the date — which provides for just this thing that the last speaker has referred to, that in public penal and charitable institutions, jails, reformatories and almshouses where a disease known as syphilis is found, if in the opinion of the medical officer it is dangerous, the patients can be quarantined and immediately put upon treatment, and if at the expiration of the term of sentence it is deemed for the good of the public, they can be detained until they are cured and the amount of $3.50 a week assessed to the town where they have a residence. This is the latest manual, and I assume it is correct. If the state can do this in penal and in charitable institutions, it seems to me it is only a fair inference that it can be carried still further.

The danger of these two horrible diseases, syphilis and gonorrhea, has been well stated by the reader of the evening. Nobody questions the horrible nature of the two diseases, their fearful presence and their awful consequences. Every busy physician sees them in his every working day, and I think the time has come when that morbid something I can find no name for, which forbids mention of that most delicate of all subjects, the relation of the sexes, shall be done away with, that influence which moves men and women both; it is the foundation of the home when in its pure nature; that the children should be taught, that the public should be taught, that the danger should be heralded; and where else can they better be taught than by the medical profession, which is the guardian of the public.

A few years ago we had in my town an industry that did not employ the best class of help. There was one young woman who was familiarly known as "Polka Dot," because she wore a polka dot dress, and it got to be a pretty serious joke, as one young man after another came into my office, until I finally would say: "Been to see 'Polka Dot'?" "Yes." The amount of danger, of sickness, of suffering, of death that followed in the wake of that miserable creature, who was once some mother's child and pure, is beyond all reckoning. She was a public menace and danger to the community.

On the other hand, today I have the misfortune to be the chairman of the Board of Health of the town of Framingham, and we have among us a case that some of you may have heard of, a case of smallpox. Compared with the other kind it is small. My town today is in a state of uproar, and I have certain sections of it upon my back, speaking figuratively, and have undergone a good deal of mental disturbance because of that one case, which is isolated, policed, quarantined, every possible care taken to prevent the spread of the infection, and yet, ladies and gentlemen, I do not hesitate to say that that one foul girl in our midst was more of a danger to the town of Framingham than the present one case of smallpox. In the case of the girl it was a standing poor joke; in the case of the smallpox it is a horrible reality with them. In the case of the girl her sins and her disease were visited not only upon the immediate ones, but through them, by heredity, will go down through the years to come. In the case of the smallpox it will be the last, probably, of the trouble.

I have said several times in public and brought upon myself criticism because I think in America we have too much liberty, but I still think it. That fetish which everybody worships of personal liberty carries with it fearful consequences. I think we have much we can learn from some of the old countries. Some of you to whom I speak may have been in that clinic in Vienna in the Krankenhaus, presided over by that masterpiece of mixed virtues, Neumann, where the prostitutes of Vienna are brought for treatment, and this is the point I want to emphasize, which was brought out so beautifully by Dr. Driver, the damnable inequality of the regulation was there avoided, for I have seen him in his clinic bring out unwillingly from the young girl where she got her disease, and then under that despotic form of government, which has its merits, he sent his police officer upon the streets and brought into the wards and kept in the wards the source of that contagion. If we could have that regulation in this great and free country of ours it would be possible to do something toward doing away with the abuse.

Ladies and gentlemen, I think the time has arrived when we, as a medical profession, owe it to the public and to ourselves to shake off this false modesty and to speak boldly and intelligently and scientifically to the people and let them know the dangers that lurk in our midst. The dangers from scarlet fever and of diphtheria and of smallpox pale into insignificance when compared with the horrors that result from these two diseases. If the legislature has power to pass laws for the regulation of the lesser, how much more reason have they to take to themselves the power to provide for the greater! But the legislature will be very slow in taking this action unless the initiative is taken by medical bodies. The double standard or morality is a question of burning shame. One of the sweetest satisfactions I have had in my medical experience is when I have rarely — it is only too true — been able to bring the perpetrator, the young man who has ruined a girl, to share in the trouble and expense and the shame of his sin. And when that law does come, and come it must; and when that law which Dr. Driver has referred to of the marriage certificate, and it will come; and when those other laws which are bound to come, although this, perhaps, may not be the age when we are ready for it; when the hopelessly insane, the idiotic and the criminals shall either be prevented from propagating their kind or shall be mercifully removed from their suffering as we would a pet dog, we shall have made a step in progress. Let us, as a society, do our duty towards bringing that happy time.

DR. C. J. BLAKE: As Dr. Palmer has said, the time has come, it is, and is to be—the time for a more general participatory action on the part of the medical profession in relation to a matter so deeply concerning the public weal, and one with which the medical profession is especially fitted to deal as a part of its great responsibility, a responsibility born of knowledge, for no other body of citizens knows so much of the diseases which are the subject of the discussion this evening, and of their consequences; and the doctor, as Dr. Driver has said, is an educator as well as a practitioner, and in possession of the latest and the absolute facts in all such matters. The training, which has taught both the structure and the normal use of the human body, entitle the teaching of the rules which govern that use, the straight and plain laws of nature within which there is no concession of lawful indulgence.

Primarily the duty of the doctor is to the individual; for him the patient under his hands must be the only person in the world for the time being, and it is this relationship which gives him his hold as an educator of the individual, but, in the face of such widespread conditions as have been set forth in Dr. Bailey's paper, in the necessity for a better understanding of the situation with a view to the determination of remedial measures, the doctor, taking counsel with his fellows, should stand forward, with no uncertainty as to his purpose, as the educator of the mass.

One of the plans suggested as a part of this educational process has been conferences in which the physician, the lawyer, the clergyman and the phrenologist should be represented, but, since the first of these is necessarily the member to whom appeal for information will be most frequently made, it is important that the physician should educate himself, not only in his especial part of the subject, but also in its moral and legal bearings and in the public attitude toward it, the most prolific source of the spread of venereal diseases being the prosecution of a business of purchase and sale which must be combated, not only morally and educationally, but in a business-like manner, having always in view the fact that it is the purchasing power which perpetuates the wrong.

To the end that the doctor shall take his just part in this conjoint work, I would suggest that this, and similar medical societies, appoint a standing committee for the study of, and the report upon, the subject of the spread of venereal disease, and that the women members of the profession be represented in the membership of this committee. The creation of such committees would do much to encourage investigation, to disseminate information, to awaken public action, to influence legislation, and to demand of the doctor his own recognition of his duty as a sociological factor in the community of which he is a part.

DR. MARSHALL H. BAILEY, in closing the discussion, said: I would like to say just two words: one in regard to Dr. Driver's remark along the lines of education, the special line which has interested me more than any other. I was glad to hear him bring in the question of religious education both Catholic and Protestant. The other one is in regard to Dr. Blake's statement that the time has come for the medical man to do something outside of his everyday opportunity in his own practice. I trust all of us have realized before this the everyday duty of taking each opportunity as it occurs. In addition to that we ought to take up something along the line I have been exceedingly pleased to hear Dr. Blake state —a permanent committee for active work in these matters. Otherwise, what is the use of writing papers, and what is the use of talking upon this subject? It occurs to me it is a good deal the same as individuals who go to church and prayer meetings, and tell how good they want to be and what they desire to do. That is all very well if they go out and do it. So in these medical meetings, it is useless to write papers about what should and should not be done unless we follow it up in active work outside, and I believe with the gentlemen who have so ably discussed the subject, that the time has come when this is going to be done; that the time has come when that something which the gentleman from Framingham said he could not name, but which prevented people from talking on this subject, should be done away with. It is all nonsense, I think, that we cannot speak of these things to each other freely and to women as well as to men. Personally I have never had any hesitancy to speak in the plainest possible manner to any intelligent woman as to any intelligent man upon this subject. It is when we get into the ranks of the uneducated that we find modesty with its heaviest veil.

## THE AMERICAN ASSOCIATION OF GENITO-URINARY SURGEONS.

SIXTEENTH ANNUAL MEETING, HELD IN ATLANTIC CITY, N. J., APRIL 29 AND 30, 1902, THE PRESIDENT, WILLIAM T. BELFIELD, M.D., IN THE CHAIR.

(Concluded from No. 22, p. 582.)

### TUBERCULOSIS OF THE TESTICLE.

DR. PAUL THORNDIKE of Boston presented a short paper on tuberculosis of the testicle based upon 75 cases of the disease collected from the surgical wards of the Boston City Hospital. Of these cases 67% occurred between the ages of 20 and 40 years; 60% involved the left testis; 18% involved both testes. Gonorrhea had preceded the development of the disease in 30% of the cases and trauma in 12%. The epididymis alone was involved in 32 cases. The vas deferens was palpably involved in 12 cases. The seminal vesicles were palpably involved in 16 cases. The prostate was palpably involved in 13 cases. Dr. Thorndike's paper discussed two points: One, the feasibility of removing the epididymis and leav-

ing the testis behind, in proper cases; two, the benefit to the patient of operations which remove only a part of the disease in cases where total eradication of the tubercular process is impossible.

Dr. Thorndike also reported two cases of

GENITO-URINARY TUBERCULOSIS.

In the first there was a deposit in the prostate which was not alone the only manifestation of tuberculosis of the urogenital system, but also the only one in the body. In the second case it was clearly shown that the ureter on the same side as the diseased adrenal had been infected through its mucous lining by the tubercle bacillus, carried there presumably by the urine secreted by the kidney, the adrenal of which was tuberculous.

AN ANALYSIS OF NINETY-SIX OPERATIONS FOR THE RELIEF OF TUBERCULOSIS OF THE TESTICLE.

Dr. Orville Horwitz of Philadelphia, after recounting many cases, said that he seemed warranted in presenting the following conclusions: (1) A primary tubercular infection of either the epididymis or testicle may occur, the former being by far the more common; (2) a primary infection of the epididymis, secondarily that of the testicle, is more common than the descending one; (3) primary involvement of either the epididymis or testicle usually takes place through the circulation, the soil being predisposed to the location of the tubercle bacillus either by a slight traumatism or by some infective condition which has given rise to inflammation of that organ; most commonly an attack of gonorrhea; (4) secondary tubercular involvement of the epididymis or testicle sometimes follows a primary focus of the disease in other portions of the body, and more commonly in those organs that are in a direct anatomical connection with the sexual glands, such as the seminal vesicles, prostate, urethra, bladder, ureter or kidney; (5) the invasion of the testicle may be rapid, associated with acute inflammatory symptoms, an abscess soon developing, or the onset may be slow, the symptoms simulating those of either chronic syphilitic orchitis or malignant disease of the organ; (6) the tuberculin test should always be employed in doubtful cases where only one focus of the disease is known to exist; (7) in doubtful cases associated with hydrocele, the fluid should be examined for the tubercle bacilli and inoculating experiments made; (8) the injections of either emulsions of iodoform or of sulphate of zinc into the diseased part are not to be recommended; (9) in all cases of encapsulated caseous nodules quiescent in the epididymis, epididymectomy should be performed; (10) epididymectomy together with resection of the vas deferens is not attended by either atrophy of the testicle or sexual weakness; (11) the drainage of tuberculous abscesses followed by the use of the curette is only to be employed where radical treatment is not permissible, as it is attended with more or less danger and is generally unsatisfactory in its results; (12) in instances where the epididymis alone is involved, a resection of the diseased structure is all that is required, but whether a partial or complete resection of the vas deferens is to be undertaken is still undetermined; (13) double orchectomy should be performed when both glands are diseased, provided there is not extensive coexisting tubercular infection of other organs; (14) whether infected seminal vesicles should be always removed at the time that the epididymis or testicle is resected is a question open for discussion, but from the fact that in a large majority of cases the removal of the primary seat of the disease is followed by a subsidence of the tubercular involvement of the vesicles, it is deemed wiser as a rule to wait and remove the vesicles later if necessary; (15) hygienic and climatic influence play as important parts after operations in fortifying the constitution against further invasion as they do in other tubercular conditions; (16) the antitubercular remedies are of great value in controlling the disease, and should always be employed in conjunction with whatever surgical procedure may be deemed necessary.

TERATOMA OF THE TESTICLE; REPORT OF A CASE; PRESENTATION OF PHOTOGRAPHS.

Dr. James R. Hayden of New York reported the case of a patient, twenty-seven years old, a butler, who was admitted to Bellevue Hospital April 19, 1901. There was no family history of tuberculosis or malignant disease. He denied ever having had syphilis, local traumatism or strain. Nine years ago he had gonorrhea which lasted about three months. Seven years ago he had a second attack, complicated with a right-sided epididymitis which was quite severe, and since then the affected testicle has remained a little larger and harder than its fellow. Two and a half months before admission the right testicle began to increase in size, becoming firm and hard. During the past few weeks there has been some local pain and a feeling of weakness when still, but which disappears when he walks. Upon admission his general condition was found to be good. The right half of the scrotum was occupied by a smooth, painless, heavy and densely elastic tumor, in which the epididymis and testicle proper cannot be differentiated. There was apparently no involvement of the cord, and there was no hydrocele of the tunica vaginalis. The circumference of the tumor at its largest part was $11\frac{3}{4}$ inches. The scrotum was normal in appearance and non-adherent. There was no glandular involvement. A diagnosis of malignant disease of the testicle was made, but in order to exclude the possibility of syphilis, the tumor was enveloped in strong mercurial ointment and the patient given large doses of iodide of potassium, in spite of which the tumor grew so rapidly that this treatment was stopped and the tumor removed. The tunica was normal in appearance and there was no thickening of the cord, which was ligated and cut high up. The wound healed kindly without complica-

tions, and the patient left the hospital one month after admission, but failed to return again, as was requested of him.

The pathological report gave the following microscopical appearances: The growth was mostly composed of a mixture of sarcoma and carcinoma, in combination with other varieties of tissue, and undoubtedly belonged to the class of teratomata. The sarcomatous tissue was both small round celled and small spindle celled, a few giant cells being present in places. The cancer was adenocarcinoma, and practically replaced all the glandular elements. A considerable cartilaginous element was seen throughout, of the hyaline variety, with here and there beginning ossification. Mucous cysts were present. The connective tissue was fairly normal but as a whole showed an unusual cellular element. The vessels were congested, with a proliferation of cells about them, and in parts well marked hemorrhages were found. Smooth muscular fibres were noted, with a slight degree of fatty degeneration and some necrosis. The tumor taken as a whole, on account of its composition and the large proportion of cells over basement and intercellular substance, was to be considered as decidedly malignant.

THE SURGICAL TREATMENT OF BRIGHT'S DISEASE.

RAMON GUITERAS of New York, who read this paper, gave an extensive review of the literature and history of the subject, and pointed out that the first operation for Bright's disease was performed by Harrison in 1878, in a case of subacute nephritis following scarlatina and accompanied by lumbar pain. The diagnosis was renal abscess, but on performing nephrotomy nothing but a medical nephritis was found. The albuminuria and the pain disappeared after nephrotomy in this case. Here then we have the first operation for a medical nephritis, but it must be remembered that Harrison had thought that in this case there was a surgical condition present, namely, a renal abscess, so that he really did not operate upon the kidney with the specific object of curing a nephritis. Since that time Harrison has operated on several cases of a similar character and noted that the relief of renal tension produced by nephrotomy induced a regression of the nephritis. Newman of Glasgow published, some years later, two cases of nephritis in which nephropexy, performed on account of the mobility of the organ, was followed by an improvement in the Bright's disease. Since 1886 a number of cases of chronic Bright's disease have been operated upon by nephrectomy and nephrotomy, usually when there was a nephralgia or a hematuria or both, or else when some surgical condition, such as stone, tumor, suppuration, etc., was suspected. Israel's work showed that the so-called essential hematurias and nephralgias are frequently dependent upon chronic nephritis, and that in such cases nephrotomy is of benefit. He does not consider, however, chronic Bright's disease without these symptoms as amenable to surgical treatment, and emphatically denies his intention of treating ordinary typical cases of Bright's disease by nephrotomy. Edebohls of New York was the first to operate upon kidneys with chronic Bright's disease with the specific object of curing the nephritis, and not simply for the purpose of relieving symptoms, or with the expectation of finding some strictly surgical condition. Edebohls operated upon eighteen patients, in sixteen of whom he performed nephropexy by a method involving the stripping of the capsule from one-half of the organ, and anchoring it to the posterior abdominal wall, while in the remaining two cases he simply decapsulated the kidneys and cut away the capsule without anchoring the kidney afterwards. There was no mortality in this group of cases and the results were such as to justify the further employment of this operation (decapsulation) as a means of treating chronic nephritis.

The author reported two cases of chronic Bright's disease, which he operated upon by stripping the capsule. The first case was that of a man, aged seventy-nine years, in which complete double decapsulation was performed, the second that of a woman, age thirty-five years, in whom a partial decapsulation and nephropexy was performed. In a third case a woman, age forty-four years, who was suffering from chronic nephritis, but who was in fair condition, collapsed on the operating table before the kidneys had been exposed, and was resuscitated with difficulty.

The first case reported by the author was operated upon over a month ago, and has already shown improvement. The second case was operated upon two weeks before the presentation of this report, and sufficient time has not yet elapsed to warrant conclusions as to its result. The third case cannot be considered, as the operation was not completed.

Other cases have been referred to the author for operation, but they were considered unsuitable, either because they did not show sufficient symptoms of chronic nephritis to warrant an operation, or because they were too far advanced to offer fair chances for a trial of this procedure.

The author concludes (1) That nephropexy is always a good procedure in a movable kidney in which chronic nephritis is present; (2) that nephrotomy has proved to be valuable in unilateral Bright's disease associated with hematuria and nephralgia, and (3) that complete bilateral decapsulation has not as yet been employed extensively enough to warrant any positive conclusion as to its value. Up to the time of writing, with the exception of Edebohls' two cases and the case here reported, no instances of decapsulation performed for the cure of chronic Bright's disease have been recorded.

GANGRENE OF THE PENIS; REPORT OF A CASE; PRESENTATION OF PHOTOGRAPHS.

DR. JAMES R. HAYDEN of New York reported the case of W. H. B., fifty-seven years old, married, American, printer, who was admitted to Bellevue Hospital Jan. 15, 1902. Family history

negative. Denies any form of venereal disease, local traumatism or cauterization. He was a paranoiac. Two weeks prior to admission he noticed a small black spot on the end of the glans penis which increased rapidly in size, spreading over the entire organ, giving rise to a very offensive odor. Upon admission the entire penis from the meatus to within one inch of the abdominal wall was greenish black in color and with a most offensive and penetrating odor. The line of demarkation was well marked. The urine was passed from the under surface of about the middle of the penis. Glands not involved. Operation proved effective.

THE SURGICAL TREATMENT OF CHRONIC NEPHRITIS.

Dr. Ramon Guiteras of New York read this paper.

OFFICERS FOR THE ENSUING YEAR.

The following officers were chosen for the ensuing year: President, Dr. Paul Thorndike of Boston, Mass.; Vice-President, Dr. Edwin C. Burnett of St. Louis, Mo.; Secretary and Treasurer, Dr. John Vanderpoel of New York; Council, Dr. William T. Belfield of Chicago and Dr. James R. Hayden of New York.

## Recent Literature.

*A Textbook of Surgery.* By Dr. Hermann Tillmanns, Professor in the University of Leipsic. Translated from the Seventh German Edition by Benjamin T. Tilton, M.D., Instructor in Surgery, Cornell University, and John Rogers, M.D., Instructor in Surgery, Cornell University. Edited by Lewis A. Stimson, M.D., Professor of Surgery, Cornell University. Volume I. The Principles of Surgery and Surgical Pathology. With 516 illustrations. New York: D. Appleton & Co. 1901.

The first translation of this valuable textbook on surgery was published in 1894, and was from the third German edition. Since that time there have been four editions published, and the present translation is from the seventh German edition. As the translators justly say, the recent progress in bacteriology and pathology has made it necessary to publish a second English edition. We are glad to see that the textbook is published in two separate volumes, agreeable to the German edition, and divided into general and regional topics.

The book has been revised, especially in regard to the latest researches in surgical pathology and to the most modern surgical technique. The first English edition contains 788 pages. The second English edition contains 829 pages. Many of the cuts are crude, and are not by any means worthy of the text, which is excellent. However, the volume has been brought abreast with modern surgery, and is a very satisfactory presentation of general surgery and surgical pathology.

THE BOSTON

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## PREVENTIVE MEDICINE IN HAVANA.

The final report of Major W. C. Gorgas, surgeon of the U. S. Army, the chief sanitary officer of Havana prior to the evacuation of Cuba by United States troops, covering the month of April, shows a continued improvement from the time the city was taken over from the Spanish authorities. The city is left, in every direction, as clean and in as good sanitary condition as an abundance of well-directed labor can make it. Not only are the streets cleaner than in cities of similar size in the United States, but the cleaning up of the interior of the houses has been accomplished by persistent effort, inspections and fines, where necessary, on the part of the Sanitary Department. This cleanliness is such as can be accomplished by sweeping, washing and manual labor, for every house in Havana still has a cesspool somewhere on its premises, and it has not been the policy of the Sanitary Department to cause the removal of these until the sewer system is put in. Special attention has been given to the sanitation of the tenement districts, and in this respect these now challenge comparison with the similar districts of other large cities. No case of yellow fever has occurred in the last seven months, and only five cases in the whole yellow fever year. During the previous twelve years the smallest annual number of deaths from this cause was 122, the largest 1,385, and the average for the whole period 466. The only sanitary work directed against yellow fever has been the destruction of mosquitoes. The disease is entirely stamped out, and cannot occur again unless imported from outside. The city is free from smallpox, and has been so since July, 1900; it is not believed that any cases can occur save as introduced from foreign countries. "Of this, of

course, there is always danger; our intimate commerce with the ports of the United States renders us liable to infection from that source at any time. The death-rate from tuberculosis continues high, but not so high as in many of the large cities of the United States and Europe. For the year 1901 the death-rate from tuberculosis was but little over half what it was for the average of the thirty years preceding. Malaria has been greatly decreased as a result of the work of mosquito destruction. For the year 1900, the year previous to warfare against the mosquito, there were 344 deaths from this disease; during the year 1901, the first year of mosquito work, there were 151 deaths, and for the first four months of the present year but 26 deaths. The death-rate in Havana for 1898, the last year of Spanish control, was 71.88. For 1901, under American control, it was 21.77. For the first four months of the present year the deaths have been at the rate of 20.68."

The medical profession has reason to feel justifiable pride in the results that have attended the control of the sanitation of Havana by two United States physicians, Governor-General Wood and Major W. C. Gorgas, aided by the remarkable and timely work done by Surgeons Reed and Carroll, with respect to the propagation of yellow fever. The administration of Cuban sanitary affairs by the two first-named men has furnished an object lesson in municipal sanitation which it is hoped will be long remembered by the American public. That Havana, dreaded for centuries as a plague spot and centre of pestilence, should in little over three years stand forth on a higher sanitary plane than most of our Southern and many of our Northern cities, guarding against them in terror from its former scourges of yellow fever and smallpox, shows what may be done by energetic medical men, whose scientific knowledge is backed by executive power and made applicable through abundant financial resources. Such evidence as is furnished by the sanitary regeneration of Cuba by army medical officers — which is without parallel in the history of the world — abundantly disproves the statement so frequently made that the physician is not a man of affairs and cannot be trusted with the solution of practical administrative problems. It furnishes an argument for more science and less politics in matters of municipal sanitation, which it is to be hoped that the medical profession will not fail to make free use of in the future. We congratulate General Wood and Major Gorgas upon having broadened the field of action for the medical man in connection with applied sanitation, while we felicitate them upon their good work, so well performed. Their sanitary achievements have shed much lustre upon American preventive medicine, and their work will long be remembered by their own compatriots and the new-born nation they have so greatly benefited.

## THE TUBERCULOSIS QUESTION.

IF activity in every part of the world can accomplish anything toward the extermination of tuberculosis, we certainly should expect definite results in the near future. The Congress on Tuberculosis held last year in England has no doubt done much to stimulate systematic work throughout the world. Following upon this congress innumerable investigations and a certain number of new publications have appeared, all calculated to fix public and professional attention upon this greatest problem of disease.

We are in receipt of the first number of the first volume of a publication devoted to the subject of tuberculosis under the immediate direction of Althoff, Fränkel, Gerhardt, von Leyden and Pannwitz. This pamphlet is to appear monthly as a bulletin of the Central International Bureau for the prevention of consumption. In order that it may have a wider circulation and be acceptable in foreign countries as well as in Germany, where it is printed, the text appears in various languages, German, French and English. This Central International Bureau is located in Berlin, and proposes to publish the periodical of which we have spoken regularly as the organ of the society for the prevention of tuberculosis. It is proposed in this journal to choose material which will have essentially a practical interest, not, however, leaving out of the account the necessity of a solid scientific foundation. A further object is to unify, so far as possible, the work being done in all countries against the common enemy in order that the varying experiences may be mutually beneficial. Researches on the general subject which appear in purely scientific journals will be briefly abstracted. It is also proposed that the official information from various countries regarding the general questions relating to tuberculosis, and particularly those concerning tuberculosis congresses, shall find a place in the columns of the bulletin.

We are glad to note the fact that communications will be printed in various languages. It would certainly have advanced scientific literature if this had been done long before and far more generally in various lines of work. So widespread is the interest in the general subject of tuberculosis and so important to all classes in the community, that we can have no doubt that

this new journal, under its capable editorship, will have a distinct place of usefulness.

In New York City we have just had another largely attended congress on tuberculosis, which no doubt will do its share toward furthering the general work. It has also been suggested that a congress of international character be held at St. Louis at the time of the coming exposition. Just how far such congresses are useful it is exceedingly difficult to say. We are convinced, however, that, if men prominent in the profession, and particularly in the line of work relating to tuberculosis, are willing to give the time and energy necessary, such gatherings must be of considerable value in keeping alive an interest in the subject. We should, therefore, as has been suggested by one of our contemporaries, favor a congress on tuberculosis at St. Louis, provided only that it may be held under the proper auspices and under the right leadership.

## A FURTHER OBJECT LESSON IN VACCINATION.

It will be remembered that within a few months a Dr. Immanuel Pfeiffer made himself notorious and incidentally helped the cause of vaccination in this community by voluntarily exposing himself to smallpox without being previously vaccinated. He contracted the disease, but has lived to reiterate his faith in the non-efficiency of vaccination. This attitude was not unexpected, and is of small importance one way or the other. The world at large has taken the event as another strong indication of the value of vaccination in preventing smallpox. Whatever Dr. Pfeiffer personally may think, the fact remains that vaccination received a new impetus as soon as the circumstances of his illness became generally known through the daily papers.

It is rather interesting and at least suggestive that within a week public announcement has been made that two physicians, professing the homeopathic faith and a violent disbelief in vaccination, have been taken ill with smallpox after exposure in the course of their practices. One of these practitioners, a man well known in a neighboring town, has done what in his small power lay to encourage the cause of the antivaccinationists, by certain utterances expressing his views and printed in one of Boston's most widely read papers. These utterances no doubt carried more weight than those of Dr. Pfeiffer, already alluded to, and therefore the result should be even more influential in directing the stream of opposition to vaccination into a different and more rational channel. We are of course quite aware that even arguments of this apparently convincing character do not always convince or even influence the bigoted, but there is a great mass of the wavering who will take the lesson to heart. It is certainly a striking fact that the physicians in charge of the smallpox hospitals in this city have one and all passed through the epidemic unscathed. It is not to be supposed that the physical condition of these overworked men was such as to afford them an immunity such as our antivaccination friends speak of. Every reasonable person will put the credit where it properly belongs — on the immunizing properties of vaccine virus. We regret the illness of anyone on general principles, but we confess there is a little balm to our feelings when we consider how unjustifiably these victims of their own limited point of view have brought their troubles upon themselves.

## MEDICAL NOTES.

Death-Rate in Chicago.— The Chicago death-rate for the year 1901 was 13.65 per 1,000 of the estimated midyear population, 1,758,025, and was 21% lower than the St. Louis rate, 25% lower than Philadelphia, 30% lower than Boston, and 35% lower than New York, even allowing these cities estimated populations based on much higher rates of increase than that claimed for Chicago. It is stated that in the first five months of the current year 11,223 deaths have been recorded, as against 10,293 in 1901, an excess of 9% in number and of 5.2% in proportion to population. More than one-half the excess thus far this year comes from the age group under 5 years, and of this the period between 1 and 5 years contributes 81%. The acute respiratory diseases, bronchitis and pneumonia, have been especially rife, and unusually fatal among children at these ages, and scarlet fever has also been excessively prevalent. Infants under 1 year of age contributed 9.5% of the excess, while the aged, those over 60 years, show a slight decline.

Suicide in Chicago.— It is reported that 50 persons committed suicide in Chicago during the month of May. This is said to be the greatest number ever recorded.

### BOSTON AND NEW ENGLAND.

Acute Infectious Diseases in Boston.— For the week ending at noon, June 4, 1902, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: Diphtheria 35, scarlatina 27, measles 102, typhoid fever 6, smallpox 22.

The Mosquito Situation in Brookline, Mass. — Progress is being made in ridding the town of Brookline of mosquitoes. About one thousand catch basins have been treated with petroleum, as

well as various pools, ponds and streams. Dr. H. L. Chase, reporting on what has been done, says: That theoretically one ounce of petroleum is effective for an area of fifteen square feet of water surface, but experience shows that this is probably true only under the most favorable conditions. The pools and streams treated have varied in area from 50 square feet to 50,000 square feet, and more than one hundred gallons of oil have been used thus far.

SMALLPOX IN MALDEN, MASS.— According to a recent report there are nine cases of smallpox in Malden, Mass. It is expected that the Belmont School, which has been closed for two weeks, owing to the prevalence of the disease, will be opened the latter part of this week.

NEW YORK.

DANGER OF ILLUMINATING GAS.— At a meeting of the New York County Branch of the New York State Medical Association held May 26, James C. Bayles, Ph.D., formerly president of the Health Department, read a paper on "Gas Leakage and the Public Health," in which he stated that this is an evil vastly greater in its influence upon the death-rate of the city than any of the other evils to which attention is usually directed by sanitarians. "I am of the opinion," he said, "that it (illuminating gas) is incomparably the most dangerous element of that mysterious and indefinable compound which is so loosely designated as sewer gas. It is not unusual to find the atmosphere in houses vitiated to the extent of one-tenth of 1% by this gas. Health is impossible and sickness inevitable as the result of exposure to such conditions." He furthermore declared that the cost of repairs was so enormous that they would never be made by the gas companies until public opinion compelled legislation which would require this as a condition of the franchise privilege.

DIFFICULTIES OF A SMALLPOX HOSPITAL.— The health authorities of the village of Ossining (formerly Sing Sing), on the Hudson, have been placed in a quandary as to what to do with a smallpox patient in their charge, there being no provision for cases of the disease. At first they determined on having a pesthouse on the State farm in the vicinity of the prison. The location is stated to be a good one, but the nearest neighbors, although their residences were some distance away, obtained an injunction which put a stop to the project. Not being at leisure to fight the matter out in the courts, the Board of Health improvised a houseboat, put the patient in it and had it towed up the river to some isolated meadows, where it was anchored. It appears, however, that the locality selected is close to the Cortland town line, and the authorities have now ordered the floating hospital moved away from their borders.

A CRIMINAL FAMILY.— At a meeting held during the past week, Mrs. M. J. Annable, State superintendent of rescue work of the Women's Christian Temperance Union, gave the following statistics in regard to the descendants of a woman of criminal tendencies which, she said, had been collected with much care and could be relied upon as accurate. This woman, whose occupation was keeping a disreputable house and who was addicted to vicious habits, including excessive indulgence in alcoholic stimulants, died, at the age of 51, in 1827. Her descendants have been 800 in number, and of these 700 have been criminals, all of them having been convicted at least once. There are 342 drunkards, acknowledged by all as such, and 127 are immoral women. There were 37 murderers, who have been executed for their crimes. This family has cost the commonwealth no less than $3,000,000, this amount having been expended for their trials, maintenance in prisons, and executions.

DEATH CAUSED BY AUTOMOBILE AMBULANCE.— A melancholy accident occurred on May 28 in which the effort to save two lives resulted in the loss of a third. A boy eleven years old was run over and instantly killed by an automobile ambulance from the New York Lying-in Hospital, which was proceeding through the streets at a very fast rate. In the ambulance was a young parturient woman in a critical condition, and the physician in charge, in view of the urgent necessity of reaching the hospital at the earliest possible moment, had directed the driver to make quick time.

DEDICATION OF BETH ISRAEL HOSPITAL.— The new Beth Israel Hospital, at Jefferson and Cherry Streets, in the heart of the East Side tenement district, was publicly dedicated on May 25. It is provided with a staff of 10 visiting physicians and surgeons, a house staff numbering 6 and a corps of 50 nurses. Dr. Abraham Brothers was the chairman of the building committee, and the cost of the hospital, furnished and equipped, has been $225,000. It has a large dispensary department in the basement. More than 12,000 visitors inspected the new building.

VERDICT FOR DEATH OF A HUSBAND.— The widow of Edward C. Hinsdale, who sued for $100,000, has obtained a verdict for $40,000 against the New York, New Haven and Hartford and the New York Central railroad companies for the death of her husband, who was killed in the Park Avenue tunnel disaster of Jan. 8 last. This is the first of the tunnel disaster suits to be decided in

New York, and the amount obtained is said to be the largest ever awarded in the city for a human life. According to the law formerly in force $5,000 was the limit of liability in such cases.

COMMENCEMENT EXERCISES OF NEW YORK CITY TRAINING SCHOOL FOR NURSES.—Mayor Low presided at the twenty-seventh annual commencement exercises of the New York City Training School for Nurses at the City Hospital on Blackwell's Island, which were held on May 31. There were twenty-seven graduates and certificates were also awarded to fourteen nurses who had taken post-graduate courses.

COMPLIMENTARY DINNER TO DR. T. A. EMMET.—On May 22 a complimentary dinner, at which over sixty physicians were present, was given by the Celtic Medical Society of New York to Dr. Thomas Addis Emmet.

## ARMY NOTE.

SMALLPOX ON TROOP SHIPS.—As an additional precaution against the development of smallpox on troop ships, and to assist the medical authorities at San Francisco in determining the necessity for the detention under observation of troops at that point, the War Department has ordered that troops en route to the Philippines shall be furnished with certificates that they had been medically inspected before leaving their respective stations and had been protected against smallpox. It has also been ordered that no recruits are to be sent from San Francisco until they have been long enough under observation of the medical officers there to develop any infectious disease to which they may have been exposed prior to enlistment.

## METEOROLOGICAL RECORD

For the week ending May 24, in Boston, according to observations furnished by Sergeant J. W. Smith of the United States Signal Corps:

| Date | Barometer. | Thermometer. | | | Relative humidity. | | | Direction of wind. | | Velocity of wind. | | We'th'r * | | Rainfall in inches. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Daily mean. | Daily mean. | Maximum. | Minimum. | 8.00 A.M. | 8.00 P.M. | Daily mean. | 8.00 A.M. | 8.00 P.M. | 8.00 A.M. | 8.00 P.M. | 8.00 A.M. | 8.00 P.M. | |
| S...18 | 22.98 | 64 | 78 | 49 | 59 | 50 | 54 | W | S W | 5 | 7 | C. | C. | |
| M..19 | 29.96 | 56 | 60 | 51 | 74 | 100 | 87 | E | N E | 8 | 5 | O. | R. | .38 |
| T..20 | 30.04 | 52 | 57 | 48 | 76 | 75 | 76 | N E | E | 11 | 3 | O. | C. | .04 |
| W..21 | 30.28 | 60 | 72 | 47 | 50 | 56 | 53 | N E | S W | 4 | 15 | C. | F. | |
| T..22 | 30.06 | 65 | 80 | 50 | 65 | 60 | 62 | W | S W | 12 | 21 | F. | C. | |
| F..23 | 29.82 | 73 | 88 | 58 | 70 | 64 | 67 | S W | S W | 14 | 16 | F. | O. | |
| S...24 | 29 76 | 76 | 84 | 68 | 76 | 68 | 72 | W | S W | 10 | 15 | R. | O. | T. |
| ☞ | 28 98 | | 74 | 53 | | | 67 | | | | | | | .42 |

*O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow. † Indicates trace of rainfall.
☞ Mean for week.

## RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, MAY 24, 1902.

| CITIES. | Population Estimated, 1902. | Reported deaths in each. | Deaths under five years. | Percentage of deaths from | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | Infectious diseases. | Acute lung diseases. | Diphtheria and croup. | Typhoid fever. | Cerebro spinal meningitis. |
| New York . . | 3,665,352 | 1,332 | 462 | 24.31 | 13.94 | 3.38 | .38 | .30 |
| Chicago . . | 1,852,828 | 501 | 170 | 23.80 | 13.00 | 1.60 | .40 | — |
| Philadelphia. | 1,349,624 | 468 | 110 | 23.72 | 12.61 | 2.77 | 4.27 | .21 |
| St. Louis . . | 603,717 | — | — | — | — | — | — | — |
| Baltimore . . | 525,330 | 193 | 50 | 24.86 | 11.39 | 1.03 | .52 | 1.03 |
| Cleveland . . | 411,826 | — | — | — | — | — | — | — |
| Buffalo . . . | 375,742 | — | — | — | — | — | — | — |
| Pittsburg . . | 341,401 | 146 | 56 | 27.71 | 17.81 | 3.42 | 4.80 | .68 |
| Cincinnati . | 332,032 | — | — | — | — | — | — | — |
| Milwaukee . | 304.975 | — | — | — | — | — | — | — |
| Washington . | 289,537 | — | — | — | — | — | — | — |
| Providence . | 185,870 | 42 | 11 | 16.66 | 11.90 | — | — | 2.38 |
| Boston . . . | 588,736 | 221 | 51 | 24.86 | 15.36 | 1.36 | — | .90 |
| Worcester. . | 127.337 | 45 | 16 | 11.11 | 8.88 | — | — | 4.44 |
| Fall River. . | 111.872 | 33 | 15 | 24.24 | 3.03 | 3.03 | — | — |
| Lowell . . . | 99,574 | 54 | 13 | 11.11 | 25.92 | — | 3.70 | — |
| Cambridge . | 96,334 | 21 | 3 | 38.09 | 9.52 | 4.76 | — | — |
| Lynn. . . . | 71,144 | 23 | — | 17.39 | 8.70 | 4.35 | — | 4.35 |
| Lawrence . . | 67,275 | 28 | 15 | 14.28 | 22.13 | — | — | — |
| Springfield . | 66,854 | 27 | 4 | 11.11 | 11.11 | — | — | — |
| Somerville . | 65,882 | 8 | 2 | 12.50 | 12.50 | 12.50 | — | — |
| New Bedford. | 65,574 | 23 | 9 | 13.04 | 17.39 | — | — | — |
| Holyoke . . | 48,065 | 12 | 4 | — | 25.00 | — | — | — |
| Brockton . . | 43,208 | 6 | 1 | — | — | — | — | — |
| Haverhill . . | 40,392 | 11 | 2 | 27.27 | 18.18 | — | — | — |
| Salem . . . | 36,567 | 10 | 1 | — | 10.00 | — | — | — |
| Newton. . . | 36,336 | 7 | 2 | 14.30 | — | 14.30 | — | — |
| Malden . . . | 35,390 | 11 | 6 | 18.18 | 45.45 | 9.09 | — | — |
| Chelsea. . . | 35,264 | 8 | — | — | — | — | — | — |
| Fitchburg. . | 33,848 | 7 | 2 | — | 14.30 | — | — | — |
| Taunton . . | 32,759 | 8 | 3 | — | 12.50 | — | — | — |
| Everett. . . | 27,114 | 4 | 2 | 25.00 | — | — | — | — |
| North Adams | 26,583 | 6 | — | 16.67 | 50.00 | — | 16.67 | — |
| Gloucester . | 26,121 | 6 | 2 | — | — | — | — | — |
| Quincy . . . | 25,307 | 5 | 2 | — | 20.00 | — | — | — |
| Waltham . . | 24,612 | 6 | 1 | — | 16.67 | — | — | — |
| Pittsfield . . | 22,311 | 9 | — | 22.22 | 33.33 | — | — | — |
| Brookline. . | 21,679 | — | — | — | — | — | — | — |
| Chicopee . . | 20,390 | 9 | 5 | — | — | — | — | — |
| Medford . . | 20,014 | 4 | — | — | 25.00 | — | — | — |
| Newburyport | 14,478 | 6 | — | 16.67 | — | — | — | — |
| Melrose . . | 13,384 | 3 | 1 | 66.67 | — | — | — | — |
| Westfield . . | 13,038 | 6 | 3 | 16.67 | 16.67 | — | — | — |
| Attleboro . . | 12,846 | — | — | — | — | — | — | — |
| Adams . . . | 12,813 | — | — | — | — | — | — | — |
| Milford . . | 12,516 | — | — | — | — | — | — | — |
| Framingham | 12,109 | 7 | — | — | 14.30 | — | — | — |
| Peabody . . | 11,957 | — | — | — | — | — | — | — |
| Revere . . . | 11,894 | 2 | — | 50.00 | 50.00 | — | — | — |
| Gardner . . | 11,544 | 4 | — | — | 25.00 | — | — | — |
| Weymouth . | 11,337 | 4 | 1 | — | — | — | — | — |
| Southbridge . | 10,838 | 4 | — | 25.00 | — | — | — | 25.00 |
| Watertown . | 10,600 | 3 | — | — | 66.67 | — | — | — |
| Plymouth . . | 10,336 | — | — | — | — | — | — | — |

Deaths reported 3,344; under five years of age, 1,028; principal infectious diseases (smallpox, measles, scarlet fever, cerebrospinal meningitis, diphtheria and croup, diarrheal diseases, whooping cough, erysipelas, fevers and consumption) 763, acute lung diseases 6, consumption 360, scarlet fever 60, erysipelas 8, typhoid fever 38, whooping cough 33, cerebrospinal meningitis 15, smallpox 21, measles 40, diarrheal diseases 102.

From whooping cough, New York 10, Chicago 6, Philadelphia 8, Baltimore 1, Pittsburg 3, Boston 2, Lawrence, Springfield and Hyde Park 1 each. From measles, New York 12, Chicago 4, Philadelphia 4, Baltimore 1, Pittsburg 12, Boston 3, Lawrence 1, Haverhill 3. From erysipelas, New York 3, Chicago 3, Boston 2. From smallpox New York 11, Philadelphia 3, Boston 6, Melrose 1.

In the seventy-six great towns of England and Wales, with an estimated population of 14,862,909, for the week ending May 10, the death-rate was 17.2. Deaths reported 4,894: acute diseases of the respiratory organs (London) 231, whooping cough 141, diphtheria 79, measles 112, smallpox 62, scarlet fever 46.

The death-rate ranged from 7.5 in East Ham to 26.1 in Rochdale; London 16.6, West Ham 14.6, Croydon 12.9, Brighton 13.8, Portsmouth 13.6, Southampton 18.4, Bristol 14.3, Birmingham 19.2, Leicester 13.0, Nottingham 18.4, Birkenhead 24.6, Liverpool 22.1, Manchester 18.8, Salford 23.3, Bradford 18.0, Leeds 19.4, Sheffield 17.6, Hull 19.5, Newcastle-on-Tyne 23.1, Cardiff 13.3.

## OFFICIAL LIST OF THE CHANGES OF STATION AND DUTIES OF COMMISSIONED AND NON-COMMISSIONED OFFICERS OF THE U. S. MARINE HOSPITAL SERVICE FOR THE SEVEN DAYS ENDING MAY 15, 1902.

MURRAY, R. D., surgeon. Granted leave of absence for twenty-five days from June 1. May 13, 1902.

WASDIN, EUGENE, surgeon. Leave of absence for seven days from May 2, 1902, under paragraph 179 of the regulations, amended so that said leave shall be for three days.

GUITERAS, G. M., passed assistant surgeon. Bureau order of May 5, 1902, directing Passed Assistant Surgeon Guiteras to proceed to Philadelphia, Pa., amended so that he shall proceed to Cienfuegos, Cuba, for temporary duty; upon completion of temporary duty at Cienfuegos to proceed to Philadelphia. May 12, 1902.

HASTINGS, HILL, assistant surgeon. Detailed to represent the service at meeting of Southern California Medical Society at Idyllwild, May 22 and 23. May 13, 1902.

MCMULLEN, JOHN, assistant surgeon. Granted leave of absence for fourteen days from May 14. May 13, 1902. Relieved from duty at Boston, Mass., and directed to proceed to London, Eng., for duty in the office of the U. S. consul-general. May 7, 1902.

HOLT, J. M., assistant surgeon. Relieved from duty at St. Louis, Mo., and directed to proceed to Honolulu, Hawaii, and report to medical officer in command for duty stopping en route at San Francisco quarantine, for special temporary duty. May 14, 1902.

DUFFY, FRANCIS, acting assistant surgeon. Granted leave of absence for six days from May 19. May 15, 1902.

RODMAN, J. C., acting assistant surgeon. Granted leave of absence for three days. May 15, 1902.

ROWLES, J. A., acting assistant surgeon. Granted leave of absence for thirty days from May 12. May 13, 1902.

### BOARD CONVENED.

Board convened to meet at the Marine Hospital, Chicago, Ill., May 31, 1902, for the physical examination of an officer of the Revenue Cutter Service. Detail for the Board: Surgeon H. W. Sawtelle, chairman; Assistant Surgeon L. P. H. Bahrenburg, recorder.

### FOR SEVEN DAYS ENDING MAY 22, 1902.

WERTENBAKER, C. P., passed assistant surgeon. Leave of absence for one day, May 20, 1902, under paragraph 179 of regulations. Detailed to represent the service at the meeting of the Association of Military Surgeons to be held in Washington, D. C., June 5, 6 and 7, 1902. May 22, 1902.

NYDEGGER, J. A., passed assistant surgeon. Granted leave of absence for ten days from June 2. May 22, 1902.

BURFORD, HUGH, acting assistant surgeon. Department letter of May 7, 1902, granting Acting Assistant Surgeon Burford leave of absence for two weeks, amended so that said leave shall be for twenty-one days from May 15. May 20, 1902.

RICHARDSON, S. W., senior pharmacist. Granted leave of absence for thirty days from June 10. May 20, 1902.

### PROMOTIONS.

COBB, J. O., passed assistant surgeon. Promoted and appointed surgeon, to rank as such from April 20. May 21, 1902.

CLARK, TALIAFERRO, assistant surgeon. Promoted and appointed passed assistant surgeon, to rank as such from March 27. May 19, 1902.

HASTINGS, HILL, assistant surgeon. Promoted and appointed passed assistant surgeon, to rank as such from March 29. May 19, 1902.

LAVINDER, C. H., assistant surgeon. Promoted and appointed passed assistant surgeon, to rank as such from March 27. May 19, 1902.

### BOARDS CONVENED.

Board convened to meet at the Bureau May 20, 1902, for the physical examination of such officers of the Revenue Cutter Service as may present themselves. Detail for the Board: Surgeon R. M. Woodward, chairman; Assistant Surgeon B. S. Warren, recorder.

Board convened to meet at the Bureau June 16, 1902, for the purpose of examining candidates for appointment as assistant surgeon in the Marine Hospital Service. Detail for the Board: Surgeon P. H. Bailhache, chairman; Surgeon G. T. Vaughan, passed assistant surgeon; H. D. Geddings, recorder.

## SOCIETY NOTICES.

AMERICAN UROLOGICAL ASSOCIATION.—The annual meeting of this society will be held at Saratoga, N. Y., June 13 and 14, 1902.

AMERICAN MEDICO-PSYCHOLOGICAL ASSOCIATION.—The fifty-eighth annual meeting of the American Medico-Psychological Association will be held at Montreal, June 17, 18, 19 and 20, 1902.

MASSACHUSETTS MEDICO-LEGAL SOCIETY.—The annual meeting of the Society will be held on Tuesday, June 10, at 1.00 P.M., in Sprague Hall, in the Boston Medical Library Building, 8 The Fenway. Attorney-General Herbert Parker will address the meeting.

## EXAMINATION.

A board of officers will be convened to meet at the Marine Hospital Bureau, 3 B Street, S. E., Washington, D. C., Monday, June 16, 1902, for the purpose of examining candidates for admission to the grade of assistant surgeon in the U. S. Marine Hospital Service.

The oral examination includes subjects of preliminary education, history, literature, and natural sciences.

The clinical examination is conducted at a hospital, and when practicable candidates are required to perform surgical operations on a cadavar.

Successful candidates will be numbered according to their attainments on examination, and will be commissioned in the same order as vacancies occur.

## BOOKS AND PAMPHLETS RECEIVED.

Notes on Tropical Dysentery. By John Herr Musser, M.D., Philadelphia. Chart. Reprint. 1901.

Clinical Expression of Chronic Myocarditis. By J. H. Musser, M.D., of Philadelphia. Reprint. 1902.

Upton Scott, M.D., of Annapolis. His Life and Letters. By Eugene F. Cordell, M.D. Reprint. 1902.

A Textbook of Insanity. By Charles Mercier, M.B., M.R.C.P., F.R.C.S. New York: The Macmillan Co. 1902.

Inaugural Address as President of the Medico-Legal Society. By Clark Bell, Esq., LL.D., of New York City. Reprint. 1902.

On the Use and Abuse of Lavage. By John Herr Musser, M.D., Professor of Clinical Medicine in the University of Pennsylvania. Reprint. 1900.

The History of the Invention and of the Develepment of the Ophthalmoscope. By Harry Friedenwald, M.D., Baltimore, Md. Illustrated. Reprint. 1902.

The Antirabic Vaccinations at the New York Pasteur Institute During 1900 and 1901. By George Gibier Rambaud, M.D., of New York. Reprint. 1902.

On Streptothrical Infections. By John H. Musser, M.D., of Philadelphia, Professor of Clinical Medicine, University of Pennsylvania. Reprint. 1901.

The Uniform Principle in Performing Operations for Lacerated Perineum, Cystocele, Rectocele and Prolapse. By Henry J. Kreutzmann, M.D., San Francisco, Cal. Reprint. 1902.

Spa Treatment of Gout. By Charles C. Ransom, M.D., of New York, Attending Physician to the City Hospital; Medical Director of the Baths of Richfield Springs. Reprint. 1902.

Is Leprosy the Fourth Stage of Syphilis? By Henry Alfred Robbins, M.D., Professor of Dermatology and Syphilology in the Howard University, Medical Department, Washington, D. C. Reprint. 1902.

Intratracheal Injections in the Treatment of Bronchitis. By Willis S. Anderson, M.D., Detroit, Mich., Laryngologist to Harper Hospital Polyclinic; Assistant to the Chair of Laryngology in the Detroit College of Medicine. Reprint. 1902.

Pneumonia: An Acute Self-Limited Systemic Infection. By Stephen Smith Burt, A.M., Yale; M.D., Columbia, of New York City, Professor of Medicine and Physical Diagnosis, New York Post-Graduate Medical School; Attending Physician, New York Post-Graduate Hospital. Reprint. 1902.

Perforating Ulcer of the Stomach; Operation; Recovery. By John H. Musser, M.D., Professor of Clinical Medicine, University of Pennsylvania, and Henry R. Wharton, M.D., Clinical Professor of Surgery in the Woman's Medical College; Surgeon to the Presbyterian and the Children's Hospitals. Reprint. 1901.

Local and Regional Anesthesia with Cocain and Other Analgesic Drugs, Including the Subarachnoid Method, as Applied in General Surgical Practice. By Rudolph Matas, M.D., of New Orleans, Professor of Surgery, Medical Department, Tulane University of Louisiana. Illustrated. Reprint. 1900.

# Address.

## THE PRESIDENT'S ADDRESS.

Delivered at the Fifty-third Annual Session of the American Medical Association at Saratoga Springs, June 10-13, 1902.

By John Allan Wyeth, M.D., LL.D., New York City.

Since the session held at St. Paul a year ago, a former president of this association, paying the last great debt to nature, has passed

"To where beyond these voices there is peace."

Full of years and beyond the limit allotted by the Psalmist, Prof. Edward Mott Moore, born in Rahway, N. J., July 15, 1814, died in Rochester, N. Y., March 3, 1902. He was one of the founders of the New York State Medical Association, a consistent and loyal friend of our national body and of an organized medical profession. Although his achievements in science were of a high order, his life was not circumscribed within the narrow limits of professional work. He was not only a skilful surgeon, bold and original, but more than this, he was a citizen of the highest type. The welfare of his neighbors, of his adopted city, state and the nation were his. May his noble example be emulated, for it is just as much our duty to be true to the obligations of citizenship as to our profession.

Before dealing with the more urgent matters of this meeting, your attention is called to the fourteenth International Congress of Medicine which is to be held at Madrid from April 23 to 30, 1903.

As your presiding officer I had the honor to receive an appointment from the Secretary of State as a delegate to represent this association at the congress, and was requested by him to appoint five additional delegates from this body. In conforming to this request the following gentlemen have accepted commissions, and have received certificates from the state department to the congress: Dr. Nicholas Senn of Illinois; Dr. Maurice H. Richardson of Massachusetts; Dr. George Crile of Ohio; Dr. Richard Douglas of Tennessee, and Dr. Edward B. Dench of New York.

It should be the duty and pride of the separate state associations to send at least one delegate to this important meeting, and in doing this to correspond with Dr. Angel Fernandez-Caro, Secretary-General, Fourteenth International Congress of Medicine, Madrid, Spain.

This session marks an era in the history of the American Medical Association, for we meet under changed conditions, and in this our trial year, while we are adjusting ourselves to the new order, we confidently ask and expect to receive not only the consideration and forbearance, but the generous help which should be accorded to this experiment in government by which we earnestly hope to avoid the embarrassments and failures that under the old régime characterized the meetings of a body so large and unwieldy as the general session.

These changes involve not only the government of the association proper, but also a changed relationship of the state association to the national body, as well as the relationship of the county to the state organization. Under the old organization our business was transacted by delegates from state, district and local affiliated societies in the proportion of one delegate for each ten members, while now, only affiliated state organizations have the right to send delegates, and these are only entitled to one delegate for each five hundred active members, or fraction of this number. These form the House of Delegates, which is further re-enforced by two members from each of the scientific sections of the association, and one each from the army, the navy and the marine hospital service. Under the old régime the state association bore the same relationship to the national body as did the city, county and district organizations. Now, only the state association is represented, and they create the legislative body of the American Medical Association. In other words, the House of Delegates is a federation of all the state associations.

The reorganization at St. Paul, having taken away from the county organization its right to send delegates, also deprived the city, district branches and other minor associations of the same privilege, requiring membership in the county society when such exists as a prerequisite to membership in the state and the American Medical Association. This ruling dropped, at least temporarily, from the rolls of the association a considerable number of physicians who had long been on the roster from state or local bodies which, by the laws then existing, were in affiliation with the National Association. While this action may have seemed unnecessary and unjust to these members (among whom were many of the most loyal and faithful supporters of the national body) for the common good, they should yield to the opinion of the majority, since calm reflection must convince any reasonable mind that one of the wisest steps the association ever took was when it made the county medical organizations the basis of membership in the national body. There will hereafter be excluded from membership that fortunately small, but none the less existing group of unworthy members of our profession who, on account of the clumsy rules which formerly prevailed, obtained a place on the roster of the American Medical Association.

To the date of the reorganization in June, 1901, the roster of this association was so inaccurate and unsatisfactory that the secretary and president-elect undertook the difficult task of obtaining a correct list of members. While one might infer that each organized state and territorial association could, from its records, furnish at short notice the names of all eligible to membership in the American Medical Association, in only a very small proportion of these subordinate bodies was a reliable list available. It then became necessary to direct a circular letter, state by state, to every name on the roster then existing,

asking for the necessary information. Since, for final confirmation, these names must be referred back to the subordinate organizations in which membership is claimed, it will be seen that some time must elapse before the completion of a perfectly reliable list. The lack of business-like methods with which our profession is charged is in a manner sustained by this admission, and it emphasizes the necessity of a thorough reorganization of all the societies in affiliation with the national body, upon practically a uniform plan.

Scarcely second in importance to a uniform scheme of reorganization is that of a uniform standard of requirements for the practice of medicine in the various states. It is of vital interest to the welfare of the profession that the question of reciprocity or interstate comity should be settled so that, without any sacrifice of the very highest requirements, a physician in practice in one state, having gone before a competent board, upon change of residence might be permitted to practice without being subjected to a second state examination in the place of his adoption. The House of Delegates will, without doubt, act upon this matter at this session.

Referring to the subdivisions of the scientific work of the association, Article V of the Constitution empowers the House of Delegates "to authorize new sections which may from time to time be organized, as the necessity for their existence arises." With increasing membership and the consequent larger attendance, it may be imperative in the future to create new sections, but this should be done only after careful consideration, and not until it is demonstrated that the material of high scientific value offered to the twelve sections now existing is more than can be utilized in the time allotted for the meetings.

The by-laws require every member to register in one of the sections, and it would be well to limit each reader to a single paper before the section chosen. The association should insist that the officers of sections exercise a most rigid scrutiny of the papers referred to them. If we are to achieve our high purpose, if we wish to attract to our organization the great bulk of the better element of the medical profession, we must present through our sections papers which demonstrate not only the high scientific attainment of the author, but the undoubted value of the material presented. We are judged by our works, and if, at our meetings, and in the publication of our papers in *The Journal*, which carries them to all parts of the earth, any unworthy material finds a place, it can but reflect discredit upon the association.

Article VI of the new Constitution says: "The House of Delegates shall have authority to provide for and to create such branch organizations as may be deemed essential to the promotion of the welfare of the medical profession."

For the present, I would not advise the establishment of these subdivisions, but ultimately it may be found necessary to divide the states and territories, according to population and geographical position, into district branches, where meetings may be held at the convenience of the states represented, and without interference with the annual session of the National Association.

Let us hope that the various tri-state societies and the sectional organizations, such as the Southern Surgical and Gynecological Association, and the equally successful Mississippi Valley Medical Association, and others of like character, attracted by the high and unselfish aims of this organization, may appreciate the vital necessity of a united profession and vote themselves into district branches of the American Medical Association. Truly, in such a union there would be strength so potent, and influence so far-reaching, that we could safeguard, without doubt, the material interests of the profession, elevate still higher the standard of medical education, secure the enactment and enforcement of just and rigid medical laws, enlighten and direct public opinion in regard to the broad problems of state medicine, and demonstrate to the world the practical accomplishment of our science.

Article VII of the new Constitution, which deals with "Sessions and Meetings," refers the place and time for holding each annual session to the House of Delegates. They are also, under Article IX, empowered to appropriate funds for defraying the expenses of the annual meeting, as well as for enabling the standing committees to fulfil their respective duties.

I would recommend to the consideration of the association the propriety of selecting in each of the geographical subdivisions of the United States, in which the sessions are successively held, some suitable location which has been found to be well adapted to the work of the organization, and to which we could return when the meeting is again to be held in that section of the country. As a scientific body, intent upon fostering the growth and diffusion of medical knowledge, it is of vital importance to avoid in the selection of our place of meeting everything that could detract from the closest attention to the scientific programme. The smaller cities, with ample hotel accommodations and halls conveniently located, have always yielded a larger attendance before the sections, and consequently a greater benefit to our members, than the cities of larger size, with their multitude of distractions. Moreover, it seems scarcely in accord with the dignity of this great body to require through its committee of arrangements that the physicians of the state and place selected for the convention should be held responsible for the expenses of that meeting. Every suggestion of commercialism should be avoided, and this prosperous organization should assume the entire responsibility and management of these annual sessions.

One of the most important duties imposed upon the House of Delegates is the selection of those who conduct its business affairs. In the past the association has shown a keen discernment in securing for its trustees and standing committees men not only of executive ability, but held in high esteem as representatives of a profession which,

according to the code of ethics, "should be temperate in all things, and which requires greater purity of character and a higher standard of moral excellence than any other calling."

You will, in the regular order of business, hear the reports of your five standing committees, and I am called upon to speak of but one, namely, the Committee on Medical Legislation, which the by-laws adopted in June of 1901, directs to be appointed by the president, and to consist of one delegate from each state. In accordance with this requirement, I mailed to the president of each state and territorial organization in affiliation with the American Medical Association a letter asking him to nominate one member for this committee. To all replies to this letter the name of the delegate was sent to the chairman of the National Committee on Medical Legislation, Dr. H. L. E. Johnson, Washington, D. C. It will be remembered that at the session in St. Paul in 1901, the association ruled that the National Committee on Medical Legislation, consisting of Dr. H. L. E. Johnson, Washington City, Dr. William H. Welch, Baltimore, and Dr. W. L. Rodman, Philadelphia, should be continued until the meeting in June, 1903, and should have the same power to act in the interest of the association that they had previously enjoyed. All the legislative affairs of the association I have referred to this committee at Washington, and have authorized them to call the full committee on medical legislation for consultation, advice or aid whenever their services might be required.

In his message to Congress, December, 1901, the President recommended the establishment of a Department of Commerce and Industries. In its passage through the Senate the name was changed to that of Commerce and Labor. Before the national legislature at the same time was a bill known as the Perkins-Hepburn Bill to increase the efficiency and to change the name of the United States Marine Hospital Service to that of the United States Health Service, transferring this from the treasury to the new department.

The American Medical Association has on several occasions expressed its desire for the establishment of a Department of Public Health, either as a separate department of the government, or as one of the important bureaus of a department. Probably on account of a lack of thorough organization and co-operation, it has not been able to obtain this important recognition for the medical profession. In view of these repeated failures it would seem advantageous to the scheme of establishing ultimately a Department of Public Health that the Perkins Bill should become a law, because the United States Marine Hospital Service could then with more propriety be removed from the new Department of Commerce and Labor, into a separate and independent department. This department should be in charge of a medical officer, to direct our foreign and insular quarantine, interstate quarantine, the medical supervision of epidemics, and, in fact, all matters pertaining to the general health of any group of states or of the entire country.

The work of this officer and bureau can only be carried out with success by the earnest co-operation of the health officers of the various localities and states, and of the advisory board for the hygienic laboratory provided for in the Perkins-Hepburn Bill, for the national and local authorities acting in harmony would be better able to prevent the importation of disease, and to stamp out epidemics which may occur despite the greatest vigilance, and this with the minimum disturbance of the resident public, and of the commercial interests of more remote sections.

As the representative organization of the medical profession of the United States, it is our duty to co-operate with the medical corps of the army in the effort to procure legislation which will not only uphold the rights and dignity of the medical officers in the public service, but will give better protection to the health and lives of our troops.

The status of the Medical Department of the United States Army is fairly stated in a circular issued by the medical officers stationed in the Philippines, in which they claim that the present condition of affairs "is regarded as a menace to the efficiency of the medical department, as it is felt to be unfair and unjust." In no other staff department is promotion so slow as in the medical department. It is graded for rank, promotion and pay below every other staff department of the army, and, with the exception of second lieutenant, is graded below the line. A medical officer, under the provisions of the present law, to obtain a colonelcy must pass through three times as many files as an officer of the quartermaster's, subsistence or pay departments; through more than twice as many files as an officer of the engineers' or ordnance departments, and more than one and one-half times as many as an officer of the signal corps. Officers of the line, having attained the rank of major, have to pass through but four files to obtain the rank of colonel, while the medical officers have to pass through nine files. All these facts are fully appreciated by the younger physicians of our country, and by the volunteer and contract medical officers, hundreds of whom are now serving with troops and are declining to become candidates for a position offering such an unpromising career and so little in the line of promotion and emolument.

The Secretary of War has been officially informed by the Surgeon-General that the number of available medical officers is being rapidly diminished, and he anticipates he will soon be unable to supply the demand for medical officers to replace those constantly returning from the Philippines, unless the prohibition placed by the Secretary of War upon the appointment of additional contract surgeons is removed. He says: "The service would no doubt be more attractive to well-educated physicians if the prospects for promotion were better, and I respectfully commend that congress be asked at the present session to add to the medical corps of the army, two

colonels, six lieutenant-colonels and twenty-five majors. This would give thirty-three additional vacancies and would furnish an incentive to volunteer medical officers and contract surgeons now in service to seek admission to the regular army. I would also recommend that the age limit for volunteer surgeons and contract surgeons who have rendered satisfactory service for two years or more be raised to thirty-six years."

No one who has carefully studied the subject can but conclude that under the statutes now in force many lives have been sacrificed and much suffering has resulted from lack of thorough co-operation between the officer in command and his chief surgeon, and without doubt it would be to the interest of the service if medical officers were always consulted with regard to the location of camps and military posts for the purpose of getting expert opinion upon sanitary questions.

In order to impress upon commanding officers the importance of military hygiene, and the greater necessity for this co-operation with the medical corps of the army, the Surgeon-General has insisted that there should be established at the Military Academy at West Point a course of instruction on military hygiene.

It is the duty of this associatian to lend its best efforts to the Surgeon-General, a former president of the American Medical Association, and one not only in a position to suggest the legislation which would best serve the interests of the army, but one whom we know to be zealous of the interests, rights and dignity of the medical officers of the War Department.

The committee to whom was entrusted the question of vivisection has been diligent, and it would seem successful, in its efforts to prevent unwise and injurious restrictions upon this important method of research.

The wide dissemination of the contagion of smallpox in the United States within the last few years demands the most earnest attention of the medical profession. Such ignorance or indifference to the immunizing power of vaccination is a matter of surprise in an advanced stage of civilization and, while laws for compulsory vaccination would without doubt be to the best interests of the whole people, it seems so contrary to the spirit of our institutions as to be impolitic as well as impracticable. It falls upon us as physicians to labor unceasingly to impress upon the communities in which we reside the necessity and safety of this immunizing process.

We will be wise if, from time to time, we make a critical analysis of our past, realize exactly what we are doing, and upon this, base such conduct as will assure to our successors a more satisfactory condition of our profession and a higher achievement of this association. Being human we are too apt to shut our eyes to unpleasant truths; to exaggerate the value and the importance of our own performances, and to think that what we have been taught to believe or what we wish to believe is right and unchangeable. Let us ask ourselves plainly: Is the medical profession of the United States what it should be? Has it won the influential position to which it should aspire? Has it gained the power to secure just and proper legislation? Has it lived up to its obligations, and has the American Medical Association, which claims to represent 120,000 regular practitioners of medicine in the United States, fulfilled its mission? How many of us after due reflection can consistently answer these questions other than by saying plainly and regretfully — No. And wherein lies our weakness? To say we are a part of a young and scarcely organized country; that our profession is widely dispersed over vast regions so remote from each other that contact and co-operation are difficult, will not entirely satisfy the fairly critical mind. Such excuses might have been sufficient at an earlier date, but not now. To say that, despite these and other embarrassments, we of the United States have given to mankind the unequaled boon of ether anesthesia; that, through the achievements of members of our profession and of this association medical and surgical science has been greatly enriched; that great specialties recognized the world over have been developed; that operations bold and original have been established beyond controversy; and that by reason of these various contributions to the science and art of surgery and of medicine millions of lives have already been saved, together with the merciful mitigation of suffering which all this implies. While a repetition of this may flatter our vanity, it will not wholly satisfy us when in honest purpose we realize how great are our shortcomings.

It is a fact painful to acknowledge that of the three so-called learned professions, the ministry, law, and medicine, ours is accorded the inferior position, and we who day in and day out, in every home of the land, are close in the personal friendship of our patients, respected and loved as individuals, are incapable of wielding by organization and discipline the powerful influence of a united profession aiming at a high and honorable purpose. And what have been the results of this house divided against itself? Witness the snail-like progress which marked the various steps in securing our laws for elevating the standard of requirements in medical education and for medical practice: witness the opposition to our efforts in securing better sanitary regulations, and in the struggle to protect the public from the horde of uneducated or misguided persons who, under the guise of Christian Science, osteopathy and other schisms, insist upon being permitted to take charge of and treat human beings suffering from disease without submitting themselves to the state examination legally required of us.

There are, in my opinion, two principal causes of this evident weakness of the profession: (1) The insufficient methods of medical education which have prevailed for the greater part of the first century of our national existence, and (2) the lack of organization.

The code of this association says: "Those admitted into our ranks should found their ex-

pectations of practice upon the extent of their qualifications." We stand committed as the champion of higher medical education and the elevation of the standard of requirements applicable not only to the entrance examination, but to a rigid examination before the degree is received, as well as by the state before permission to practice is granted. To this rigid examination this association, by its rules of conduct, demands another important essential. The highest order of learning, the greatest amount of skill may not make one an honor to our calling, for "there is no profession from the members of which greater purity of character and a higher standard of moral excellence are required than the medical, and to attain such eminence is a duty every physician owes alike to his patients and his profession."

The American Medical Association is the sponsor for organized medicine in the United States, and failure to accomplish this end implies the failure of this association. We must not fail, nor will we, unless we falter in carrying out the plan of reorganization in the liberal and progressive spirit which characterized the session of 1901. It is our plain duty to endeavor to bring about the adoption by the various constituent bodies of a practically uniform constitution and by-laws for each county, and for each state, modified only as the local conditions may require, and all governed by the same rules of conduct. These rules, as at present given in the code of ethics, adopted many years ago by this association, should be also a subject of serious consideration at this time, for we cannot claim consistency or be logical in argument until there is but one code for the national association and for all of the state organizations represented in the national body. This, as you well know, does not now prevail. Some years ago there lived and labored among us for the good of mankind and the honor of the profession a man whose genius was of the highest order and whose fame carried the name of American surgery throughout the civilized world. He was one of those fearless pioneers in science who found his place ever on the frontier, clearing the way for those who were to follow. In 1876, at the meeting of the American Medical Association, in Philadelphia, Dr. J. Marion Sims, in his presidential address, referring to the code of ethics, says: "The time will come when your organic laws, like the Constitution of our country, will require modifications and amendments to suit a higher intelligence, a broader education and a greater destiny." In my opinion, the time has come when we cannot absolve ourselves from the responsibility of doing away with the inconsistencies for which we may now be properly criticised.

Such have been the changes in the statutes of a majority of the states since the code was adopted by the respected founders of this association that we find it insisting upon conduct on the part of our members which is contrary to the laws of the states in which they reside. For instance, one section forbids a member of the regular profession to act upon a board of examiners which has to pass upon the legal qualifications of persons not graduates of regular medical colleges, while in thirty-eight of the states represented here, the civil statutes require these boards, which are composed in great part of members of the association, to examine, pass upon and sign certificates or licenses to practice of homeopaths, eclectics, and other subdivisions of medical practice. In six of the states, including the District of Columbia, the law requires three separate examining boards. In Mississippi, North Carolina and South Carolina, the examining boards are entirely composed of regular physicians, and in one of these states (Mississippi), while none but regulars are allowed on the board, the law explicitly says: "Distinction shall not be made between applicants because of the different systems or schools of practice that may be chosen." In almost all the states and territories regular physicians are compelled by the laws of the state in which they reside to disobey the injunctions of this section of the code of ethics.

A modification of this and other sections of the code must be a part of the liberal plan of reorganizations which we have essayed.

In conclusion, I ask this association to stand for more than the healing art. To labor for the alleviation of suffering and for the restoration of health is a noble avocation, but to teach our fellows how to avoid disaster is a prouder privilege and a higher duty. We should be teachers of men. How better can we protect the public from disease in all its various forms and insidious processes than by perfecting in every county and in every community an organization which shall be ever watchful and insistent upon obedience to the laws relating to the public health?

## Original Articles.

### ON TUBERCULOSIS [1]

#### IN RELATION TO THE LIVESTOCK INDUSTRY.

BY J. G. ADAMI, M.D.,

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Asked to open a discussion upon the subject of "The Veterinary Aspect of Tuberculosis," I confess that at the very outset I have been in difficulties as to what to include under this term. Strictly speaking, I take it this title indicates that I should dwell upon the prevention and cure of tuberculosis in the domestic animals, and to this matter my remarks will mainly be devoted. I note, though, that a report of mine to the Department of Agriculture at Canada, upon the relationship between human and bovine tuberculosis, has been printed *in extenso* in what I believe is the official organ of this congress — a fact which would seem to indicate that the subject matter of

[1] Opening of the Fourth Symposium, American Congress of Tuberculosis. From Advance Sheets of the Medico-Legal Journal.

that report is to be made the basis for this discussion, and that what is now required of me is an introduction to a debate upon the intercommunicability of human and bovine tuberculosis, with all that such recommunicability or nonintercommunicability may imply.

I cannot, however, but recognize that this is only a small portion of the ground that ought to be covered; nay, more, that at this present moment it is of far greater importance, as it affects the livestock of the country, upon which all serious observers are united, rather than those regarding which there has developed some difference of opinion. If this congress is to help in molding the public mind, if it is to fortify the great and necessary work of arresting the progress of this terrible disease upon our continent, it will not accomplish that by dwelling upon the points of difference between conscientious workers, or by a debate in which we indulge in destructive criticism, destructive not only of each other's views, but also in the confidence of the agricultural community in the abundance of our recommendations.

Our duty, on the other hand, is to emphasize those points regarding which we are all agreed, so that thereby the public may see why it is that we who have studied this question are one and all so insistent concerning the need for legislative and other measures tending to control and arrest the spread of the disease.

If, therefore, I have little to say upon this vexed question of intercommunicability, it is not because I am unwilling to discuss the matter. I have endeavored to put my views as clearly as possible in the report that is before the members of the congress, nor do I see reason to modify the conclusions there indicated. It is because I am convinced that I and this congress as a whole can accomplish greater good by discussing the broader subject of tuberculosis and its bearing upon the livestock industry of this country.

Now, in the first place, as a point upon which all are in absolute agreement, it may be laid down that under ordinary conditions tuberculosis of domestic animals does not develop by reason of infection from human beings suffering from the disease. The infection is from animal to animal. In every case so far studied, with very rare exceptions,— in cattle, at least, the infection has originated by the introduction of an already infected animal from without. If, therefore, at the Experimental Farm, we can under special conditions infect cattle and hogs with material taken from a case of the disease in man, it has to be recognized that for practical purposes this mode of infection may be neglected. For practical purposes we have, as I say, to keep this in mind, that infection is introduced by an animal and is propagated from animal to animal. And thus, and this is the most important point in our endeavors to arrest tuberculosis among livestock, it is possible to treat the matter wholly apart from man and considerations of tuberculosis in man. We can regard it as a wholly separate proposition.

But, in the second place, is it necessary to attempt such eradication of the disease among the domestic animals. It certainly is if (1) the disease causes or is capable of causing severe loss to the community, and if, commercially speaking, it inflicts grave losses upon an important industry, and if (2) affecting our domestic animals it is liable to spread from them to man. I put the commercial reason first, because it is, taking everything into consideration, undoubtedly the more weighty at the present moment. I will not say because it is the reason which is the more likely to influence those directly concerned in the livestock industry, though one has to regretfully admit that what immediately appeals to the pocket is more potent than human considerations, but, more especially, because at this juncture when there is doubt, not so much about the possibility of the infection of human beings from cattle, as about the extent of that infection, the very fact that there is debate about any aspects of the matter weakens the popular appreciation of the validity of what is urged in this connection.

Is the existence of tuberculosis among the livestock a menace to that industry in this country? Undoubtedly it is, and that not so much because here in America the herds are already very extensively affected, as because of its great tendency to spread. Nevertheless, in the Eastern States its ravages are already serious enough. If in Massachusetts, to give one example, the cattle commissioners estimate that about 10% of the cattle would react to tuberculin, it is a matter of urgent necessity to take active steps to arrest the disease, and Massachusetts is apparently not the State in which the cattle are most involved. With cattle, as with man, it may be laid down that the more existence is indoors, the less life is led in the open air, the more susceptible are the individuals to this disease. There have been numerous cases in the Eastern States in which every member of a diary herd has been found a victim of tuberculosis; on the other hand, the western ranch herds, which live almost entirely, if not wholly, in the open, are with rare exceptions exempt.

But if the conditions in the states to the south of the border are the same as they are in Canada, then the disease is extending westwards, for Dr. Chown of Winnipeg calls attention to its beginning ravages in Manitoba. What we have to recognize is that once tuberculosis gains a hold among the beasts in any country, it spreads with what I may truly term appalling rapidity. Let us take the case of Denmark. There, according to the records in 1789, the disease was practically unknown except by name. In 1818 it was noted as being extremely rare, in 1840 it was rather extensively introduced in cattle imported from the neighboring State of Schleswig-Holstein, and in 1850, ten years later, it had spread all over the country, so that by the end of the century a census of animals reacting to tuberculin, made by Professor Bang, gave these results — that a total

of 5,306 herds contained 98,901 sound animals, to 45,889 that reacted — 31.7%, or, roughly, out of every three animals was one infected.

This same sinister extension has been equally noted in Germany. As many here know, they have in the larger German cities a singularly good system of abattoir inspection, the carcasses of the slaughtered animals being examined and passed or condemned by trained veterinarians. In Leipzig the regulations have been the same and the staff under the same management for many years, and there the statistics are as follows: Taking cows alone in 1888, 17.5% of those slaughtered showed tubercular lesions; in 1894 the percentage had risen to 38.6%; in 1895 to 43.51%, and in this last year, taking all cattle, oxen, heifers, cows and bulls, of 22,918 animals slaughtered, 7,619, or 33.24%, were found tuberculous. At the present moment it is estimated that over a large part of Germany more than 50% of the cattle are afflicted with the disease.

The same history comes to us from Australia. In the colony of Victoria tuberculosis was practically unknown in the earlier part of the century, and in 1895, 15 to 20% of the cattle slaughtered yielded evidences of the disease. Thus it is that, unless active steps be taken, and that without delay, the outlook here is of the gravest.

It may be asked why, if bovine tuberculosis has been known for centuries, is it only of late that it has spread to such an alarming extent? The answer would seem clearly to be that the spread is coincident with the greater development of the cattle industry and especially of the ease of transportation. In the old days the movement of cattle was as nothing compared to what it has become during this last seventy years; it is the frequent interchange of beasts and frequent introduction of new and tainted animals into the herds that has wrought the damage, a subsidiary influence being undoubtedly the general attempt to improve the milk-giving qualities of herds by the introduction of highly bred and, at the same time, highly susceptible animals.

It is to the commercial and monetary significance of this spread that I would specially draw attention. Affecting the livestock industry, it affects what is far and away the greatest industry of the country. With the colossal development of manufactures and the great growth of your cities during the last few years, and with the increasing migration of the country-born into the towns, we are apt to think that manufactures, and that which is immediately connected with manufactures, namely, coal and iron mining, take a first place in the commerce of the country. Nothing of the kind. Agriculture easily takes the first place. Only two-fifths of the population of the United States live in towns of 25,000 inhabitants or more, three-fifths live "outside the zone of gas lights and bathtubs," and these three-fifths gain their living from the soil. The invested capital in the livestock industry exceeds that of any other in this country. Take only the case of Chicago, one of the great business centres, not merely of the States, but of the world: it is said on good authority that the business in its stockyards during the past year exceeded the combined other industries of that city by $20,000,000. Figures like these give us some idea of what the livestock industry means to the country, and help us to realize that anything seriously affecting its prosperity must tell very directly upon the general welfare of the community at large.

Now, while in its earlier stages tuberculosis appears to have relatively little effect upon cattle, so that the flesh can safely be employed for food and the cows may be employed for breeding purposes, it has equally to be admitted that in its later stages it brings about emaciation, that is to say, loss of flesh, it diminishes the milk flow and renders the milk unfit for human consumption! Further, it shortens the lives of the affected animals for the dairy, as again for breeding purposes, and in these and other ways renders the animal which it effects a source of very material loss to the farmer.

As pointed out by Dr. Salmon, in his returns of meat inspections made by the officers of the Bureau of Animal Industry, of 8,831,927 carcasses examined during the two years 1897 to 1899, only 7,015 were wholly condemned on account of tuberculosis, or less than 1 in 1,000. It must, however, be remembered that these inspections are almost wholly, or to a very large extent, of Western breed and of ranch cattle in the stockyards, and give us thus but a fraction of what would be the returns for the whole country. The returns for the Eastern States, could they be compiled, would be very different. Still, I am not wishing to dwell upon present as upon probable future loss. In Saxony, where from 30 to 50% of all the cattle killed are diseased, the returns for 27 towns in 1895 showed that tuberculosis was found in 22,758 carcasses; of these 5.5% had to be disposed of at a cheap rate, 2% were wholly condemned and destroyed.

What I wish you to consider is the enormous loss that would accrue to this country, with its millions of cattle, if only 1% of the animals slaughtered were the victims of advanced tuberculosis. The prospective loss is so great that this is immediately seen to be a national concern. Now, unless the progress of the disease be arrested, we must be prepared to encounter such loss. Scotland is of smaller extent than some of your states, its population and the number of its cattle are less than those of not a few of the states. In 1893, so far as I can gather from various British returns regarding the prevalence of tuberculosis, the number of cattle infected in Scotland must have been less than 25%, taking the whole country as a whole; in fact, probably less than 20%, and yet Wright [2] estimated the annual loss to the owners of dairy stock from this cause alone as being £440,000 (or $2,200,000). It is losses of this order, multiplied manifold, that

[2] Veterinarian Journal, 1893, p. 391.

you have to contemplate if bovine tuberculosis be permitted to spread,— losses so great that unless steps be taken now, when the disease is not extensively developed, compared, that is, with its prevalence in European countries, the cost of prevention and eradication will be so great that, as is the case now in Europe, the government cannot undertake effective measures, because the cost of anything like an active crusade, with due compensation to the farmer, would amount to so many millions that such an addition to the budget dare not be proposed.

Now, in short, is the time to act, before the disease gets "out of hand." And now I may add, what is necessary to arrest the spread of the disease is but a relatively small expenditure on the part of the different states. It costs Massachusetts about $25,000 a year to pay for the diseased animals killed, another $25,000 for the general cost of inspection of live stock and farm buildings. I do not say that this expenditure is sufficient for a most active crusade, but, undoubtedly, judging by the annual returns from that State, this expenditure, coupled with the legislation there enforced with reference to the testing of animals entering the State, the inspection of marketed animals and the voluntary inspection of herds, is bringing about a steady and marked decrease in the prevalence of the disease.

Indeed, everything points to the fact that taken in time the eradication of tuberculosis from a herd or from a district need not be a costly matter either for the individual or for the community. More particularly, the employment of Bang's method of isolation of reacting animals affords us a means of rendering a herd wholly free from disease in the course of from three to five years. Loss it is true there is, but this is minimal to what it was under the earlier mode of killing forthwith every reacting animal. We now know that slightly infected animals, properly isolated, have before them from one to three years of usefulness and profit, either for breeding purposes or for meat production.

It is, I know, difficult to legislate for the future: the danger must be very present in order to stir our governing bodies. But here we have such immediate danger before us and a great future danger looms imminent. It is for the facts here recapitulated and others of like order, to be brought before the public and before your legislators in season and out of season, that a national calamity may be averted. As I stated previously I regard this as the strongest reason to be brought forward at this moment for the crusade against bovine tuberculosis.

Next, as to the second reason adduced, namely, the possibility of the communication of the disease from cattle and other domestic animals to man. I state the matter correctly when I say that the majority of those who study this subject thoroughly agree that where there is but a slight and localized disease the danger from eating the flesh of such animals is *nil*, in countries, that is, in which it is the universal custom not to consume raw meat. Only where there is extensive and generalized disease is the whole carcass to be condemned, as indeed we condemn the carcass of any animal suffering from general infection. The matter, however, very largely reduces itself to this: What is to be our stand and what legislation is to be recommended concerning the employment of the milk of tuberculous animals?

All are agreed from positive demonstration that where there is recognizable tuberculosis of the udder the tubercle bacilli may pass into the milk in countless thousands, nay, it is scarcely an exaggeration to say millions, and even where there is no udder tuberculosis with moderately extensive disease of other organs, our two observations in Montreal bear out those of Ernst and earlier observers, and being in turn borne out by the recent observations by Kempner and Rabinowitch and others, are to the effect that tubercle bacilli may pass through the mammary gland and may be found in the milk, though these observations are still contested by certain equally good observers, like Delepine of Manchester, who have not obtained the same results. My own opinion is that tubercle bacilli, as I say, may pass into the milk both where there is udder disease and where this is not present, though in the latter case the numbers are very few.

Two questions now have to be answered which do not necessarily immediately depend one on the other: (1) Is the milk containing or liable to contain these tubercle bacilli capable of infecting man? And the other, (2) is milk containing or liable to contain these bacilli to be used as a food? The first of these questions I have endeavored to answer in the report already in the hands of the members of this congress, and my opinion, as it will there be seen, is that such milk undoubtedly can set up infection, more especially in young children and young, susceptible individuals. At the same time, very possibly too much stress has been laid upon this possibility of infection, namely, it seems to me from the evidence before us that while possible the infection by this means is not so very common. This is, I admit, an individual opinion. It would be easy to consume a whole hour in putting before you the arguments for and against in this matter of infection by means of milk, and even at the end of that time I would have to confess that it is not possible to arrive at a sure conclusion as to the relative frequency of communication of the disease by this means.

I might point out, for example, that primary intestinal tuberculosis in infants is singularly rare in this country as compared with Great Britain and Germany, and might draw what appears to be — and what I think to be — a sound conclusion, that the lesser frequency of bovine tuberculosis in America helps to explain the difference. But, on the other hand, taking the British and German statistics, it might be urged that German authorities are ranged into two camps, each containing able and thoughtful men — those ad-

mitting the relative frequency of primary abdominal tuberculosis and those who deny this.

While admitting that the arguments on the one side are very powerful (you will find them excellently put forth by Dr. Salmon in a recent Report of the Bureau of Animal Industry and by Dr. Ravenel in the May number of the *University of Pennsylvania Medical Bulletin*, yet much has to be said on the other side. Thus Biedert and Biedert[3] point out that in the Bavarian Highlands, where bovine tuberculosis is common and children and adults employ raw milk and fresh cheese as their main diet, for long months consuming little else, human tuberculosis is not more common than usual and bears no relationship to the extent of bovine tuberculosis in the different districts. And in Great Britain, if we are to judge from the recent article by Armstrong of Liverpool,[4] the returns of the registrar-general with regard to the infantile mortality from tabes mesenterica, upon which so great emphasis has been placed, are absolutely unreliable. I would have to point out that many cases of apparently primary lung tuberculosis may be due to infection through the alimentary canal, but as to the proportion of such cases we can hazard no estimate. The same is true with reference to tuberculosis of the tonsils and lymphatic glands. Such tuberculosis obviously originates from the mouth, but tubercle bacilli can reach the pharynx and so the tonsils both through the mouth and the nose, nor have we any justification in saying that the one or the other is the more likely to happen. Scrofulous lymph glands may thus be the expression of either alimentary or the respiratory infection.

Turn each way and no positive conclusions can be reached, we can only arrive at strong probabilities — with these exceptions, namely, that we have a select number of cases in which no reasoning and reasonable man can doubt that the disease has been directly conveyed from bovine sources to man, either through wounds or through the use of milk; secondly, that we have cases recorded by Lartigau and Ravenel in which tubercle bacilli resembling the bovine micro-organisms in their cultural characteristics and powerful pathogenic properties have been isolated from cases of tuberculosis in man.

We are bound to conclude, therefore, that transmission is possible and does occur, and this is more particularly in young children, but how frequently still remains a matter for individual opinion, and while I am still unable to regard the transmission as being as frequent as Ravenel in a recent remarkable address still holds to be the case, I can wholly agree with him in his conclusion, which is "that human and bovine tuberculosis are but slightly different manifestations of one and the same disease, and that they are intercommunicable. That bovine tuberculosis is therefore a menace to public health; that we are not in a position at present to define positively the extent of the danger, but that it really exists cannot be denied; that in the past there has probably been a tendency to exaggeration, but however great this may have been, it does not justify any attempt at belittling the risk and it is folly to blind ourselves to it." I would only add that, in order to retain the confidence of the public in our recommendations, we must endeavor neither to belittle nor to exaggerate, but to place before it the calm, clear truth, and that truth is serious enough to incite to action.

This brings me to the final matter, namely, is milk containing or liable to contain these tubercle bacilli, to be used as food? To this there can only be one answer — an unhesitating *no*. The public has a right to demand pure milk and to legislate in order to secure such pure milk, free from any pathogenic germs, whether of great or of little virulence. The suggestion that the farmer and the dealer shall be permitted to provide an animal fluid for human consumption gained from diseased animals is utterly repugnant to all who consider the question for a single moment.

Only I would go further than mere legislation with regard to tuberculosis. I lay down that the community is absolutely justified in demanding milk that is free from contamination with the germs not of one but of any disease, and more, is justified in demanding that it be delivered as free as possible from putrefactive germs also. Those concerned in the supply and distribution of milk must see that it is to their interest as to that of the public to recognize these facts.

For it cannot be too strongly emphasized in connection with the dangers arising from impure milk that it is not from the possibility of conveying tuberculosis that we have most to fear, the great danger from impure milk lies in its liability to set up gastro-enteritis in those drinking it, or, in plainer words, acute digestive disturbances, with diarrhea, especially in young children. I do not know if you appreciate the terrible mortality — one far exceeding that from tuberculosis however produced — which there is among children from six months to one year, a mortality which can only be put down to the consumption of milk which is crowded with various acid producing and putrefactive germs. Let me give you some statistics from the health reports of this city of New York:

Taking the reports of the health department for the year 1896 to 1899, and taking male children alone (the notes that I have by me for female children are incomplete), I find that during these four years 913 male infants under the age of one year are registered as having died from all forms of tuberculosis, a total of 1,989 children under the age of five years.

Now consider all forms of diarrheal diseases. These we find as the figures, not 913, but 5,312 male infants under one year died from this cause, or more than five and a half times meningeal, etc., and 6,553 children under five years died from all forms of tuberculosis combined, pulmonary, abdominal, meningeal, etc., and 6,553 children under five years died from the same

[3] Berl. klin Woch., 1901, xxxviii, 1177.
[4] British Medical Journal, 1902, i, p. 1024.

cause as compared with 1,989 from tuberculosis.

That this terrible mortality is due to badly kept milk admits of no doubt. I need but point out to you that if on the one hand a pure milk supply be obtained for young children, as in St. Helens, England, and sundry French towns, as also here in Rochester and more than one city in America, the infantile mortality immediately drops in an extraordinary degree, as again that it is our practice as physicians the moment we are called to a case of infantile diarrhea to stop the use of ordinary milk and replace it by either the Pasteurized or the sterilized article, after the interval necessary to clear out the intestines, and that if we are called early enough we are fairly sure in these cases to arrest the disease by this simple means.

Badly kept milk, therefore, is a great cause, nay, is the great cause of infantile mortality, and our legislation should not be directed merely against the employment of milk from animals suffering from the one disease, but should be directed to insure milk that is as free as possible from all forms of contamination. And, as I have urged before, if we introduce such legislation, if we make it an offense to employ the milk of animals suffering from any disease whatsoever, and demand that the number of bacteria per cubic centimeter shall not exceed a certain number, when ready for delivery, then, doing this, we shall have removed practically all the dangers from infection by this source. Thus, while we are personally interested in tuberculosis, our endeavors must be directed towards a wider legislation.

## THE STRUGGLE AGAINST CONSUMPTION.[1]

BY EDWARD O. OTIS, M.D., BOSTON.

MORE than seventy-five years ago one of the most eminent physicians of his time, the celebrated Louis of France, wrote the following words: "Phthisis almost invariably terminates fatally after a space varying between a few weeks and several years." Sixty-four years later another eminent physician of France, Professor Bouchard of Paris, concluded a lecture as follows: "This disease (consumption), which has such a strong hold on humanity, is curable in the largest number of cases." Which of these contradictory statements is correct? Let us refer to some recent clinical results for the answer.

The two most prominent sanatoria for the treatment of pulmonary tuberculosis in this country are those at Rutland, Mass., and Saranac in the Adirondacks. In the fifth annual report of the sanatorium at Rutland for the year ending Sept. 30, 1901, Dr. Clapp, one of the visiting physicians, reports 67% of the incipient cases as apparently cured or arrested, and of all cases in all stages of the disease, 50% as apparently cured or arrested. Dr. Bowditch, the other visiting physician at the same institution, reports 79% of the purely incipient cases as arrested, and of all cases in all stages 42.23% as arrested, and by "arrested" he means, as he says, cases in which cough, expectoration, bacilli and fever have disappeared, and where the appearance and general condition have been those of health. The term "cured," or "apparently cured," he does not use until, after the lapse of one or two years, the patient shows no symptoms of relapse.

In the seventeenth annual report of the Adirondack Cottage Sanatorium at Saranac, for the year ending November, 1901, Dr. Trudeau, the physician in charge, reports that of 173 patients discharged during the year in various stages of the disease, 45 were apparently cured and in 79 the disease was arrested. "Some sanatoria," says Knopf, "claim as many as 70% of cures where the patients are admitted to treatment in the incipient stages; and I have reason to believe," he continues, "that these figures are exact, for pulmonary tuberculosis in the earlier stages is indeed one of the most curable of all chronic diseases."

The evidence is overwhelming that consumption is abundantly curable, both with and without treatment, for autopsies made upon individuals dying of other diseases frequently show cured foci of tuberculosis. "As for my personal experience at the morgue in Paris," said Professor Brouardel at the British Congress on Tuberculosis last summer, "where I frequently make post-mortems on accidental deaths, I can state that in half the cases, if the person on whom the post-mortem is made has lived in Paris for about ten years, I find healed tuberculous lesions. Phthisis is, therefore, curable," he concludes, "even in its most advanced stages."

At this same congress, Professor Koch remarked in his memorable address, that it must be regarded as an undisputed fact that tuberculosis is curable in its early stages. Those of us who have had much to do with this disease can corroborate these statements from our personal experience, although of course the earlier the case of consumption comes under treatment the better the chances for recovery; yet the disease can be arrested in all stages. "I suppose you receive only the incipient cases," I remarked last summer to Dr. Walther, who is the physician in charge of Nordrach, one of the most famous sanatoria in Europe. "I take any case that comes," he replied, "for I cannot tell what case will and what will not recover." At the present time I have under observation a young girl who had disease of both lungs with cavity in one, and when she first applied at my clinic she manifested all the symptoms of advanced disease. Now, after a year or two of the open-air treatment, she looks the very picture of robust health, and is able to support herself by working.

Consumption, then, is curable; there is no shadow of doubt regarding this fact. The ques-

[1] Read at Concord, N. H., April 29, 1902, before the School of Instruction for Health Officers and Sanitary Conference of New Hampshire.

tion immediately arises as to the treatment. *How* is consumption cured? Not by drugs, but by what is known as the hygienic, dietetic treatment, which, in brief, consists in constant exposure to pure, fresh air day and night, abundant and proper food, scrupulous avoidance of overfatigue, either mental or physical, and, in brief, such care of the body as will strengthen, harden and finally render it an unsuitable soil for the tubercle bacillus. Sometimes complete rest for days or weeks is imperative in the course of treatment. Sometimes moderate exercise is allowable. This treatment seems easy in the telling, but it requires strenuous exertion to carry it out, and for many natures it is almost an impossibility outside of a sanatorium. One has to be trained to it, and kept up to it by constant, continuous, firm supervision. I am sometimes almost inclined to think that, after all, the greatest value of the sanatorium is in this training, and I quite agree with Anders, who says "the principal advantages offered (in the sanatorium) are due to a rigid system of hygiene under the close supervision of competent medical officers."

With the poor it is well-nigh impossible to carry out this treatment at home, hence the incalculable value of state sanatoria for this class and the obligation of the state to furnish such provision. Many states in this country are now recognizing this duty, I am glad to say. No other treatment or attempted treatment has stood the test of time but this, the open-air treatment, as best exemplified in the sanatorium. It has and is producing the most favorable results, unapproachable by those of any other method.

This established fact, of the curability of consumption, and its easy and great curability in the early or incipient stages, and the only successful method of cure,— the open-air treatment,— cannot be too strongly impressed upon the medical profession and the public. The former, the physicians, must discover the disease early, for that is the golden opportunity for treatment. As Prof. Clifford Albutt well says: "There has been much supineness in the matter of early diagnosis, and supineness bred of pessimism, of despair. Let us bring the inspiring message of optimism, of enthusiasm, and let every physician, however modest his sphere, remember that upon his alertness depends the life of the sick man and the stamping out of infection. The incipient case of today is the advanced case of tomorrow. Never let muscular strength, red cheeks or a well-formed chest blind us to canker within." [2]

In the writer's judgment, every person who consults his physician, complaining of being run down, of loss of strength, shortness of breath, whether or not he has a cough, should receive a very careful examination of the lungs; on the other hand, the people should likewise seek medical advice when they feel conscious of loss of strength, weight and appetite, or begin to be a little short of breath. When the diagnosis of pulmonary tuberculosis is once made, the patient should be frankly told the nature of his disease, and the vital importance of immediate recourse to the open-air treatment, with all that that implies, should be impressed upon him. He should be made to understand that only by strenuous, persistent, patient effort can he recover, and that medicine is of very secondary importance. He should also be carefully instructed as to the means of avoiding infecting others.

But prevention is better than recovery, even if the latter were assured in every case, and prevention is possible, because we know now the true nature of the disease. We know that it is caused by a parasite, the tubercle bacillus, and hence is infectious, contagious or communicable. We know that the channels by which this infection is conveyed are accessible and controllable, and that they are chiefly the dried sputum of a patient suffering from the disease. "This parasite," says its renowned discoverer, "is a visible, palpable enemy, which we can pursue and annihilate just as we can pursue and annihilate other parasitic enemies of mankind." If it were practicable to isolate every patient at the present time afflicted with pulmonary tuberculosis, the disease, in a comparatively short period of time, would be stamped out as completely as leprosy was in central Europe in the Middle Ages, through isolation in leper houses. Of course isolation in every case is impracticable, and we must, therefore, proceed on less drastic and slower means. We must, so far as possible, control the tuberculous sputum, and at the same time do what we can to render the human soil unsuitable for the growth of the tubercle bacillus. This latter is accomplished by whatever means tend towards the improvement of the health of the people: better sanitation, public and private; improved housing; better preparation of food; more fresh air in living and sleeping rooms.

In a recent conversation with one of the commissioners of Minnesota, who were investigating the subject of state sanatoria, he told me that consumption was most prevalent in his State (Minnesota), not in the crowded portions of the cities, as is most frequently the case, but among the Scandinavian farmers in the country districts, and the cause assigned — which I doubt not was the correct one — was that during the cold winters the farmer shuts up his house tight and breathes and rebreathes the same impure air. May not this state of things be a common one among the New Hampshire farmers? Further, sufficient rest after labor, personal care and cleanliness, and the education of the individual in habits of wholesome personal hygiene are all important. In brief, all sanitary measures which will render our houses, streets, towns and ourselves clean and healthy, all tend towards rendering the individual sterile to the tubercle bacillus.

To control the tuberculous sputum, we must, as far as possible, have knowledge of the existing cases of consumption; hence the reason for compulsory notification. The people must be instructed as to the dangers of promiscuous spitting.

[2] Address delivered at the British Congress on Tuberculosis.

As you are aware, laws against this habit now exist in many places. We must instruct the tuberculous and their families and friends how safely to dispose of the sputum, and that whenever the patient arrives at the stage of softening and is confined to his bed, he should be placed in a room by himself, for there is always the possibility of infection when others occupy the room with him. Again, the room which has been occupied by a tuberculous person should be sufficiently cleaned and disinfected.

Sanatoria should be provided at the expense of the state or community for the poor consumptive, who is in the curable stage of the disease, and means of isolation in a consumptive hospital or other institution for the advanced hopeless cases who, from ignorance, helplessness or willfulness, cannot or do not safely dispose of their infectious sputum. Further, the question of permitting a tuberculous individual with tubercle bacilli in his expectoration to pursue his occupation where infection to others is possible through the so-called drop infection from cough or carelessness in care of the sputum, is one of serious consideration. A cook, waiter, janitor, clerk, house servant, teacher, pupil, baker, or one who handles food of any kind may be the medium of spreading tuberculosis, if he is in the infectious stage and evidence is not wanting to prove this. If such persons are removed from their occupation for the public protection, should not the public, in turn, afford them suitable treatment as well as isolation in a sanatorium, and in addition some support to their families, bereft of the wage-earner?

All this seems a colossal undertaking, but the example of other states and countries teaches that it can be done, and the loss and suffering entailed by this most prevalent and destructive disease warrants, nay, demands, the effort. The public or state sanatorium subserves three most important purposes: (1) It affords the best means of cure; (2) it isolates the consumptive; (3) it sends forth teachers, in its cured patients, of wholesome hygienic living and of the avoidance of danger from the sputum.

Since the discovery that pulmonary tuberculosis is communicable or contagious, an obligation is put upon the state to protect itself as in the case of other contagious diseases, and in doing so, to afford the unfortunate victim of the disease an opportunity of recovery when private means are wanting for this purpose. It is, moreover, an economic measure, for consumption is most prevalent at the most efficient working period of a man's life; and the value of the labor of those saved by sanatorium treatment will, in the long run, more than compensate for the outlay in the construction and maintenance of the sanatorium. The insurance societies of Germany which insure against sickness and old age, are finding it more economical to send their consumptives to a sanatorium, and have them again returned to their work with their disease cured or arrested, than to pay them insurance through the long disablement caused by the progressing disease. The statistics of the German Imperial Board of Insurance show that in 1897 and 1898, 8,200 insured men and women were treated, and of these, 5,848, or 71%, left the sanatoria fit for work.[3]

Since the people in Massachusetts have observed the marvelous results of the sanatorium treatment at Rutland, and the instruction spread broadcast over the State as to the avoidance of the disease, through those treated and cured at the sanatorium, they not only willingly and eagerly tax themselves for the continued maintenance of this institution, but there is at the present time a bill before the legislature of that State for an appropriation for a second similar institution. Almost every country now recognizes the value of the sanatorium. Germany at the present time has 68 sanatoria for its poor consumptives and 19 for paying ones, affording accommodation in the course of a year for 20,000 patients. England has many free and paying consumptive hospitals and sanatoria. Recently Sir Ernest Cassel placed at the disposal of the king $1,000,000, which his Majesty proposes to devote to the establishment of sanatoria, in view of the enormous prevalence of tuberculosis. Russia, France, Austria, Belgium, Norway, Holland, Italy, Canada, Spain, Cuba and others either have sanatoria already established or in construction or contemplation. In this country every New England state and many of the middle and western ones have now bills before their legislatures either for an appropriation for a sanatorium or the appointment of a commission to consider the matter. In a comparatively few years I feel certain that at least the majority of the states will have one or more sanatoria, and thus we shall see the whole civilized world successfully and humanely treating their consumptives, and in just so far protecting themselves.

In the Middle Ages, who ever thought that leprosy, then well-nigh universal over western Europe, would ever be exterminated? But leper houses accomplished it. I do not mean, however, to say that sanatoria alone will exterminate consumption, though they will greatly aid in so doing. We must also labor, as I have indicated, in the way of general prophylaxis. Educate the public as to the danger of infection. Teach them that in the consumptive, and in him alone, resides all the danger, and that when he expectorates or coughs out tubercle bacilli in his sputum where it can become dried, then the army of infecting micro-organisms is on its march of death and destruction, for it has been estimated that a consumptive emits daily 800,000,000 tubercle bacilli. We must labor to disabuse the public of their old erroneous ideas of consumption regarding its incurability and inheritance. It is most difficult to eradicate this settled conviction of inheritance, and most people, I suspect, still believe it. It was a very natural conclusion to draw when one saw member after member of the same family

[3] Hillier: Int. Aspect of the Control of Tuberculosis, read at the British Congress on Tuberculosis.

succumb to the disease. "Now, however," says Koch, "it has been demonstrated by thorough investigation that though hereditary tuberculosis is not absolutely non-existent, it is, nevertheless, extremely rare, and we are at liberty, in considering our practical measures, to leave this form of origination entirely out of account."

Associations for the prevention of tuberculosis now exist in almost every civilized country, whose object is to disseminate information regarding tuberculosis, to educate public opinion, to aid state and local boards of health, and to initiate efforts in various ways towards prevention. An immense amount of good work has already been accomplished by these means. I have only to refer, as an example of this kind of effort, to the great National Association for the Prevention of Tuberculosis of England, with its local branches, which culminated in the Congress on Tuberculosis held in London last summer. How much can be accomplished by these various methods of prevention is shown by the decrease of mortality from tuberculosis in Prussia in the years 1889 to 1897, as quoted by Koch in his address before referred to. Before 1889 the average mortality was 31.4 per 10,000, while from 1889 to 1897 it was only 21.8 per 10,000, which meant that in that space of time the number of deaths from tuberculosis were 184,000 less than was to be expected from the average of the preceding years. Again, in New York the mortality from tuberculosis has diminished more than 35% since 1886. In all I have said I have taken it for granted that we all realize the enormous prevalence of tuberculosis and that it is a universal plague, annually destroying 3,000,000 people in the whole world and infecting yearly about 15,000,000,—an appalling number indeed!

But our hope in the struggle is founded upon four great facts: (1) That pulmonary tuberculosis is contagious and not inherited; (2) that it is avoidable; (3) that it is curable; (4) that the sputum of the consumptive is the main source of infection, and this is accessible and can be controlled.

I close with the words of a recent writer, himself a victim of tuberculosis and cured by the sanatorium treatment at Nordrach: "When every consumptive who needs it will receive sanatorium treatment at the general expense, and be ensured, where necessary, suitable work and life conditions thereafter, then will the days of this scourge be numbered. Then will man no longer be called upon in the bloom of his manhood to face, with his mental faculties unimpaired, a death by inches. Then will break the dawn for a healthier and happier people."[4]

Adolf Kussmaul, formerly professor of medicine in the University of Heidelberg, died in Heidelberg May 28, 1902, at the age of eighty years. He was widely known for his work in aphasia and for the practical introduction of the stomach pump into medical practice.

[4] James Arthur Gibson; Westminister Review, April, 1902.

## CYSTOSCOPIC APPEARANCES IN NON-TUBERCULAR CYSTITIS AND PYELONEPHRITIS IN WOMEN.

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(Concluded from No. 23, p. 592.)

### CASES IN WHICH THE BLADDER AND UPPER URINARY PASSAGES ARE INFLAMED.

The first characteristic that attracts notice is the frequency with which some alteration from normal occurs about the orifice of the ureter on the side corresponding to the lesion above. Thus, in the author's list of cases, out of the nine, in eight this is seen. In Brown's list we are not informed with exactness in all the eight cases as to this point. In three, however, there is positive assurance of such alteration, and in three others either no direct reference is made with regard to it or we are left in doubt. Thus, in eleven out of the seventeen cases there is direct evidence given by cystoscopy which at least excites suspicion that the upper urinary passage on that side is diseased.

Analyzed, these cases are as follows: Case II: Calculus in ureter and in kidney, corresponding eminence much enlarged; small punctate ulcerations all around the ureteral orifice; opposite ureteral eminence normal. Case III: Pyelonephritis and strictured and dilated ureter. Corresponding eminence ulcerated, and has disappeared. Orifice found by seeing pus well up out of a small pit; ulcerations of bladder around orifice; opposite ureteral eminence normal. Case IV: Ureteritis. Corresponding eminence enlarged and surface very red; opposite eminence normal. Case V: Probable calculus of right kidney and possibly of left one; ulcerations around left ureteral eminence; right ureteral eminence normal. Case VI: Pyelonephritis and stricture of ureter. Corresponding ureteral eminence obliterated; cicatricial tissue marks its site; ulcerations in neighborhood; opposite eminence normal. Case VII: Ureteritis and pyelitis. Stricture of ureter. Corresponding eminence enlarged and surface red; opposite eminence normal. Case VIII: Ureteritis. Corresponding eminence enlarged and surface red; opposite eminence normal. Case IX: Ureteritis. Corresponding eminence enlarged and redder than normal; opposite eminence normal. Case C: Pyelitis. Corresponding eminence injected. Case D: Calculus of kidney. Reddening and "puffiness" of corresponding eminence. Case E: Calculus of kidney. Corresponding eminence. "Infection about the left ureteral orifice."

It is fair to assume, therefore, that if lesions are present at or about a ureteral eminence, we may expect to find lesions in the upper urinary tract on that side. Attention is particularly directed to the cases in which the ureter was undoubtedly diseased, especially the cases of ureteritis (Cases IV, VI, VIII and IX). In these cases the eminence was enlarged and the surface red.

It is believed that this will be found to be a valuable diagnostic sign of ureteritis, though of course the number of cases is too small to allow positive deductions to be made. In the three cases of pyelonephritis with diseased ureter (Cases I, III and VI), in which there was stone in the ureter (Case I) and strictures (Cases III and VI), we find marked changes in the nature of ulceration and cicatrization; so that we may presume that the more extensive the ureteral disease the more marked the changes to be observed at the ureteral orifice.

These observations are quite in line with those observed in tuberculosis of the ureter and kidney, provided the bladder is affected also, for numerous observations are now on record which confirm this statement.

The analysis of the remaining six cases is as follows: In Case I the bladder is so small as to forbid deductions being drawn as to the relative size of the eminences. In Cases G and H the bladder is normal and the inflammation is confined to the kidney. In Cases B and F no mention is made of lesions in the vicinity of the ureteral orifice of the affected side. In Case A, however, a peculiar condition of affairs exists. It is the left kidney which is diseased, but the left ureteral orifice is normal and the right eminence is described as puffy and deeply injected. The urine from the right side is normal, while that from the left is purulent. No explanation is offered, and not so much would be thought of it were it not for the fact that in Case V very much the same condition exists. Here we have all the symptoms referable to the right kidney, including a large tumor on the right loin, and yet the right ureteral eminence is perfectly normal. Ulcerations are observed about the left orifice, from which, however, purulent urine has been collected.

The calculus cases are as follows: Cases II, A, D, E and H. In three of them (Cases II, D and E) the ureteral eminence is altered, and in the remaining ones it is not (Cases H and A). In the latter the bladder is described as normal. We may conclude, therefore, that in most cases of inflammation of the upper urinary passages, provided the bladder shows evident lesions of inflammation, that those lesions will be more marked in the neighborhood of that ureteral eminence corresponding to the diseased tract; we may also add that occasionally it happens that the bladder does not show inflammatory changes, although there is an inflammatory process going on in the kidney or in the ureter; in such a case the evidence is clear that the infection has been renal or ureteral primarily, and that the inflammation has not yet reached the bladder.

CASES IN WHICH THE BLADDER ALONE IS INFLAMED.

CASE I. Female, age 63. Decrepit; syphilitic necrosis of forehead; poor general health; chronic diarrhea. Symptoms: Had bladder trouble five years ago at time of operation for lacerated perineum. Recent symptoms two months duration. Frequent micturition, ten times a day, three times by night; no pain, constant desire to urinate, slight tenesmus. Cystoscopy: Large, flabby bladder; throughout the whole extent diffuse hyperemia, but especially on trigone; granular looking. The color of the bladder is not scarlet red, but rather of a pink hue. Ulcers, none; patches of redness, none. Urine: Albumin, ¼%; sediment, considerable, consisting of pus chiefly, many caudate epithelium, some small round epithelium, few medium epithelium, many hyaline and granular casts, some blood, many bacteria; no tubercle bacilli. Urines from both ureters normal as regards inflammation of upper passages. Result: Yielded at once to mild bladder douches of permanganate of potash and urotropin internally. Causation, probably colon bacillus; infection from chronic diarrhea.

CASE II. Female, age 35. General health good. Symptoms: Duration, one year. Has had vesical symptoms in attacks, with intervals of freedom from symptoms; urination every two hours by day, and the same by night; pain during and after the act, sharp and cutting, lasting three minutes. Cystoscopy: Whole bladder diffusely red, especially so about trigone, vesical neck and urethra. Ulcers: a few spots on posterior wall ½ cm. in diameter, of superficial ulceration, surrounded by hyperemic zones; eminences, very red and swollen. Urine: Acid; trace albumin; sediment, very much, consisting of pus chiefly, some small round epithelium, a few caudate epithelium, squamous epithelium and calcic oxalate crystals; no tubercle bacilli. Result: Treated with mild carbolic acid washes and local applications of nitrate of silver fused on end of a probe. Cured in six weeks; no recurrence.

CASE III. Female, age 31. Poor general condition. Cystocele, and rectocele, endometritis. Symptoms: Duration not ascertained, but a considerable while. Urinates six times a day and three times by night; no pain. Cystoscopy: Urethra, vesical neck and trigone diffusely red; blood vessels of the bladder injected. Patches of injection here and there on posterior bladder wall just above trigone. Ulcers: Very small ulcer on trigone just behind entrance of urethra, ½ cm. in diameter, yellow base. Result: Very obstinate (symptoms later probably due to cystocele); treated with fused nitrate of silver, local applications, and permanganate of potash injections. After seven months of treatment perineorrhaphy done. Improvement followed, and six months later much improved. Remarks: Illustrates influence of cystocele in prolonging symptoms. Urine: Amount, 1,600 cc.; urea, 13.9; uric acid, .458; relation of uric acid to urea, 1 to 30; color, normal; phosphates, 4.27; chlorides, 9.3; specific gravity, 1,014; solids 52.19; reaction, acid; indican, normal; sugar absent; albumin absent; sediment, bacteria, very few pus cells, a few granular epithelium, few blood corpuscles; no tubercle bacilli.

CASE IV. Female, age 22. Morphinomaniac; retroversion and lacerated cervix and perineum. Symptoms: Has had no special symptoms lately, but formerly had some increased frequency of micturition. Was examined under ether while operation for tears and retroversion was being done. Cystoscopy: Vesical neck, urethra very much injected; whole bladder injected also. Ulcers: Several ulcers seen on posterior wall of bladder 1 to 2 cm. in diameter, with yellow bases and hyperemic areolæ; one necrotic ulcer containing a slough; patches of intense redness seen on posterior wall; eminences swollen and red. Urine: There were 405 cc. in 24 hours; urea, 10.93; uric acid, .503; relation of uric acid to urea, 1 to 21; color, high; phosphates, 1.21; chlorides, 1.65; sulphates diminished; specific gravity, 1,020; solids, 18.87; reaction, acid; indican, normal; albumin ¼%; sediment, large, consisting of pus chiefly, some blood, numerous bacteria and micrococci, few squamous epithelium, few granular and hyaline casts, necrotic shreds; no tubercle bacilli. Result: Passed from observation. Remarks: Did morphin entirely arrest symptoms?

CASE V.[7] Male, age 39. Typhoid fever in 1893; pyuria on admission to hospital; continued pyuria up

[7] H. H. Young's Case, Johns Hopkins Hospital Reports, 1899 to 1900, No. 8.

to 1897. In 1898 typhoid bacillus found in urine. In January, 1900, cystitis and pyuria still present. Present persistence of typhoid bacillus, in spite of treatment with irrigations and urotropin. Typhoid fever in 1893. Symptoms: First seen in 1898. Urination once at night and three times a day; no pain; no hematuria. Duration seven years. Cystoscopy: Entire vesical mucosa in state of inflammation; generally congested, red in color, individual blood vessels not visible, and numerous small ulcers covered with grayish fibrin here and there. Trigone presented a granular surface, deep red in color. Urine: Cloudy; reaction slightly acid; albumin .025 to .075%; sediment, pus chiefly, epithelial cells of squamous variety, occasional granular casts, typhoid bacilli abundant. Result: Urotropin had some effect in diminishing the numbers of bacilli; had bichloride mercury injections also, but never succeeded in curing the cystitis. During course of treatment had instrumental gonococcus infection of bladder on top of typhoidal infection; no appreciable difference in symptoms made. Remarks: Obstinate to treatment. Patient not cured.

Case VI. Female, age 29. Always delicate. Both ovaries and appendix removed during course of cystitis. Family history negative. Symptoms: One year's duration; frequent micturition, with pain during and after, lasting two minutes; urinates ten times a day and four times at night. Cystoscopy: Urethra and vesical neck slightly redder than normal, trigone very red and dull in color, whole bladder slightly redder than normal. Ulcers, none; eminences very red and swollen. Urine: Albumin, slight trace; acid; sediment, slight, consisting of small amount pus, few squamous epithelium, few small round epithelium, calcic oxalate crystals, no casts; no tubercle bacilli; right and left ureteral urines negative. Result: Treated with mild nitrate of silver vesical injections daily for six weeks. Cured; no recurrence after a year. Remarks: Mild infection probably. Guinea-pig tests in case of bladder, and both ureteral urines negative. A bit of bladder excised for examination showed in sections mild grade of inflammation.

Case VII. Female, age 40. Ischio-rectal abscess, discharging seven years; salpingitis; poor general health. Symptoms: For past six years has had attacks of cystitis at different times; frequent micturition, especially lately, when another attack came on; urination every fifteen minutes by day, every hour by night; tenesmus; constant desire to urinate. Cystoscopy: Urethra and bladder, including trigone, injected, especially latter; here and there patches of greater redness, 2 to 3 cm. in diameter. Ulcers: A few small superficial ones on the posterior wall. Eminences hyperemic, and present several small yellow points. Urine: Amount, 800 cc.; urea, 15.12; uric acid, .588; relation of uric acid to urea, 1 to 29; phosphates, 1.88; chlorides, 4.64; sulphates diminished; specific gravity, 1,014; solids, 26.09; reaction, slightly alkaline; indican, normal; sugar, absent; albumin, slight trace; sediment, considerable, consisting of pus chiefly, squamous epithelium, few granular casts and amorphous urates; no tubercle bacilli. Result: Treated with permanganate of potash douches 1:3000, and nitrate of silver applications. Cured, but hyperemic patches remain in the bladder. Remarks: Cystitis, propably due to infection from fistula in ano. Cured of cystitis after operation for fistula.

Case VIII. Female, age 60; married; menopause eight years ago; pruritis vulvæ three years ago; father died of phthisis, also two brothers; thin, spare woman; energetic; nervous. Symptoms: Poor sleep; general health good; duration bladder symptoms, two years; incontinence at first; sharp, darting pain in urethra after micturition, lasting two minutes; constant desire to urinate; urination every half-hour by day, every two hours by night. Cystoscopy: Vesical neck, urethra and trigone scarlet red, bladder redder than normal; patches of redness 1 cm. in diameter here and there, which bleed easily on being touched. Ulcers, none; eminences swollen and much injected. Urine: Acid; albumin, trace; sediment, very slight, consisting of pus chiefly, some blood, few sheets squamous epithelium, some small round epithelium, few granulated casts, bacteria; no tubercle bacilli. Result: Treatment was urotropin and antiseptic irrigations, with local applications of solid nitrate silver to patches; only partial relief after eighteen months' treatment; refused cystotomy. Remarks: Obstinacy to treatment suggests gonorrheal infection; no cultures made; guinea-pig test, negative.

Case IX. Female, age 26. General health good; strong, active woman. Symptoms: Has had three attacks of frequent, painful micturition, lasting a few weeks each, during the past year; present attack, two months' duration. Cystoscopy: Urethra and vesical neck abnormally red, as well as trigone; whole bladder redder than normal; a few patches of greater redness here and there. Small ulcer on right side, just inside sphincter; yellow base, hyperemic edges. Urine: Sediment moderate, consists of pus chiefly, squamous epithelium, some blood; no tubercle bacilli. Results: Treated with local applications, solid nitrate of silver and boracic acid solutions. Cured. Remarks: Mild grade of cystitis with ulcerations.

Case X. Female, age 21; single. Never ill; negative family history; well developed; hysterical blindness; very nervous.. Symptoms: Urinates every half-hour by day, four times at night; some tenesmus; general health good. Cystoscopy: Bladder universally reddened, especially trigone and vesical neck; a few small superficial ulcers, with yellow bases, 1 cm. in diameter, on posterior wall; eminences not remarkable. Urine: In 24 hours there were 660 cc. acid; urea, 14.02; solids, 30.75; albumin, ¼%; sediment, pus chiefly, some blood corpuscles, few squamous cells, few small round cells, few hyaline and granular casts; no tubercle bacilli. Result: Recovery, under antiseptic irrigations and local applications of solid nitrate of silver. No recurrence. Remarks: Mild grade of cystitis of unknown etiology.

Case XI. Female, age 26. Salpingitis; rather weak and delicate. Symptoms: Duration not ascertained, but a good while; incontinence, if cannot relieve bladder; frequent micturition, every half-hour by day, four or five times at night; some tenesmus; history of catheter infection. Cystoscopy: Intense injection of urethra, vesical neck and trigone; whole bladder likewise slightly injected. A few ulcers, superficial in character, with yellow bases and surrounded by hyperemic zones, found on the anterior and posterior bladder walls. Urine: Sediment, slight, consisting of a few blood corpuscles, some pus, a few small squamous epithelium, a few small round epithelium; no tubercle bacilli. Result: Treated with local applications of solid nitrate of silver to the ulcers, and vesical irrigations of weak carbolic acid. Cured in three months.

Case XII. Female, age 30; robust. Symptoms: Duration not ascertained; urinates every hour by day, twice at night; some tenesmus; has soreness in the urethra. Cystoscopy: Vesical neck, urethra and trigone markedly injected; several small ulcers on posterior wall, with hyperemic zones. Urine: Albumin, slight trace; sediment, slight, consisting of pus chiefly, some blood, squamous and medium-sized epithelium; no tubercle bacilli. Result: Treatment by buchu and occasional applications of nitrate of silver stick. Cured in three months; no recurrence. Remarks: No vesical injections.

Case XIII. Female, age 30. Symptoms: Duration, one year; intervals of complete absence of symptoms; urinates now six or seven times a day, twice by night; slight burning pain: slight tenesmus. Cystoscopy: Whole bladder much injected, especially about the left ureteral orifice; no ulcers; patches here and there. Urine: Albumin, slight trace; sediment, considerable, consisting of pus chiefly, some blood, few squamous epithelium, some small round epithelium; no tubercle bacilli. Result: Injections of permanganate of potash. Cured in one month.

Case XIV. Female, age 27. Has had cough for past six years; delicate. Symptoms: Duration, two months; urinates six to eight times a day, but not at

all at night; burning sensation in urethra; slight tenesmus. Cystoscopy: Urethra, vesical neck and trigone very red; whole bladder redder than normal; just below the right ureteral eminence are three very small ulcers, with yellow bases. Urine: Albumin, slight trace; sediment, slight, consisting of pus chiefly, some blood, few squamous epithelium, free and in sheets; no tubercle bacilli. Result: Local applications of solid nitrate of silver. Rapid cure under buchu, vesical injections of carbolic acid solution and sandal-wood oil. No recurrence after four years.

CASE XV. Female, age 47. Phthisical history in family; oöphorectomy three years ago; delicate looking. Symptoms: Duration, six months; frequent micturition, seventeen or eighteen times a day, five or six times at night; painful during and after; constant desire to empty bladder; tenesmus. Cystoscopy: Whole bladder injected, especially the trigone, vesical neck and urethra; in left hemisphere six granulations are seen just above trigone on posterior wall, are red, elevated and shiny and close together; in size 2 mm. in diameter; no ulcers. Urine: Amount 1,510 cc. in 24 hours; urea, 32; uric acid, 1.67; relation of uric acid to urea, 1 to 19; color, normal; phosphates, 3.07; chlorides, 12; sulphates normal; specific gravity, 1,015; solids, 52.42; reaction, acid; indican, normal; sugar, absent; albumin, slight trace; sediment, considerable, consisting of pus chiefly, some blood, some squamous epithelium, few small round epithelium, some caudate epithelium, few hyaline casts; no tubercle bacilli. Result: Treated with permanganate potash douches and local applications of nitrate of silver fused on a probe. Partial cure in two months. Lost sight of. Urinated six times a day, and not at all at night, when last seen.

CASE XVI. Female, age 40. Came under observation in March, 1896. Cystitis for eight years; no clear cause known. Symptoms: Urination every hour by day, three or four times at night; some tenesmus and pain; symptoms getting intolerable; duration, two years. Cystoscopy: Whole bladder very red; blood vessels largely dilated; ulcers on anterior and posterior walls; numerous patches of injection. Urine: Albumin, large trace; sediment, large, consisting of pus chiefly, squamous epithelium, small, round and medium epithelium; reaction, acid; specific gravity, 1,016. Results: Vaginal cystotomy by Dr. Geo. Washburn; treated subsequently by the author. Much trouble with the fistula from collection of lime salts on its edges. Constant attention obviated the difficulty. Fistula closed in two years. Had no trouble with the bladder whatever up to time of her death from pneumonia two years later. The urine, examined after the fistula was closed, entirely normal. Remarks: Illustrates how chronic cystitis may remain localized to bladder without inflammation ascending to kidney.

CASE XVII. Female, age 65. Cystitis symptoms for ten years. (Probably had hyperemia of bladder in the first instance.) General prolapse the exciting cause. Symptoms: Some partial retention owing to difficulty in starting the stream; urinates every hour during day, once or twice at night; some tenesmus. Cystoscopy: Whole bladder decidedly redder than normal; blood vessels injected, especially the finer ones; surface of bladder dull looking and granular. No ulcers; no patches. Trigone redder than rest of bladder and streaky. Both ureteral eminences normal as to orifice and size. Urine: Albumin, very slight trace; sediment, slight, consisting of chiefly squamous epithelium, a few hyaline and granular casts, and a little pus. Result: Still under treatment. Permanganate of potash injection and topical applications of nitrate of silver to trigone. Remarks: Probable sequence of events was prolapse, hyperemia, cystitis upon soil prepared for reception of germs.

CASE XVIII. Female, age 28. Well developed and strong. Symptoms: Duration four years. Indefinite though probable history of gonorrhea and peri-urethral abscess at that time; urinates eight to ten times a day, two or three times at night, pain after the act; tenesmus. Cystoscopy: Urethra intensely congested; also vesical neck. Fistulous opening found 2 cm. in front of vesical neck on left. Diffuse redness of slight degree of whole bladder, especially about trigone. Urine: Albumin, slight trace; sediment, slight, chiefly pus, many medium, small round and squamous epithelium, a few blood corpuscles, a few granular casts. Result: Incised fistula and cauterized the track; boracic acid douches subsequently. Cured.

CASES XIX. Female, age 41. Well developed. Said to have had "polypi" at the entrance of bladder, removed a year ago. Doubtful history of gonorrhea a year ago. Symptoms: Duration, six months; worse lately; urinates every half-hour by day, four times at night, severe pain during and after. Cystoscopy: Thickening of urethra on right; urethra very red; full of pus which exudes from an opening on the right side; peri-urethral abscess; neck of bladder and trigone much injected; patches of redness on posterior wall 1 to 2 cm. in diameter; these patches are most frequent near trigone; no ulcers; eminences swollen and very red. Urine: Amount, 1,010; urea, 10.2; uric acid, .685; relation of uric acid to urea, 1 to 15; color, normal; phosphates, 1.81; chlorides, 6; sulphates, normal; specific gravity, 1,020; solids, 47.06; reaction, acid; indican, normal; sugar, absent; albumin, slight trace; sediment, slight, consisting of pus chiefly, some blood-few squamous and medium-sized epithelium; no tubercle bacilli. Result: Treated with potassium acetate, solid nitrate silver application, and occasionally salol, Cured in six months; seen four months later; no recurrence. Remarks: The peri-urethral abscess suggests gonorrheal infection.

CASE XX. Female, age 28. Robust and strong. Symptoms: General health good. Six months before being seen was delivered of a child. Through neglect on the part of her attending physician was said to have had complete urinary retention for four days. Then catheter was used; expulsion of whole mucous membrane of bladder followed (exfoliative cystitis). Since then frequent and painful micturition. Pain felt in urethra. Uneasy sensation constantly in bladder. Scaly crusts in vessels noticed by patient. Cystoscopy: Urethra and vesical neck scarlet red; whole bladder relatively normal. In the left hemisphere, just internal to the left ureteral orifice, a small area 3 cm. long and 2 cm. wide, covered with whitish gray deposit of phosphate of calcium. No "contact" ulcer on anterior wall; area surrounded by intense injection. Both ureteral orifices normal. Urine: Specific gravity, 1,018; no albumin; sediment, slight, consisting of few pus corpuscles, a few squamous epithelium and a few medium-sized epithelium; no tubercle bacilli; guinea-pig test negative. Result: Curetted ulcer and applied pure nitrate of silver. Cured; seen one year later; no return of symptoms; bladder normal through cystoscope.

### CASES IN WHICH THE BLADDER AND UPPER URINARY PASSAGES ARE INFLAMED.

It is to be noted in the cases which follow, that ulcerations of the bladder wall are most marked and are most numerous about the ureteral orifice corresponding to the diseased kidney. This is of the greatest diagnostic importance.

CASE I. Female, age 51. Patient has never complained much of vesical symptoms. General health rather poor; some emaciation. Symptoms: Duration, one year; foul odor to urine; urinated six to eight times a day and four to five times a night. Now, frequency is much less; lately, and for the past few months, much hematuria, some backache. Cystoscopy: Whole bladder much injected, and presents a velvety appearance. No granulations, but whole wall appears to be a pyogenic membrane. Small yellow ulcers with shallow bases seen everywhere, 1 cm. in diameter; trigone particularly affected with ulcerations. The bladder wall trabeculated, and there are several saccules which have small openings ½ to 1 cm. in diameter and 1 cm. in depth, with smooth interiors

secreting white mucus and pus. Bladder so swollen and injected that no conclusions could be drawn as to relative size of eminences. Loculate bladder. Urine: Right ureter: pus chiefly; some blood; caudate epithelium; few squamous epithelia; few small round cells. Left ureter: slight sediment; consists of a few cells; urine clear. Bladder urine, chiefly pus and cells; reaction, alkaline. Result: Still under treatment. No improvement. Remarks: Probably primary infection in a loculate bladder with extension of inflammation to right kidney; a radiograph picture disclosed no stone in the kidney.

Case II. Female, age 24. Rather poor general health. Panhysterectomy six months previously. Symptoms: Frequent painful micturition. History of passage of a renal calculus on the left side; hematuria once; duration of trouble, seven years; pain in region of left kidney. Cystoscopy: Urethra and vesical neck scarlet red; whole bladder wall streaked with red streaks, 1 to 2 cm. long and 1 to 2 mm. wide, likewise patches of the same nature here and there; left ureteral eminence much larger than normal. Trigone and left ureteral eminence covered with very small yellow punctate ulcerations 1 mm. in diameter; lymph follicles in bladder enlarged, and present themselves as whitish elevations like sago grains. Urine: Right ureter: urea, 1.13%; sediment, large, some pus, a few epithelia. Left ureter: urea .4%; much pus. Bladder urine: pyuria; guinea-pig tests in all three, negative as to tuberculosis. Result: Nephrectomy, left kidney; one large stone in the renal pelvis; several small ones imbedded in upper pole. Remarks: Cured. Bladder healed of itself without treatment in a few weeks. A radiograph taken two years after the nephrectomy showed a stone imbedded in the left ureter just below pelvic brim. No further symptoms.

Case III. Female, age 22. Poor health for several years. Symptoms: Six years ago severe fall; vesical symptoms since then. Two attacks of severe renal colic; tubercular taint. Never had any renal symptoms of localizing nature. Frequent and painful micturition, pain during the act. Cystoscopy: Whole bladder, including vesical neck and trigone, greatly injected; left ureteral eminence not more changed than rest of the bladder. Right ureteral orifice found only by seeing pus exude; ulcerations all around the right ureteral orifice; eminence entirely gone and site occupied by an ulcer. Urine: Right ureter: urea, .63%; pale; acid; albumin trace; sediment, large, consisting of much pus, some epithelium, and a few casts; no tubercle bacilli found. Left ureter: urea, 2.4%; urine negative; guinea-pig tests negative as to tuberculosis. Bladder urine, pyuria. Result: Nephrectomy, right kidney; extensive pyelonephritis, due to stricture of ureter low down; ureter much dilated and wall thickened; kidney disorganized. Cured. Remarks: Heard from three years later; well; no further trouble. Bladder treated with antiseptics for several weeks after operation.

Case IV. Female, age 40. Thin, spare woman. Considerable loss of strength and flesh. Very nervous but self-controlled; very intelligent. Symptoms: Twenty-two years ago strained herself by lifting; felt something "snap" in left lumbar region. Ever since then has had pain in left loin. Urination is frequent. Left kidney felt on palpation. Increased resistance of abdominal muscles on left side over kidney. Cystoscopy: No ulcerations. General redness of whole bladder, especially vesical neck and trigone. Right ureteral eminence not remarkable. Flow of urine on right side more abundant than on left. Wax-tipped bougies passed into each kidney; negative; no scratching as from stone. Left ureteral eminence larger than right one; flow of urine is slow; left eminence very red and streaky. Urines: Right ureter: urea, 1.39%; acid; slight sediment; few hyaline and granular casts of small diameter; epithelium. Left ureter: urea, .76%; sediment, slight, blood chiefly (trauma), some pus, a few large squamous epithelia, a few round cells, a few caudate epithelium, hyaline and granular casts; no tubercle bacilli. Result: Exploratory incision; wound of renal vein (accidental); nephrectomy. Simple ureteritis in slightly movable kidney. Remarks: Patient is now having trouble with a buried ligature.

Case V. Female, age 35. Thin, spare woman; nervous. Symptoms: Tubercular taint. General health poor. Bladder symptoms for eighteen years. Severe pain in right kidney, the first renal symptom at onset of trouble; no known cause; renal colic lasted for one week, during part of which time she was unconscious. Since then attacks of renal pain at intervals. Sensitive right kidney on pressure. Hematuria from time to time; bright red blood. Frequent micturition. Vesical calculus removed in 1891 by Dr. J. R. Chadwick. Large tumor in right loin. Cystoscopy: Whole bladder very red, but not granular looking. Two excavated ulcers seen near site of left ureteral orifice, each 1 cm. long and ½ cm. wide. Right ureteral eminence normal in all respects. Urines: Right ureter: catheter slipped out and urine not collected. Left ureter: sediment considerable, chiefly pus, some blood, a few granular casts, a few hyaline casts, some small round epithelium; no tubercle bacilli. Bladder urine: pyuria and various cells; guinea-pig test in case of bladder urine, negative; left ureter, negative; died in two days. Result: Has steadfastly refused any operative measures. Is now about the same as ever. Refuses to allow radiograph to be taken. Remarks: Probable calculus of the right kidney, and probably also of the left one as well. Note the peculiarity of right ureteral eminence; it is apparently normal, yet all the symptoms have been referred to right kidney, including evident sensitiveness on pressure over it; note also freedom from symptoms of left kidney, yet the left ureteral eminence shows ulcerative changes.

Case VI. Female, age 38. Robust-looking woman. Symptoms: Rheumatism seven years ago, which left her with stiff knee-joint. Duration of disease six years; frequent micturition, later painful. Never any renal pain or localizing symptoms. Left ureter slightly enlarged *per vaginam*; muscles over left kidney slightly resistant. Cystoscopy: Urethra and whole bladder generally injected, especially in left hemisphere. Right ureteral eminence relatively normal and easily catheterized; left ureteral eminence covered and obliterated, apparently by cicatricial tissue; orifice not seen (catheterized subsequently). Around the left ureteral eminence are many small superficial ulcerations, 1 cm. in diameter, which bleed easily on being touched. In the middle of left hemisphere is a puckered area with a depressed centre, towards which the vesical tissue was drawn in radiating lines (old ulcer with contraction); numerous white scars are seen everywhere. Urines: Right ureter: urea, 1.26%; sediment not remarkable. Left ureter: urea, 0.63%; turbid; albumin, a large trace; sediment, considerable, consists of pus chiefly, some medium epithelium, some blood, many shreds, bacteria, no bacilli of tuberculosis; guinea-pig tests, in case of bladder and left ureteral urines, negative as to tuberculosis. Result: Cystotomy. Is very comfortable, and does not suffer at all; has had the fistula now four years. Steadfastly refuses all further operation. Remarks: Stricture of ureter located near ureteral orifice on left side. A gush of urine followed insertion of ureteral catheter. Undoubtedly a pyelonephritis with disorganized kidney. Probably of gonorrheal origin (?). Radiograph picture negative as to calculus. It is hoped the kidney will atrophy and permit closure of fistula.

Case VII. Female, age 45. Very nervous, neurotic woman; spare habit. Symptoms: Twenty-five years ago gonorrhea; cystitis ever since. Frequent micturition; most suffering comes from "nagging" sensation in the bladder; sleep much disturbed; has very little rest. Occasional dull pain in right loin; somewhat tender right ureter vaginally. Cystoscopy: Bladder generally red, though injection is mild. Individual blood vessels are much larger than normal; a few ulcerations of small size scattered about. Trigone and vesical neck scarlet red. Right ureteral eminence much larger than the left. Stricture of right ureter located 8 cm. from vesical end of ureter; admits 2¾ mm. cath-

eter but not 3 mm. one. Urines: Right ureter (collected with cup-shaped cystoscope; no trauma of ureter): sediment, considerable, chiefly medium-sized epithelium free and in sheets, some blood, some pus, many hyaline and granular casts of large diameter. Left ureter: negative. Result: Vaginal cystotomy four years ago. Fistula open three and one-half years; urethra, vesical neck and bladder split from meatus to cervix uteri, closed at end of that period; is now just as badly off as ever, though does not have to urinate so often, stricture now being dilated. Remarks: It is hoped that with pelvic irrigations of kidney and dilatation patient will be cured.

CASE VIII. Female, age 42. Symptoms: Four months ago had "inflammation of the bladder" and had an attack of hematuria. Duration of disease up to now, three years; frequent and painful micturition; pain felt always on the left side of the bladder and is localized in one spot. Cystoscopy: Urethra and vesical neck much injected; likewise trigone. Ureteral eminence swollen and larger than left one. Urines: The right ureteral urine comes in frequent strong jets, while the left ureteral urine comes more slowly, less abundantly and in smaller jets. Right ureter (collected with cup-shaped cystoscope, no injury of ureter by trauma): negative. Left ureter: acid; sediment, slight, a few blood corpuscles, a few granular casts, many spindle epithelia, and a few medium-sized epithelia. Result: Still under treatment.

CASE IX. Female, age 40. Very nervous woman. Symptoms: Three years duration. Frequent micturition, but no pain. Intense vaginitis; non-specific. Cystoscopy: Trigone and vesical neck and urethra very red. Right ureteral eminence red and larger than the left one. Urines: Right ureter: acid; sediment, slight (collected with cup-shaped cystoscope, no trauma), some pus, some blood, a few epithelium, medium sized and caudate. Left ureter: negative. Result: Still under treatment.

CASE A.[8] Female, age 30. Symptoms: Instrumental delivery thirty years ago; at once cystitis; urine at first alkaline (for ten years). Twenty years ago passed a renal calculus, with hematuria. For thirty years, pain in the left kidney. For twenty years, urine acid; now passes at intervals large amounts of pus in urine as if from a large sac. Cystoscopy: Normal bladder, except for a deeply injected, red, puffy area about the right ureteral orifice. Urines: Right ureter: acid, negative, sterile. Left ureter: acid, much pus, considerable albumin, sterile. Result: Nephrectomy. Removal of calculus of carbonate and phosphate of magnesium and calcium. Remarks: The cystitis was evidently due to a micro-organism which finally died out.

CASE B. Female adult. Symptoms: Had cystitis for five years. Pain in left kidney for one year. Cystoscopy: Contracted bladder with ulcers. Urines: Right ureter: acid, negative, sterile. Left ureter: acid; considerable albumin; large amount of pus; bacillus coli communis. Result: Curetted bladder; suprapubic incision and drainage. Left-sided nephrotomy and subsequently nephrectomy; pyelonephritis.

CASE C. Female, adult. Symptoms: Only symptom was passage of cloudy urine and slightly increased frequency of micturition. Cystoscopy: Bladder normal, with the exception of some injection of trigone, and about the left ureteral orifice. Urines: Right ureter: acid, negative, sterile. Left ureter: acid, and large amount albumin: pus in quantity; bacillus coli communis. Bladder urine: pyuria cells; bacillus coli communis. Result: Not stated.

CASE D. Female, adult. Symptoms: Instrumental labor: severe pain in right loin following this; dull pain in loin ever since; constipation. Cystoscopy: Reddening of trigone and puffiness of right ureteral orifice. Urines: Right ureter: alkaline, much pus, considerable albumin, epithelial cells; slowly liquefying staphylococcus albus. Left kidney: acid, negative, sterile. Result: Nephrotomy. Removal of calculus and drainage of right kidney (phosphate and carbonate of calcium and magnesium).

CASE E. Female, adult. Symptoms: Pyuria and pain for fifteen years; at first in left loin, then in right loin; four years ago left kidney removed and was found to be pyelonephritic and to contain a calculus. Since then, better, but has had constant pain in right loin; frequent and painful micturition. Cystoscopy: Injection about the left ureteral orifice. Urines: Left ureter: alkaline, many pus cells, considerable number red blood corpuscles; trace albumin; slowly liquefying staphylococcus, pyogenes albus. A few small calculi passed were found to be phosphates and carbonates calcium and magnesium. Result: Not stated.

CASE F. Female, young adult. Symptoms: Acute cystitis just after marriage; later, pain in right loin in renal region; some hematuria. Cystoscopy: Injected trigone, with a few small superficial ulcerations, Urines: Right ureter acid, small amount albumin. moderate amount pus, few epithelia; bacillus coli communis. Left ureter: negative, sterile. Result: Resection right kidney for multiple abscesses in cortex.

CASE G. Female, adult. Symptoms: Gout for many years. Two years ago pain in right loin, nausea and vomiting, chills and fever. Six months later a second attack, requiring morphia. Cystoscopy: Bladder normal. Urines: Right ureter: acid; considerable albumin; specific gravity, 1,004; bacillus coli communis. Left ureter: negative, sterile bladder; pyuria; bacillus coli communis. Result: Urotropin; water; soda; nephrotomy. Large abscess in right kidney; no calculus.

CASE H. Female, adult. Symptoms: Insidious onset; several attacks of renal colic several years ago; removal of stone from right kidney; pain in right loin; malaise; fever and nausea ever since then. Cystoscopy. Bladder normal. Urines: Right ureter: alkaline; considerable albumin; specific gravity, 1,003; many pus cells; bacillus proteus vulgaris. Left ureter: acid, negative, sterile. Result: Palliative treatment; hygiene; water; urotropin. Renal catheterization and irrigation of pelvis of kidney. Patient fairly comfortable.

[8] The lettered cases are from H. A. Kelly's Clinic, Baltimore. Reported by T. R. Brown, who did the bacteriological work. Johns Hopkins Hospital Reports, 1901, vol. x, Nos. 1 and 2.

## Clinical Department.

### SEVEN CASES OF PLACENTA PREVIA.

BY J. G. HENRY, M.D., WINCHENDON, MASS.

HAVING read with much interest the valuable article on placenta previa by Dr. Higgins, in a recent issue of your journal,[1] it occurs to me that a report of cases by those who have met with this unfortunate condition, and perhaps a further discussion of treatment, may be of some service to the profession.

I remember that while in college our teacher of obstetrics, the late Edward S. Dunster, in speaking of the rarity of placenta previa, said to the class: "The majority of you will never see a case," and yet, in an obstetric experience of something over fourteen hundred cases, I find that I have notes of seven. In my list there have been no maternal and but three fetal deaths, all of which were in premature labors.

CASE I. Consulted me about the middle of her fourth pregnancy on account of hemorrhage. She had had two or three attacks in a few weeks, quite severe. She was advised of the probable

[1] Jan. 2, 1902 p. 6.

cause and that it would most likely be necessary to bring on premature labor. After one or two more hemorrhages this was done by myself and an assistant. As she objected decidedly to taking ether, we dilated the uterus without an anesthetic. Found the placenta exactly over the os, went through it, turned and extracted the fetus without much difficulty, although the dilatation required more time than if an anesthetic had been used. There was severe hemorrhage during the operation, but not as much as we had expected to encounter.

Case II. Seven months advanced in her second pregnancy. Was called in haste on account of a severe hemorrhage. She was having slight pains, the os about one-third dilated and soft, and the placenta presenting. Called another physician, who gave the ether and I easily dilated the uterus. Found a shoulder presentation, turned and delivered a dead baby. Convalescence was uneventful.

Case III. Primipara, eight months pregnant. Was hurriedly summoned on account of a most alarming hemorrhage. There were no pains and the bleeding had nearly stopped before I arrived. The os was soft and the placenta could be felt presenting.

I advised the husband of the condition and urged immediate delivery as the only safe course. Arranged to operate the next day, as they wished to call their former family physician, who lived in an adjoining town. Met him by appointment the next afternoon, and although he agreed with me as to the diagnosis, much to my surprise he advised against interference, unless there should be further hemorrhage.

I explained my opinion to him and to the family, and refused to assume any responsibility in the case if left to itself. Was called a few days later and found the patient with a foul vaginal discharge and a thoroughly developed septic fever; temperature 103.5°. I again urged the necessity for immediate delivery, and this time gained the consent of the husband and patient. Under ether I dilated the uterus without difficulty, went through a rotten placenta, found a shoulder presentation, turned and extracted the fetus and cleared out the uterus as thoroughly as I could and washed it out with hydrogen per oxide. She ran quite a temperature for two weeks, but finally recovered.

Case IV. A former patient came from another town to be under my care during her confinement. She was about eight months advanced in her fourth pregnancy, and had had two recent attacks of flowing. I explained to her the probable cause of the hemorrhage, and that it would be safer to bring on labor at once, but it was finally decided to wait unless she had further trouble. Was called a few days later and found her flowing profusely. The hemorrhage commenced while she was on her feet, and, as she expressed it, the blood simply poured away from her.

The os was about one-third dilated, there were slight pains, and the hemorrhage was still alarming. After packing the vagina I called another physician, and under ether dilatation was completed, and we turned and delivered a living baby. There was quite a post-partum hemorrhage, which we controlled by hot water irrigation and compression of the uterus. About one-half of the placenta seemed to have separated before labor. Except that the mother was very anemic for some months, both did well.

The hemorrhage was very severe in this case, and I blamed myself for not interrupting the pregnancy before the last attack.

In the other three cases in my list only an edge of the placenta presented. Two of them had copious hemorrhage in the early stage of labor, which ceased as soon as dilatation was well under way. The first of these, a primipara, had such profuse flowing that the blood soaked through the mattress and formed quite a puddle on the floor. The bleeding had nearly stopped when I arrived. The second had a similar attack at the onset of labor. At the end of the first stage there was almost complete inertia, and I was obliged to finish the delivery with forceps. The last case, a primipara, had a hemorrhage a few nights before labor, commencing while she was asleep. The labor was normal. In each of these three cases the edge of the placenta could be felt through the os.

In regard to the best treatment, it seems to me that Dr. Higgins is right in advising against abdominal section, except when version or delivery by the vaginal canal cannot be readily done. In country practice, at least, we do not always have a surgeon at hand or the necessary assistants nor the proper surroundings for a laparotomy. I feel reasonably sure that I should have lost at least one of my cases if I had delayed operation long enough to get the necessary help to do Cæsarean section.

Fortunately, in the majority of cases, if anywhere near a complete previa exists, nature shows a danger signal during pregnancy in the form of repeated hemorrhages, but perhaps the most dangerous of all are those in which there is no warning till the onset of labor, when there ensues a hemorrhage so appalling that it may destroy two lives in a few moments. It is in such cases that the physician must act with quick judgment and skill, for there is no time to call a surgeon or prepare for a laparotomy, and the only thing to do is a quick version.

Recent statistics, if they prove anything, prove that the treatment by version gives excellent results. In a late edition of Jewett's "Obstetrics" is quoted a list of over one hundred cases treated by version with a mortality of but 4.5%. This accords very nearly with the best statistics quoted in Dr. Higgins' article.

While willing to agree with the advocates of Cæsarean section that there are selected cases in which laparotomy offers advantages over version, until they can bring forward much better statistics

than they have yet been able to offer, the profession at large will be very slow to abandon the tried treatment by version. In this connection I am impelled to quote from Martin Dooley's article on Christian Science: "If doctors opened fewer patients and more windows there would be fewer Christian Scientists."

## CÆSAREAN SECTION FOR PLACENTA PREVIA.

BY P. J. CONROY, M.D., EVERETT, MASS.

I WAS called on the night of Jan. 14, 1901, to see a Mrs. H., who was (as her husband stated to me at my office) having labor pains and bleeding profusely. On arriving at the house I found the woman in a very weak condition from the loss of blood. The mattress was soaked through, and there was about one pint of blood on the floor.

On examination, the os uteri admitted the finger-tip and the placenta was felt completely covering the orifice. After removing the clots I packed the vagina with cotton, raised the foot of the bed twelve inches, gave $\frac{1}{30}$ gr. of strychnine under the skin, and sent for Dr. A. A. Jackson in consultation. The pulse at that time was 140, respiration 25 per minute and labored, and temperature 98°. The history taken at the time was as follows:

English, thirty-five years old, always enjoyed good health; had four children; natural confinements; no abortions.

On arrival of Dr. Jackson the tampon, which had soaked through, was removed and the vagina was packed more firmly. After discussing the case for some time, we concluded to perform the Cæsarean operation as the only means of saving the woman's life. After getting the consent of the patient and her husband, we cleaned the room as best we could under the circumstances. We then secured the assistance of Drs. Hall and Hanson and a nurse, and after giving another hypodermic of strychnine and one of brandy, we began the operation at about 10 A.M. After preparing the patient in the usual manner, the abdomen and uterus were opened and the child removed. The child weighed about 8 lbs., apparently at full term. We did not succeed in resuscitating the child, who to all appearances had been dead some hours. The placenta was one-third on the left side and two-thirds on the right, covering the cervix. It was removed through the abdominal wound without any trouble.

The uterus was closed with a double row of Gardner's kangaroo tendon sutures and the abdomen with through and through sutures of silkworm gut. The abdominal cavity was filled with a warm salt solution before closing. After the patient was put to bed she was given one quart of salt solution by the rectum and one pint under the skin. The salt solution by the rectum was continued every four hours for three days.

On the evening of the third day the patient began vomiting, her stomach would not retain anything for five days, and we were obliged to rely wholly on rectal feeding. On the eighth day her stomach again began to retain food. At the end of five weeks the patient was about the house and gradually began to attend to her household duties.

# Medical Progress.

## REPORT ON DERMATOLOGY.

BY JOHN T. BOWEN, M.D., BOSTON.

### TROPICAL FRAMBESIA AND TINEA IMBRICATA.

PROFESSOR KOCH[1] contributes some interesting facts about these tropical affections, gathered during his travels in New Guinea, and the neighboring groups of islands of the South Sea. He speaks of the lack of good pictorial representations of these affections in the literature, and is able to contribute several valuable photographs.

With regard to *frambesia*, it is said to be very extensively found throughout the tropics, appearing in many parts of Africa, in the East and West Indies, in the Indian Archipelago and in China. It is somewhat doubtful, however, if the type is the same in all of these regions.

The frambesia seen in the South Seas is a contagious affection and can be inoculated from one person to another. One attack produces immunity. In places where it is endemic it is chiefly seen in children, as almost all people are attacked once. In certain places children are inoculated with it, in order that they may have it quickly and lightly, as was long ago the practice in the case of variola. Most of the children seen by Koch were between one and twelve years of age. The lesions are ulcers approximately circular in form, often grouped or confluent. They always project above the surface of the skin, and appear as luxuriant granulations lying upon the skin. The smallest lesions looked not unlike a variola pustule, with a marked umbilication in the centre. The larger lesions were always denuded of epidermis, exuded a serum and pus and were covered with moist crusts, which exposed, upon removal, the exuberant granulating mass. When situated near the anus or genitals, they resemble condylomatalata very closely, and are sometimes mistaken for the latter. In the same child the most varied stages of the individual nodules may be met with, including small nodules still covered with epidermis, and all stages of ulcerated nodules. The lesions are especially frequent about the mouth and genitals. The paper is illustrated by several good photographs. The nodules do not all appear at once, but from time to time, until the susceptibility of the patient for the disease has been overcome. The duration is from some months to a year. Infants or very young children frequently die of the disease. It is not known that Europeans are ever affected. Various micro-organisms have been described as causing the disease, but none have been substantiated.

[1] Arch. f. derm. u. Syph., January, 1902.

*Tinea imbricata* also seems to find its chief habitat in the South Sea Islands, and to have spread out from there to China and the Straits Settlement. This is caused by a parasite similar to the tricophyton tonsurans, which grows in the rete, and like ringworm develops in the form of circles, but does not tend to heal in the centre, so that annular appearances are not produced. The epidermis exfoliates in small scales, which remain adherent by their peripheral part, and present somewhat the appearance of the tiles of a roof, whence the name imbricata. There is a considerable amount of pruritus. In the photographs large surfaces of the body are covered with the circular scaling lesions, which produce a most extraordinary appearance. One remarkable picture is that of a child showing the earliest manifestations, where the sternal region is the seat of an enormous circular lesion. The affection is very common in adults, and sometimes almost all the inhabitants of a village may be affected. In adults as a rule almost the whole body is affected, so that Koch believes that the affection makes its appearance at a very early age, spreads gradually over the whole body, and, as far as he can determine, never heals spontaneously. It appears to have no essential effect on the general health.

### CONGENITAL ICHTHYOSIFORM ERYTHRODERMA.[2]

Attention was first directed to this form of disease by the case of a boy of six who came to the St. Louis Hospital in Paris in 1881. There was a generalized redness of the skin and an ichthyotic condition, but on account of the fancied hyperkeratosis about the follicular mouths, the case was looked upon as an example of pityriasis rubra pilaris. It was noticed in this case that there was a remarkable growth of the hair and nails. Brocq was induced to study this case on account of the many features not common in pityriasis rubra pilaris. The next case of this type observed, presented the additional feature of a bullous eruption, especially upon the feet. Certain cases presented by Thibierge under the name of fetal ichthyosis were next considered by Brocq to belong in this class. He considers that there are two grand varieties of this dermatosis, one primarily accompanied by the formation of bullæ, the other never presenting this feature. Brocq then reports six cases of this affection, and refers to other cases that probably belong to the same type, published under the name fetal ichthyosis, congenital exfoliation of the skin, universal congenital exfoliative erythrodermia, etc.

The affection, in the first place, seems to be always congenital, and persists, without marked affection of the general health, for many years. It may, however, become modified, in some respects, as time goes on, but no instance of recovery is known. The predominating objective symptom is a generalized redness of the skin, sometimes, however, not well marked. There exists also a considerable papillary hypertrophy, which is especially marked about the neck and at the joints, and this symptom is joined to a generalized hyperkeratosis, which makes the patient at first sight appear as if affected with ichthyosis. It differs from the latter, however, in affecting the folds of the joints and exactly those portions of the skin that are either exempt or not markedly affected in ichthyosis. All the patients had an abundant seborrhea of the scalp, and to some extent of the face. An extraordinary symptom was the rapid growth of the hair and nails, which had to be cut two or three times as often as is necessary in health. In a certain number of cases the affection is complicated by bullous lesions of irregular form, not accompanied by pruritus. Thus, there seem to be two forms, one bullous, the other dry.

It may be positively claimed that this is an affection distinct from ichthyosis, pityriasis rubra pilaris, pityriasis rubra, and pemphigus foliacens. Whether, however, it may be regarded as a mild form of what has been called ichthyosis fetalis is a matter for discussion. On looking over the cases of fetal ichthyosis that have been published it is seen that there is a wide variation between them. There exists a well-defined type, in which the infant when born is affected with a considerable thickening of the epidermis, with well-marked fissures, to which the child rapidly succumbs. This is the type which has been called diffuse, congenital keratoma, as well as ichthyosis fetalis, or intra-uterina.

There is another group of cases, very rare in occurrence, in which there is a lamellated exfoliation of the skin of the newborn, due perhaps to a persistence of the fetal epitrichial layer. This is probably the form described by Hebra as ichthyosis sebacea.

Brocq properly considers that the first of these two groups should be completely separated from ichthyosis vulgaris, and that diffuse, malignant, congenital keratoma is its proper name. The erythema present in his cases of erythroderma differentiates them sharply from all forms of ichthyosis. It would seem that these cases have sufficiently marked characteristics to warrant their separation from any of the hitherto described forms of fetal ichthyosis.

### ADIPOSIS DOLOROSA AND WHITE AND BLUE EDEMA.[3]

Strübing of Greifswald contributes an interesting article on this subject, beginning with a review of the literature. In 1892 Dercum described under the name *adiposis dolorosa* a peculiar affection, which was soon followed by similar observations at the hands of Hale White, Spiller and Essner.

The affection occurs only in women, usually between the age of forty and sixty. It is first noticed that fatty protuberances, usually symmetrical, appear on the trunk and limbs. New tumors continually appear, and the patients at the same

[2] Brocq: Ann. de derm. u. de Syph., January, 1902.

[3] Arch. f. derm. u. Syph., February, 1902.

time acquire a general increase of fat, so that in well-developed cases they are enormously fat. Hands, feet and face have not been affected in any of the reported cases. Pain is a constant feature, beginning early, even before the appearance of the fat masses. This pain may be very severe, often burning and lancinating in character, sometimes paroxysmal. The fat masses are often extremely sensitive to the touch. Many patients cry aloud when they are touched. Chilliness is often complained of and sensitiveness to pain, warmth and cold is diminished on many parts of the body. The muscular strength is weak, many being scarcely able to walk. Many cases are complicated with bronchitis. Most cases progress steadily. Dercum saw two cases with fatal termination. On account of the thyroid gland being small, hardened, infiltrated and calcified in one case, and enlarged in the other, Dercum concludes that adiposis dolorosa may be called a disease of the thyroid. Nervous symptoms, attacks analogous to epileptic seizures, have been reported.

Strübing then reports a series of cases observed by him of late years, in which there was a *general* adiposis, accompanied by great pain. The skin was thick and could not be raised in folds. In other cases there was only a partial infiltration. It occurred most frequently on the lower extremities, especially the lower legs. The parts subjected to pressure from the clothing were as a rule unaffected. The face was not usually affected. It occurred almost exclusively in women, and especially about the climacteric, although it was observed in a few younger and older women. Every attempt to pinch up the more or less infiltrated skin was painful, sometimes excessively so. In some instances pain was experienced without the skin being touched. In some cases the skin of the arms and legs was reddened, or had a bluish tint. In some cases there were other vasomotor disturbances, such as urticaria factitia, erythema, etc. In many instances there were marked hysterical manifestations, in others they were completely wanting. Locomotion was affected only when it was caused by the tension and sensitiveness of the skin.

This affection has been entirely lost sight of in some countries. Charcot in France has described it under the name "edème hysterique," as it occurred especially in subjects who had a functional disturbance of the nervous system. It was really, however, Sydenham who first made mention of it as white edema. Charcot adds to this a form characterized by a lowered temperature locally and by a bluish violet color, "l'edème bleu." According to Strübing these differences of color and temperature are simply accidental vasomotor disturbances. The edema is by all described as hard, the skin leaving no pit after pressure with the finger.

Many causes have been suggested for this hysterical edema. Most writers are agreed as to its association with hysterical and nervous symptoms. In other cases rheumatism, trauma and exposure to cold have been invoked as causes. There is a great variation in the amount of pain experienced. In a few subjects the sensitiveness to pressure in the infiltrations is practically wanting, and it is undoubtedly true that a nervous element is an important factor here. In general the degree of pain is proportionate to the intensity of the edema. A microscopical examination of a piece of skin excised from one of Strübing's cases, threw little light on the process. The fat layer was considerably thickened, and the fat cells appeared to be very large.

Strübing considers that Dercum's adiposis dolorosa belongs in the same category with Charcot's "œdème blanc et bleu" and the so-called hysterical edema. The title edema is not scientifically justifiable, while adiposis dolorosa rightly expresses the two essential features. In cases where the adiposis is excessive, the French writers resort to the term elephantiasic, "œdème neuropathique éléphantiasique," which is an equally objectionable term. They believe that this elephantiasic form of adiposis is also neuropathic and of the same etiology as, and a consequence of, the edema. The analogy to symmetrical lipomata is also pointed out, and the fact is also emphasized that these multiple lipomata may sometimes be painful.

The therapeutics of this disease are not very satisfactory. For the reason that the places exposed to pressure from garters or bands were not painful, it was thought that vigorous massage might give good results. It was found, however, that massage occasioned at first almost unbearable pain, which gradually became less. Warm baths seemed to have some favorable effect. Thyroid preparations proved absolutely useless. Lourier recommends compression with cotton bandages and strychnia internally. Treatment in any case must be greatly prolonged, and if the infiltrations have been lessened by the mechanical treatment there is still the danger of recurrences.

### THE CAUSE OF TACHES BLEUES.[1]

It was in 1877 that Mourson showed that the tâches bleues, or maculæ ceruleæ, were caused by pediculi pubis, and soon afterward the fact was experimentally demonstrated by the production of these spots by inoculating the skin with crushed pediculi. It was conjectured that the blue spots might be a toxic erythema produced by the salivary gland secretion of the louse, which was introduced into the skin by the bite of the animal. Microscopical examination of the pediculi repeatedly gave an entirely negative result.

Leydig has found in the so-called fat bodies of different arthropods, crystals of an albuminous substance and Fabre crystals of pure white color. In the fat bodies of the pediculus pubis Oppenheim has now shown that there exists a green coloring matter, contained in the cells of these structures. This green coloring matter may be seen in places, in eighty out of a hundred instances, on the living louse, when taken from the skin. It is situated chiefly on the lateral aspect of the thorax and ab-

[1] Oppenheim: Arch. f. derm. u. Syph., July, 1901.

domen. It is further found that this green coloring matter is contained in cells, which belong to the "fat body," and constitute its peripheral or subcutaneous part. These cells had previously been described by Landois and Traber, who said that the green color was due to the fat that they contained. It can be demonstrated, by dissolving the fat in ether, that this is not so. The pigment may be seen lying in green granules within the cell. As it was found by its insolubility that this coloring matter does not belong to the fat coloring matters, which are common in insects, it was concluded that it must come from human blood, on which the insect lives, and which is present in considerable quantity in the stomach and intestine of the animal. It was found that a certain similarity existed between this green coloring matter and biliverdin, but in no sense an identity. It is assumed that the pediculus manufactures this green coloring matter from the hemoglobin of the human blood through a ferment probably which exists in the salivary glands. This ferment is introduced into the blood at the same time as the bite of the animal and causes the same change, that is, the production of this green pigment, in the exuded human blood as it does in the body of the louse. This pigment, then, is spread out in the cutis, and, seen through the partially opaque epidermis, has a steel-blue color. It was found that in the case of people who presented no tâches bleues, or very slight ones, about 25% of the pediculi exhibited the green coloring matter on the thorax and abdomen. When, however, the tâches are more numerous and brighter, all the mature pediculi contain the green pigment, sometimes in such quantity that parts of the animal appear a diffuse green. It was further found that 20% of the adult animals showed no trace of coloring matter, even when examined some time after being taken from the skin. This accords with the fact that some persons do not show any tâches bleues, although pediculi are present in abundance. Head and body lice are entirely free from coloring matter and tâches bleues are never seen in connection with these varieties.

### RECENT EXPERIMENTATION WITH THE RÖNTGEN RAYS.

Uber den Einfluss der Röntgenstrahlen auf die Haut in gesundem und Krankem Zustande. Scholtz[5] contributes from the dermatological clinic in Breslau, an elaborate article which embodies the results of the experimental work with the x-rays done in Breslau during the last few years. He remarks at the beginning that in spite of the therapeutic application of this method, there is still no unanimity of opinion as to the indications for this treatment and as to the technique, nor is it known what the active agent is which causes the changes in the skin and the healing of various dermatoses. His work is divided into three parts: (1) Experimental investigations to determine what the active agent is; (2) histological investigations to determine what tissues are primarily affected, what the histology of the x-ray changes in the skin is, and how the cure of skin affections is accomplished; (3) clinical observations to determine the indications for the therapeutic use. In order to throw some light on the first point, animal experimentation was resorted to, young pigs being used chiefly, as their skin is in every particular remarkably like human skin, and as the changes that occur under the influence of the Röntgen rays, such as alopecia and ulceration correspond with those in man, not only in their form and course, but also in the time of their appearance. From these experiments it is concluded that the more Röntgen rays there are projected from a Röntgen tube, the stronger is their effect upon the skin. It is therefore preferable to use soft tubes for therapeutic purposes. It was also found that the fewer Röntgen rays a material allows to pass, in so much greater degree are the rays that are active as regards the skin, kept back. All the experiments clearly show that the active agent resides in the Röntgen rays themselves. It was next sought to solve the question as to whether the rays are only active at the place where they enter, or whether their influence is felt everywhere in the tissues that they penetrate. From experiments on the ears of rabbits it was concluded that the Röntgen rays produce their effect first on the skin, while deeper structures are but little influenced, and become necrotic perhaps only secondarily, in consequence of the extreme inflammation. Also that the rays produce their effect, not only at the point of entrance, but that by penetrating thin layers of cartilage and muscle, they may affect the skin at their point of exit. Experiments also showed that the rays were able to produce very little, if any, effect on the internal organs, abdominal organs, brain, eye, etc. This accords also with the clinical experience, as in cases of mycosis fungoides the rays have been used upon the abdomen up to the point of producing necrosis of the skin, without any effect on the internal organs, and the same is true after long-continued exposure of the whole body in psoriasis. The eye even has been treated without ill effect.

Experiments on pigs also showed that the time of appearance of the first macroscopical changes is somewhat later with weak than with strong exposures, but even with the strongest exposures is from seven to eight days. The acme is not reached until the end of several weeks. The bactericidal property that has been claimed for the Röntgen rays by Rieder is not borne out by the writer's experiments with cultures of typhoid, cholera and trieophyton organisms, and in his opinion cannot be said to play a part in the therapeutic effect.

The second part of Scholtz's article is devoted to a consideration of the histological changes. He experimented on the skin of young pigs, on human skin, and on lesions that had been treated by the rays. His conclusions are that the Röntgen rays affect especially the cellular elements of the

[5] Arch. f. derm. u. Syph., Bd. lix, H. 1, 2, 3.

skin, which become slowly degenerated, while connective tissue, elastic tissue, muscle and cartilage are affected either not at all or to a slight extent and only secondarily — in consequence of the degeneration of the cells and of the reactionary inflammation. The degeneration is especially marked in the epithelial cells, to a less degree in the cells of the glandular organs, vessels, muscles and connective tissue, and affects both the nuclei and protoplasm. As soon as this degeneration has reached a certain point, a reactionary inflammation results, which is seen in the great dilatation of the vessels, serous infiltration of the tissue, appearance of leucocytes at the periphery, and emigration of white corpuscles. When a high grade of cell degeneration is reached there is a profuse infiltration of leucocytes into the cellular mass which results in its complete destruction. The changes in the smaller and larger vessels are probably of great importance in the further development and slow healing of the ulcerations. Histological examination was also made of bits of lupus tissue that had been treated, and it was found that the same phenomena appeared as in the normal skin — a degeneration of the cell elements, especially of the epithelioid and giant cells of the lupus nodule, which is followed by an inflammatory reaction.

In the last and clinical part of the article the writer expresses his opinion that idiosyncrasy plays a small part in the susceptibility of the normal skin to the Röntgen rays, but that it may have some influence, and that different parts of the body may react quite differently. He has thought that the parts covered with hair are more likely to develop a dermatitis and ulceration, and asserts that unhealthy skin reacts more quickly and intensely than normal.

*Lupus Vulgaris.*—Fifty-five cases of this disease were treated during three years. The conclusion is reached that this method often has a decided superiority over the old methods, and appears to conduce more to permanent healing. This is especially true of lupus of the nose and lip, in which the mucous membranes are involved. Other advantages are the good cosmetic results and the painlessness. Disadvantages are the long duration of the treatment and the difficulty of carrying it out. It is believed that exposures causing inflammatory reaction, and even to some extent necrosis in the diseased parts, should be used in a certain number of the cases — not in all. The best results, comparatively, were in the cases of severe lupus, which were not adapted to the usual methods of treatment, and in which the Röntgen ray exposures were energetically carried out. Lupus erythematosus (five cases) was benefited by energetic treatment carried to the point of necrosis; recurrences, however, were noted. In favus, trichophytosis, sycosis and folliculitis of the hairy portions, the chief factor was the complete and perfect epilation produced. In sycosis and folliculitis barbæ the rays seem to exert a favorable influence on the tissue, and some observers have seen a sinking down of the nodules and papules before the hair fell out. In all these cases the method was so used that the hair fell without essential signs of inflammation after about two weeks. In favus (twelve cases) no definite cure was produced by this method *alone*. In sycosis and folliculitis barbæ (thirty-seven cases) definite healing was produced in light cases; in more obstinate cases recurrences were noted. Here, too, a prolonged after-treatment is necessary, or the Röntgen ray treatment must be repeated. Acne vulgaris and acne rosacea (nine cases) were improved, but not to such a degree as to put this treatment before the usual methods. Eczema (eight cases) was frequently very favorably impressed (the variety is not stated). Itching, oozing and scaling were diminished.

The results in psoriasis are considered as very interesting. Twenty-six cases were treated. Weak exposures at pretty long distances were used. At first the treatment was repeated every day; later, every second or third day. In all cases the affection was much influenced; in most the lesions were entirely removed. Improvement began after three or four sittings. It is recommended, however, to hurry the cure later on by the addition of other methods. Nothing definite can be said as to recurrences. In one case such a recurrence occurred during the use of the method.

An improvement in a severe case of pruritus vulvæ is noted. The method proved useless in two cases of leprosy. The so-called premycotic lesions in two cases of mycosis fungoides were made to disappear. In hypertrichosis (four cases) the belief is expressed that by intermittent treatment the hair may be permanently destroyed.

Codman[6] contributes a most valuable and interesting article on the occurrence of dermatitis from the Röntgen rays. He has been able to collect less than 200 cases, from which he concludes that only one case in 5,000 has been injured and less than half of these seriously. In 20,000 cases in the Boston hospitals there has been no dermatitis in patients and but four in skiagraphers. Codman concludes that the frequency of dermatitis from the Röntgen rays has been much exaggerated, and that of the cases of injury more than two-thirds occurred in the first two years of the use of this method. He considers that the cause of the injury, although not definitely known, is some form of energy closely allied to the photographically active x-ray, and that the primary injury is to the nerves that control the nutrition of the skin, there being no good evidence that deeper structures are affected unless there are primary lesions of the skin. Idiosyncrasy he considers plays an important part. He agrees that hard tubes produce a less intense effect on the tissues than soft. Ten minutes exposure at six inches from the platinum terminal is suggested by the writer as a standard therapeutic exposure. The dermatitis does not appear after three weeks from the last exposure;

[6] Study of the cases of accidental x-ray burns hitherto recorded, Philadelphia Medical Journal, March 8, 1902, E. A. Codman, M.D.

in one-third of the cases the dermatitis appeared within the first four days; in one-half before the ninth day.

Pusey[7] considers that two of the properties of the x-rays, namely, their power of causing atrophy of the cutaneous follicles and of checking pus formation, furnish good grounds for their use in cases of acne. He details the result of the treatment of eleven consecutive cases by this method. All of these cases were exposed to a very weak light, using a rather soft tube. The treatment was stopped at the first sign of pigmentation or erythema, and in no case did improvement fail to appear simultaneously with these appearances. The result in all of the cases was so direct and constant that there could be no question that it was due to the effect of the rays. In every case that has been under treatment for a sufficient time, Pusey has been able to see a beneficial effect. In these experiments all other treatment was avoided. The number of sittings varied from 18 to 41.

## Recent Literature.

*Principles of Sanitary Science and the Public Health.* With Special Reference to the Causation and Prevention of Infectious Diseases. By Wm. T. Sedgwick, Ph.D. New York: The Macmillan Co. 1902.

This excellent volume might well be entitled the "Gospel of Cleanliness." Professor Sedgwick has here brought together, as he states, "in a simple and logical form, those fundamental scientific principles on which the great practical arts of modern sanitation securely rest." The modern theory of infectious diseases is fully and clearly set forth, together with the early theories which were prevalent upon the same subject. The author explains the rôle which filth plays in the etiology of infection, wherein he agrees substantially with the views presented in Dr. Chapin's recent article entitled "The End of the Filth Theory."

In the chapter on Water as a Vehicle of Infectious Disease are brought together many illustrative examples, beginning with the celebrated Broad Street well epidemic of 1854 in London, and giving also an account of the Merrimac River epidemics, which the author had himself so thoroughly investigated in 1891.

An appendix is added, containing a statement of many of the popular beliefs and fallacies relative to the causation of disease.

The author's easy style as a lecturer and writer, together with a wide experience in the investigation of the causes of disease, have combined to make this an exceedingly readable as well as useful volume.

[7] Acne and sycosis treated by exposures to the Röntgen rays. Journal Cutaneous and Genito-Urinary Diseases, May, 1902.

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# Medical and Surgical Journal.

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## TETANUS AND VACCINATION.

The subject of "Tetanus and Vaccination," which has been agitating both the lay and professional mind, has undergone an authoritative investigation at the hands of Prof. Joseph McFarland of Philadelphia. The results of this investigation were presented at the recent meeting of the American Association of Pathologists and Bacteriologists and have since been published in the May number of the *Journal of Medical Research* and in the June number of *Medicine*. Dr. McFarland's paper is worthy of the closest attention, for it is only through such painstaking studies that any definite conclusions may be reached with reference to popular impressions. He takes the philosophical position that if tetanus is a necessary complication of vaccination we should be prepared for it; if it is an avoidable complication we should use the utmost care in the choice of our virus and in the method of inoculation.

A search through the literature makes it clear that tetanus has not in the past been regarded as a recognized complication of vaccination. Only fifteen cases were found in medical publications, and these occurred at somewhat remote periods in different parts of the country and were all attributed to secondary infection. In addition to these fifteen cases eighty others of varying degrees of authenticity have been gathered from sundry sources. Of these there were sixty-one undoubted fatalities, most of them occurring in childhood. It is a very striking fact that forty-five of these cases, covering in all a period of sixty-three years, occurred in 1901.

The relation of tetanus to vaccination has been variously explained. One popular belief among physicians has been that tetanus is an accidental secondary infection of the vaccination sore, a point of view which cannot be absolutely gainsaid, but which is unlikely for various reasons.

Why, for example, should such an infection not occur with more or less regularity in all parts of the world? It appears that the complication is unknown in France, and that no cases appear to have occurred in Russia, Italy or Austria. On the other hand, many cases have occurred in America, and particularly in one year. Another explanation has been that the complication depends upon the local presence of the tetanus bacilli. Such an explanation, as applied to the recent outbreak in Camden, New Jersey, is inadequate, since the cases occurred only in relation to vaccination, and were not otherwise more frequent than usual. Cases have also occurred in many other places than Camden, being reported from seventeen States, as well as from countries beyond the borders of the United States. Thirdly, it has been urged that carelessness in the treatment of the vaccination wound is the source of the infection. This again seems unlikely, since there is reason to suppose that much greater care is exercised at present than in pre-antiseptic days, when the complication was practically unknown. On this point Dr. McFarland's words are:

> It is but now becoming recognized that vaccination is an operation, and that to free it from the common dangers of all operative manipulations, cleanliness and care are essential. We therefore find the skin cleansed and disinfected, and the lesion protected and dressed with a care never dreamed of a few years ago, yet when we come to examine the details of those cases which have come within our knowledge, we find that this care of the wound appears to be without influence upon the development of tetanus, for while many cases have occurred among ignorant and filthy children, in an equally great number of cases not only ordinary but extraordinary care seems to have been exercised. Thus one case occurred in the person of an adult sister of a physician in Cleveland, Ohio. Both the patient and the operator were refined and cultured people, were apprehensive of the results, and exerted unusual precautions, yet despite all, death from tetanus followed this vaccination.
>
> The densely ignorant and filthy people of the island of Porto Rico, with no knowledge of hygiene or personal care of themselves, living in a place reputed to be extremely dangerous because of tetanus, were vaccinated by the United States authorities after the occupation of that territory, and out of some eight hundred and sixty thousand vaccinations three cases of tetanus, two of which are very doubtful, occurred.

Finally, the use of shields to protect the vaccination sore, however undesirable they may be for other reasons, apparently bears no relation to the occurrence of tetanus. The use of bovine instead of human virus also cannot be blamed, as a study of the statistics shows.

In the search for the cause of tetanus this brings us to a consideration of the vaccine virus itself. It appears, on investigation, that while an occasional case of tetanus has followed the use of virus made by nearly all the large manufacturers, the great majority of cases have followed the use of a particular virus, suggesting that in this virus the germs of tetanus were present in larger proportion than in others, though still small in number when one considers the great amount of the virus used. The statistics further show that the trouble does not lie with the glycerinized virus as against the dry points, but as just stated, with the virus of one manufacturer.

The following general conclusions are drawn:

(1) Tetanus is not a frequent complication of vaccination, a total of ninety-five cases having been collected.

(2) The number of cases observed in 1901 was out of all proportion to what has been observed heretofore.

(3) The cases are chiefly American and occur scattered throughout the eastern United States and Canada.

(4) They have nothing to do with atmospheric, telluric or seasonal conditions.

(5) They occur in small numbers after the use of various viruses.

(6) An overwhelming proportion occurred after use of a particular virus.

(7) The tetanus organism may be present in the virus in small numbers, being derived from manure and hay.

(8) Occasionally, through carelessness or accident, the number of bacilli becomes greater than usual.

(9) The future avoidance of the complication is to be sought for in greater care in the preparation of the vaccine virus.

## CONTAGIOUS OPHTHALMIA AND ITS DANGERS.

AT a meeting of the New York Academy of Medicine held June 5, contagious ophthalmia and its dangers were discussed. The first paper was by Dr. Richard H. Derby on "Contagious Ophthalmia in Industrial, Residential and Public Schools and in Asylums and Hospitals." He first referred to the work of the Academy's committee, appointed in 1886, in securing the passage of laws which provide for the examination by competent physicians of the eyes of destitute children for whom admission to public institutions is sought and also for the prosecution of midwives or nurses for failure to report redness or inflammation of the eyes of infants in their charge within six hours of its appearance. He then detailed some of the good results accomplished by this action. Thus, in 1888 17% of the children in the New York Juvenile Asylum were suffering from ophthalmia, while in 1902 the percentage was but 2.5. At the Five Points House of Industry the percentage had been lowered from 66.5 to 4.4, and that at the House of Refuge from 16.2 to 7%. The special object of this paper was to direct attention to the prevalence of the disease at the present time in the public schools of the city. With the aid of several competent assistants Dr. Derby has recently made an examination of a considerable number of the pupils. In School No. 1, in Henry street, two hundred and one cases of com-

municable eye-disease were found, being 19.2% of those examined. Of these two hundred and one cases, one hundred and thirty were pure trachoma and seventy-one incipient trachoma and conjunctivitis. Of the trachoma cases, sixty-six were of the most severe type. In School No. 75, in Norfolk street, one hundred and fourteen cases of communicable eye-disease, or 15.5%, were found. Dr. C. Cole Bradley, who was one of those making the examinations, reported to Dr. Derby that in School No. 1, which is equipped with shower baths, the number of cases was noticeably less in the classes where such baths were frequently used. The practice of having the children bring their own towels, which are frequently nothing but old rags, appeared to him to be decidedly dangerous. In School No. 75 the system of double and quadruple desks was objectionable, owing to the proximity of the children and their tendency to use pens, pencils and rulers in common. In concluding his report he said: "It appears to me that the remedy for such conditions is simple. If the Health Board would treat the public schools as it does the public institutions for children, insisting on a monthly eversion of lids by the medical inspector, the work of such inspector being verified occasionally by an ophthalmologist, the conditions would be very greatly improved." Dr. Derby highly commended the activity of the Health Department in endeavoring in an intelligent manner to stamp out the disease, and in conclusion urged the establishment of a special hospital for this class of patients on account of the intensely infectious character of the affection. Dr. Carl Koller read a paper on "Modern Methods Employed in the Treatment of Trachoma and Other Forms of Contagious Ophthalmia," and a general discussion followed. Dr. Frank Van Fleet said that there was a much smaller number of blind persons in the State now than formerly, owing to the passage of the laws referred to by Dr. Derby, as well as to better knowledge on the part of the people and their physicians. He then called attention to the great danger of the public baths. This matter was also taken up by several other speakers, who recommended that the towels should be disinfected, and that an examination of all persons making applications for baths should be made by physicians stationed at the bathhouses. As soon as the prevalence of contagious ophthalmia in the public schools was called to the attention of the Board of Health by Dr. Derby, in his capacity as advising ophthalmologist to the board, measures were set on foot for the control of the disease, and at a meeting of the board, held June 4, it was ordered that henceforth physicians must report all cases of the disease met with in their practice.

## MEETING OF THE MASSACHUSETTS MEDICAL SOCIETY.

The annual meeting of the Massachusetts Medical Society was held in Boston on Tuesday and Wednesday of this week. The new Medical Library Building was brought into requisition and many of the meetings were held there instead of in the less inviting rooms hitherto used at Mechanics Building. Of the many uses to which the Medical Library may be put, this is certainly one of the most fitting.

The programme was chosen with care, with the result that a series of papers on general subjects, and on various aspects of those subjects, were presented, which should remain long in the minds of those who heard them. Smallpox, head injuries and alcohol were the main topics discussed, and the society was fortunate in having representative men present from beyond the confines of Massachusetts to take part in the various discussions. Dr. Frank Billings, of Chicago, in the Shattuck Lecture, spoke on "The Changes in the Spinal Cord and Medulla in Pernicious Anemia," a subject which has of late been exciting a very marked degree of interest among both clinicians and pathologists.

This meeting, like its many predecessors, must be regarded as a memorable one, in which the social and the intellectual element have again been happily combined.

## MEDICAL NOTES.

A Medical Premier of France.— The new Premier of France, Justin Louis Emil Combes, is sixty-seven years old, a doctor of medicine, a doctor of letters, a former schoolmaster and a frequent contributor to literature. He is said to be the shortest man in stature, who has held high office under the Third Republic, with the single exception of M. Thiers.

Surgeon-General William M. Forwood.— Col. William M. Forwood has been appointed surgeon-general, to succeed Brig.-Gen. George M. Sternberg, who has within a few days been placed on the retired list.

### BOSTON AND NEW ENGLAND.

Acute Infectious Diseases in Boston.— For the week ending at noon, June 11, 1902, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: Diphtheria 41, scarlatina 25, measles 90, typhoid fever 12, smallpox 18.

Committee on Harvard Medical Buildings. — The President and Fellows of Harvard University appointed the following members of the

Faculty of Medicine as an advisory committee on the location and construction of the buildings of the Medical School: Dr. J. Collins Warren, chairman; Drs. W. L. Richardson, H. P. Bowditch, E. H. Smith, W. F. Whitney, F. C. Shattuck, C. S. Minot, H. L. Burrell, H. C. Ernst, Charles Harrington, F. Pfaff, Theobald Smith, Franklin Dexter and F. B. Mallory. Dr. Farrar Cobb will act as secretary.

CIRCULAR REGARDING THE CAUSE AND PREVENTION OF MALARIA.— The Brookline Board of Health has issued a circular of information in regard to the cause and prevention of malarial fever, which it has sent to every family in the town. The object of the circular is to inform the people as to the danger arising from the bites of mosquitoes, where mosquitoes breed and how they may best be exterminated.

BEQUESTS BY DR. JOHN HOMANS, 2D.— In his will the late Dr. John Homans, 2d, has left $1,000 to the Massachusetts Cremation Society and $2,500 to the Boston Asylum and Farm School for Indigent Boys. With both of these institutions Dr. Homans had been officially connected. Dr. Homans requested that his body should be cremated.

OFFICERS OF THE MASSACHUSETTS MEDICAL SOCIETY.— At the meeting of the Councillors of the Massachusetts Medical Society, June 10, Dr. George E. Francis of Worcester was elected president, and Dr. S. W. Hayes of New Bedford vice-president of the society.

LODGING-HOUSE REGULATIONS.— The Boston Board of Health has issued a new set of regulations for proprietors of the cheap lodging-houses licensed by the Board of Police. The requirements relate to improved sanitation.

### NEW YORK.

MORTALITY STATISTICS.— The mortality in the city reported in the month of May represents an annual death-rate of 18.91, against 19.83 for the month of April and 18.13 for May, 1901. The corrected death-rate for the month (excluding non-residents and infants under one week old) is 17.95. Among the diseases which showed an increased mortality were the following: The weekly average of deaths from scarlet fever increased from 25.5 in April to 33.25 in May; the weekly average from whooping cough, from 12.75 to 13.75; from typhoid fever, 6.5 to 8.25; from pneumonia, 146.5 to 148.5; from cancer, 48.5 to 57; from diarrheal diseases, 37.75 to 44.5; and from diarrheal diseases in children under five years, 31.25 to 37. Among the diseases which showed a decline in mortality were the following: The weekly average of deaths from diphtheria and croup decreased from 45 to 43.25; from measles, 22 to 15.75; from smallpox, 13.25 to 7.25; from phthisis, 158.5 to 149.25; from bronchitis, 44.75 to 38.25; from influenza, 4.25 to 1; and from diseases of the urinary system, 122 to 110.25. During the week ending May 10 not a death was reported from influenza, and the same was true of the week ending May 31.

CARE OF MOTHERLESS INFANTS.— The fourth annual report of the joint committee on the Care of Motherless Infants, composed of members of the State Charities Aid Association and the New York Association for Improving the Condition of the Poor, has just been issued. The committee, which was organized for the purpose of saving the lives of foundlings, selects with great care the homes in which the children are placed, and its work has shown very satisfactory results. In the first year of its existence the mortality among the infants cared for was 55.9%; in the second year, 31.1%; in the third year, 18.9%; and in the fiscal year now ended, 10.7%; this last mortality-rate being lower than that among all children under two years of age in the borough of Manhattan. The fact must be taken into consideration, however, that the total number of infants under the care of the committee is comparatively small. In this connection the statistics of the Infants' Hospital on Randall's Island are of interest. In 1897 1,181 children under two years were cared for and 524 died, a percentage of 44.36. In 1898 Mr. Nathan Strauss prevailed upon the Department of Public Charities to allow him to establish a thoroughly equipped Pasteurizing plant at the institution. In that year 1,284 infants were treated, and 255 died, a percentage of only 19.80. In 1899, of 1,097 treated, 269 died, a percentage of 24.52, and in 1900, of 1,084 treated, 300 died, a percentage of 27.68. In these two years there was epidemics of measles in the hospital, which increased the mortality to a very considerable extent. In 1901, 1,028 children were treated, with 186 deaths, a percentage of 18.09.

LAND FOR COLUMBIA UNIVERSITY.— The New York Hospital has accepted the offer made by a number of the friends of Columbia University to purchase the two blocks of land just south of the university grounds. The price to be paid is $1,900,000, partly in cash and partly by mortgage. The title will pass on Oct. 1, and it is the intention of the subscribers to give the university an option to purchase the property at cost within a year from that date, their purpose being to secure more ample space for the future educational development of the institution. This property is a portion of the land formerly occupied by the New York Hospital's department for the insane

(Bloomingdale), which is now located at White Plains, the remaining portion being the four blocks purchased and occupied by Columbia.

Cornell University Medical College.— The fourth annual commencement of Cornell University Medical College was held at Carnegie Hall on June 4, when the address to the graduates was made by Dr. T. Gaillard Thomas. The class numbered fifty-three, of whom nine were women. This was the first occasion when students who had taken the full four years' course at the Cornell School had been graduated.

Research Fellowship in Physiological Chemistry.— Alfred N. Richards, assistant in the department of physiological chemistry at the Columbia University Medical School (College of Physicians and Surgeons), has been appointed to a research followship in the Rockefeller Institute, in acknowledgment of recent original scientific work done by him.

New York University.— At the commencement of the New York University, which was held at the Metropolitan Opera House on June 5, there were forty-six graduates from the University and Bellevue Hospital Medical College and six from the Veterinary College.

## Miscellany.

### RESOLUTIONS ADOPTED BY THE AMERICAN CONGRESS OF TUBERCULOSIS. SESSION OF 1902.

The following resolutions were adopted at the recent session of the American Congress of Tuberculosis :

(1.) Proposed by Dr. W. Oldright, delegate for the government of Ontario to the congress:

*That*, Whereas, in the lists of deaths from tuberculosis, classified according to occupations, published in the statistical reports of the United States and Canada, female schoolteachers hold a very prominent position, this congress would draw attention to the fact that the average amount of air space in schools is less than half that recommended by sanitarians all over the world, and would further urge upon the authorities their bounden duty of providing more accommodation and better ventilation.

(2.) Resolutions submitted by the Committee on Resolutions:

*Whereas*, Tuberculosis is an infectious disease, ordinarily communicated from person to person by means of the dried sputum of a consumptive patient, and

*Whereas*, The spread of tuberculosis could be largely controlled by the proper care of such sputum and the enforcement of comparatively simple measures, therefore be it

*Resolved*, By the American Congress of Tuberculosis that the health authorities be urged to disseminate to the widest extent possible, through the public press and otherwise, correct information as to the manner in which this disease is produced, and the means employed for its prevention.

*Resolved*, That we believe it to be the duty of the national, state and municipal governments to enact rational methods for the prevention of tuberculosis, and we recommend the establishment of institutions for the care of indigent consumptives.

*Resolved*, That there should be state and municipal supervision of all public conveyances used for the transportation of passengers; and in view of the fact that spitting on the floors of public conveyances favors the spread of tuberculosis and is injurious to the public health, it is recommended that transportation companies be induced to pass and enforce rules against this act.

*Resolved*, That appropriations should be requested from state and municipal governments for the publication and distribution of literature as a means of education in the prevention of the spread of tuberculosis.

*Resolved*, That all cases of tuberculosis should be reported by the attending physician to the health boards for the purpose of disinfection of houses occupied by consumptives.

### PRESENTATION OF A LOVING CUP TO PROF. T. M. ROTCH, M.D.

At the close of the last annual meeting of the American Pediatric Society, May 28, a loving cup was presented to Dr. T. M. Rotch. The presentation was accompanied by the following graceful remarks by Dr. Leroy M. Yale of New York :

I have been asked to say a few words in behalf of those members of the society who have come from other cities. I am sure that they will first wish me to try to express to you how much they enjoyed their visit to Boston. Those of us who have been here before of course knew what a pleasure was before them. For myself, I always like to come to Boston, for I acquired the Boston habit very early in life. This was the first considerable city I ever saw, and I have never since seen one so splendid as it then seemed to my country-bred eyes.

But it was quite another Boston, small in area but high in spirit. Think of it — "The Autocrat" and "Hiawatha" had not yet charmed it. Its blood had not yet boiled at the extradition of Burns. The hero whose splendid memorial graces the Common was still a schoolboy. Even now I like to orientate myself by beginning at Boston Stone, at Copp's Hill or the Old North Church, before I wander out to the Public Garden, where the little waves beating upon its rip-rap edges seemed there to end the town, just where a new city — a new world almost — now begins.

What impresses a visitor from another city is that all this change and increase is not mere expansion, but growth. Many towns seem to spread indiscriminately, like a neoplasm, but Boston has developed structurally. With a foresight unexampled, so far as I know, in this country, its growth has been planned for in such a way that it may go on increasing normally, healthfully and beautifully for generations. I have thought that the original restricted domain of Boston has proved to be an advantage. It promoted unity of action, and when the town felt the need of more land it put it just where it wanted it, instead of taking any ready-made adjacency.

But with all this splendid material growth, I find some things unchanged. Boston still thinks as of old. Still she responds as quickly as ever to the touch of an idea; still is the spirit of light and leading in her; still we feel *ex oriente lux;* still is her hospitality as rich as ever. I felt it when the driver of the Charlestown "Hourly" picked me up — an eight-year-old boy, who had bankrupted himself at Martin L. Bradford's tackle shop beside the Old South Church; took my pole on top of the bus and gave me a free ride on the footboard behind. I felt it when the men who were then giving Boston her medical name treated me, a young graduate, as if I were "somebody in particular." Never has it been mere evident than now, when you have not only shown us hospitality, but have given us a lesson in the art of showing it. So gracefully have you done it that we have taken with pleasure an amount of attention which, when we read it in the program, seemed appalling.

Dr. Rotch, we desire to offer you this loving cup as a token of our regard. We offer it to you not only as our host; I should like to tell you some of the other reasons. But if there is anything that is hard to speak and hard to hear it is praise to one's face. It will please you, I am sure, to know that the suggestion to give it met with eager, immediate and unanimous response. It will strengthen your hands to know that of those here, gathered from this wide country of ours, there is not one who does not feel that he does his daily work with greater ease and with greater certainty because of your labors.

We have filled this cup with a "modification" after an old prescription, a native of Northeastern Massachusetts. We trust that its "percentages" are judicious. As we hand it to you, and as it passes from lip to lip, we pledge you as our comrade, as our master and as our friend.

## A NEW BLOOD PARASITE.

ACCORDING to the *Medical Press* a parasite found in the blood of a patient suffering from an intermittent form of fever has recently been described. The new vascular intruder belongs to the genus trypanosoma, and closely resembles *T. Brucei* in form and staining reactions, but it is decidedly smaller, and in fixed specimens displays a characteristic "set." Nepveu has claimed the discovery of this parasite in man — in Algiers, but his description is so imperfect as to leave his opinion rather doubtful. Mr. J. Everett Dutton described the parasite which he had found in the blood of a European at Bathurst in West Africa. It was present only during the pyrexial periods. Within the last month he has announced the interesting fact of the discovery of this parasite in native children. The symptoms which he had found in his European patient were irregular attacks of fever, with apyrexial intervals. There was also edema of the eyelids and of the feet, suggestive of some parasitic relationship with the diseases of horses and cattle known as Nagana and Surra. This discovery opens an immense and important field of investigation and instruction regarding the native diseases of the *developing* Continent.

# Obituary.

## WILLIAM MILLER ORD, M.D., F.R.C.B. (LOND.)

DR. WILLIAM MILLER ORD died May 14 after an illness which had extended over several years. Dr. Ord received his early education at King's College, London, where he particularly distinguished himself in classical studies. He took his degree of M. B. at London University in 1857. He entered St. Thomas's Hospital, and after his services there as house surgeon became surgical registrar to the hospital in 1869. He became a member of the Royal College of Physicians of London, and shortly after was elected to the position of assistant physician to St. Thomas's Hospital. He later became dean of the St. Thomas Hospital Medical School, and under his jurisdiction the school rose to a point of eminence which it had never before attained. In 1875 he was elected to fellowship in the Royal College of Physicians and in 1877 he became physician to St. Thomas's. He soon became known as a clinical teacher and was closely followed by a large number of students. In scientific work Dr. Ord's name is particularly attached to the investigation of the subject of myxedema. Another remarkable work was a paper on the "Influence of Colloids upon Crystalline Forms and Cohesion." In Dr. Ord's death English medicine loses one of its most distinguished members. He was a man of broad education and of many interests, representing a type which is unfortunately becoming rare with the passage of time.

# Correspondence.

## WATER ON ASPHALT.

BOSTON, June 4, 1902.

MR. EDITOR: Sprinkling asphalt pavement, as conducted by the municipal authorities of Boston, contributes nothing to public comfort or good sanitation, and is a waste of public funds. It is practically impossible to keep the surface damp for any consecutive period, and as a matter of common observation, the surface is dry most of the time. Often all evidences of sprinkling disappear in ten minutes after the water cart passes, and it is very unusual when the water is not all evaporated in twenty minutes. It would therefore require from thirty to sixty applications of water a day of ten hours to keep the surface moist, the object of street sprinkling. These streets are now sprinkled from four to six times a day, which at best produces the desired effect for but a very small fraction of the time, during which the surface is made very slippery.

This method of sprinkling breaks up or rather disintegrates the horse-droppings, rendering the matter more difficult to remove with the implement usually employed. It slides over the finer particles, leaving much to be scattered by the wind when the street is dry. In damp weather much mud is tracked from the intersecting macadam, on the asphalt streets, and at such times the mud so firmly adheres to the surface, the street sweeper disturbs it very little, and its removal is only accomplished when broken up by traffic in dry weather, and the sprinkling is practically suspended through the necessary concentration of the carts on the macadam street. As a matter of fact, therefore, sprinkling as conducted adds to the annoyance from dust, wastes the water and renders the pavement unsafe to drive on a small fraction of the time.

In extremely hot weather the surface is probably made a little cooler by the application of water, but it is very doubtful if this is beneficial either to the pavement or by way of lowering the temperature of the air.

The best results are obtained where this pavement is kept clean and *dry*, and water should be employed only for flushing or washing the street, and a very light sprinkle in advance of the horse-sweeper.

Very truly yours,

HENRY J. BARNES, M.D.

## FRACTURE OF THE NOSE.

FALL RIVER, MASS., June 6, 1902.

MR. EDITOR: Hippocrates was quoted in the April 24 number of your journal as saying that a bandage to a broken nose does harm by increasing the dislocations or depressions. It is not in regard to the application of the bandage to a broken nose that I wish to refer, but to the treatment of many fractures of the nose without any apparatus. If after fractures there is displacement of fragments, of course we try to restore them to their normal position. To my mind the best object we have to restore such fragments is the finger introduced into the anterior nares; next to the finger comes some solid instrument. If after these fragments are replaced they stay in position, I have found no reason for plugging the nostrils. Of course at times it becomes necessary to do this in order to hold the fragments in place, but experience has taught me that the nose can often be moulded into shape and good results be obtained without any apparatus.

Now one word about fracture of the nose complicated with lacerations, that is, about compound fractures. This often takes place of one nasal bone affecting only the side of the nose, the bridge remaining perfect. In these compound fractures I have had good results by removing the loose fragment that communicated with the wound. With this removed we know that it cannot obstruct the air passage. Of course if the fragment is large, and its removal is going to affect the natural contour of the nose, we should try to save it.

I have been prompted in writing this mainly because I realize that the doctor who is governed by the textbook will invariably associate fracture of the nose with nasal splints and think they are a necessity, whereas experience has taught me the uselessness of them in at least three-quarters of the cases.

Truly yours,

N. B. ALDRICH, M. D.

## METEOROLOGICAL RECORD

For the week ending May 31, in Boston, according to observations furnished by Sergeant J. W. Smith of the United States Signal Corps:

| Date | Barometer | Thermometer. | | | Relative humidity. | | | Direction of wind. | | Velocity of wind. | | Weather* | | Rainfall in inches. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Daily mean. | Daily mean. | Maximum. | Minimum. | 8.00 A.M. | 8.00 P.M. | Daily mean. | 8.00 A.M. | 8.00 P.M. | 8.00 A.M. | 8.00 P.M. | 8.00 A.M. | 8.00 P.M. | |
| S...25 | 29.84 | 68 | 76 | 61 | 77 | 88 | 82 | W | S | 9 | 8 | O. | O. | T. |
| M..26 | 29.70 | 70 | 80 | 60 | 90 | 75 | 82 | S W | W | 20 | 6 | O. | O. | .03 |
| T..27 | 29.56 | 63 | 71 | 55 | 84 | 94 | 89 | S | W | 5 | 12 | O. | R. | .11 |
| W.28 | 29.66 | 50 | 57 | 43 | 82 | 66 | 74 | S W | W | 15 | 20 | O. | C. | .05 |
| T..29 | 29.95 | 51 | 63 | 39 | 73 | 41 | 57 | W | W | 12 | 9 | C. | C. | |
| F..30 | 30.02 | 61 | 69 | 53 | 80 | 57 | 68 | S W | W | 30 | 10 | O. | C. | T. |
| S...31 | 30.46 | 58 | 65 | 50 | 76 | 65 | 70 | E | S W | 8 | 17 | C. | C. | |
| ☞ | 29.88 | | 69 | 52 | | | 75 | | | | | | | .19 |

*O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow. †Indicates trace of rainfall.
☞ Mean for week.

## RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, MAY 31, 1902.

| Cities. | Population Estimated, 1902. | Reported deaths in each. | Deaths under five years. | Percentage of deaths from | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | Infectious diseases. | Acute lung diseases. | Diphtheria and croup. | Typhoid fever. | Cerebro spinal meningitis. |
| New York . . | 3,665,352 | 1,304 | 419 | 23.16 | 12.80 | 2.76 | .92 | .23 |
| Chicago . . | 1,852,828 | 423 | 113 | 25.76 | 12.76 | 1.89 | .94 | — |
| Philadelphia. | 1,349,624 | 445 | 121 | 20.63 | 12.58 | 1.12 | 1.12 | — |
| St. Louis . . | 603,717 | — | — | — | — | — | — | — |
| Baltimore . . | 525,330 | 168 | 49 | 27.97 | 10.71 | 2.98 | — | — |
| Cleveland . . | 411,826 | — | — | — | — | — | — | — |
| Buffalo . . . | 375,742 | — | — | — | — | — | — | — |
| Pittsburg . . | 341,401 | 139 | 50 | 25.18 | 15.10 | — | 9.34 | — |
| Cincinnati . | 332,032 | — | — | — | — | — | — | — |
| Milwaukee . | 304.975 | — | — | — | — | — | — | — |
| Washington . | 289,537 | — | — | — | — | — | — | — |
| Providence . | 185,870 | 60 | 9 | 23.32 | 10.00 | 1.67 | — | 1.67 |
| Boston . . . | 588,736 | 203 | 48 | 23.64 | 15.27 | 1.47 | .49 | 1.97 |
| Worcester. . | 127,337 | 40 | 12 | 15.00 | 12.50 | — | — | 2.50 |
| Fall River. . | 111.872 | 26 | 18 | 19.25 | 15.40 | — | — | — |
| Lowell . . . | 99,574 | 33 | 8 | 18.18 | 18.18 | — | — | — |
| Cambridge . | 96,334 | 19 | 6 | 21.05 | 10.52 | 5.26 | — | — |
| Lynn. . . . | 71,144 | 22 | 5 | 4.54 | 13.63 | — | 4.54 | — |
| Lawrence . . | 67,275 | 16 | 10 | 37.50 | 25.00 | 6.25 | — | — |
| Springfield . | 66,854 | 22 | 8 | 13.63 | 13.63 | — | — | — |
| Somerville . | 65,882 | 16 | 2 | 18.75 | — | — | 6.25 | — |
| New Bedford. | 65,574 | 21 | 5 | 9.52 | — | — | — | — |
| Holyoke . . | 48,065 | 13 | 6 | — | — | — | — | — |
| Brockton . . | 43,208 | 9 | 3 | 33.32 | 11.11 | — | — | 22.22 |
| Haverhill . . | 40,392 | 15 | 9 | 33.33 | 20.00 | — | 33.33 | — |
| Salem . . . | 36,567 | 14 | 5 | 14.28 | — | — | — | — |
| Newton. . . | 36,336 | 3 | 1 | 33.33 | — | — | — | — |
| Malden . . . | 35,390 | 7 | 1 | 28.60 | 14.30 | 14.30 | — | — |
| Chelsea. . . | 35,264 | 15 | 4 | — | 66.67 | — | — | — |
| Fitchburg. . | 33,848 | 7 | 3 | 14.30 | — | — | — | — |
| Taunton . . | 32,759 | 6 | — | 16.67 | — | — | — | — |
| Everett. . . | 27,114 | 3 | 2 | — | — | — | — | — |
| North Adams | 26,583 | 8 | 3 | — | — | — | — | — |
| Gloucester . | 26,121 | — | — | — | — | — | — | — |
| Quincy . . . | 25,307 | 6 | — | 33.33 | 16.67 | — | — | 16.67 |
| Waltham . . | 24,612 | 9 | 1 | — | — | — | — | — |
| Pittsfield . . | 22,311 | 4 | — | — | 25.00 | — | — | — |
| Brookline . . | 21,679 | — | — | — | — | — | — | — |
| Chicopee . . | 20,390 | 8 | 6 | 37.50 | 12.50 | — | 12.50 | — |
| Medford . . | 20,014 | 3 | — | 33.33 | — | — | — | — |
| Newburyport | 14,478 | — | — | — | — | — | — | — |
| Melrose . . | 13,384 | 2 | — | 50.00 | 50.00 | — | — | — |
| Westfield . . | 13,038 | 7 | 2 | 14.30 | 14.30 | 14.30 | — | — |
| Attleboro . . | 12,846 | — | — | — | — | — | — | — |
| Adams . . . | 12,813 | — | — | — | — | — | — | — |
| Milford . . | 12,516 | — | — | — | — | — | — | — |
| Framingham | 12,109 | 1 | — | 100. | — | 100. | — | — |
| Peabody . . | 11,957 | — | — | — | — | — | — | — |
| Revere . . . | 11,894 | 5 | 1 | 40.00 | 40.00 | — | 20.00 | — |
| Gardner . . | 11,544 | 2 | 1 | — | — | — | — | — |
| Weymouth . | 11,357 | — | — | — | — | — | — | — |
| Southbridge . | 10,838 | 2 | 1 | 50.00 | — | — | 50.00 | — |
| Watertown . | 10,600 | 3 | 1 | 33.33 | — | — | — | — |
| Plymouth . . | 10,336 | — | — | — | — | — | — | — |

Deaths reported 3,125; under five years of age, 936; principal infectious diseases (smallpox, measles, scarlet fever, cerebrospinal meningitis, diphtheria and croup, diarrheal diseases, whooping cough, erysipelas, fevers and consumption) 715, acute lung diseases 410, consumption 345, scarlet fever 58, erysipelas 11, typhoid fever 31, whooping cough 35, cerebrospinal meningitis 12, smallpox 10, measles 45, diarrheal diseases 94.

From whooping cough, New York 17, Chicago 6, Philadelphia 5, Baltimore 1, Pittsburg 1, Boston 2, Worcester, Cambridge and Lawrence 1 each. From measles, New York 12, Chicago 4, Philadelphia 5, Pittsburg 13, Haverhill 5, Boston, Lynn, Somerville, Chicopee, Revere and Southbridge 1 each. From erysipelas, New York 5, Chicago 2, Philadelphia 1, Boston 2, Lowell 1. From smallpox New York 2, Philadelphia 5, Boston 3.

In the seventy-six great towns of England and Wales, with an estimated population of 14,862,909, for the week ending May 17, the death-rate was 17.3. Deaths reported 4,919; acute diseases of the respiratory organs (London) 216, whooping cough 126, diphtheria 49, measles 144, smallpox 48, scarlet fever 51.

The death-rate ranged from 7.2 in Walthamstow to 27.0 in Bootle; London 16.2, West Ham 16.1, Croydon 13.2, Brighton 18.8, Portsmouth 13.6, Southampton 17.4, Bristol 16.0, Birmingham 18.5, Leicester 12.3, Nottingham 15.3, Birkenhead 19.5, Liverpool 22.0, Manchester 23.9, Salford 22.3, Bradford 18.9, Leeds 19.3, Sheffield 19.1, Hull 15.3, Newcastle-on-Tyne 20.7, Cardiff 14.8.

## CHANGES IN THE MEDICAL CORPS OF THE NAVY FOR THE WEEK ENDING MAY 31, 1902.

J. H. FIELD, surgeon. Appointed surgeon from May 19.

W. H. ULSH, assistant surgeon. Granted sick leave for three months.

R. WAGGENER, pharmacist. Ordered to Key West Naval Station.

S. W. DOUGLASS, pharmacist. Detached from Key West Naval Station and ordered to duty at the naval Proving Ground, Indian Head, Md.

F. L. BENTON, passed assistant surgeon. Detached from the "Columbia," May 31, and ordered to duty with a recruiting party leaving New York City on that day.

FOR THE WEEK ENDING JUNE 7, 1902.

H. H. GREEN, medical inspector. Detached from duty as a member of the Medical Examining Board, Washington, and ordered to the "Wisconsin" as fleet surgeon of the Pacific Station.

D. B. KERR, passed assistant surgeon. Detached from the Boston Navy Yard, June 5, and ordered to duty with a recruiting party.

H. T. PERCY, surgeon. Detached from the Naval Recruiting Rendezvous, Philadelphia, and ordered to the "Indiana."

C. BIDDLE, surgeon. Detached from the "Indiana" and ordered to the Naval Recruiting Rendezvous, Philadelphia.

JOHN W. ROSS, surgeon, retired. Relieved from duty with the War Department in Cuba, to take effect June 15, when he will report to the Secretary of the Navy.

## SOCIETY NOTICE.

THE AMERICAN RŒNTGEN RAY SOCIETY.—The American Rœntgen Ray Society will hold its next meeting in Chicago, Dec. 10 and 11, 1902.

## BOOKS AND PAMPHLETS RECEIVED.

Preliminary Announcement of Simmons College, Boston, 1902. Boston: George H. Ellis Co., Printers.

The Implantation of the Tubercle Bacillus. By Lawrence F. Flick, M.D., of Philadelphia. Reprint. 1902.

Second Annual Report of the National Jewish Hospital for Consumptives at Denver, Colo. Illustrated. 1901.

Transactions of the Chicago Pathological Society, April 14, 1902. Chicago: American Medical Association Press.

Forty-sixth Annual Announcement. Portland School for Medical Instruction. Illustrated. Portland: Stephen Berry. 1902.

Proceedings of the Orleans Parish Medical Society. Published Monthly by the Society. New Orleans: The L. Graham Co. (Ltd.)

Twenty-fourth Annnal Report of the Board of Health of the City of Lowell, for the Year 1901. Lowell, Mass.: Union Printing Co. 1902.

Diseases of the Nose, Pharynx and Ear. By Henry Gradle, M.D. Illustrated. Philadelphia and London: W. B. Saunders & Co. 1902.

Proceedings of the American Medico-Physiological Association at the Fifty-Seventh Annual Meeting held in Milwaukee, Wis., June 11, 12, 13, 14, 1901.

Note on the Fever of Hodgkin's Disease; Recurrent (Rückfall) Fever; Ebstein's Disease. By J. H. Musser M.D., of Philadelphia. Reprint. With Chart. 1902.

Yellow Fever in France, Italy, Great Britain and Austria and Bibliography of Yellow Fever in Europe. May, 1902. Washington: Government Printing Office. 1902.

Transactions of the American Pediatric Society. Thirteenth session held at Niagara Falls, N. Y., May 27, 28 and 29, 1902. Edited by Walter Lester Carr, M.D. Vol. XIII. Reprint. 1901.

Practical Dietetics, with Special Reference to Diet in Disease. By W. Gilman Thompson, M.D. Second edition, enlarged and thoroughly revised. New York: D. Appleton & Co. 1902.

Sociologic Studies of a Medico-Legal Nature. By Louis J. Rosenberg, LL.B., and N. E. Aronstam, M.D., Ph.G., with introduction by Hon. Clark Bell, LL.D. Chicago: G. P. Engelhard & Co. 1902.

The Practitioner's Manual, a Condensed System of General Medical Diagnosis and Treatment. By Charles Warrenne Allen, M.D. Second edition, revised and enlarged. New York: William Wood & Co. 1902.

The Principles of Bacteriology: A Practical Manual for Students and Physicians. By A. C. Abbott, M.D. Sixth edition, enlarged and thoroughly revised. Illustrated. Philadelphia and New York: Lea Brothers & Co. 1902.

Artificial Respiration by Direct Intralaryngeal Intubation with a Modified O'Dwyer Tube and a New Graduated Air-Pump, in its Applications to Medical and Surgical Practice. By Rudolph Matas, M.D., of New Orleans. Illustrated. Reprint. 1902.

The Young Physician. By Emil Amberg, M.D., of Detroit, Mich., Secretary of the Committee on Uniform Medical Legislation of the Conference of the Committee on National Legislation of the American Medical Association and Affiliated Societies. Reprint. 1902.

A Practical Treatise on Smallpox, illustrated by Colored Photographs from Life. By George Henry Fox, A.M., M.D., with the collaboration of S. D. Hubbard, M.D., S. Pollitzer, M.D., and J. H. Huddleston, M.D. Parts I and II. Philadelphia and London: J. B. Lippincott Co. 1902.

The Practical Medicine Series of Year Books, comprising Ten Volumes on the Year's Progress in Medicine and Surgery. Issued monthly under the General Editorial Charge of Gustavus P. Head, M.D. Vol. V. Edited by Reuben Peterson, A.B., M.D., and Henry F. Lewis, A.B., M.D. Chicago: The Year Book Publishers. 1902.

Sanatoria for Consumptives. A Critical and Detailed Description, together with an Exposition of the Open-Air or Hygienic Treatment of Phthisis. By F. Rufenacht Walters, M.D., M.R.C.P., with an Introduction by Sir Richard Douglas Powell, Bart., M.D., F.R.C.P. Second edition. New York: E. P. Dutton & Co. 1902.

Jahresbericht über die Fortschritte in der Lehre von den Pathogenen Mikroörganismen umfassend Bacterien, Pilze und Protozoën Unter Mitwirkung von Fachgenossen bearbeitet und heransgegeben von Dr. med. P. von Baumgarten und Dr. med. F. Tangl. Sechzehnter Jahrgang 1900 Erste Abtheilung. Leipzig: Verlag von S. Hirzel. 1902.

Empyema of the Frontal Sinus: Some Observations on its Treatment. By George L. Richards, M.D., of Fall River, Mass., Otologist and Laryngologist to the Fall River Union Hospital; Fellow of the American Otological Society; Fellow of the American Laryngological, Rhinological and Otological Society, etc. Illustrated. Reprint. 1902.

King's College Hospital Reports; being the Annual Report of King's College Hospital and the Medical Department of King's College. Edited by Norman Dalton, M.D., F.R.C.P., Albert Carless, M.S., F.R.C.S., John Phillips, M.A., M.D., F.R.C.P., W. D. Halliburton, M.D., F.R.S. Vol. VII. Oct. 1, 1899, to Dec. 31, 1900. London: Adbard & Son. 1901.

Clinical Contributions. I. Papillo-Retinitis due to Chlorosis; II. Two Cases in which Eye Strain was Relieved by Vertical Decentration of Lenses. By Cassius D. Wescott, M.D., Assistant Professor of Ophthalmology, Rush Medical College, and Brown Pusey, M.D., Late House Surgeon, New York Eye and Ear Infirmary. Reprint. 1902.

Hemoglobinuria Complicating Typhoid Fever. By John H. Musser, M.D., of Philadelphia, Professor of Clinical Medicine, University of Pennsylvania; Physician to the University Hospital, etc., and Aloysius O. J. Kelly, M.D., of Philadelphia, Instructor in Clinical Medicine, University of Pennsylvania; Assistant Physician to the University Hospital, etc. Reprint. 1901.

Nothnagel's Encyclopedia of Practical Medicine. Diphtheria, by William P. Northrup, M.D.; Measles, Scarlatina, German Measles, by Theodor von Jürgensen, M.D. Edited with additions by Willlam P. Northrup, M.D. Authorized translation from the German, under the Editorial Supervision of Alfred Stengel, M.D. Philadelphia and London: W. B. Saunders & Co. 1902.

International Clinics, A Quarterly of Illustrated Clinical Lectures and Especially Prepared Articles on Medicine, Neurology, Surgery, Therapeutics, Obstetrics, Pediatrics, Pathology, Dermatology, Diseases of the Eye, Ear, Nose and Throat, and Other Topics of Interest to Students and Practitioners. By leading members of the Medical Profession throughout the world. Edited by Henry W. Cattell, A.M., M.D. Vol. I. Twelfth Series, 1902. Philadelphia: J. B. Lippincott Co. 1902.

# Addresses.

## THE RELATION OF MEDICAL SCIENCE TO COMMERCE.[1]

BY FRANK BILLINGS, M.S., M.D., CHICAGO.

I have been informed that there is no rule of the association which fixes the subject of this address. I hope I may be pardoned when I depart from the custom which my predecessors have usually followed when they confined the subject of the address to the progress of medicine during the year just past.

We live in a period of the greatest activity in the history of the world. Modern inventions annihilate time and distance. Electricity and steam approximate the most distant parts of the civilized globe. Vast amounts of capital are invested in electrical, steam and other related interests. Large commercial enterprises are carried on or launched into new fields, which require money, the employment of the brightest intellects and skilled and common labor.

Competition is great in all the affairs of men. The struggle for supremacy between nations and between men was never so fiercely contended as now. The world is richer than ever before. Great individual fortunes, the result of the efforts of the few years of a single span of life, are seen everywhere. The wage of the laborer in our country is larger than ever before and he may command the necessaries as well as many of the comforts of life.

This modern restless activity, with its nerve-racking; the evil results of a luxurious life; the moral obliquity which it may breed, as well as many other conditions which affect the health of individuals, while of interest to medicine, do not concern us in the consideration of the broader subject of this paper.

### THE BROADER APPLICATION OF MEDICAL SCIENCE.

Medical science is interested in and is of greater importance to the world than ever before in protecting individuals, states and nations from infectious diseases, which are rendered more dangerous than formerly because of a denser population, increased facilities of communication between the peoples of the earth, by travel, and by national and international interchange of food and other commercial products.

Medical science, too, is closely identified with the vast moneyed interests of the merchant marine and of national and international commerce. Quarantine against the spread of infectious disease is applied wisely or foolishly in direct ratio to our knowledge or ignorance of the cause, the means of transmission and the evolution of disease. So, too, medicine has to do with the knowledge which will enable man to escape from and finally remove the conditions which cause infection and which render a country uninhabitable to civilized man.

Medical science must safeguard man against infection and intoxication from parasitic diseases of animals used for food and from contaminated and adulterated food and drink. Not only from a humanitarian standpoint is medical science related to commercial pursuits, but the sciences related to medicine have done much to preserve animals used for food and to protect agricultural interests of many kinds from disease and destruction.

One may say, I think, that in no other pursuit which engages the serious attention of men are there as many earnest, unselfish and philanthropic workers as there are today in the broad field of medicine. In the various departments of science related to medicine one finds educated, skilled, energetic, earnest workers after truth, willing to sacrifice home, friends, health and life for the advancement of the science which has for its primary object the conservation and prolongation of human life. Pecuniary reward for them is never large and never commensurate with the character of the work. Furthermore, great and astounding as are the modern commercial inventions, the progress made in medical science during the last twenty years is equally great.

Is modern medicine prepared to meet the demands of modern progress concerning the questions which interest humanity and commerce? Let us answer the question by a brief retrospect of the progress of medicine and by a statement of the present status of medical science.

### FIRST APPLICATION OF PHYSICAL SCIENCE TO MEDICINE.

From the latter part of the eighteenth to the beginning of the last quarter of the nineteenth century the science of medicine developed steadily upon a rational physical basis. Jenner's discovery of the protection of the human race against variola by vaccination with cowpox, illuminates with noonday splendor an era otherwise gloomy with its hypotheses, theories and superstitions concerning disease. This single brilliant achievement of the end of the eighteenth century was the beginning of the evolution in medical science which made the nineteenth century notable. The application early in the nineteenth century of physics, of physiology, of pathologic anatomy and of chemistry, to the study of disease, developed a more exact knowledge than before existed. To Auenbrugger that early period owes much through the discovery of methods of physical examination which were slowly developed and perfected by Corvisart, Laennec, Piorry, Skoda, Wintrich, Traube, Louis, Cheyne Stokes, Graves, Corrigan, Flint, Scudamore and others. Pathologic anatomy made wonderful strides under the labors of Virchow, Rokitansky, Arnold, Stilling and their students. Physiology was developed by the labors of Johannes, Müller, Brücke, Helmholtz, Trousseau, Vierordt, Foster, Carpenter, Magendie, and their disciples; and the fuller knowledge embraced in

[1] Address in Medicine, delivered at the Fifty-third Annual Meeting of the American Medical Association, held at Saratoga Springs, New York, June 10-13, 1902.

physiologic chemistry was added to the rapidly broadening field of medicine by Hoppe-Seyler, Schwann, Stricker, Prout, Liebig and others.

### BACTERIOLOGY.

The development of the microscope during the second and third quarters of the past century added a mighty weapon to the armamentarium of the physicist. The microscope was an aid to the investigators of pathologic anatomy, of physiology, of chemic physiology and of other subjects, and it was the one necessary means by which the teeming world of bacteria was made visible. This discovery and the knowledge which has come from a study of these infinite and yet often mighty beings have revolutionized medicine.

It was Pasteur's brilliant studies of the infective microbes of air which led to the discovery of the source of contamination of wounds and which made it possible for Lister to evolve a method of protection of wounds from air infection. The aseptic surgery of today is but the evolution of Listerism which had its basis of existence in the discoveries of Pasteur. With the microscope Pasteur rid the world of the superstition of spontaneous generation. He proved the infectiousness of dust-borne air through the microbes it carried. He blazed the way for others in the study of bacteria as agents of putrefaction, fermentation and of pathologic infection in animals.

Bacteriology became an exact science with the discovery of Robert Koch of cultural methods which made differentiation of bacteria possible. The causative relation of bacteria to all infective processes was practically proved by the laws promulgated by Koch. In twenty years the bacterial cause of tuberculosis, typhoid fever, cholera, diphtheria, pneumonia, pyogenic processes, erysipelas, gonorrhea, epidemic meningitis, epidemic dysentery, the plague, charbon, glanders, tetanus, influenza, and lepra has been proved.

### PARASITES.

The discovery of the hematozoön of malaria by Laveran; the recognition of the ameba of dysentery by Loesch; of the ray fungi, and especially the actinomyces as infective agents in the lower animals and in man, and the more exact knowledge of other animal parasites infecting man and animals, which the microscope has made clear, have been as epoch-making in parasitology as the discoveries of Pasteur and Koch in bacteriology.

### TRANSMISSION OF INFECTION.

The recognition of the relation of bacteria, protozoa and animal parasites to infective disease has been the means of a more exact knowledge of the clinical phenomena of disease, of morbid anatomy, of physiology and of physiologic chemistry than would have been possible without it.

The knowledge of the cause has led to a study of the life history of infective organisms outside of as well as in the animal body. The mode of propagation, the means of transmission of infective micro-organism, by fomites, and other agents, has become known. The rôle which insects, which infect animals, play as definitive or intermediate hosts, has been studied and proved. The discovery of Manson of the transmission of *filaria sanguinis hominis* by the mosquito was of vast importance as a suggestion of the mosquito as a definitive host in malaria. The investigations of Manson, Ross, Celli, Grassi, Dionise, Marchiafava, Bignami, Koch and others have made our knowledge of malaria exact. With the microscope we may now not only recognize malaria and differentiate it from the other infective fevers, but we may also at the same time recognize by an examination of the blood the type of malarial infection and foretell its course. Not only may we recognize the disease definitely and apply the drug treatment more rationally, but the knowledge of the means of its transmission from man to man enables us to apply preventive measures which, as we shall see later, are of the greatest importance from a commercial as well as from a humanitarian point of view. The recognition of of rôle of the mosquito in malaria has been, furthermore, a stimulus to the study of the same insect in relation to other infections.

The brilliant research work of our own Reed and Carroll in 1900 in Cuba, by which they proved that the mosquito of the genus *stegomya* is the sole means of the transmission of yellow fever from man to man is of great importance as a scientific fact. The influence of this discovery upon mankind as a prophylactic against a disease which has killed multitudes and also from a monetary point of view, in reference to commercial pursuits, is not appreciated at this time as it should be.

Hardly less important is the fact that the *bacillus pestis* may infect fleas and these in turn infect rats, mice and man. It is important, too, to know that pests like the housefly may be carriers of infective bacteria from refuse filth to our kitchens and tables and contaminate food and thus infect us with typhoid fever, cholera and perhaps other diseases which are propagated by filth.

The study of bacteria in the laboratory and in the blood tissues of infected animals has led to the discovery of the means by which bacteria disturb the animal economy and produce phenomena expressive of disease. The fact that the blood and tissues of infected animals contained a toxin which could also be isolated from pure bacterial cultures in the laboratory and that this toxin when introduced into an animal was capable of exciting the same phenomena of disease as the bacteria themselves, was positive proof that bacteria excite disease phenomena by means of a toxin which they form. The elaboration of antitoxins in the body of the infected animal was also promptly recognized and served to explain not only the self-limitation of many of the infective diseases, but it also helped us to understand the

immunity which one attack of some of the bacterial diseases affords.

PROTECTIVE INOCULATION.

Long before bacterial toxins were recognized as the cause of disease phenomena, Pasteur established the principle of protective inoculation with bacteria of lessened virulence, which was brought about by attenuation of the bacteria by a modification of cultural methods and also by serial inoculation of certain lower animals. This he successfully applied to charbon in sheep and cattle and to chicken cholera. In both of these diseases the bacteria were known and the problems of attenuation could be carried on in the laboratory by direct study of the bacteria before inoculation and afterward when they were recovered from the bodies of the animals experimented on.

His final life's work was no less important, in firmly fixing the immunizing influence of attenuated bacterial inoculation in rabies. Here the discovery of the infecting bacterium escaped every known means of recognition by examination of the tissues and blood of the infected animals microscopically and culturally. Apparently there are pathogenic bacteria which we do not know because we have not yet recognized the proper culture material for the successful artificial cultivation of them, nor have we discovered the tinctorial reaction which they may possess and, finally, it is not improbable that they may be infinitely smaller than other bacteria and, therefore, considerably more difficult to recognize.

Pasteur recognized the fact that in hydrophobia the brain and other nervous tissue of an infected animal are capable, when inoculated into another animal's brain, of producing the disease. That the infected brain, used for inoculating animals, contained the bacteria, which caused the disease, was proved by the fact that a stage of incubation occurred in the inoculated animal and that a series of animals were successfully inoculated consecutively from the first. Pasteur then successfully attenuated the unknown bacterium of hydrophobia present in the nervous tissues of an inoculated animal by dessication of the nervous tissue in a sterile apparatus by methods too well known to repeat. Nor is it necessary to occupy time in repeating the well-known methods pursued by Pasteur and his pupils in the use of the graduated doses of attenuated bacteria contained in the nerve tissues in the prophylactic treatment of rabies. To Pasteur, therefore, do we owe the scientific recognition of the principle of protective inoculation.

It is now a well-known fact, however, that inoculation against disease was practised by the Chinese 1,000 years ago. They inoculated the healthy with smallpox as a protection against the disease. Variolization was also practised in Europe in the seventeenth and eighteenth centuries. We read that in 1718 Lady Montague caused a son to be inoculated with variola in Italy and that two years later her daughter was inoculated in England. The practice was followed in Ireland long after the successful establishment of vaccine as a protection against variola. Inoculation against syphilis, or syphilization, was also practised in Europe during the nineteenth century.

To Jenner, however, do we owe the first example of the protective inoculation by means of an attenuated virus. This attenuation we now know was established by the accidental inoculation of milch cows with smallpox, producing a modified disease, vaccinia. That vaccinia, produced in man by inoculation direct from the cow, would protect against smallpox was proved when, in 1798, Jenner successfully vaccinated, direct from the cow, the five-year-old lad, William Summers.

The thousands of successful vaccinations which have since been performed and the thousands of lives which have been saved by vaccination are proof of its validity and utility. The immunity established by protective inoculation is apparently the same as that induced by an unmodified attack of variola.

SERUM THERAPY.

When chemistry had revealed the nature of bacterial poisons and experiments established their relation to the phenomena of disease, it was proved that substances were formed in artificial culture media and in the blood and tissues of infected animals which had the power to neutralize the effect of the bacterial poison in other animals infected with the same organism. Further investigation showed that an animal inoculated with the laboratory preparation of antitoxin was protected against the disease.

Furthermore, it was found that the blood serum of an animal inoculated with bacteria in a non-fatal and repeated dose contained an antitoxin. When the blood serum of the infected animal was injected into a healthy animal, the latter was protected against the original disease.

Antitoxin was, therefore, proved to be formed in artificial media of bacterial cultures and in the bodies of infected animals. When the antitoxin thus formed was injected into an animal it had the power to protect it against the particular bacterial infection or, if given subsequent to the infection of the animal, to mitigate the severity of the disease or to entirely check it.

Thus, by Koch and his students, was serum therapy established as a principle. Upon this principle there has been established and given to the world the antidiphtheritic serum of Behring and of Roux.

A curative or immunizing serum has been developed for Asiatic cholera, tetanus, erysipelas, plague, epidemic dysentery, streptococcus infection and other diseases. While the serum treatment has not proved successful in all the diseases in which it has been employed, it has been so successful in some — diphtheria, for instance, as to firmly establish the principle of serum therapy.

INFLUENCE OF BACTERIOLOGY UPON PRACTICAL MEDICINE AND SURGERY.

These practical results in specific prophylactic and curative therapy is but a part, however, of the influence which bacteriology has had upon medicine. The stimulus given by bacteriology to the study of pathologic anatomy, physiologic chemistry, clinical phenomena and of physical and chemical changes of the fluids and tissues of the body, has resulted in a knowledge so comprehensive that medical science has been revolutionized within the last twenty years. Speculative theories and hypotheses have given place to facts based upon sound principles proved by experiment and clinical observation.

Bacteriology made possible the comprehension of perfect cleanliness, and enables the surgeon to invade every part of the body without fear of infection, and has saved thousands of lives which twenty-five years ago perished miserably as the result of disease at that time inoperable, or the result of infection from contact with the surgeon. By means of cleanliness and skill, induced by a broader experience, the surgeon has been able to add to our knowledge information of great value which could have been obtained probably in no other way. He has been able to study disease in the living body and show the relation of a disease process to infection. He has thus been able to clear away many of the misconceptions of symptomatology and diagnosis, especially in disease of the abdominal organs.

Bacteriology has stimulated laboratory clinical diagnosis. Bacterial reaction to sera and blood cultural tests are of the greatest aid to diagnosis. Clinical research work has command of an armamentarium consisting of a knowledge of pathologic anatomy, of physiology, of bacteriology, of chemic physiology and of physics, which allows of a precision in diagnosis never before at the command of the physician.

From the foregoing it seems sufficiently demonstrated that today medical science possesses a knowledge so exact that we may answer definitely the question of our relation to the commercial affairs of the world. Infectious diseases which affect agricultural interests, like swine plague, rind pest, fowl cholera, glanders, tuberculosis, actinomycosis, trichinosis and many of the parasitic diseases of plants and of animals, have been studied by scientists with most definite results.

PREVENTION OF INFECTION.

Today no sane man believes in spontaneous generation. The presence of an infective disease, either bacterial, protozoic, parasitic or fungus, means the recognition of progenitors in the near environment of the infected organism. In practically every one of the diseases of animals above named the scientific investigator has already discovered the nature of the infecting agent, knows its life history, what conditions are most necessary for its propagation and multiplication, and what will remove and annihilate so dangerous an enemy.

Our Department of Agriculture, and especially the Department of Animal Industries, has done much to place comparative medicine on a scientific basis. Briefly stated, there is not a fungous-parasitic, animal-parasitic, protozoic or bacterial disease of the lower animals which can not, with our present knowledge, be stamped out for all time.

Why do the acute epidemic infections attack the swine, fowl and cattle of the agriculturist? Because the causative germ is allowed to live and multiply after a former epidemic, or it is transplanted from place to place by infected animals or by fomites. All of these acute diseases of the lower animals are preventable. One has but to read of the labors and investigations of Pasteur, in relation to charbon, to the silkworm disease and to fowl cholera to know what indifferent, careless methods may do to prolong and propagate an infection. On the other hand, proper precautions as to the destruction by fire of the infected bodies of animals and plants, the application of cleanliness through the use of abundant pure water, pure food, air and sunlight would extinguish an epidemic.

This may imply the loss of infected property by the individual, the municipality, the state or the national government, but fall the loss where it may, it is often necessary to destroy absolutely the infected organism that the greater commercial interests as well as the health of the people may be preserved. For example, actinomycosis of cattle, trichinosis of swine, tuberculosis of cattle, may be absolutely controlled and finally obliterated by proper sanitary measures. The expense of such an undertaking would be relatively great, but under the direction of scientists it can be done. Pasteur, with the aid of the government of France, abolished swine plague, charbon, silkworm disease and other conditions harmful to the agricultural interests, with the result that millions of francs were saved to individuals, to corporations and to the government.

The same happy result would occur here, and in addition the health of our people would be protected against the possible infection with tuberculosis, actinomycosis, trichinosis and intoxication from other infected animal foods.

SMALLPOX.

But what of the epidemic scourges of the earth, smallpox, yellow fever, cholera and the plague? No rational individual can for a moment doubt the protective influence of bovine vaccination against smallpox. Let one but look up the statistics of the mortality of this disease in the anti-vaccination period and he will become convinced of the utility of protective vaccination. In London the annual mortality from smallpox from 1660 to 1810 per million of the population was 2,040 to 5,020, while with vaccination, not adequate, however, the death-rate per million was from 1831 to 1835, 830; 1838 to 1853, 513; 1854 to 1871, 388; 1872 to 1882, 262; 1883 to 1892, only 73.

In Germany, where variola had decimated the population in the prevaccination period, thorough vaccination has practically stamped out the disease. Compulsory vaccination properly enforced would effectually eradicate the disease and would free commerce of the losses due to quarantine regulations. The question of individual rights, especially under a republican form of government, is debatable when one considers that science has proved the efficacy and utility of protective vaccination against variola; that with modern methods the process is free from the danger of inoculation with any other disease; vaccinia is practically a harmless disease and, finally, that an individual right may become an evil when the practice of it subjects others to unnecessary risk of health, life and property.

Medical science, therefore, possesses the knowledge to rid the earth of variola. From a humanitarian point of view, this knowledge is priceless. Still, let one but compute the sum saved to the nations of the earth by vaccination, estimating each life saved at $5,000, the usual valuation placed upon human life by statute. Great as would be this sum, it is many times less than that saved to the commercial interests of the world by the control of the disease which even inadequate vaccination has afforded. Think for a moment of the loss to commercial interests by quarantine and other restrictive measures, in the event of an epidemic of variola, without protection from vaccination.

### THE PLAGUE.

The plague, the Black Death, which was first recognized in Europe in the year 543 as the *Peste Justinenne*,[2] became pandemic in the fourteenth century, and 24,000,000 people are said to have died of it. In 1655, London alone lost 70,000 people from the plague. It disappeared from Europe about 1720. It continued, however, in Egypt, Asia and other Eastern countries in small foci, occasionally occurring as severe local epidemics. In 1830, 60,000 people died of the pest in Bagdad. During the remainder of the nineteenth century it appeared sporadically in Asia, Turkey, Tripoli, Persia and other Asiatic countries. In 1891 it reappeared in epidemic form in middle China. From that date to the present time it spread over China, reaching Canton in 1894, Hong Kong in epidemic form in 1896, and in Bombay the same year. It appeared in Oporto, Spain, in 1899; in Glasgow in 1900, and in San Francisco in 1901, not to mention sporadic cases elsewhere in seaports of Europe and Central and South America.

In 1894 Dr. Yersin, director of the Pasteur Institute at Hong Kong, discovered the *bacillus pestis*. He elaborated a serum which has since been used with success as a prophylactic and curative agent. Haffkine prepared a protective vaccine which has also proved successful as a protective inoculation. It has been used in hundreds of thousands of cases in India with no harmful results, and is said to reduce the susceptibility at least 75% and the mortality about 90%.[3]

The plague, the Black Death of the fourteenth century, still exists and rages with fearful mortality in communities which have no regard for hygienic surroundings. It is communicated to people through the abraided skin, or by flea bites, through the respiratory tract apparently by bacteria in dust-laden air and also through the alimentary tract by contaminated ingesta. Modern hygienic measures, which consist of perfect cleanliness, isolation, the destruction of vermin and the use of Haffkine's vaccine as a prophylactic and Yersin's curative serum, serve to control the disease. There can be no doubt that if sanitary authorities will take proper precautions to recognize the disease, proclaim its presence and then control it by the means which science has discovered, that the terrible scourge may be safely held in check and finally abolished from every civilized community.

The value to commerce of the discoveries of science in relation to the plague cannot be computed. While the knowledge of its cause and prevention is exact, the impossibility of controlling the unsanitary conditions of the countries of the East and even of our own western world makes it necessary to continue the quarantine regulations which so often restrict commercial ends.

### YELLOW FEVER.

The mortality from yellow fever in the United States during the last one hundred years, 1798-1897, has been about 80,665.[4] This gives an average annual mortality of 807. Several severe epidemics have occurred and it has prevailed extensively in smaller towns where the mortality records have not been kept. Hence the above figures do not represent the full annual death-rate from the disease. Yellow fever has been the scourge of the West Indies, Central and South America, Mexico and of our Gulf States.

Recognized as an infective disease, indefatigable search has been made for the bacterial cause by many earnest workers. Apparently up to the present time the specific infective germ has not been found. Indeed, from a recent paper[5] by Reed and Carroll, it would seem that the bacterium must be infinitesimally small.

Although we do not know the specific bacterium of yellow fever, a most brilliant discovery has been made of the means of transmission of yellow fever by means of the mosquito (*stegomya fasciata*) by two of our countrymen:[6] Walter Reed, surgeon, U. S. Army, and James Carroll, contract surgeon, U. S. Army. Twenty years ago Finley associated the transmission of yellow fever with the mosquito, but no proof of this was given until

[2] Ph. Hauser: La Peste dan les temps anciens, etc., Paris, 1900.

[3] Pacific Medical Journal, January, 1901.

[4] Obtained from the records through the kindness of Surgeon-General Walter Wyman, U. S. M. H. S.

[5] The Etiology of Yellow Fever, American Medicine, Feb. 22, 1902.

[6] Experimental Yellow Fever, Transactions Association American Physicians, vol. xvi, 1901.

the epoch-making and decisive experiments of Reed and Carroll. Furthermore, these experimenters proved that fomites contaminated with the vomitus and discharges of yellow fever patients do not transmit the disease to man.

In Havana, Cuba, the sanitary authorities of the United States have attempted during the last year or more to test the fact of yellow fever transmission by the mosquito. To this end the city was made clean; the breeding-places of mosquitoes in and about Havana were destroyed as far as possible and persons suffering from yellow fever were isolated and protected from the mosquito. Thus the number of mosquitoes were much diminished and care was taken that remaining mosquitoes did not become infected by biting yellow fever patients. As a result yellow fever disappeared from Havana and for the first time in years no case had occurred up to May 1 of this year. The usual marine quarantine regulations of the United States restricting the non-immune travel from Cuba was postponed. Furthermore, the Congress of the United States will probably modify the quarantine regulations in reference to yellow fever to meet the more hopeful conditions which the researches of Reed and Carroll have established in relation to the definite transmission and control of the disease.

There can be no doubt of the practical value of this important discovery to mankind. Proper sanitary measures in reference to cleanliness, the destruction of mosquitoes and their breeding-places and proper precautions against the infection of the few undestroyed mosquitoes by isolation of every imported case of yellow fever will eradicate the disease from every civilized country.

### MALARIA.

Malaria has not borne as important a relation to commercial communications between peoples as yellow fever and the plague. Nevertheless, it has had an enormous influence upon the health and prosperity of the inhabitants of certain regions where it is endemic and at times epidemic in its prevalence. The principles which prevail to induce malaria in a certain region is the existence of human malaria and of the mosquito of the genus *anopheles*.

The mosquito is annoying but harmless until she becomes infected with malaria by biting a human being infected with the disease. Such an infected mosquito may inoculate all the people she subsequently stings. In this manner a region ordinarily free from malaria may become infected by the importation of a case of malaria from a distant point. It is also possible that a mosquito infected with malaria could be transported by railroad or ship in the luggage or clothing a considerable distance and then sting and infect individuals in its new environment.

We have many examples of infection of people in localities usually free from malaria, through its introduction by means of imported laborers employed in the construction of railroads, canals, etc. Malaria was rarely found in Chicago until 1891, when the construction of the World's Fair buildings was commenced. Then it was attributed to the excavations and to the turning of virgin soil. The construction of the Chicago Drainage Canal began at the same time and continued until 1900. During that period malaria was constantly present in Chicago and in 1898-1899 was augmented by importation of infected soldiers from Cuba and other malarious regions. No one can doubt that malaria was imported in the persons of some of the foreign laborers employed in the above-named enterprises, and that the previously innocent *anopheles* became infected and afterward inoculated many people who suffered from malaria at the period named.

The mortality of malaria in malarious districts with a considerable population is large. Thus Professor Celli[7] says that the mean mortality from malaria in Italy is about 15,000 victims annually, and that about 2,000,000 cases occur in Italy each year. As the mean duration of malaria is generally long, sometimes infecting the individual for years, the loss of labor and of production and the expense entailed in dealing with the disease, amounts to several millions of francs. Furthermore, Celli says that owing to malaria about 5,000,000 acres of land remain uncultivated with a resulting large economic loss. According to the very accurate calculations of Ricchi, the Adriatic Railway Company, with 1,400 kilometres of road and employing 6,416 men, spend on account of malaria alone 1,050,000 francs a year. In the Italian Army, in the twenty years from 1877 to 1897, there occurred more than 300,000 cases of malaria. Finally, Celli[7] says malaria annually costs Italy incalculable treasure.

Malaria is so widely disseminated over the world and the opportunity for continued infection of the mosquito so great that it seems almost hopeless to try to eradicate the disease. The principle upon which malaria may be fought has been suggested by science and has proved of value. This consists of the destruction of the mosquito and its breeding-places. The prevention of the infection of the remaining mosquitoes by isolation of the malarious individual from the mosquito and the diminution of malarial material in man by an attempt to cure him with quinin and other antimalarial remedies.

Experiment has already demonstrated that non-immune individuals may live safely in the most malarious districts, with adequate yet simple protection from the sting of the mosquito infected with malaria. Man thus protected against malaria may now explore, settle in and develop regions of the earth hitherto inaccessible because of the danger from the deadly tropical malaria.

This address would become too long were one to take up other infectious diseases, although in some of them the science of medicine has made such successful investigations that the knowledge of the cause, means of propagation and dissemination is exact.

[7] Malaria According to New Researches, 1900.

### TYPHOID FEVER.

I cannot close without saying that if in typhoid fever we could employ, unembarrassed by the great cost of the necessary measures, the precautions which science affords to prevent water and food contamination, that the disease would be effectually abolished. The great cost of the measures necessary to stamp out typhoid fever would, however, be an economic measure, inasmuch as the immense value to the state of the conservation of the labor of the thousands sick and the lives saved each year would more than compensate for the treasure spent.

### VALUE OF MEDICAL SCIENCE RECOGNIZED.

However much medical science has done for humanity, and great as the value of the knowledge of infectious disease is to the commercial interests of the world, scientists have not, especially in our own country, received the recognition and financial aid from the state, from corporations or from wealthy individuals which they deserved.

### MEDICAL SCIENCE SHOULD RECEIVE FINANCIAL SUPPORT.

Medical science should receive the moral and financial support of states and municipalities in the employment of the measures which science has proved to be efficacious in modifying, restricting and abolishing infectious disease. Wealthy corporations and individuals should establish institutes of original research in properly constructed and equipped hospitals and laboratories. There the many earnest, indefatigable and conscientious medical investigators could make more perfect the knowledge we already possess of many of the infectious diseases and, unembarrassed by financial needs, could search for the cause, the means of transmission and the prevention and cure of the diseases of which we know but little.

Funds, too, should be created to support the cost of committees of scientific investigators in regions now dangerous to the white man. By such means the many plagues of the tropics would be investigated and conquered. Regions uninhabitable or dangerous to the Caucasian would become accessible to settlement and commercial intercourse. Civilization, humanity and commerce would be advanced and multiplied.

It is right, therefore, that medical science should demand of the moneyed interests of the world the recognition which, though long withheld, is her just due. This she asks, not that individuals may profit in either fame or fortune, but that she may the more readily rid the world of infectious diseases for the sake of humanity.

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Law and Medicine.— Princeton graduated this year a class of 258 men. Of this number 69 have asserted their intention of pursuing the law as a profession, while only 23, or exactly one-third as many, will choose the more arduous study of medicine.— *Medical News.*

## SUTURE OF HEART WOUNDS.[1]

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### THE RECORDED SUTURES OF THE HEART.

In 1896 three operations for the suture of wounds of the heart muscle were done. Two are recorded as having been done in 1897. Four are credited to 1898. In 1899 the heart was sutured eleven times, in 1900 three times, and in 1901 nine times, three of this last set being done in this country. This year two operations have thus far been reported. This makes a total of thirty-four operations in the six years following the first attempt to treat, by a simple surgical procedure, an organ usually supposed to be particularly vulnerable,— in fact, so vulnerable that any interference, even for surgical purposes, might be followed by immediate fatal results.

There is more than enough material here for our consideration at this time, and I beg you to follow me in the necessarily brief discussion which I offer you. In order to start with some knowledge of the results of these operations, before any discussion, in general or in detail, is attempted, a short review of them will be necessary.

### REVIEW OF THESE CASES.

As regards the manner of wounding, all these cases, except two, were due to punctured or incised wounds, the two exceptions being bullet wounds. The particular injury to the heart was inflicted on the ventricles thirty-two times, the left ventricle being implicated seventeen times and the right thirteen times. In two cases only were auricles opened, once the right and once the left, and there are three cases in which my information is incomplete. In most of the cases where details are given the pleura is reported wounded, and usually there was a hemothorax, the collection representing, in large part, the overflow from the pericardium.

The practical questions which usually come to the mind of a surgeon in planning an operation to meet these conditions relate to the method of exposure of the heart, the detail of the treatment of its particular condition, and the method of closing and dressing the wound of the operation.

In the cases reported the heart was reached variously, depending on the location of the original wound in the skin and the choice of the operator, but either a flap of all of the tissues of the thoracic wall was turned up or a resection of two or more ribs was practised. The particular detail is of no great moment provided that the heart is properly exposed. The special method of treating the heart wound is of interest, for it involves the choice of suture material for a novel situation, the time at which the suture is introduced and tied with reference to the heart beat, and the

[1] Oration on Surgery delivered before the Fifty-third Annual Meeting of the American Medical Association at Saratoga Springs, N. Y., June 10-13, 1902.

depth of the stitch in the heart muscle. In our cases three operators are recorded as having used catgut, — Fontan of Paris, Marion and Launay; in all other instances where the suture material was specified silk was used, and in most cases the sutures were interrupted, though in a small number a continuous suture was practised. It is of interest to note that these operators particularly avoided including the endocardium in the suture. One of them definitely reports introducing and tying the suture during diastole.

As regards the closure of the wounds: the tissues involved in the flaps or incisions were, of course, replaced; in seven instances drainage of the pericardium and pleura was practised and in four the pleura alone was drained. The other cases are said plainly to have been closed without drainage, or nothing is said of the matter at all.

### RESULTS OF THESE CASES.

Now, of the total number of these cases five died on the operating table, of hemorrhage, and ten died very soon afterwards of the effects of hemorrhage or the shock of the operation; so that nearly half of the cases that survived the injury long enough to be subjected to operation died during or very shortly after that operation. The other group, nineteen in number, had various fortunes, but thirteen of them recovered and only six died. I think it is fair to stop a moment and consider these facts. Surely the fifteen who died of hemorrhage or shock with operation would probably have died of hemorrhage exactly the same without operation. No fatal traumatism is inflicted by exposing the heart; and stopping the hemorrhage from an incised or punctured wound in the ventricles is a simple matter when the heart is once exposed; indeed, pressure with the finger or a tampon will stop it temporarily. At all events the operation and suture did not add materially to the amount of blood lost and so cannot be counted as having hastened the death from hemorrhage, and the average amount of shock I cannot estimate. But I believe that it is fair to say that these patients had, from the first, practically no chance to recover, and that, if this had been known, the operations need not have been done — but I say this with full appreciation of the fact that the inevitable fatality could not have been definitely predicated in any case. Of the other nineteen, the comment is, plainly, that they had a chance to recover. In each of them the suture of the heart was a successful procedure; in not one instance was the fatal outcome due to a secondary hemorrhage. The six who died succumbed to the common matter of an infection, sequent to wound and operation. Of the thirteen who recovered four did so in spite of a concurrent infection. But the point is that of these thirty-four cases fifteen had, really, but very slight expectation of benefit from the operation and died, probably, neither in spite of it nor because of it — nineteen had expectation of recovery from operation, and in thirteen that expectation was realized.

I do not wish you to think that I am trying to make these cases give a better percentage of recoveries than they really do. That percentage, as the whole list stands now, is about one-third. But if we wish to consider only the final success or failure of the suture of the heart muscle we must limit our inquiry to the cases in which this procedure was really tested, and then we see that the percentage of recoveries may be considered a little more than two-thirds.

### SLOW ADVANCE IN HEART SURGERY.

The road to the heart is only 2 or 3 cm. in a direct line, but it has taken surgery nearly 2,400 years to travel it, for I take it that the operation of opening the chest for an empyema, which was known to Hippocrates, was a direct predecessor of the attempt to treat other thoracic viscera. It does not need to be said that during most of this time surgery stood still and that the advances were little by little. We all know that before the antiseptic and aseptic eras pleurotomy for empyema gave very terrible results, and there could be but scant encouragement to draw surgeons to fresh fields. However, more than a century ago (1798) Desault, with the logic and precision which still characterizes the French school, laid down the rules for opening the pericardium for an empyema situated in that sac, and anticipated much of the technique of today, and it took surgery ninety-eight years to pass from the pericardium to the epicardium, across a space that is such only potentially.

It is a little odd that surgeons have hesitated so long to go to the aid of the wounded heart in man. Physiologists for years have experimented on the hearts of animals selected from nearly all the species of the animal kingdom. The special references to this matter are not needed here, but it is germane to the subject to note that the tolerance of the mammalian heart for manipulation, and its persistence of action in spite of wounds and obstacles, have long been known.

The experience of the various operators has been, as might therefore have been expected, that the heart of man was no more resentful of intervention than were the hearts of other mammals, and that it not only could be handled, and even partially lifted from the pericardium, but that its muscle could be sutured so as to close a wound, just as can be done with the skeletal muscles. However, in the case of the systemic muscles rest can usually be enforced, either completely or partially, during the process of healing, but this can not be done with the heart. Here comes the great difference between the heart muscle and the skeletal muscles, both as regards suture and the reparative process, the heart must continue to act for the whole of the time.

The question now centres, first, on the possibility of properly suturing, that is, placing a practical suture in the moving heart, and, second, on the result of the healing process. The first question is one of only technical moment, for the work on animals has shown that it can be done,

and the experience of those who have sutured the human heart has not disclosed any special difficulty in the procedure, but the matter and manner of the sutures are debatable. The general advice is that the sutures of muscle should be of silk, and it has been most frequently used in the heart muscle, but three of the successful cases, the two of Fontan's and the one of Launay's, were sutured with catgut. Elsberg has advised, as the result of his experiments on rabbits and dogs, that the suture material should be silk, and that the suture be an interrupted one, and very superficially placed, believing that deep sutures will tear out, while superficial ones will hold. He also advises that the suture be placed and tied during the diastole of the heart.

EXPERIMENTAL RESEARCH.

To discover, if I might, the exact value of these somewhat confused matters, I have, under anesthetics, exposed the hearts in eleven dogs, and made wounds of various sizes and in different directions in the left ventricle, limiting myself to that particular cavity, as it was the one most frequently wounded. In each instance, except perhaps one, I verified the opening of the cavity of the ventricle by passing an instrument into it so as to get a free spurt of blood during one or two systoles. It was found that this verification was a practical necessity, for the non-penetrating wound of the myocardium will give forth, during systole, a spurt so large that it could easily be confused with one from the cavity of the ventricle. These wounds were then sewed with ordinary commercial cumolized catgut; in some deep and superficial stitches were combined; in some very deep, so as to surely penetrate the endocardium, were used, and in others very superficial stitches; and the variations of interrupted, continuous and recurrent continuous were practised.

In the earliest operations toothed thumb forceps were used to pick up a few muscular fibres to steady the organ for the making of the incision and placing the sutures. At the first pinch the heart, of course, delayed systole and then began to beat rapidly and violently and continued this as long as the forceps were in place. It was exactly as if the heart were surprised and at first checked by the intrusion of the forceps teeth, and then recovered to make violent and strenuous efforts to escape from the grip, and if the forceps' hold was continued it usually succeeded in this by the tearing of the fibres. One of my dogs died on the table from hemorrhage due to the tearing of the muscle in the bite of the forceps and my inability to at first catch the edge of the open wound in the bottom of a pericardium overflowing with blood, and although I did finally succeed in getting in two sutures, they were placed too late.

A METHOD TO HOLD THE HEART DURING SUTURE.

To overcome this difficulty with the forceps I put into the heart, before incising it, two long suspension loops of silk, dipping the needle carrying them deep into the ventricular wall. These gave complete control of the organ, for they did not tear out, and even though the heart was hanging from them its function continued, and much less tumultuously than it did in the bite of the forceps; and with them the heart could be lifted quite halfway out of the pericardial incision, or it could be swung to one side or the other, or rolled over in either direction, its range of motion being limited only by the great vessels at the base.

I placed these loops side by side and about a centimetre apart, and could then incise between them, hold the wound open, by traction on the loops, to verify penetration and then, crossing the loops, could absolutely stop bleeding and steady the heart, for under this control the point of the incision seemed to be the starting point of the systolic waves.

DIASTOLIC SUTURE UNNECESSARY.

Now, even with the incision coapted and held relatively motionless by the crossed and taut suspension loops,— so that the placing of a suture was no more difficult than in an indifferent tissue, — I found it impracticable, yes, impossible, to make a diastolic thrust of the needle, to pull the suture into place in the succeeding diastole, and to tie the knots in the ones following. To do this would require a man to work with accuracy, and yet with perfectly timed breaks in his work, in various fractions of successive seconds — for these hearts are always beating more than one hundred times to the minute. And the impossibility which I encountered has made it very difficult for me to believe that anyone, even if he has attempted it, has ever really done it. Nor can I see what is gained by it.

The heart does not bleed in diastole, it bleeds in systole, and the suture must be tied to be efficient at that time, and the way to do it is to tie quietly and firmly, during the rapid beating of the heart, and to take no account of split second diastoles, but watch the knots as one should watch the knots of the ligature in a major vessel. And the same judgment which controls the tension of the suture should control the depth to which it reaches. I cannot agree, from what I have seen of the actual working of the matter, that a superficial suture will hold where a deep one will tear out. One is suturing the myocardium, not the epicardium. Of course, it is inadvisable to penetrate the endocardium, but it is at the same time, and fortunately, a difficult thing to do. I did it once because I intended to do it, and I had to take a larger needle than I had ordinarily worked with, and definitely carry it through the heart wall and return; and from this I learned that, with the medium-sized, full-curved needle which one would commonly use, the penetration of the left ventricle is not to be feared.

On this point it only remains to be said that, in the case in which the endocardium was included in the stitch, the strand of suture stretched across the cavity of the ventricle was the occasion of the formation of a little globular clot, which was

found at the autopsy to be firm and white, and surrounded by a large post-mortem clot.

Elsberg's very complete studies of the healing process showed that the muscular fibres in the bight of the suture atrophy and are replaced by fibrous tissue, and he points out that, very evidently, there would be less of this lower grade tissue in the case of an interrupted suture; but, so far as I have been able to judge, the difference amounts to very little practically, and the saving of time in the continuous over the interrupted suture is manifest, and it is the method finally advised by Terrier and Reymond a year ago. I had thought that the lessening of the number of knots on the epicardial surface by the use of the continuous suture might be a special point in its favor, but the matter seems to be unimportant, for all knots quickly sink into the tissues, leaving a flush surface which is covered with fibrin.

### CAUSES OF DEATH.

For my experiments I have used dogs,— primarily because of the size of the heart in the larger dog,— and I had the same difficulty that other experimenters have had with the animal, for there is no mediastinum, the whole thorax being lined by one continuous membrane, and as soon as this is opened both lungs collapse, so that artificial respiration by bellows is needed. There are two important points in connection with this fact: a very large serous surface is exposed to the air and to infection, and it is practically impossible to avoid leaving a certain degree of pneumothorax when the chest is closed. Collateral traumatism and infection, then, led to the early death of most of the dogs; indeed, only two lived ten days, and then both died of empyema and pyopericardium. This makes it impossible for me to speak as confidently regarding the catgut suture as I should like, for *a priori* I should prefer in this place the absorbable suture, because a stitch once in is there to stay, and the opportunity of going back and removing it, if its presence is resented by the tissues, cannot be looked for. Still it is to be noted that one operator, Fontan of Paris, has the distinction of having twice sutured the heart with the recovery of both patients, and Launay has successfully closed two wounds in one heart, the suture material in all three cases having been catgut, and on the other hand, Nietert of St. Louis, has also two successful heart sutures to his credit, his suture material being silk. Still, if it can be shown that the healing process takes place to a practical extent during the persistence of the catgut, it will be reasonable to argue that no great objection can lie against the absorbable suture. In Elsberg's paper he asserts that reparative processes are in train in twenty-four hours, in forty-eight hours there is a dense round-cell infiltration, by the fourth day spindle cells appear, by the seventh day they replace the degenerated muscle fibre, and by the tenth day the granulation tissue is becoming fibrous tissue. He reports several rabbits killed on the fourteenth day with the heart wound in the heart firmly healed, and in one instance a rabbit dead of sepsis had a firmly closed heart wound on the eighth day. In two of my dogs, both dead of sepsis on the tenth day, the heart wounds were firmly closed, with no evidence of leakage or hemorrhage, although in one the infective process had attacked the epicardium and penetrated the myocardium. It does not need to be said that these dogs count for very little; but the inference is simple, from the whole evidence, that wounds of the heart muscle heal very rapidly and that the process may be practically completed quite within the life of a catgut suture. And the evidence of Fontan's two patients, one of whom was infected, and Launay's case of two wounds in one heart, is on the same side, and I shall therefore assume that catgut is, at least, a permissible suture material.

### SUCCESS OF THE CLOSURE OF HEART WOUND.

Finally it has to be said that in my dogs these sutures, however placed or tied, always controlled the hemorrhage and closed the opening, and that the healing processes, as they were studied, followed a course practically similar to that in Elsberg's experiments on rabbits, up to the death of my animals. They show that the repair in heart muscle is in no way different from the repair in skeletal muscles, and that it is no more interfered with by the action of the heart than are the nutritive processes of the organ.

I do not know of any of the successful cases of heart suture in man having died later, but there is reference to a case of Izzi's in which the heart was wounded but not sutured, and the man recovered, but on the twenty-eighth day, having left the hospital, he made considerable effort to lift a weight and had rupture of the cicatrix in the heart wall and sudden death. Of course, the wound in this heart had been filled by a coagulum, and in the process of healing this was organized or replaced by cicatricial tissue, and there never had been the proper coaptation of the heart muscle in the edges of the cut.

So far as the heart itself is concerned the proposition for its suture, in case of wound, is properly established; and if it were a superficial organ and easy of access, and if the path by which it is reached could easily be closed again, the whole matter would be eminently simple. The operation would be more frequently done, for the occasions demanding it would more frequently arise, and the whole technique would be quickly worked out in detail. But the heart, while it is close to the surface of the body at one point, is not a superficial organ, and to reach it the bony and muscular chest wall has to be traversed — a matter of no special import — and two serous sacs have to be invaded. Herein lies the great difficulty.

### INTERFERENCE OF THE PLEURA.

It is true that in a dissection the pericardium can usually be reached without a wound of the left pleura, but it can only be done by taking the pleura definitely into account. The anterior limits of the sac are very various, and in the

dissecting room it has been found to extend across behind the sternum almost to the right border of the bone. Commonly, it overlaps and lies just internal to the left border of the sternum as far down as the fourth cartilage, and from this point gradually passes downwards and outwards, crossing the sternal end of the fifth cartilage and just internal to the middle at the sixth. A wound, therefore, to reach the pericardium and heart without injuring the pleura, would have to be placed in the sixth interspace and close to the sternal edge, and be directed almost exactly backwards. This place is so small that practically it is never found, and it is necessary to consider that all wounds which penetrate the pericardium have traversed the pleura, and it is across the same tissue and sac that the surgeon must pass who attempts to repair the wound. There is another point to be considered here. The opening of a serous sac, either accidentally or surgically, exposes it to infection, and the serous membrane, by a power inherent in it, deals with such infection as occurs unless the latter overwhelms it. The question has been thoroughly studied by all, in its relation to the peritoneum, but I wish merely to refer to the fact that the peritoneum offers opportunities for the localization of an infection which cannot otherwise be disposed of, and that intestinal rest may contribute greatly to this localization. Both the pleura and pericardium differ from the peritoneum in this respect — the surfaces of neither offer pockets or recesses in which an infection may be confined, and constant motion incident to breathing and the heart beat, tends to disseminate pathogens and to quickly distribute them over the whole surface of the sac.

So far as the arrangement of the lymphatics of the pleura is concerned, its power of absorption should be greater than that of the peritoneum, and in certain cases of infection, as in the empyema of pneumonia, it does show considerable ability to deal with the condition; but in view of the great frequency of infection of the left pleura in connection with heart wounds, I am obliged to believe that the inability to obtain surgical rest for the tissue is a prominent factor in producing and perpetuating the condition.

In writing on wounds of the pleura and lung, Terrier and Reymond claim that infection of the pleura is not likely to occur unless there is a coincident wound of the lung. They argue that the infection probably comes from a bronchus, and base the treatment necessary for a traumatic hemothorax on the presence or absence of hemoptysis. In no one of the clinical histories of these heart wounds which I have seen is there mention of hemoptysis, but they nearly all had hemothorax, large quantities of blood being in the pleura, and a large percentage had a subsequent infection.

### SEPSIS AND DRAINAGE.

Of the thirty-four cases, nineteen lived long enough for the development of an infection, and in ten it developed, and of these six died, showing that infection so affects prognosis in these cases that a man infected has not so much as half a chance to recover; or, to put it differently, more than half of the cases were infected, and of these more than half died. It is of particular interest to know the time of the implantation of the infection, and I have found records of nine other cases of wounds of the pericardium and heart which were not submitted to any primary operation, and of these three had local infection, and one had primary local healing, but died of a peritonitis. The number of cases is very small, but so far as they go they show that about one-third of them are infected by the wounding instrument, and that primary operation increases the chance of an infection to more than half; this, however, must not be taken as counting against the doing of the operation, for its object is to control conditions which lead to certain death, and even with an infection recovery is not impossible. The knowledge of the great likelihood of an infection at the time of the receipt of the wound must be made use of, and one must consider if such a wound is not to be treated as one already infected. If this is done some method of drainage will be employed, and the detail of its arrangement is complicated by this fact, that one serous sac, the pericardium, must be drained across or through another, the pleura. The advice is given, probably in view of this difficulty, that both pericardium and pleura be closed without drainage, but some operators have drained and their results merit consideration. So far as I can learn, eleven of the thirty-four cases had primary drainage arranged, four for the pleura alone, and seven for the pleura and pericardium. Of the eleven seven recovered though two had infection. Of the four who died, two died of sepsis, and two of collapse before the possibility of knowing if sepsis was to develop or not, and if we exclude these last two we have nine cases drained and seven recovering.

Now, on the other side, there were nine cases that had no primary drain, and did have infection, and of these five recovered. The number of cases is small, seven out of nine and five out of nine, but in these cases, as in many, many others, a hair, perhaps, divides the chances of success from those of failure, and where we have only small statistics at hand, it is with those that we must work, and on them base our future actions.

In the drainage of the pericardium there is a point worth mentioning. The material should, of course, be gauze. It may be put in a small space left unclosed at the lowest point of the wound (Mignon et Sieur) and it does not need to go deeply into the sac, for with the patient supine or reclining the heart will sink in any effused fluid towards the dorsal side of the sac, displacing the fluid towards the ventral side, where a drain may easily reach it; but the fluid must pass upwards from the pericardium towards the skin opening, and this is, of course, a disad-

vantage. For the pleura a drain may be arranged to make its exit by the same opening as that for the pericardium or, and this seems the wiser plan, it may have an independent opening near the posterior axillary line, where it will be of most service if empyema does develop, and may, in such a case, obviate the need of a secondary thoracotomy. Of course, if no sepsis supervene, all drains should be very shortly removed.

### OTHER POINTS TO CONSIDER.

In the time allotted this paper on the program of the association it has only been possible to discuss the two technical points of suture and drainage, and the matter of the symptoms and the anatomic details of the wounds which have been put on record have, in spite of their importance, been passed by. Very briefly, the symptoms may be listed as consisting of the external wound in the precordial region, the general evidences of hemorrhage, the disturbance of the heart function sequent to the trauma and the acute anemia, and the local signs of the filling of the pericardium and, secondarily and in most cases, the pleura. As regards the wound itself, I believe, from examining the hearts which I have punctured and incised, that the endocardial wound is always smaller than the epicardial wound, excepting, I should imagine, in the bullet wound cases. This difference in the size of the wound at its two limits will explain the living of some with apparently large wounds but from which the amount of bleeding has not been commensurate with the size of the visible wound. It is necessary only to revert to the fact that the different parts of the heart behave somewhat differently when wounded. The thicker wall of the left ventricle offers a greater obstacle to hemorrhage and a better opportunity for suture than any other part; wounds of the right ventricle bleed more and are more difficult to suture, and the thin-walled auricles are saved from a lethal hemorrhage when they are wounded, by the comparatively low pressure of the blood in them, while in their loose structure a practical suture is a difficult thing.

### CONCLUSIONS.

The operations which have been recorded mark only the beginning; the heart is now destined to be submitted to many manipulations provided they may be done without stopping its action at once. It is a very unsafe thing to prophesy, but that more will be attempted can easily be inferred, for interference with the mitral orifice has already been suggested, and the immediate neighborhood of the heart has been invaded and a sacculated aneurysm of the aorta has been tied off, the success of this well-executed manœuvre being prevented only by the failure of the atheromatous vessel walls to heal. Possibly the next step may be delayed as long as the application to the heart of common surgical methods was delayed after Desault had taught us to open the pericardium. Perhaps it may come soon. It is not impossible that a new surgical technique may have to be created, but it is most probable that the next step will be based on the new application of the very old matters of the suture and drainage.[2]

## Original Articles.

### THE NECESSITY FOR AN ELECTIVE SYSTEM IN A SCHOOL OF MEDICINE AND ITS DISADVANTAGES.[1]

BY HERBERT L. BURRELL, M.D., BOSTON.

IT may be taken for granted that it is open to argument whether the best result is obtained by a fixed or elective curriculum in the education of a student in medicine. I assume that all agree that there are certain fundamental studies which must be required. The number and length of time to be devoted to these studies, how far the student should be obliged to attend lectures and recitations, to do laboratory work, to attend clinics and to receive credit therefor in obtaining his degree, is a matter for difference of opinion.

The curricula of the various medical schools of the country show marked variance in the opinions held by the various faculties as to the freedom that should be given a student in electing his course in medicine, and it is with the desire of obtaining an expression of opinion from this society, that I present the subject of an elective system in schools of medicine.

That we may clearly understand one another, I will define what I believe should constitute an elective system in a school of medicine. It should allow the student, as soon as his instruction in the fundamental studies is completed, to select and elect a group or groups of studies, leading to a more or less comprehensive knowledge of special lines of work. The fundamental studies should be anatomy, including histology and embryology; physiology, including physiological chemistry; pathology, including bacteriology; medicine, surgery and obstetrics.

For example, if a student wished to become a general practitioner, having completed his required work in the fundamental studies, he would receive advanced instruction in medicine, surgery and obstetrics, and the initial knowledge of as many specialties as practicable. If he wished to become an ophthalmologist, he would elect a group of studies which would give him advanced instruction in the anatomy, physiology and pathology of the eye, besides studying ophthalmology. If he wished to become an anatomist or pathologist, he might devote the whole of his time to these special subjects. So that in the latter part of his medical school life, he would devote his time to acquiring the fundamental knowledge of his future specialty.

With required entrance examinations, and in some schools the requirement of a degree in arts,

[1] Read before the University of Pennsylvania Medical Society, April 18, 1902.

[2] Memorandum of experiments omitted.

letters or science, it is a fair presumption that the student on entering a medical school has not an untutored mind. The study of medicine gives to many men a very advanced form of liberal education. The study of life, its extraordinary adaptations, the contact with individuals, the insight that the student is given into the strength and weakness of man and woman, the adjustment of every back to its burden, all broaden his view and elevate him as a man and a citizen. With the new kind of students coming to a school, the new ends which must be fulfilled by medical men, it would seem wise to consider the revision of our system of teaching.

The student comes to a school of medicine with the intention of acquiring the knowledge which shall enable him to carry out his life work, which should be the alleviation of human suffering, the saving of human life, the contributing to the knowledge of medicine and the securing for himself and family a livelihood, an education for his children, and a competency for his later years. He has finished his collegiate education and is now engaged in his life work. He is twenty-two or twenty-three years of age, and is anxious to obtain the knowledge that will enable him to practise his profession as soon as possible. Life is now very real to him. He is filled with energy, and in the vigor of young manhood no task set before him seems insurmountable; and yet the curricula of practically all the schools in this country are arranged so that he shall work nine months in the year and have three months' vacation. This in itself is not time-conserving nor practical for young men. It is a matter that should receive the most careful consideration of the faculties of medical schools. The University of Chicago has recognized this inconsistency, and has provided four semesters by which the student can pursue his studies practically continuously if he so elects.

The so-termed fundamental studies of anatomy, histology, physiology, physiological chemistry, pathology and bacteriology, it is generally accepted should be required, but the scientific men question at times the wisdom of including medicine, surgery and obstetrics. I believe that it is vital to the proper development of a scientific man that he should be well grounded in all three of the latter fundamental studies. For whether the student is to be a practitioner or a scientific man, he must build his superstructure on all of these foundations in order that his knowledge shall be comprehensive and his productiveness of full value to the knowledge of medicine. The proportion that all these studies should hold to the remainder of the course of medical instruction is open to question.

An extraordinary degree of activity has existed in laboratories during the past ten or fifteen years. A wealth of information has been contributed by them to the general knowledge of medicine. Efficient laboratories have been established for these special workers in medicine. I firmly believe that we are in great danger of overestimating the amount of time that a student should devote to these laboratory fundamental studies.

It is perfectly true that the training which the student receives in methods of scientific work while in these laboratories is frequently of inestimable value to him in his future work, but all graduates of colleges should have received at least part of this drill in work long before they come to a technical school, for as such I regard a school of medicine.

A just proportion should be maintained between the value of the method of work and the value of the knowledge obtained in a fundamental study. This is frequently lost sight of, and the amount of time given to an individual foundation is excessive when it is considered what a mass of knowledge must be obtained by a well-equipped, well-informed physician. Progress is made in medicine as in every other subject by pendulum-like movements, and the pendulum of advance has swung well over to the laboratory side of medicine. Be it understood that I definitely and clearly believe that great advances are to be made in medicine through laboratories.

The so-termed clinical subjects have been rather standing aside and have been hesitating as to the line of progress that they would take. They are waiting and listening with the closest attention to the knowledge that comes from laboratories, and have been, if I may so put it, rather overawed by the progress and by the facts that have come from laboratories. I believe myself that the clinical branches must advance along the lines of scientific work and must not wait for knowledge to come entirely from the laboratory. After all, the greatest laboratories for the observation of injury and disease are the wards and outpatient departments of a hospital.

The keen observation and critical analysis of our predecessors, many of whom did not have the advantages of a large clinic, led to the recognition of a vast number of facts and the adoption of many life-protecting and saving measures. It is incumbent upon the clinician to again take up the work and to fill the positions held by such men as Sydenham, Louis, Jacob Bigelow, Hebra and a score of others.

With the increase of knowledge from laboratories let there be renewed activity among clinicians, let laboratory men and clinicians each respect the other and, working co-operatively, solve some of the vast number of the riddles of disease.

The sum of medical knowledge today is so great that it is not within the grasp of a human mind. For this reason, it is necessary that there should be some election in schools of medicine. The student mind and the public demand today special, complete knowledge on individual subjects. Object as we may that specialization is narrowing, that it tends to destroy the ability to grasp the whole of a situation, that it has abolished the well-informed general practitioner, the demand exists and is imperative — special knowl-

edge on special subjects founded on broad general knowledge.

Granting that this is true, how best in a four-years' course can we give to the student that grounding which shall enable him in after years to develop in the best manner in whatever path he elects? That one can become in a four- or a five-year course an expert anatomist, pathologist or physiologist is impossible. That one should acquire the foundations and a fairly complete introduction to a chosen specialty is or should be possible. Let it be clearly understood that I do not believe it is possible nor desirable to make a specialist in a four-years' course of medical instruction. I do believe that it is possible to allow the student to elect at some appropriate time the course that he intends to pursue for his life work.

To go on with the necessities of an electic system, they may be enumerated as follows: (1) The mass of knowledge which now exists in medicine is so great that it cannot be mastered by a single mind. (2) The needs of medicine and the public demand that specially informed men shall represent the highest knowledge in selected subjects. (3) The different capacities of individual students and their different methods of work make it expedient to allow them freedom of action in their methods of acquiring knowledge. (4) The advantage of having men elect an individual subject in which they are keenly interested is very great. Nothing can be more unsatisfactory to both teacher and student than to have to demand that a student shall acquire knowledge on a subject for which he cares nothing, particularly if the student is convinced that his time had better be spent on some subject in which he is interested. It is entirely human not to want to do the thing one is obliged to do, but if one elects to do a task it is at once converted from a burden to a pleasure. (5) Elective courses, if established, could be given by a number of instructors, not alone by the professors in the department, but by the assistants as well, in order that the student should have the opportunity to obtain knowledge in a manner fitted to him. An elective system of instruction conducted on this principle would quickly determine the value of a method of teaching and the success of the instructor. (6) But the greatest of all advantages, to my mind, is the freedom it would give to the individual student and to his instructor. The poor pedagogue who is obliged to teach again and again the principles only of a subject, and never take the student's mind beyond them, is apt to regard life from the standpoint of Mr. Mantalini, "as one demnition grind." But if he may carry a selected number of pupils as far as they desire and are capable of going in a given subject, a keen and rare pleasure comes to him as he watches their mental development. Nothing that I have ever been brought in contact with is more inspiring to the personal development of an instructor than a group of selected students who are full of sensible interrogatories and who are desirous of obtaining all the knowledge that exists in reference to an individual subject. It is a stupid teacher who is not given food for thought and new ideas by such a group of students. The freedom of the student is of inestimable value. The assumption that a young man does not know what he wants to do in this world is not supported by evidence. That he is always wise in his selection no one presumes to say, but that it is best that he should have the right to pursue the lines of development as he wishes, it seems to me, is true, with this one qualification: No young student mind should be allowed to elect his line of development without previously having an insistent demand made that he should have the foundations of the subject. It would be absurd that a student in medicine should elect hygiene without a competent knowledge of advanced chemistry, but that he should be obliged to receive advanced instruction in anatomy is, to my mind, equally absurd.

There are many disadvantages in an elective system, and among them are: (1) The difficulty of deciding what is absolutely necessary to form the foundation of a knowledge of medicine. (2) The loss that would occur to the student from a broad general medical education is very considerable, for there is hardly one of us but values the complimentary knowledge that we obtained in our early medical life by working along general lines. (3) The inability on the part of the teaching body to know exactly what information the student has acquired. This difficulty, of course, could be met by an efficient system of examinations, which, I grant you, would be time-consuming and very expensive. (4) The desire of a minimum number of students to be led to have their knowledge tested from time to time, to receive the encouragement of step-by-step success and to appreciate that they are making progress. (5) One of the most pertinent objections to an elective system would be the whims of a student body. Given an uninteresting though very important subject, well presented by the instructor, with a stiff examination at the end, the chances are that the student body will object and will shun the instructor and his course. (6) The early specialization of a student who really does not know exactly what he wants to do. The exactness and glamor of surgery, for example, frequently attracts students who find, poor souls! that, after all they have done in equipping themselves to be surgeons, an opening in medicine presents itself which is, after all, the feasible, practical thing for them to do as a life work. This failure, however, to arrive at one's desired goal is a constant incident in man's work, and should not deter a faculty from giving to the best students the opportunity to elect.

There should be provided in an elective curriculum a group of studies to be continued until the end of the course for those who, for various reasons, cannot determine, or do not care to decide, what special line of work they will pursue in medicine. This group of a general curriculum

will be adopted by the mean of students as the safe course and will serve to give these men a safe and broad foundation for specialization. It is often said that a curriculum should be arranged for the average student, that the brightest students will take care of themselves. True! but why not stimulate students and teachers by giving to those who elect advanced knowledge along chosen lines?

I take it, that you will grant me that the elective system is desirable at some period in the education of a medical man. Many will insist that no specialization should exist until after the student has graduated. My answer to this is that, "by hook or by crook," the majority of the best students who graduate from medical colleges today elect that they will devote more time to one given subject than to another. This demand exists. It is a condition which is present. Why not meet it and adjust our curriculum accordingly? After all, what, as teachers of medicine, we desire to do is to see that a medical graduate shall have a safe and competent knowledge of the science and practice of medicine; and beyond that we should insist that the best students shall have the facility, when they possess the ability, to go as far as they may along their chosen line of selection.

How can this be obtained? I believe by a minimum required curriculum — minimum in the number of subjects to be taught the students and minimum in the number of hours to be devoted to the subject. The minimum number of subjects should be anatomy, physiology, pathology, medicine, surgery, obstetrics and, possibly, hygiene. The number of hours that should be devoted to these subjects should be reduced to the absolute minimum which would be necessary to give the knowledge that every well-educated medical man should possess as a foundation.

An impartial board of three members of a faculty could determine the amount of time to be occupied by these fundamental studies. The head of the department of these fundamental studies is too apt to exaggerate the importance of his individual department.

A very thorough system of examinations should be adopted for these required fundamental studies. A written examination at the end of the course is entirely inadequate; it should be supplemented by recitations, laboratory work and tests applied to bring out the student's power to do rather than to simply memorize.

Students who demonstrate at the end of a year their incompetency should be given another trial, and if they fail should be dismissed from the school. The system which obtains in some schools of allowing men to come up year after year for their examinations and to finally, by a chance, squeeze through is not right. It allows men to eventually secure a degree for which they are entirely unfitted. No student should be allowed to fail in an individual subject more than three times without having his case taken under advisement, and if he should then be found unfitted to continue he should be dismissed from the school.

That special knowledge should be required in such subjects as surgical pathology, therapeutics, orthopedics, genito-urinary surgery, syphilis, bacteriology, medical chemistry, histology, embryology, legal medicine, ophthalmology, otology, laryngology, gynecology, neurology, military medicine, dermatology and pediatrics is open to question. If required, it should certainly be the minimum and not the maximum, as it is in many instances at present.

In conclusion, the elective system is now in use in schools of medicine by the best students. It is a legitimate demand on their part, and it should be met by the teachers of medicine. It can best be obtained by insisting upon a minimum required curriculum on the subjects which teach the knowledge, and those alone that should be possessed by every well-grounded medical man.

If, in presenting this subject to the University of Pennsylvania Medical Society, I have succeeded in stimulating thought, I shall be deeply gratified.

## REPORT OF A CASE OF CHRONIC, CONTINUOUS HYPERSECRETION WITH HYPERCHLORHYDRIA (REICHMANN'S DISEASE), WITH ESPECIAL REFERENCE TO TREATMENT.[1]

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That the class of case here presented is rare, that it is new to many physicians, and that it is of interest to those concerned with the treatment of gastric diseases, are deemed sufficient reasons for the following report. The patient was kindly referred by Dr. E. O. Otis:

Mr. J. C., Exeter, N. H., age thirty, married, born in England. For the past nine years he has been employed in a shoe factory in this country; previously he worked on a farm, and for a short time in an iron foundry in England. He says his mother always had a stomach trouble. Excepting the present affection he has had no illness since childhood. His present trouble began fifteen years ago when he was fifteen years old. The onset was gradual and he can attribute no cause.

The chief subjective symptom is pain in the epigastrium, localized to an area of about four inches in circumference, it is sharp in character, often causing him to "double up." It usually occurs two to three hours after meals and frequently awakens him at night; its duration is several hours. It is relieved by eating. Starchy foods, he believes, are more liable to excite it than proteids. On account of this pain he estimates that he has been obliged to lose two to three months' work each year. He states that he has never been free from the pain for three consecutive weeks during the past fifteen years except when he came to this country. During his ocean voyage he was able to retain but very little food, but he was free from the pain and enjoyed this immunity for three months after his arrival, when it again returned with its former severity. This incident is mentioned, not only as a point of history, but also as having some possible therapeutic significance. Although he has consulted many physicians (fourteen,

[1] Read before the Clinical Section of the Suffolk District Medical Society, Feb. 19, 1902.

he says) he has found no remedy that would afford greater relief than hot milk and soda and this has been but temporary. Marked tenderness in the epigastrium accompanies the pain and persists for a time after the pain has ceased. The appetite, though variable, is usually good, fear of the ensuing pain has at times caused him to omit some of his regular meals. There has been no excessive thirst. Eructations of an odorless gas often occur at the time of the pain and give some relief; there has never been much pyrosis. There has been no nausea, and no vomiting except one attack several years ago, but he feels at times as if vomiting would afford relief from the pain. The bowels have been constipated for years, and there has been some flatulence. Hematemasis has never occurred, nor has melena been observed. The patient uses neither alcoholic liquors nor tobacco. He drinks one cup of coffee and one or two cups of tea a day.

Examination on Jan. 17, 1901. The patient has a sandy complexion, the facial expression is somewhat serious and sad, the temperament is judged mildly nervous. The present weight is about 145 lbs.; formerly he weighed about 160. The tongue is thinly coated, the teeth are in good condition, the breath is not offensive. The heart, lungs and urine are negative. The liver, spleen and kidneys are not palpable. Palpation shows marked tenderness in the epigastrium, even gentle percussion causes the patient to flinch. Succussion sounds are elicited although the patient has fasted 19 hours. There is no tumor. The contents from a test meal at this time amount to 400 cc., strongly acid in odor. A large amount of free HCl is present. Through an accident no quantitative tests are made. Lavage is done and the stomach inflated. By percussion the greater curvature is found to be 1 inch below the navel in the median line. The lowest zone of resonance follows the ninth rib to the midaxillary line and upwards to the sixth rib. The stomach with but little discomfort contains 1,300 cc. fluid. A. S. & B. pills only are prescribed at this visit.

Jan. 23. Patient's expression is cheerful. The pain is diminished in frequency and severity, the tenderness is also lessened. Breakfast at 7 A.M., oatmeal, milk and coffee. The contents from a test meal about seven hours later, without previous lavage, amount to 400 cc. The only solid constituents are swollen particles of the oatmeal eaten at breakfast. Free HCl, 2.2 per M.; total HCl, 2.7 per M.; total acidity, 77 per C. Albumose peptone, rennet and pepsin are present. Lavage is done as at each future visit. A nitrogenous diet was ordered, all condiments curtailed; also antacid tablets, one and one-half hours after each meal, to be repeated every thirty minutes until four tablets are taken, or, if pain is present, until it ceases. (The tablets used are composed of calcium carbonate, 3 1-2 gr.; magnesium carbonate, 2 1-2 gr.; sodium chloride, 1 gr. The total of 7 gr. is equivalent in alkalinizing power to sodium bicarbonate, 10 gr.)

Jan. 29. Patient has had three attacks of "gnawing" at stomach, but no real pain since last visit. The epigastric tenderness has practically disappeared. The appetite is increased. Milk, 500 cc. with 30 cc. of lime water is ordered to be taken between meals.

Feb. 11. There has been but two slight attacks of pain during the past thirteen days. Breakfast, milk, 400 cc. The stomach contents seven hours later amount to 200 cc. of clear consistency, without blood or mucus. Free HCl, 3 per M.; total HCl, 3.8 per M.; total acidity, 104 per C. Lavage is done and a test meal given. Contents, 135 cc.; free HCl, 1.9 per M.; total HCl, 2.5 per M.; total acidity, 78 per C.

Feb. 18. No pain since last visit. Patient has gained 3 lbs. in weight. Many fat globules are noticed in the fasting contents today. They probably came from the butter eaten at breakfast. It is deemed advisable to limit the amount in the future to a minimum.

Feb. 27. No pain for the past fourteen days. Breakfast, 7 A.M.; steak, bread, coffee and potatoes; fasting contents seven hours later, 200 cc. Free HCl, 3.8 per M.; total HCl, 4.6 per M.; total acidity, 125 per C. Lavage is done and a test meal given. Result: Contents, 150 cc.; free HCl, 3 per M.; total HCl, 3.5 per M.; total acidity, 95 per C. Note the high acidity of fasting contents after heavy breakfast.

March 9. There has been practically no pain for the past month. The patient is cheerful and much encouraged with the results of treatment. As he seems to be doing well, and as frequent visits are not convenient, it is decided that he shall do self-lavage at home on alternate days. In order to combine a laxative and antacid, artificial carlsbad salts after meals are substituted for the A. S. & B. pills and antacid tablets. The seven hour fasting contents today amount to 120 cc.; free HCl, 2.9 per M.; total HCl, 3. per M.; total acidity, 97 per C.; test-meal contents, 220 cc.; free HCl, 2.8 per M.; total HCl, 3 per M.; total acidity, 93 per C.

March 23. The pain has returned and persisted for past several days, but is less severe than formerly. The patient seems much dejected, and states that he does not care to live if he is always to have the pain. Breakfast, 7 A M., consists of 400 cc. of milk. The fasting contents seven hours later amount to 210 cc. They contain many curds, though these had not been observed previously after a milk breakfast. The original treatment is resumed in detail, but the patient is to do lavage on alternate days. Bromide of potash, 10 grs. three times daily is prescribed. The seven-hour fasting contents are 210 cc.; free HCl, 3.2 per M.; total HCl, 3.8 per M.; total acidity, 104 per C.; test-meal contents, 180 cc.; free HCl, 2.9 per M.; total HCl, 3.2 per M.; total acidity, 97 per C.

April 5. Notwithstanding the return to former treatment the pain and tenderness have persisted since last visit. The diet is changed to peptonized milk, malted milk, soups and mashed vegetables. Self-massage of the stomach two to three hours after meals is recommended. Atropia sulphate, 1-100 gr., after meals is prescribed. Lavage is done and a test meal given. Result: Contents, 140 cc.; free HCl, 3.6 per M.; total HCl, 4 per M.; total acidity, 129 per C.

April 13. The atropia was stopped after three days' use on account of its physiological effects being produced. During its administration the pain continued the same, its effect on the secretions was not determined. Breakfast, 7 A.M., meat, toast and coffee. Fasting contents seven hours later 180 cc., 1-8 consisting of food particles. The gastralgia is present at this visit; removal of the stomach contents relieved it.

We had previously decided that if the pain had not stopped by this time, rectal feeding should be tried for a week; therefore it was begun on the afternoon of this day. Peptonized milk, 8 oz., four times a day, was given at first; on and after the third day about two quarts were consumed daily. Lavage was done daily after removal of the fasting contents.

April 14. The second day. Fasting contents, 210 cc.; free HCl, 2.1 per M.; total HCl, 2.6 per M.; total acidity, 82 per C.

April 15. Third day. Fasting contents at 1 P.M., 85 cc.; free HCl, 1.8 per M.; total HCl, 1.8 per M.; total acidity, 61 per C.

April 16. Fourth day. Fasting contents, 11 A.M., 53 cc.; free HCl, 1.8 per M.; total HCl, 1.8 per M.; total acidity, 71 per C. Patient first experiences slight hunger and thirst; he becomes quite homesick.

April 17. Fifth day. Fasting contents, 9 A.M., 175 cc.; free HCl, 2.9 per M.; total HCl, 2.9 per M.; total acidity, 94 per C. Fasting contents at 4 P.M., 100 cc. Patient is more homesick than yesterday and much worried about home affairs. We decide to send for his wife and child.

April 18. Sixth day. Fasting contents, at 9 A.M., 100 cc.; free HCl, 2.1 per M.; total HCl, 2.1 per M.; total acidity, 77 per C. Fasting contents at 4 P.M., 40 cc. Wife and child arrive this afternoon. Patient seems more cheerful. Begin bromide of potash, 20 gr., three times daily this afternoon; also lavage with silver nitrate, 1 to 1,200.

April 19. Seventh day. Fasting contents, 25 cc. Patient feeling well but quite hungry. Beef tea, 1 oz., allowed by mouth this evening.

April 20. Eighth day. Fasting contents, 11 A.M., 20 cc.; free HCl, .5 per M.; total HCl, .5 per M.; total acidity, 31 per C. Allowed beef tea, peptonized milk and toast by mouth today; rectal feeding discontinued.

April 21. Morning contents, 65 cc.; free HCl, 3.9 per M.; total HCl, 4.1 per M.; total acidity, 120 per C. Patient has had no pain since the rectal feeding was begun. He feels weak, and has evidently lost flesh. He is, of course, aware of the increase in amount of contents today, and is told that the acidity is higher. He is also told that he may expect to be free from pain a few weeks or a few months. He states that he would willingly undergo the treatment again if it would insure three months' freedom from the gastralgia. He is directed to gradually return to a mixed diet, avoiding coarse foods, all condiments, and those foods which we had found inadvisable for him to eat. He is to continue the bromide of potash, 15 gr., three times daily, the antacid tablets after meals, and to do lavage three times a week with the silver nitrate solution.

April 28. Reports that he lost 9 lbs. during the rectal feeding, has had no gastralgia, and is feeling well every day, "appetite enormous."

May 13. Condition the same as at last report.

June 13. Has discontinued the bromide of potash; also the antacid tablets. No gastralgia to date.

Sept. 14. Five months since the rectal feeding, and no gastralgia. He seems bright and cheerful, a marked contrast to his former condition. Has eaten nearly everything he desired, all kinds of fruits, vegetables, etc. Is still using silver nitrate solution. He says that he notices the fasting contents are always less after rubbing his stomach. He is not gaining in weight. At the present time he feels "nervous in his stomach," as he formerly did when the pain was coming on. Caution is advised as to diet. The fifteen-hour fasting contents are 180 cc.; free HCl, 3.2 M.; total HCl, 3.3 per M.; total acidity, 105 per C.; test-meal contents, 185 cc.; free HCl, 3.2 per M.; total acidity, 99 per C.

Nov. 28. Reports that soon after last visit he had some pain, he fasted thirty-six hours, and it left. Nov. 17 he had some tenderness in the epigastrium but no pain, which was probably prevented by daily lavage.

Jan. 30, 1902. Reports that he is well. He says: "I might say I have had practically no pain for ten months." He is still moderately constipated.

In considering cases of chronic continuous hypersecretion with hyperchlorhydria, or Reichmann's disease, it must be admitted they are rare. Reichmann [2] states that in years he has seen only six cases, while Boas, in his large experience, has encountered only ten. Bouveret,[3] Riegel [4] and others claim to have seen considerable numbers, but it seems possible that some of their cases were of the periodic type. Several cases of this latter type have recently been observed by the writer, one of which has been incidentally reported.[5] In this case a cure was apparently effected in the course of several months. Had the case been observed a shorter period, it might have been recorded as one of the chronic continuous form.

It is not within the province of this paper to discuss the etiology or pathology of this condition. Perhaps too little is known of either to warrant much being said. It, however, may not be out of place to state here that the nervous element in our case did not seem sufficient to demand more than passing notice.

[2] Ewald's Diseases of the Stomach, second edition, p. 506.
[3] Bouveret: Maladies de L'estomac, 1893.
[4] Riegel: Deutsch. Med. Woch., May 25, 1892.
[5] See Boston Medical and Surgical Journal, Feb. 20, 1902, vol. cxlvi, No. 8, pp. 198-200.

The diagnosis is comparatively easy when the proper methods of examination are employed and sufficient time devoted to observation.

Periodic hypersecretion with hyperchlorhydria, stasis from any cause and ulcer of the stomach must be differentiated. That we have to deal in the case under consideration principally with a continuous hypersecretion is well shown by the results of the various examinations extending over a period of one year, while the findings during the period of rectal feeding furnish conclusive proof. The accompanying dilatation and stasis are of secondary importance, as they are probably results of the hypersecretion. Ulcer may be excluded by the absence of blood, the characteristic pain and tenderness.

In addition to the chemical findings, Boas claims we must also have the subjective symptoms: heartburn, eructations, occasional vomiting, gastralgia, increased appetite, constipation and emaciation, in order to make a diagnosis of Reichmann's disease. In our case the majority of these symptoms are present.

As to the prognosis, Einhorn [6] says, according to his experience, it is not bad. As a rule, most patients improve under rational treatment. Frequently, however, there are relapses. Some very obstinate cases are occasionally met with, and the trouble, although yielding somewhat to treatment, may persist for years. There is, however, no danger of a fatal issue resulting from this disease alone. Bouveret mentions tetany and ulcer as possible resulting complications. With our present knowledge of the treatment of this condition, a cure of the case under consideration does not seem probable.

On reviewing the case it is seen that for the first two months the patient was relieved of his subjective symptoms by a nitrogenous diet of five meals a day, the antacid medication and weekly lavage. A nitrogenous diet was ordered because that is the one usually employed in this condition. All condiments were prohibited, as they are supposed to excite secretion. The antacid, although continued several months, was at no time taken in the large doses recommended; it was with difficulty that the patient was induced to take twelve tablets a day, which is equivalent to bicarbonate of soda, two drams. He believes they did no good. It is also seen that accompanying a change of the antacid tablets to carlsbad salts and the beginning of lavage on alternate days, the gastralgia returned, and, notwithstanding an early resumption of the original treatment, the pain continued. It is further seen that a vegetable diet with liquids, together with the administration of atropia and bromide of potash, had no effect upon the gastralgia. The vegetable and liquid diet was tried, because some contend that it is better suited to this condition, for the reason that it is supposed to excite less secretion than the nitrogenous diet. Its use in this case produced no apparent effect. Bromide of potash seemed to have no influence on the pain, neither

[6] Einhorn: Diseases of the Stomach.

did the atropia. But a fair trial of the atropia was not made. The patient could not stand $\frac{1}{100}$ gr. three times daily for any considerable length of time, so it was discontinued after three days; moreover, no examination of the secretions could be made; consequently, in this case, it is not known if they were effected; the pain, apparently, was not. Lavage, during the latter part of treatment, was done on alternate days by the patient. It was not until the commencement of rectal feeding that the pain again ceased.

The sickness of the sea voyage and its effect on the gastralgia suggested rectal feeding. Later, it was seen recommended by Hemmeter[7] in this condition; it is not, however, mentioned in several of our better works on stomach diseases. Besides the relief from pain, there are several other features connected with the procedure which seem worthy of note.

From the beginning, a diminution of the secretion and acidity is noted.

TABLE No. 1, SHOWING THE AMOUNTS OF FASTING AND TEST-MEAL CONTENTS AND ACIDITIES OF THE SAME.

| Breakfast 7 A. M. | Hours Fasting. | Fasting. Contents, cc. | Free HCl per M. | Total HCl per M. | Total Acidity per C. | Date. | Test-meal. Contents, cc. | Free HCl per M. | Total HCl per M. | Total Acidity per C. | Period of pain. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| None. | 13 | — | — | — | — | Jan. 17 | 400 | — | — | — | Yes |
| Light. | 7 | — | — | — | — | " 23 | 400 | 2.2 | 2.7 | 77 | Yes |
| Light. | 7 | — | — | — | — | " 29 | 350 | — | — | — | Some |
| Milk, 400 cc. | 7 | 120 | — | — | — | Feb. 5 | — | — | — | — | No |
| Milk, 400 cc. | 7 | 200 | 3. | 3.8 | 104 | " 11 | 135 | 1.9 | 2.5 | 78 | No |
| Heavy. | 7 | 200 | 3.8 | 4.6 | 125 | " 27 | 150 | 3. | 3.5 | 95 | No |
| Milk, 400 cc. | 7 | 120 | 2.9 | 3. | 97 | Mar. 9 | 220 | 2.8 | 3. | 93 | No |
| Milk, 400 cc. | 7 | 210 | 3.2 | 3.8 | 104 | " 23 | 180 | 2.9 | 3.2 | 97 | Yes |
| Light. | 7 | Lavage done | | | | Apr. 5 | 140 | 3.6 | 4. | 129 | Yes |
| Heavy. | 7 | 180 | Lavage done | | | " 13 | 180 | 2.9 | 3.6 | 98 | Yes |
| None. | 16 | 65 | 3.9 | 4.1 | 120 | " 21 | — | — | — | — | No |
| None. | 15 | 180 | 3.2 | 3.3 | 105 | Sept. 14 | 185 | 3 2 | 3.4 | 99 | No |

It will be remembered that the normal amount of free HCl is about 1.5 to 2. per thousand one hour after an Ewald test meal; that the stomach contents one hour after such a meal should be less than 100 cc, and that the contents of the stomach after 10 to 12 hours fasting should not exceed 10 or 20 cc.

TABLE No. 2, SHOWING THE AMOUNTS OF SECRETION AND ACIDITIES DURING RECTAL FEEDING.

| Date. | Time. | CC. Contents. | Free HCl. | Total HCl. | Total Acidity. |
|---|---|---|---|---|---|
| Apr. 14 | 11 A.M. | 210 | 2.1 per M. | 2.6 per M. | 82 per C. |
| " 15 | 1 P.M. | 85 | 1.8 " " | 1.8 " " | 61 " " |
| " 16 | 11 A.M. | 53 | 1.8 " " | 1.8 " " | 71 " " |
| " 17 | 11 A.M. | 175 | 2.9 " " | 2.9 " " | 94 " " |
| " 17 | 4 P.M. | 100 | — | — | — |
| " 18 | 9 A.M. | 100 | 2.1 " " | 2.1 " " | 77 " " |
| " 18 | 4 P.M. | 40 | — | — | — |
| " 19 | A.M. | 25 | — | — | — |
| " 20 | A.M. | 20 | .5 " " | .5 " " | 31 " " |
| | Food by mouth today. | | | | |
| " 21 | A.M. | 65 | 3.9 per M. | 4.1 per M. | 120 " " |

The temporary rise in the amount of secretion on the fifth day is attributed solely to homesickness; the following drop in the amount occurring after the arrival of his wife and child would tend to strengthen this conviction.

The later experience with bromide of potash and silver nitrate solutions, begun at this time, would seem to show that they had little influence in the drop which here occurred.

The early return of the hypersecretion following the resumption of food by the mouth was somewhat disappointing, and was attended by a feeling that the treatment had been in vain. Future observation, however, leads to the belief that it was beneficial, and in a similar case, under like conditions, would be tried again. The gastralgia was stopped by this treatment, and it is now prevented by lavage, attention to diet, and occasional fasts of from twenty-four to thirty hours. Consequently, as long as this treatment insures freedom from the pain, it will be continued; when it fails, rectal feeding will be resorted to again.

A study of Table No. 1 shows that the amounts of fasting and test-meal contents, also the amounts of the acidities, were much the same at the close of observation of the case as they were at the beginning. From this fact alone it would seem that the benefit which the patient has derived from treatment is not due to any alteration of the secretions, but probably to some favorable change in the gastric mucosa, whereby it has been made more tolerant of the highly acid secretions. Thus we see the object of our treatment (a cure through suppression of the secretions) has not been attained. Yet, something has been done for the patient. He has had placed in his hands the means with which he can protect himself from the intolerable gastralgia. He has been enabled to follow his occupation continuously for the past ten months, whereas previously he was losing one-sixth to one-fourth of his time. The state of dejection and despair, in which he affirmed he did not care to live if he were always to have the pain, has been replaced by one of comparative comfort and happiness.

[7] Hemmeter's Work on Diseases of the Stomach.

## THE USE OF SUPRARENAL EXTRACT IN HAY FEVER.[1]

BY J. PAYSON CLARK, M.D., BOSTON.

IT has been well said more than once that the length of the list of remedies proposed for any human ailment is a good index of our ignorance of its pathology. And there is no better illustration of the truth of this statement than the affection which we designate hay fever or vasomotor rhinitis. All that we can say of it is that it is a neurosis, manifesting itself in a hyperesthesia of the nerves supplying the nasal mucous membrane, this hyperesthesia being exhibited especially towards the pollen of certain plants, and resulting in a vasomotor paresis. We treat these cases by sending them where they may not be exposed to the pollen to which they are especially susceptible, by relieving any general dyscrasia, where

[1] Read before the Clinical Section of the Suffolk District Medical Society, Feb. 19, 1902.

such exists, by reducing the local irritability of the nose, removing any abnormal condition that may be found there, and by various palliatives. In the present state of our knowledge of hay fever our treatment can be little more than empirical, and therefore any new weapon for combating such an obstinate and elusive enemy to the comfort and happiness of a large number of people is very welcome.

Soon after the announcement in 1896 by W. H. Bates that the aqueous extract of the suprarenal gland was a powerful local hemostatic and astringent in the eye, investigators began experimenting with it on mucous membranes, especially of the respiratory tract. The first mention of its use in hay fever was made by S. Solis-Cohen. He found that the symptoms of hay fever from which he suffered were controlled by using a 5-gr. tablet of suprarenal substance by the mouth every two, three or four hours, according to the results obtained. He found that associated coryza or sneezing would cease within fifteen minutes after taking the tablet, and that favorable results were more marked when the drug was allowed to *dissolve on the tongue*[2] than when immediately swallowed. Beaman Douglass said in 1899 that he considered the dried suprarenal gland, administered internally, almost a specific for the symptoms of hay fever. He also found that a watery solution of the glycerin extract used locally as a spray was equally successful. L. S. Somers, on the other hand, speaks of the effects of internal treatment as follows: "The nasal symptoms, as sneezing, rhinorrhea and obstruction to breathing, were but slightly influenced; the sneezing attacks were apparently more infrequent, while the drug was being used, but the attack itself was as severe as before. The nasal stenosis was somewhat favorably influenced, . . . the rhinorrhea was uninfluenced in any way. Puritus of chin and buccal mucous membrane was diminished in intensity when tablets were allowed to *dissolve in the mouth*."[2] Asthmatic symptoms, in patients who had them, he found to be unfavorably influenced, and in five cases in which asthma had never previously existed it appeared while the drug was being used, but in a mild form. When tablets were swallowed without first dissolving on the tongue little or no appreciable results were obtained. The majority of experimenters are of the opinion that the active physiological effects are not seen when the drug is given by the mouth. Somers found that the disagreeable effects of administering the extract in full doses internally were nausea, a sense of constriction of the chest and the development of asthma or augmentation of the paroxysm when it already existed. Locally, he considers it the most satisfactory single remedy that we possess in hay fever. In a later article, Douglass adheres to his first statement. From full doses internally, patients experience sometimes a certain degree of vertigo, some nervous excitement and always an increase in the heart's action. There are no dangerous sequelæ. Those who desire to try the remedy internally I refer to Douglass's original article for dosage, method of administration, etc. E. B. Gleason uses it both locally and internally, but he speaks more enthusiastically of the former method.

[2] The italics are mine.

The experience of many observers now bears out Dr. Swain's conclusions, that there are no dangerous or deleterious effects to the individual from the use of the aqueous extract locally, even in very considerable amounts, and that the "local effects can be reproduced in the same individual apparently any number of times, without entailing any vicious habit either to the tissue or to the individual." The above statements are equally applicable to adrenalin chloride solutions of moderate strength (1-5000 to 1-10000) and, as far as my experience goes and that reported by other observers, the 1-1000 solution can also be used freely in the nose with impunity. N. L. Wilson, speaking of the adrenalin chloride solution, says: "For temporary relief in hay fever it has no equal and is less apt to produce irritation than the solutions of the suprarenal gland." In the discussion of the paper, from which this quotation is made, before the American Laryngological, Rhinological and Otological Society, H. H. Curtis said he had had eight or ten cases in which there had been an absolute intolerance of any of the preparations of the suprarenal gland. Others spoke of irritating effects, sneezing, etc., in some cases.

My own experience with the use of suprarenal extract in hay fever extends over the past two summers. The number of cases in which I have given it internally is too small, when taken alone, to support any positive conclusions. My results, as far as they go, agree with those of Somers in being absolutely negative, as far as any effect on the hay fever symptoms could be observed. The reason I confined myself almost entirely to the local use of this remedy was that it seemed to me the most rational one, our desire being to overcome the vasomotor paresis of the blood vessels of the turbinates and restore their tone, as well as to diminish the hyperesthesia of the nasal mucous membrane. This could apparently be more directly accomplished by a local than by an internal use. Compare in this connection the statements of Solis-Cohen and Somers in regard to the effect of allowing the substance to dissolve on the tongue. The rationale of the local application has further support in the theory sustained already by considerable physiological and clinical evidence, that the action of the suprarenal extract is directly on the muscle fibre in the walls of the blood vessels. I began by using the dessicated capsules in powder form, mixed with a little water. Later, I substituted Parke, Davis & Co.'s solution of the suprarenal extract with chloretone, and this summer I used, besides this solution, the same firm's solution of adrenalin chloride (Takamine), 1-1000, usually diluted five or ten times. In regard to the relative value of these different preparations, the dessicated gland mixed with water was found

much inferior as a local application to either of the other two, being, as a rule, much less active and causing more often symptoms of irritation. The effect of the 1-10000 adrenalin chloride solution was, apparently, equal to that of the solution of suprarenal extract with chloretone. For sprays, the adrenalin chloride solutions are preferable.

Before applying the suprarenal a one percent solution of cocain was sprayed into the nose to prevent the irritation usually caused by the introduction of any foreign body into the nose. A pledget of cotton was then dipped into the suprarenal solution and laid against the turbinates in each nostril and allowed to remain there for several minutes. The immediate result of this treatment in the majority of cases was the relief of all local symptoms, lasting for a few hours to several days. As one would naturally expect, in cases in which some local pathological condition was present, such as polypi, hypertrophied turbinates, or septal spurs, it was necessary to relieve this condition before the effect of the suprarenal could be properly judged. In a fair number of this class of cases cessation of the hay fever was obtained simply by appropriate treatment of the local abnormality. In some cases in which there was a rheumatic or uric acid diathesis (so called) the first application of one of the preparations of suprarenal above mentioned caused a violent reaction, with swelling of the mucous membrane, sneezing and a profuse watery discharge from the nose, in other words, a violent hay fever attack. No such reaction followed a similar application a day or two later, but on the other hand no apparent relief followed it. The hay fever symptoms in these cases yielded finally to the internal administration of antirheumatic remedies together with the appropriate treatment of any local abnormality, if such was found to exist. The number of these rheumatic (?) cases observed is too small to support any positive statement of a general character regarding the effect of the suprarenal on them, but it is large enough to suggest the desirability of a careful observation of more of these cases.

A brief report of a few cases, illustrating some of these points, may be instructive.

CASE I. H. B., male, age thirty-five, has hay fever each year from the middle of August to frost. After hay fever has lasted for a week or two asthma comes on. The patient has frequent attacks of rheumatism throughout the year. The urine has a high specific gravity, 1,028, high color and increased acidity. Urea and uric acid are increased. No albumin and no sugar are present. An application of suprarenal extract solution with chloretone caused violent reaction with increased obstruction and watery discharge. The patient was put on an antirheumatic treatment at once. A similar application to the nose two days later was followed by no reaction but caused no appreciable relief.

CASE II. G. A., female, age twenty-seven, has had vasomotor rhinitis since an attack of grippe five years ago. Within a year or more she has begun to have asthma also. Patient has no rheumatism or allied trouble. Both nostrils were found to be more or less obstructed by nasal polypi. No benefit was observed from either suprarenal extract with chloretone or adrenalin solution 1-5000 applied on cotton, nor was there any irritation. This case, it should be said, in spite of the removal of the polypi and the administration of various internal remedies, has shown very little improvement as yet. It is one of those cases in which the symptoms are not limited to any one period of the year.

CASE III. L. F., male, age thirty, has had for a number of years nasal obstruction in the morning, with sneezing, not limited to any season but lasting through the year. Two other members of his family have hay fever. The patient has no rheumatism. The attacks generally wear off during the morning, seldom lasting into the afternoon. An examination showed a hypertrophied condition of the lower turbinates. An application of suprarenal extract with chloretone was made. The patient returned in the afternoon suffering from a violent attack of hay fever, apparently as a result of the application. Three days later, however, no reaction followed a similar application. The hypertrophied turbinates were treated by light application of trichloracetic acid. Solution of adrenalin chloride was also frequently applied without any reaction. After a few treatments the patient was completely cured. How much the suprarenal had to do with the cure in this case I am not prepared to say.

CASE IV. Mrs. X., age thirty, came to me first in 1898 for hay fever, which came in June and lasted through August. Her nose was always obstructed at night, and when she went out of doors she had frequent sneezing attacks. Two brothers also have hay fever. The patient is apparently in perfect health in every way. An examination of the nose discovered no abnormality, unless it were that the mucous membrane appeared moister than usual. During the summer of 1898 and 1899 she obtained considerable relief by the use of cocain, 4% solution, and antipyrine, 4% solution, applied occasionally at my office, and the use of an ointment consisting of 5 gr. orthoform and 2 dms. vaseline, applied in each nostril night and morning. In the summer of 1900 she obtained complete relief from all symptoms after a few applications of suprarenal solution with chloretone, no other remedy being used. Last summer I applied the suprarenal with chloretone on June 13 and 18, and on July 3 the adrenalin chloride solution 1-5000. The blanching of the mucous membrane following these applications was unusually marked. Relief was complete. The patient was able to go into the fields, even on a bright sunny day, without the least discomfort, a thing she had never been able to do before in the hay fever season.

CASE V. A young doctor, age twenty-six, had hay fever from boyhood. He has a rheumatic tendency. The turbinates are somewhat hyper-

trophied. No apparent benefit was derived from several applications of suprarenal, although they caused little if any irritation. Internal remedies applied, especially against the rheumatic symptoms, gave him almost complete relief. Last summer he was almost completely free from symptoms, with no treatment.

A. E. Rogers, one of the assistants in my clinic at the Massachusetts Hospital last summer, took notes independently in seven cases and has kindly sent them to me. I take pleasure in adding them here, the more so since his results agree so completely with mine. "In two cases where there existed a chronic hypertrophic rhinitis and polypoid tissue on the middle turbinate, there was not much relief from the use of the suprarenal extract. Relief was obtained after removal of polypoid tissue and treating turbinates with trichloracetic acid. Four cases had no obstruction except that due to simple vasomotor dilatation. In these cases complete relief was obtained by the use of suprarenal extract with chloretone applied locally every other day." The powdered extract made into a paste with boric acid solution did not act so efficiently in one case of Dr. Rogers as the suprarenal with chloretone solution. Unfortunately there is no record as to whether or not any of these patients had rheumatism.

My experience is not as yet sufficient to enable me to say whether the use of suprarenal in the nose has any effect in preventing or diminishing the attacks of hay fever in subsequent years, and I am not prepared to hazard any opinion on that point. The following conclusions do seem justified:

(1) In simple vasomotor rhinitis, with no discoverable local abnormality and no general dyscrasia, suprarenal extract used locally appears to give favorable results in a large proportion of cases, either entirely preventing or much diminishing the severity of the symptoms.

(2) In cases of hay fever in which there is some local abnormality in the nose, the suprarenal extract does not act favorably until such abnormal condition is remedied, and then it may be found to be unnecessary.

(3) In cases in which there is a rheumatic or allied dyscrasia, the suprarenal is liable to cause some reaction at first, and in any event does not act as favorably as in uncomplicated cases.

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## Reports of Societies.

### SUFFOLK DISTRICT MEDICAL SOCIETY. SECTION FOR CLINICAL MEDICINE, PATHOLOGY AND HYGIENE.

HENRY F. HEWES, M.D., SECRETARY.

Regular meeting Feb. 19, 1902, Dr. H. F. Hewes in the chair.

Dr. J. Payson Clark read a paper on

THE USE OF SUPRARENAL EXTRACT IN HAY FEVER.[1]

Dr. A. Coolidge: I am sorry that I have not tabulated cases of my own in which I have used suprarenal extract for hay fever, consequently I must speak entirely from my general impressions of it. My experience with suprarenal extract is very much the same as with other remedies which we have previously tried for hay fever. In a certain number of cases the results are brilliant, in a large number of cases the results are more or less encouraging, and in a certain proportion they are negative. As Dr. Clark said in the opening of his paper, it is very obvious that where a large number of different therapeutic methods are recommended for the cure of a certain condition is a proof that no one of them is universally applicable. There are several local applications and several methods of manipulation in the nasal cavities which may benefit the coryza of hay fever.

I had not noticed that the acute rhinitis and stoppage which occasionally follows the use of suprarenal extract is more frequent in rheumatic patients than in others. I have recently had two patients in whom the application of the adrenal in chloride was followed by most profuse and distressing coryza lasting for twenty-four to forty-eight hours, during which they were excessively uncomfortable, but I had no reason for supposing that either of them were rheumatic. Adrenalin is perhaps one of the best aids which we have in combating hay fever, but as with several previous methods of treatment, we cannot be certain that it is going to be of service in any individual case. In a few cases it seems to make symptoms worse, at least temporarily, and we cannot be sure that the patient who is relieved by it at one time will be relieved at some future time.

Dr. J. L. Goodale: I have been interested in the paper and the writer's conclusions. I should agree with him entirely in the division which he makes of these cases with regard to the effect of suprarenal extract, that is to say, those which show some intranasal abnormality are less likely to be relieved by the application of the extract than those in which the nose appears to be normal. I think one may divide hay fever cases roughly into two classes,— those in which there is something abnormal in the nose and those where there is little or no abnormality found. I think the latter class of cases is very much more troublesome. In the first class there is something definite for us to do; in the second class there seems to be very little we can do. I think

[1] See page 664 of the Journal.

a study of the pathological conditions in the mucous membrane in hay fever throws to a certain extent some light upon why various measures seem to do good. We have a vasomotor paresis, or relaxation of the muscular coats of the vessels, with a leakage of serum into the interstitial tissue, and it seems to me almost anything that caused an increased tonicity of the blood vessels did good. On that ground I think we can explain why in some cases an application to the nose during an attack seems to help, whether we incise the tissues to allow the blood and serum to escape or cauterize sensitive points or cut away a spur. I think that there is temporarily an increased tonicity of the vessels brought about, and it seems to me possible that this may explain why adrenal extract in those cases where there is no intolerance shown seems to do good: we have a marked contraction of the blood vessels, with a squeezing out of the serum and relief of the symptoms. I have in several cases of hay fever found what appeared to be a polyp hanging from the region of the infundibulum, and for one reason or another was unable to remove it at the time, and have given the patient adrenalin solution to use until the next day. On the next examination this apparent polyp had disappeared. I think that this was simply a pedunculated ballooning of the mucous membrane in that situation, which, on the application of adrenalin, was powerfully contracted from a squeezing out of the serum with resultant retraction of their size.

With regard to the rheumatic diathesis and its relation to hay fever, I have found that the administration of the so-called antirheumatic remedies before the attack seemed to relieve it very considerably, but their administration during the attack frequently seemed to aggravate it, and not only to aggravate the hay fever symptoms, but to bring on pains in the joints, so that the person really felt extremely uncomfortable, and said all his old rheumatism had come on in addition to his hay fever. Investigators who have studied the so-called uric acid diathesis are extremely sceptical as to the theory that uric acid has anything to do with rheumatism or with the rheumatic symptoms. I think it is better to say the underlying cause of rheumatism rather than uric acid. Some unknown factor is apparently set free by these antirheumatic remedies and produces temporarily exacerbation of the symptoms.

Finally, with regard to the treatment of hay fever by the application of caustics, I have been impressed more and more with the danger of indiscriminate cauterization. One is certainly tempted during the attack of hay fever to apply his caustics to these watery, swollen tissues, but I am sure that if that is done too freely after the attack of hay fever has passed off there is later an insufficient evaporation of moisture from the nose. I think it is decidedly preferable, if caustics are to be applied, to be sure that they shall cause simply a superficial coagulation of the albumin of the mucous membrane rather than a destruction of the mucous membrane itself.

DR. J. W. FARLOW: I have had considerable experience in the use of suprarenal extract as well as with its various predecessors. There is one point in Dr. Clark's treatment which seems to me not quite clear: how important a part the suprarenal extract plays, as he always preceded it by a 1% solution of cocain. It is possible even a weak solution of cocain applied with thoroughness might have considerable effect, but I think in cases where cocain is not used, particularly those where there are no abnormalities in the nose, that the suprarenal extract often diminishes the congestion of the whole neighborhood. That is a very desirable condition to bring about, provided it can be done without discomfort or distress. In my experience, in perhaps 5% of the cases, the suprarenal extract is a decided irritant. I have patients who say: "Do not use the medicine out of that bottle. I sneezed for forty-eight hours after leaving your office." That applies not only to hay fever patients, but to others. There are other ways of diminishing the amount of blood in the nose, which act in the same sort of way. It acts much in the same way as cold cloths wrung out in ice water and put over the nose and eyes. Take a patient and blanch his nose by the free use of suprarenal extract. We look in and find almost an ischemia of the turbinated bones. We take another patient and apply cold and find the turbinated bones, which formerly had been very much swollen, and the conjunctivæ, which had been very much reddened, have become very much paler and the amount of secretion in the nose has been very much diminished. It is more successful when the irritation and hypertrophy are of the inferior turbinated bone; when of the middle turbinate, it may be extremely difficult to treat. Those cases are what is sometimes called polypoid hypertrophy of the middle turbinate bone. They are not always true hay fever, but can be brought on by various irritants other than pollen, etc. I think those who see a great many cases of throat and nose disease will bear me out in the statement that such cases are much more difficult to treat and much less amenable to benefit from the suprarenal extract than those where the inferior turbinate bone alone is affected.

Another kind of case difficult to cure is where there is nothing abnormal in the nose, patients whose noses during the rest of the year give no trouble. They come in and want their sensitive areas burned. We examine and find nothing. Those who have chronic catarrh of the nose, noses covered with crusts, etc., do not sneeze as much as those whose noses are more normal. Patients are often told (and it seems to me unjustly) that the thing to do is to remove all the obstructions in the nose. If they did not have the hay fever we should not think much about the obstructions. You can have this sensitive condition as well with as without these obstructions. When a real attack comes on, such patients are often benefited by having the nose opened, by the removal of a spur or polyp, although that may not

have much to do with the continuance or recurrence of the disease, which is a very uncertain one.

A number of years ago a gentleman came to me and said a friend had recommended a hay fever remedy and he was going to get it. The next summer I asked his wife about it and she said he had had entire freedom from hay fever. Later I saw him and said: "Your wife tells me you had complete relief from using the remedy." He said: "I got the medicine, but forgot to take it." I have had a number such cases. Many of the things recommended for hay fever make it worse. The use of atropia serves to diminish the amount of nasal secretion. The best remedy is a trip to Europe or to some place in this country where there is immunity.

Dr. T. A. DeBlois: We have not all had Dr. Farlow's experience with hay fever. I remember when Dr. Farlow was a great sufferer, and I find he has almost recovered from it. I have never seen a case of hay fever where there was not a certain amount of nasal obstruction. It might be a passing trouble or some malformation of the nose, but I always have found the nostrils entirely obstructed and quite watery, a sponge-like appearance I never find in any other condition. I have been accustomed to use the cautery largely, perhaps too much, as Dr. Goodale suggests, but never looked very much for the sensitive areas, but rather over the redundant tissue. Where the tissue is as redundant as in hay fever I don't think you can do any great amount of damage in reducing it. You can run a line of eschar along the lower turbinate body, and yet there is plenty of tissue to keep your atrophic rhinitis back. My opinion of atrophic rhinitis is that it is nasal. I think atrophic rhinitis commences in youth and keeps on through life.

My experience with suprarenal extract is moderately limited and very unsatisfactory. I think it is a very slender rod to lean on in any way. I never have used it as a hemostatic without being thankful I got through it and saying I never would use it again, that is, the use of suprarenal before operation. I have used the powders and the tablets — principally Armour's — in hay fever and hay asthma, that is, I presume the same condition existing in the bronchi, and it has been always moderately unsatisfactory. I have also used antirheumatic remedies, principally the salicylates, have found a very good effect from them and iodides. I think the best reliance in hay fever is the hot wire. I think that escharotics, as nitrates or acetic acids, are unreliable and uncertain, and you do not know what you are doing. With a cautery point you know what you are reducing, and how far you are cutting down, and to my mind it is the most reliable remedy.

Dr. F. L. Jack: I should like to ask one question of the gentlemen who have spoken in favor of cauterization. I understand from what has been said that they use it during the acute stages of hay fever. Now, it seems to me, that with turbinates congested, as we find them at this time, the use of the cautery increases the symptoms, temporarily at least, much to the sufferer's discomfort. It is often possible to afford relief by means of adrenalin, or some other soothing application, applying the cautery, if desirable, after the acute symptoms have passed, with the idea of preventing subsequent attacks. In my experience, removing the edge of the turbinates by means of cutting instruments has been more effective than cauterization. Some of these cases have gone several years without an attack. However, this relief may not be attributed to the treatment, as we know what an uncertain disease this is. To repeat the question, do the men who have spoken in favor of the cautery advise its use at the time of an acute attack?

Dr. DeBlois: I do.

Dr. Farlow: I do not.

Dr. J. P. Clark: In regard to what Dr. Jack said, I never use the galvano-cautery myself in hay fever cases. I am rather cautious about using it in the nose anyway. I think what Dr. Goodale said about the use of the galvano-cautery is very true, especially in hay fever cases. As to the possibility of adrenalin losing its effect on a patient after long-continued use, all I can say is that I have yet to see a case in which there was not just as powerful contraction of the tissues after the last application as after the first. I do not think that any tolerance is acquired at all in that sense. As regards rheumatic cases, I did not mean to imply that rheumatic cases were the only ones that were intolerant to the use of adrenalin solutions. I was struck by the fact that the rheumatic patients I had were intolerant to it, but I have had other patients without rheumatic symptoms who were also intolerant. I would not go as far as to say that intolerance showed rheumatism. Speaking of the uric acid diathesis, I said in my paper "so-called." I did not intend to commit myself to the theory that uric acid causes rheumatism. In regard to what Dr. Farlow said of the use of cocain solutions before the use of the adrenalin solutions, I think whatever force there may be in that statement would be perhaps overruled by the fact that I have used cocain solutions before using other forms of treatment, and never got the beneficial results mentioned except from cocain plus adrenalin solution.

Dr. R. F. Chase gave a

REPORT OF A CASE OF CHRONIC, CONTINUOUS HYPERSECRETION, WITH HYPERCHLORHYDRIA (REICHMANN'S DISEASE), WITH SPECIAL REFERENCE TO TREATMENT.

Dr. Smithwick: I have been very much interested in this careful study of an interesting case. Today I was looking through my records of hyperchlorhydria cases to see how many I had examined fasting, and I found only eight cases where I have examined the contents of the fasting stomach, all these analyses being made in the morning. This number of cases is altogether too small to be of statistical value, but it is interesting to note that I have attempted to get the contents

from some of these cases several times and never failed. There has always been a stomach contents in the morning with a percentage of free HCl varying from .08% to .35%, three cases having over .3%. It has been my impression that a large number of hyperchlorydria cases would show more or less continuous secretion fasting, and I am sorry I cannot find a larger number of cases to report.

It seems to me that if you follow these cases of hyperchlorhydria through a long period of time regardless of treatment, you notice increase and decrease in the secretion of acid, so that one, I think, is very likely to conclude, if he starts treatment at a favorable time, that the treatment is favorable. Some of these eight cases probably have continuous secretion when they have hyperchlorhydria. There is none of these stomachs that would not empty itself in the normal period of time.

Nearly all the cases of hyperchlorhydria that have been under my care have been treated as neuroses. It seems to me that the great mass of these cases are neuroses. It is my custom to take a very careful history and to make a very careful examination, then to determine the variety of digestive trouble present and explain it carefully to the patient. It seems to me that that is the rational course, makes him less introspective, and takes his attention away from his stomach. I have tried various kinds of local treatment. Sometimes diet will serve and sometimes alkalies and gastric sedatives. In a certain number of intense cases where lavage has failed to relieve I have tried, as has been recommended, pouring into the stomach, after lavage with plain water, 8 oz. of a 1 to 1000 nitrate of silver solution, leaving it in five minutes and removing and washing the stomach. That at times has given the patient freedom from pain for several days. I have never noticed it had any effect upon the secretion of acid.

There is one thing I would like to speak of in regard to these cases. Every once in a while I see a case of this ailment where somebody has examined the patient and told him that he had some ailment, that he really had not, and where it was very evident that the man who examined him knew he had not, and it seems to me that is an unjustifiable thing to do with this nervous class of cases. For instance, the patient may be complaining of several troublesome symptoms, say of constipation, and the man will examine the patient and tell him he has a slight stricture of the bowel, and this stricture can be remedied by medicinal treatment. Now, it seems to me that that is very unjustifiable. It is bound to be depressing to the patient, and it is bad, especially if he goes out from the care of this man, and it seems to me in treating these cases one ought to treat them as neuroses. He ought to be very frank with them, tell them just what is the matter and explain to them carefully that the stomach trouble is secondary to something else, to the condition of nervous system, and that that condition of the nervous system is caused by some nervous irritation; then the patient can assist you to find out what that is, and usually by a careful history and careful examination you will be able to find out what it is. In one case it might be business trouble, in another eye strain, etc., but whatever it is this cause must be removed or modified in some way or the patient gotten into such an attitude toward his trouble that he will be more or less indifferent toward it in order to affect the trouble. It does not seem to me treatment of the stomach itself can be expected to cure, and I find the more of these cases I see the less stress I lay on direct treatment of the stomach and the more upon the general management of the case.

DR. HEWES: I will ask the reader to explain his statement that the results of the rectal feeding in his case proved that the case was one of Reichmann's disease.

DR. CHASE: The results of examination and experiment in this case certainly indicate hypersecretion, but they do not definitely prove that here it was not an associate of some other condition, as ulcer, a hyperchlorhydria, with which conditions hypersecretion is often associated. Reichmann's disease, as I understand it, means an idiopathic hypersecretion, a condition in which hypersecretion is the only pathological condition discoverable. This disease, being one of rare occurrence, claims our notice from a practical point of view, principally as one of the conditions to be considered in the differential diagnosis of a very important class of affections of the stomach.

The symptomatology of hypersecretion, whether continual or periodic, is in its prominent manifestations very similar to that often seen in cases of ulcer of the stomach, hyperchlorhydria, and in conditions of stasis of gastric contents, its chymia so called. In all of these conditions the cardinal symptoms are apt to be a combination of pain or distress, more or less continuous, the accumulation of large quantities of gastric contents in the stomach at periods when the organ should be empty, and ordinarily vomiting of these contents. With this symptomatology all of these conditions, including idiopathic hypersecretion, must be considered. Which of these fundamental disorders is present in a given case can be determined only by a careful differential diagnosis.

I have seen continual hypersecretion such as described by the reader in a case of ulcer of the stomach. The case was finally proven to be ulcer by the occurrence of a hemorrhage after three months of the hypersecretion. I have seen periodic hypersecretion with vomiting of three quarts of fluid in twenty-four hours, while on rectal feeding, in another case of ulcer of the stomach. It was only after some time that it was possible to determine whether the hypersecretion in these cases was idiopathic, so called, or secondary. With stasis of contents and dilatation of the stomach hypersecretion is very common. Here, however, the differentiation is simple under the proper methods of experimental ex-

amination. Hyperchlorhydria can be differentiated by the analysis of the contents.

Dr. Smithwick: I remember a young girl I examined with Dr. Arnold. The stomach contents were examined a large number of times, and we never found anything but hypersecretion with a rather high average of hydrochloric acid, but she complained of so much continual distress that at last we decided for certain reasons that the girl could not be trusted, certainly could not have the distress she complained of, and it was decided to send her into the hospital to have her under observation. She entered Dr. Buckingham's service, and the next morning vomited a big amount of blood. In all the analyses made no evidence of blood had been found. This hemorrhage blanched her. Previous to the hemorrhage a very intelligent house officer had found the stigmata of hysteria, so that the diagnosis of probable hysteria was made before the hemorrhage. Then came the hemorrhage, which showed it was probably a case of ulcer. She had been under observation several weeks.

Dr. R. F. Chase: Besides the finding of considerable amounts of hyperacid secretion in the fasting stomach on various occasions, Boas claims that certain subjective symptoms must be present to warrant the diagnosis of Reichmann's disease. Vomiting of highly acid contents, as Dr. Hewes has said, is one of the principal symptoms; other symptoms are the clean tongue, usually good appetite, constipation, emaciation, and gastralgia. The cases in which Dr. Hewes has referred, I should judge, might be mistaken for Reichmann's disease until a sufficient period of observation proved the contrary. I have seen several cases in which I suspected Reichmann's disease, but further observation proved they were not. In the case under consideration, I was not certain of the diagnosis until several visits had been made. This case, from the long duration of the affection, the severity of the gastralgia and the high acidity of the fasting contents, is shown to be one of unusual severity. Dr. Hewes tells me he has a case under observation in which the free HCl at times is as high as 5 per mille. This acidity is higher than I have ever seen reported.

## THE MEDICAL ASSOCIATION OF THE GREATER CITY OF NEW YORK.

Stated meeting April 14, 1902, the president, Dr. Andrew H. Smith, in the chair.

Dr. Wm. J. Morton read a paper on

### RADIOTHERAPY FOR CANCER AND OTHER DISEASES.

It was admitted today, he said, that the x-ray has, in a certain number of instances, cured cases of every form of malignant growth, and that it cures lupus. Eczema, psoriasis, purigo, acne vulgaris, favus, rosacea and tuberculous foci have also been cured by it. It would seem, therefore, that it is in just those diseases and conditions previously least amenable to treatment that the x-ray scores its most signal successes. This agent, it may be said, promises extreme utility in pulmonary tuberculosis, it has a remarkable effect in relieving pain, it assists in healing burns, wounds, ulcers and sores, and it will not be surprising if it cures leprosy. As to technique, radiotherapy is based upon the fundamental fact that x-radiation exerts a specific influence on the life processes of animal as well as vegetable tissue. While it is most openly manifested upon the integument, laboratory experiments show that, weeks after irradiation, small animals undergo structural changes, always of the type of ordinary inflammation, which may even result fatally and which may be demonstrated post-mortem. The important point to be emphasized is that radiotherapy is by no means to be confined to exterior diseases and conditions, but is equally applicable to affections of the interior, like cancer, and in general to internal diseases. Included in its specific influence there is also naturally a decided bactericidal action. Antecedent to the production of the x-ray is an electric current of high potential, a vacuum tube and the production of a cathode ray. When the cathodic stream strikes the platinum mirror, or other sort of target, a new kind of radiation is established, called by Rœntgen the x-radiation. The x-rays are believed by Prof. J. J. Thompson to be a mixture of vibrations which may be termed pulsations of the ether, and which may be compared to the irregular pulsations of the air in producing those sound waves which we term noise. This would account for the very great uncertainty which exists in the effects of the x-ray when utilized for treatment. In a given vacuum it is seldom, for any length of time, of one and the same quality; it runs up and down a scale whose rates we cannot now determine. It is the x-ray itself which sets up dermatitis, produces necrosis, or, when properly used, cures diseases. The cathode rays do not escape from the vacuum tube. He said he did not believe that, as claimed, the electric pulsations given off from the tube exert a harmful influence, and that he did not consider it essential to employ an aluminum grounded screen. Taking up the subject of cancer, he said that it would greatly hasten therapeutic progress if we had any definite knowledge of what the pathology of the disease is. In the lack of this our attitude must be almost entirely empirical and clinical, so that we have to feel our way along with careful experimentation and observation.

As to the source of electrical energy, a Rumpkorff coil, a static machine or an oscillator provides this, with, so far as is known, no demonstrable differences in the quality of the x-ray produced. Functionating tubes are classified as soft, medium and hard. At either end of this scale are the tubes which are too soft (those containing too much air and not allowing of the transformation of the current into x-rays) and those which are too hard (containing too little air, so that they cannot be penetrated by electrical currents). The x-ray from the soft tube possesses but little penetrating

power, and has slight therapeutic value. That from the medium tube has a good penetrating power, though much of it is absorbed by the integument and should be employed when it is desired to produce an effect upon the skin. The x-ray from the hard tube, which possesses the most highly penetrating power, should be employed to affect the deeper parts of the body. Personally, Dr. Morton said, he leaned in his preference towards a hard tube in all his treatments. It should be borne in mind that the skin of the face and hands is more sensitive to the ray than that of other regions, that the mucous membrane is more susceptible than the skin, and that areas of existing inflammation are the most susceptible.

When carried to extremes, the general effect of an exposure is to produce the common symptoms of inflammation. When not so carried, or when used within other therapeutic limits, he supposed the effect to be due to a reaction in the vital tissue processes (metabolism) ascribable to having set up new chemical changes. Scientific analogy, he thought, pointed to the action of the x-ray as one of ionization. He had noted two rather constant reactions in the treatment of cancer. The first, occurring in general carcinomatous infection, might be termed an early reaction period. In this the temperature may rise from 1° to 2°, the pulse is increased in frequency, and the patient experiences "nervousness" and unrest, and an increase of general fugitive pains. But the rule is an immediate cessation of pain, and within a few days the disappearance of small nodules. The late reaction, which occurs in from one to three weeks, is local and seems to resemble in this respect the familiar effects of dermatitis. This reaction is in reality the first objective evidence of a retrogression of the malignant growth.

*(To be continued.)*

VACCINATION CHARGED AS ASSAULT.— According to the *Medical Record*, the principal of a public school in Brooklyn and an inspector of the Health Department were brought to court recently on the complaint of the father of one of the pupils, charging them with assault in the third degree. The complainant alleged that his daughter, six years old, was forcibly vaccinated by the physician at the direction of the principal. The father of the child in question did not produce the necessary certificate of vaccination, although he claimed that he had one, and so the child was told she must be vaccinated, and to this, the accused physician and principal assert, she gave her consent. The case has not yet been tried.

APPOINTMENT OF DR. L. EMMETT HOLT.— At a meeting of the trustees of Columbia University, held June 2, the resignation of Dr. Abraham Jacobi from the professorship of diseases of children was accepted, and Dr. L. Emmett Holt was appointed to succeed him.

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## ANNUAL REPORT OF THE MASSACHUSETTS STATE BOARD OF INSANITY.

AFTER some years of effort on the part of the medical profession, the State Board of Insanity of Massachusetts was created in 1898, by act of legislature, which provides that the board shall consist of five members, two of whom at least must be experts in insanity, and requires that the board shall appoint as its executive officer a physician expert in insanity. The twenty-nine sections of the law give to the board large powers and wide duties, practical and scientific.

The Third Annual Report of the board for the year ending Sept. 30, 1901, contains a concise and very creditable description of the extensive work supervised by that body.

There are altogether 7,642 patients in State institutions, and in addition to these 519 in the Boston Insane Hospital, 1,123 in city and town almshouses, 117 in private families, and 80 in private families under the care of overseers of the poor, 392 in private institutions, and 837 in institutions for the feeble-minded. This makes a grand total of 10,710 persons, with an increase of 356 patients during the year; of these 334 belong to the State institutions. The average overflow of patients from public institutions calculated to a mean daily average number of patients has been 28.35%; of these 5.29% had recovered, 10.33% were dead, 3.31% were transferred, and 9.12% discharged to friends unrecovered.

Much emphasis is put on the overcrowding which unfortunately is allowed by the legislature to go on under the pretense of economy, contrary to all sense of justice towards the public and the patients. Twelve and thirty-six hundredths per cent. of all the patients were sleeping on beds set up in halls, etc., each night, and removed each morning, notwithstanding the conversion of sin-

gle into double rooms to a considerable extent, and an excessive number of beds in dormitories.

An attempt is made to classify the cases into: (*a*) The acute and curable insane; (*b*) the chronic insane of the custodial class and those of the infirmary class; (*c*) the chronic able-bodied insane for the colony class. Seven per cent. of the patients of the admitting institutions are said to have acute and curable disorders; 93% to belong to the asylum and colony class. On this ground the State board recommends to provide: (1) Development of the State colony each year for about 100 patients; (2) erection of buildings for working patients at each institution; (3) provision for nurses (both men and women) in separate buildings; (4) the addition of infirmary wards as an extension of present buildings or as separate infirmaries.

As was stated above hardly enough can be said in favor of the propositions concerning the necessity of enlargement of the institutions required by the annual increase and the imminent absorption of all the county institutions into State care. Besides the enlargement of the State colony the board proposes local colonies attached to the hospitals, and especially provisions for the acute curable insane (which should also include the "chronic" cases capable of considerable improvement) in especially well-arranged hospital divisions. The public should not be deceived by the existence in some hospitals of new infirmary wards which after all fail to provide sufficient improvement where the conditions are most difficult to manage. As long as the wards for excited cases are so poorly equipped that the patients who are in greatest danger of mismanagement are kept in restraint, and many are forced to sleep on straw beds in the halls, there is a crying need for improvement.

Due emphasis is laid on the fact that the new division for acute cases requires more expensive provisions for nursing, diet, medical care, and investigation, and that in keeping it independent in its operation, it would be possible to do justice to the new requirements without unnecessarily raising the standards of expense of the custodial departments. This plan has a decided advantage over that preferred in many places, which is, that these psychopathic wards for admissions and acute cases ought to be totally detached from the existing hospitals. The advantages of having workshops, gardening and farms accessible for convalescents can hardly be overrated. Moreover, the influence of a well-organized service for acute cases near the existing hospitals will necessarily be of great advantage in keeping up a higher standard of medical work in the already existing departments.

The beginning made for the acquisition of ground for a State colony near Gardner is very creditable.

The volume contains abstracts from the reports of the various State hospitals and useful statistical tables, distinguished from those of other states by the absence of that forced uniformity which is too obviously obtained at the expense of facts. Where there is so much divergence of opinion as in nomenclature and general pathological conceptions of psychiatry, it is, indeed, best to group the data under the names given by those who collect them until more actual uniformity warrants a simplification of the tables.

Considering the interest which the State Board of Insanity is expected to take in the medical development of psychiatry in the State, one might well expect a move in the direction of furthering the interests of purely medical work, where it is undertaken. The efforts of several institutions are given due credit, but the absence of a definite stand taken by the State board has undoubtedly something to do with the lack of determination in taking the necessary steps to give the efforts the desired vitality.

Since the Harvard Medical School is planning a certain reorganization and expansion, the State board might well take up the question of how the State could co-operate with the educational institutions so that the experience collected in its hospitals, or under some improved conditions such as the creation of a much-needed clinic, could furnish more efficient means than heretofore for the teaching of the physicians going forth from schools. A more thorough acquaintance with psychiatry on the part of the general practitioner is an absolute requisite for the promotion of true interest in the cause on the part of the public. More physicians should be able to plan better opportunities for rational early treatment, before the impossibility of handling the patient brings the need of treatment to a point necessitating the too long delayed commitment or other psychiatric attentions. The board, dealing as it does with a grand total of over 10,000 persons, ought to see the need of more practical psychiatric instruction more readily than the individual practitioner, and even the college professor, and should be the pioneer; and if the practitioner gets more organized instruction from men who stand in the centre of psychiatric practice and investigation, he will see that there is much to be done outside of the 10,000 patients actually under State care. Surely this is a matter in which the State board might well be expected to come to the front.

Although there is a certain disappointment as to its activity in the direction of promoting these purely medical matters, the State board has certainly demonstrated the wisdom of its creation.

## ANNUAL DINNER OF THE MASSACHUSETTS MEDICAL SOCIETY.

WHATEVER attraction the various exercises connected with the meeting of the Massachusetts Medical Society may have, it is evident that they sink into insignificance as compared with the annual dinner. The combination of conviviality and speechmaking appears to be irresistible to the average man. The dinner this year was attended by about one thousand members of the society, who had an exceptionally satisfactory and well-served meal, followed by speeches far above the average of such occasions.

Dr. Frank W. Draper, the president of the society, in his introductory remarks, spoke of the increasing prosperity of the society, and entered a plea for a still larger membership. The society should rise to a full sense of its responsibility in the prevention of the passage of laws, under the specious name of "personal liberty," which are really aimed at the progress of medical science, and have at their basis individual aggrandizement. The legislature has hitherto stood behind the society in its efforts to maintain high standards of medical practice, but eternal vigilance is the price of safety, and the society must be ready and willing to meet all problems as they arise. Dr. Draper then introduced Mr. Melvin O. Adams of the Suffolk Bar, as a representative of the legal profession. Mr. Adams, at the opening of his speech, alluded to the occasion as the "annual food festival," and continued in a jocose vein for the greater part of his remarks, which were, nevertheless, full of keen observations and occasional good suggestions. One, to which we are quite willing to add our endorsement, was his protest against the habit of writing prescriptions in Latin, and usually in very bad Latin. He also pointed out some of the foibles of the modern trained nurse, which again we must recognize as in great measure true. He spoke with feeling of the "conversational clinics, held by the nurse, the length of which is in inverse ratio to the age of the attending physician." So diversified had been the agencies used in his treatment during a recent illness that he felt sure he was suffering from the inroads of a germ to which he would give the name of the "octopococcus." These entertaining remarks were concluded by a tribute to McKinley and the usual somewhat fulsome statements regarding the nobility and self-sacrifice of the medical profession.

The Rev. Paul Revere Frothingham was introduced with a request that he inform the company why the so-called conflict between religion and science was a thing of the past. This Mr. Frothingham did with much grace, by saying that there is no longer a conflict, because a deeper understanding and a proper adjustment has been reached, and that never before has science been so religious and religion so scientific as at the present time; that devotion to absolute health which the medical profession represents is religion itself. The speaker drew an interesting parallel between the professions of medicine and the ministry, and acknowledged the debt which the clerical profession owes to the physician. This speech was a memorable one, broad in its interpretation of the interrelationships of two great professions.

Professor William T. Sedgwick of the Massachusetts Institute of Technology was the next speaker. He regarded medicine as applied biology and paid a stirring tribute to the influence on medicine of Darwin and Pasteur, neither of whom were doctors of medicine. He spoke of the preventive medicine of the future as "medical engineering," defining engineering as the use and control of the material and forces of nature for the benefit and welfare of man. An attack on the methods and aims of the antivivisectionists and antivaccinationists followed, in which the speaker insisted on the necessity of taking the community into our confidence in these matters; that it was far wiser to educate than to agitate.

The last speech was from Dr. F. C. Shattuck, who outlined the history of the recent acquisition of property and prospective buildings for the Harvard Medical School. It was a noteworthy fact that formerly contributions for medical study came largely from physicians and their families, but that now it was being recognized by philanthropists that no better or more profitable investment can be made than to endow institutions for medical research. It was also an interesting fact that no sign of envy had been excited among other medical institutions by Harvard's good fortune; it was generally recognized that the good of one was the good of all. Advances in the future were to be looked for along the line of what the speaker preferred to call "biological chemistry"; he feared, however, carrying the elective system too far backward, while recognizing that specialism is indispensable and potent for good.

The dinner, both physically and mentally, was stimulating.

## REPORT ON THE OUTBREAK OF CHOLERA IN THE PHILIPPINES.

A REPORT for the month ending April 15, just received from the chief surgeon of the Philippines, gives much attention to the question of cholera, which made its appearance during the month. The district first attacked was the Farola, the most unsanitary district of the city of

Manila and one of the first and greatest sufferers from the disease in the great cholera epidemic of 1882. Its only houses were nipa huts built over the waters of the bay; there were no closets, and garbage and fecal matter were deposited on the shore and in the water. Vegetables from infected Chinese ports were not admitted into Manila after March 5, but a large amount of such vegetables were thrown into the bay and the Board of Health is inclined to believe that cholera was first contracted by persons eating such vegetables. There is one strong point against this hypothesis, which is that other districts exactly like the Farola in every respect except water supply were not attacked at first, nor had many of them reported cases up to the date of the report. The inhabitants of the Farola drank Pasig River water, foul with the sewage of the city. It seems probable that this stream became infected somewhere near the lower end, and this is borne out by the fact that a large proportion of those since attacked have been consumers of Pasig River water. The Farola itself has been burned.

Within Manila a total of 275 cases with 215 deaths had occurred up to April 15, and 453 cases with 308 deaths outside the city to April 14. In the provinces the disease had appeared in twenty-two different places. The most distant point was Nueva Caceres, in southern Luzon, and this was the only point at which the army had suffered up to that time — two men of the Ninth (colored) Cavalry and one of the Twenty-sixth Infantry having had the disease. The colored soldiers mix much more with the natives than do the whites, eating their food and drinking water in the shacks which they visit, and are, therefore, much more liable to the disease. The white soldier is reported to have contracted the disease from water or food procured from native houses contrary to orders.

Vigorous quarantine measures have been carried out by the Manila Board of Health, including a quarantine of Manila from all other points. Distilled water has been provided, house-to-house inspections made, a detention camp established, quarantining of the sick and disinfection of contaminated articles. The inland quarantine has not been successful, though persons have been kept away from the Mariquinia River, the municipal source of supply, and many sick have undoubtedly been prevented from leaving the city.

At the time of the outbreak six medical officers of the army were on duty with the Board of Health, and shortly afterward it became necessary to detail twenty-two more. In addition, the provincial and municipal boards of health being inefficient, on request of the civil governor to the division commander, medical officers of the army have been given practical charge of health matters in towns in or near which troops are stationed. Their efforts to limit the spread of the disease have been largely successful, except in Camarines, where there were over one hundred cases shortly after the appearance of the disease in the Philippines.

The general situation was not considered as encouraging at the time the report was written. The number of different points attacked and the consequent infection of many streams in common use for drinking and bathing purposes, and into which nearly all fecal material and garbage find their way, render probable the occurrence of a large number of deaths before the rainy season, with which the two epidemics of a couple of decades ago terminated. As far as the soldiers and other Americans are concerned, they are much better protected than the natives against cholera, by the care taken to supply them with good food and water. Orders and circulars have been issued covering all points necessary to prevent the spread of the disease among both soldiers and civilians. As good quicklime cannot be obtained in the Philippines, chloride of lime is being freely distributed for army use. A cholera hospital has also been established for the use of the army, and full literature on the subject of this disease has been sent to all officers.

## THE NOMINEE FOR SURGEON-GENERAL OF THE ARMY.

The President has nominated Col. William H. Forwood, assistant surgeon-general, to be Surgeon-General of the Army, succeeding Surgeon-General Sternberg, recently retired for age. Colonel Forwood will himself retire for age on Sept. 7 next, so that he will scarcely change the policy of his predecessor in office.

Colonel Forwood has had a long and conspicuously valuable career in the military service. Born in Delaware, he entered the Medical Department of the Army Aug. 5, 1861. He was promoted to the grade of captain in 1866, major in 1876, lieutenant-colonel in 1891 and colonel in 1897, being the senior medical officer of the army at the present time. He served in many important positions and posts of danger during the Civil War, being captured by the enemy and making his escape under a heavy fire, and again being severely wounded while performing his duties in battle. He was twice breveted "for faithful and meritorious services." Subsequent to the Civil War he served at various posts in the West and participated in several expeditions against the Indians. During the years 1881-1883 he was surgeon and naturalist to the military ex-

ploring expeditions through Wyoming, Montana and Idaho. Later he was attending surgeon at army headquarters in Chicago, served in the Department of Dakota, and ultimately became surgeon at the Soldiers' Home, Washington, D. C., where he remained on duty until 1898. During the Spanish War he was in charge of the establishment and operation of the General Hospital, Montauk Point. Later he was chief surgeon, Department of California, from which large numbers of troops and vast quantities of supplies were being shipped to the Philippines. During the past year he has been on duty at the War Department, as assistant to Surgeon-General Sternberg.

Colonel Forwood is a man of much professional ability and a skilled surgical operator. He is a recognized authority on military surgery, and many of the articles on this subject in standard works on surgery are from his pen. He was, for a number of years, professor of surgery and surgical pathology at Georgetown University, Washington, D. C. It is certain that during the short period of his administration the Medical Department of the Army will not be allowed in any way to deteriorate from its present professional and administrative standards.

## MEDICAL NOTES.

OFFICERS OF AMERICAN CONGRESS OF TUBERCULOSIS.— At the American Congress of Tuberculosis, which met at the Hotel Majestic on June 2 and 3, the following officers were elected for the ensuing year: Honorary President, Dr. H. D. Holton of Vermont; President, Dr. Daniel Lewis of New York; First Vice-President, Dr. J. H. Eagan of Illinois; Second Vice-President, Dr. Frank Paschal of Texas; Third Vice-President, Dr. E. J. Barrick of Toronto, Can.; Fourth Vice-President, Dr. Irving A. Watson of New Hampshire; Fifth Vice-President, Dr. Romola of Guatemala; Secretary, Dr. George Braun of Georgia; Treasurer, Dr. P. H. Bryce of Toronto.

A CENTENARIAN.— Matthew Tobin, a pioneer of Kansas, has died in Salina, Kan., at the reputed age of 105 years. His first wife died in 1830, and his second wife, who survives him, is said to be 95 years of age.

### BOSTON AND NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON.— For the week ending at noon, June 18, 1902, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: Diphtheria 30, scarlatina 12, measles 82, typhoid fever 9, smallpox 5.

STATE VACCINE LYMPH.— The Massachusetts Board of Health reported last week to the Legislature on its investigation of the feasibility of manufacturing pure vaccine lymph. The board recommends extending to the manufacture and free distribution of free vaccine lymph the system which has been in vogue in regard to diphtheria antitoxin since 1895. It recommends the construction of a building for the housing of animals. Future demands, it thinks, should be based, not upon population, but upon the birth-rate. If the vaccination is thoroughly carried out by local sanitary officials, it is estimated that 150,000 persons will be vaccinated annually, of whom 60,000 will be infants, 50,000 revaccinations and 40,000 immigrants. It is estimated that the necessary buildings will cost $20,500 and the annual expenditure for salaries, etc., will be $6,500.

OSTEOPATHISTS REFUSED REGISTRATION.— By a vote of 102 to 45 the Massachusetts House has refused a third reading to the bill providing that osteopaths shall be registered as such by the Board of Registration in Medicine.

### NEW YORK.

COMPLIMENTARY DINNER TO SURGEON-GENERAL STERNBERG.— A complimentary dinner was given to Surgeon-General George M. Sternberg at Delmonico's, on June 13, to give expression on the occasion of his retirement to the appreciation on the part of the medical profession of the distinguished services rendered by him during his term of office and of his eminent contributions to scientific medicine and surgery during his entire career. Dr. Edward G. Janeway presided and among the prominent men present, other than those from New York, were Dr. P. M. Rixey, Surgeon-General of the Navy, Assistant Surgeon-General Henry Lippincott, Professor William Osler, and Dr. Frank Billings of Chicago, president-elect of the American Medical Association. At a meeting of the board of estimate and apportionment, held June 13, $350,000 was appropriated for the construction of public baths in the borough of Manhattan and $125,000 for baths in Brooklyn. The necessity for these additional interior baths is all the more urgent from the fact that fewer floating baths on the rivers than heretofore will be opened this summer, as a number of the sites of these baths have been condemned as dangerous to health on account of sewage contamination of the water.

VACCINATION.— The bulletin of the State Department of Health for April devotes special attention to the subject of smallpox and vaccination. It is stated that of 740 cases of smallpox reported to the department, 552 had never been vaccinated

and 188 had been vaccinated, most of them in childhood; a few within two years, whether successfully not always being stated. In rare cases immunity appears to have been lost in six months. One case of smallpox occurring the second time in one individual has recently been reported. The medical profession is urged to create a public sentiment in favor of the necessity of vaccination, since compulsory vaccination, except in case of urgent necessity as an extreme measure by boards of health, is not established in the State. "As to the dangers of vaccination," the bulletin goes on to say, "it can without question be said that none exists if virus free from taint is used, with reasonable care in using it and in keeping the abrasion and the resulting scar free from the introduction of external infection."

College of Physicians and Surgeons.—There were 852 graduates in the various departments of Columbia at the annual commencement on June 11, and of these, 144 received the degree of M.D. The biennial Alumni Association prize of $500 was awarded to Dr. George Alfred Lawrence. The three fellowships of the Alumni Association, of the annual value of $500, were awarded as follows: Fellow in Anatomy, Dr. Edward Anthony Spitzka; Fellows in Pathology, Drs. Hugh Dayton and Augustus B. Wadsworth. The Alonzo Clark scholarship, of the annual value of $700, to promote the discovery of new facts in medical science, was awarded to Dr. Augustus J. Lartigan.

"American Gynecology:" A New Journal. —*American Gynecology* is to be the title of a new journal which is announced to begin publication in July in New York. It will be devoted to gynecology, abdominal surgery and obstetrics. It is said that the journal will be owned and controlled by a stock company consisting solely of members of the profession interested in its special field. It will be conducted under the combined editorial management of Drs. J. Wesley Bovee of Washington, D. C., Charles Jewett of New York, Charles P. Noble of Philadelphia, Reuben Peterson of Ann Arbor, Mich., and J. Whitridge Williams of Baltimore.

## Correspondence.

### DRAWBACKS SUSCEPTIBLE OF AMELIORATION AT THE ANNUAL MEETING OF THE MASSACHUSETTS MEDICAL SOCIETY.

Boston, June 14, 1902.

Mr. Editor: The meeting of the Massachusetts Medical Society just passed suggests a few remarks upon a point of amateur psychology, and a piece of criticism which, if not agreeable either to give or to receive, may be quite as useful as indiscriminate praise.

There may be distinguished in the process of listening to a paper with a view to understanding it, at least three independent processes, the first purely physical and the others intellectual, but all active. The first consists in hearing distinctly the sounds emitted by the speaker, that is, adjusting the organ of hearing by the position of the head and the tension of the aural muscles. This is an act which in the partially deaf has been distinctly shown by Dr. Blake to be a source of no inconsiderable fatigue, and under certain circumstances — such as those obtaining in Paul Revere Hall — everybody is partially deaf, as was very evident from the position and remarks of many would-be hearers even within the first six or seven rows. This source of fatigue has not been so thoroughly exploited as the cause of many nervous symptoms as the corresponding difficulties in the way of distinct vision, but one can hardly doubt that it may be a real one. The amount of nervous energy expended in a constant and only partially successful attempt to keep a delicate muscle at just the right degree of tension depends, as in the case of the ciliary and other ocular muscles, not on their bulk, but on the strain put upon the attention.

The two intellectual processes consist (1) in the putting together of the sounds heard into a sentence which has a meaning, and (2) in judging of the information conveyed or the force of the arguments. Under ordinary circumstances the first of these should not be perceptible or noticeable, but when the sounds received are fragmentary and doubtful it becomes a distinct and wearisome process. I asked one of my neighbors — neither of us being very far from the speakers — how many words he could distinguish, and he said: "About five out of six — if I pay attention." Now, it is extremely likely to happen that the sixth word which he could not catch might be the key word of the syllable upon which the meaning depended, and if his mind were diverted by the process of hunting for that meaning by means of the context or of the previous remarks, it must have been impossible for it to be employed on what ought to be the only cerebral process consciously involved, the only process upon which the attention should be concentrated, that of the grasping and reception of the idea. Therefore, Mr. Editor, it seems to me that a great many auditors not only waste their time, but get a distinct injury in these partially futile attempts, which I hope it will not be necessary to repeat.

At the lecture of Dr. Billings in John Ware Hall the source of much difficulty of hearing was of another kind. Members kept constantly coming in during the first hour and as the construction of the seats caused each one to emit a squeak as the intended occupant settled himself into it, there was a constant interruption. When diagrams or illustrations are shown a word or two may be lost now and then without serious detriment to the meaning, but when in addition a listener and spectator is obliged to be constantly dodging the flamboyant headgear of his professional sisters he labors under difficulties which he might willingly undergo if necessary for the pleasure of hearing so good an exposition of a very important subject, but which ought not to be wantonly inflicted upon him by judicious management.

My last complaint is the dislocation of the program, so that neither the speaker nor one who desires to hear him can tell when he is to be heard.

For these drawbacks there are remedies simple and not in reality producing hardships so great as are now suffered:

Do not use Paul Revere Hall again.

Give each speaker his definite limit of time and make him stick to it. There is not one paper in twenty of those read that will not bear boiling down for the purposes of delivery. Let history, references, and a large mass of detail wait for the printer. Announce that the doors will be shut at the beginning of each paper — and shut them. Provide a place outside where those can go who "wish to meet a man."

Very truly yours,

Growler.

## RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, JUNE 7, 1902.

| CITIES. | Population Estimated, 1902. | Reported deaths in each. | Deaths under five years. | Percentage of deaths from | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | Infectious diseases. | Acute lung diseases. | Diphtheria and croup. | Measles. | Cerebro spinal meningitis. |
| New York | 3,665,352 | 1,272 | 418 | 29.10 | 9.78 | 3.53 | 1.72 | .25 |
| Chicago | 1,852,828 | 472 | 116 | 24.14 | 10.16 | 2.54 | 1.69 | — |
| Philadelphia | 1,349,624 | 398 | 122 | 21.85 | 9.80 | 2.26 | 3.00 | .25 |
| St. Louis | 603,717 | — | — | — | — | — | — | — |
| Baltimore | 525,330 | 185 | 46 | 31.86 | 5.94 | 1.08 | — | 1.62 |
| Cleveland | 411,826 | — | — | — | — | — | — | — |
| Buffalo | 375,742 | — | — | — | — | — | — | — |
| Pittsburg | 341,401 | 126 | 41 | 31.02 | 11.90 | 1.58 | 2.97 | — |
| Cincinnati | 332,032 | — | — | — | — | — | — | — |
| Milwaukee | 304.975 | — | — | — | — | — | — | — |
| Washington | 289,537 | — | — | — | — | — | — | — |
| Providence | 185,870 | 64 | 15 | 20.28 | 9.36 | 1.56 | — | 1.56 |
| Boston | 588,736 | 202 | 56 | 28.23 | 10.40 | 2.47 | 1.48 | 1.00 |
| Worcester | 127.337 | 34 | 16 | 20.58 | 20.58 | 2.94 | — | 2.94 |
| Fall River | 111.872 | — | — | — | — | — | — | — |
| Lowell | 99,574 | 45 | 7 | 15.55 | — | 2.22 | — | — |
| Cambridge | 96,334 | 19 | 8 | 15.78 | 5.26 | — | — | 5.26 |
| Lynn | 71,144 | 15 | 4 | 6.66 | 26.67 | — | — | 6.66 |
| Lawrence | 67,275 | 26 | 7 | 30.84 | 19.25 | — | 3.85 | — |
| Springfield | 66,854 | 24 | 7 | 29.16 | — | 4.16 | — | — |
| Somerville | 65,882 | 20 | 6 | 40.00 | 15.00 | — | — | 15.00 |
| New Bedford | 65,574 | 18 | 7 | 16.67 | 33.33 | — | — | — |
| Holyoke | 48,065 | 13 | 5 | — | — | — | — | — |
| Brockton | 43,208 | 8 | 2 | — | — | — | — | — |
| Haverhill | 40,392 | 15 | 4 | 20.00 | 6.67 | — | 20.00 | — |
| Salem | 36,567 | 9 | — | 11.11 | — | — | — | — |
| Newton | 36,336 | 7 | 2 | — | — | — | — | — |
| Malden | 35,390 | 10 | 4 | 10.00 | — | — | — | — |
| Chelsea | 35,264 | 12 | 1 | 8.33 | 16.67 | — | — | — |
| Fitchburg | 33,848 | 7 | 4 | 14.30 | 14.30 | 14.30 | — | — |
| Taunton | 32,759 | 8 | — | 37.50 | — | — | — | — |
| Everett | 27,114 | 8 | — | — | — | — | — | — |
| North Adams | 26,583 | 7 | 1 | 28.60 | 14.30 | — | — | — |
| Gloucester | 26,121 | 5 | 2 | 20.00 | — | — | — | — |
| Quincy | 25,307 | 9 | — | 33.33 | 11.11 | — | — | — |
| Waltham | 24,612 | 7 | 1 | — | 14.30 | — | — | — |
| Pittsfield | 22,311 | 3 | 1 | — | 33.33 | — | — | — |
| Brookline | 21,679 | 4 | — | — | — | — | — | — |
| Chicopee | 20,390 | 2 | 1 | 50.00 | — | — | — | — |
| Medford | 20,014 | 6 | — | 16.67 | — | — | — | — |
| Newburyport | 14,478 | 6 | — | 33.33 | 16.67 | — | — | — |
| Melrose | 13,384 | 4 | — | — | — | — | — | — |
| Westfield | 13,038 | 3 | 1 | 33.33 | 33.33 | — | — | — |
| Attleboro | 12,846 | — | — | — | — | — | — | — |
| Adams | 12,813 | — | — | — | — | — | — | — |
| Milford | 12,516 | — | — | — | — | — | — | — |
| Framingham | 12,109 | 5 | — | — | — | — | — | — |
| Peabody | 11,957 | — | — | — | — | — | — | — |
| Revere | 11,894 | — | — | — | — | — | — | — |
| Gardner | 11,544 | 3 | 2 | — | 33.33 | — | — | — |
| Weymouth | 11,337 | 1 | — | — | — | — | — | — |
| Southbridge | 10,838 | 5 | — | 40.00 | 60.00 | — | — | — |
| Watertown | 10,600 | — | — | — | — | — | — | — |
| Plymouth | 10,336 | — | — | — | — | — | — | — |

Deaths reported 3,097; under five years of age, 911; principal infectious diseases (smallpox, measles, scarlet fever, cerebrospinal meningitis, diphtheria and croup, diarrheal diseases, whooping cough, erysipelas, fevers and consumption) 791, acute lung diseases 302, consumption 363, scarlet fever 47, whooping cough 31, cerebrospinal meningitis 17, smallpox 32, measles 52, diarrheal diseases 103.

From whooping cough, New York 19, Chicago 3, Philadelphia 2, Pittsburg 2, Boston 1, Worcester 2, Lawrence 1, Somerville 1. From measles, New York 21, Chicago 8, Philadelphia 12, Pittsburg 4, Boston 3, Lawrence 1, Haverhill 3. From erysipelas, New York 4, Chicago 2, Philadelphia 2, Pittsburg 1, Boston 2, Lowell 1, Somerville 1. From smallpox New York 19, Philadelphia 2, Pittsburg 3, Boston 5, Cambridge, Lawrence and Malden 1 each.

In the seventy-six great towns of England and Wales, with an estimated population of 14,862,909, for the week ending May 24, the death-rate was 16.7. Deaths reported 4,757; acute diseases of the respiratory organs (London) 237, whooping cough 119, diphtheria 66, measles 157, smallpox 47, scarlet fever 51.

The death-rate ranged from 8.2 in Smethwick to 26.4 in Oldham; London 16.4, West Ham 12.3, Croydon 9.1, Brighton 16.3, Portsmouth 12.8, Southampton 15.0, Bristol 15.4, Birmingham 18.1, Leicester 14.5, Nottingham 15.7, Birkenhead 19.9, Liverpool 23.0, Manchester 19.2, Salford 17.9, Bradford 18.1, Leeds 15.4, Sheffield 16.1, Hull 14.6, Newcastle-on-Tyne 20.5, Cardiff 15.4.

## METEOROLOGICAL RECORD

For the week ending June 7, in Boston, according to observations furnished by Sergeant J. W. Smith of the United States Signal Corps:

| Date | Barometer | Thermometer. | | | Relative humidity. | | | Direction of wind. | | Velocity of wind. | | We'th'r * | | Rainfall in inches. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Daily mean. | Daily mean. | Maximum. | Minimum. | 8.00 A.M. | 8.00 P.M. | Daily mean. | 8.00 A.M. | 8.00 P.M. | 8.00 A.M. | 8.00 P.M. | 8.00 A.M. | 8.00 P.M. | |
| S....1 | 30.42 | 64 | 79 | 50 | 54 | 61 | 58 | S W | S W | 7 | 15 | F. | O. | |
| M...2 | 30.08 | 72 | 87 | 58 | 70 | 62 | 66 | W | S W | 12 | 15 | C. | F. | |
| T...3 | 29.84 | 80 | 92 | 68 | 66 | 78 | 72 | W | S W | 16 | 10 | F. | O. | .05 |
| W...4 | 29.78 | 68 | 84 | 51 | 81 | 82 | 82 | S W | N E | 15 | 20 | O. | O. | .01 |
| T...5 | 30.13 | 54 | 60 | 49 | 72 | 64 | 68 | E | S | 8 | 5 | O. | C. | T |
| F...6 | 30.18 | 59 | 68 | 50 | 56 | 56 | 53 | N W | S | 8 | 12 | C. | F. | |
| S....7 | 29.81 | 66 | 78 | 54 | 81 | 92 | 86 | S W | S W | 12 | 24 | O. | R. | .04 |
| ☞ | 30.03 | | 78 | 54 | | | 69 | | | | | | | .10 |

*O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow. † Indicates trace of rainfall. ☞ Mean for week.

## RESIGNATION.

Dr. George F. Harding has resigned the position of dermatologist to the Carney Hospital.

## RECENT DEATHS.

CHARLES AUGUSTUS CARLTON, M.D., M.M.S.S., died in Salem June 12, 1902, aged sixty-one years.

GEORGE KING, M.D., M.M.S.S., died in Franklin April 24, 1902, aged seventy-nine years.

EDWARD NEWTON WHITTIER, M.D., M.M.S.S., died in Boston June 14, 1902, aged sixty years.

DR. OTIS FREEMAN, one of the oldest practising physicians in the United States, died at Freehold, N. J., on June 9. He was born in New Hampshire Dec. 30, 1809, and had practised for many years in New Jersey. During the Civil War he served with distinction as a surgeon in the United States Army, and it is said that after the battle of Sailors' Creek, Va., he worked for fourteen hours without cessation over the operating table.

DR. WILLIAM ARMISTED NELSON, a retired physician and a descendant of the Nelson family of Virginia, died at his home in New York on June 5. His great-grandfather was Thomas Nelson, Secretary of the Virginia Council, whose house at Yorktown was the one used by Lord Cornwallis as his headquarters. His grandfather was Col. William Nelson of the Revolutionary army, who took an active part in the siege of Yorktown, and his great uncle, Governor Nelson, was one of the signers of the Declaration of Independence. Dr. Nelson was born at Fredericksburgh, Va., in 1817, and was graduated from the medical department of the University of Pennsylvania in 1839. He received an appointment as assistant surgeon in the navy, and accompanied Commodore Perry on his expedition to Japan. In 1854 he was promoted to be full surgeon. Shortly before the Civil War he resigned, and afterwards served with distinction as surgeon in the Confederate Army throughout the war. After the close of the latter he settled in Missouri, where he practised for many years.

## BOOKS AND PAMPHLETS RECEIVED.

The Pennsylvania Society for the Prevention of Tuberculosis. Report for the year ending March 1, 1902.

Massachusetts Infant Asylum. Thirty-fifth Annual Report. Illustrated. Brookline: The Riverdale Press. 1902.

Chronic Myocarditis. I. Morbid Anatomy and Physical Signs. By J. H. Musser, M.D., of Philadelphia. Reprint. 1902.

A Memorial to J. T. Eskridge, M.D., and Clayton Parkhill, M.D. Published by the Members of the Denver and Arapahoe Medical Society. Illustrated. 1902.

The Artificial Feeding of Infants, including a Critical Review of the Recent Literature of the Subject. By Charles F. Judson, M.D., and J. Claxton Gittings, M.D Philadelphia: J. B. Lippincott Co. 1902.

## Address.

### THE PRESENT STATUS OF THE PRACTICE OF MEDICINE, AND THE URGENT NEED OF MORE STRINGENT APPLICATION OF HYGIENIC AND SANITARY LAWS.[1]

BY WILLARD S. EVERETT, M.D., HYDE PARK, MASS.

*Mr. President and Fellows of The Massachusetts Medical Society:* Such is our theme to-day. But you must not expect to listen to a scientific exposition, or an elucidation of some new or great principle or application of a principle, that is destined to overthrow prevailing customs or change the practices of men. You must not prepare yourselves to find a new or unexplored mine of intellectual wealth revealed. For these acquirements search must be made elsewhere.

But happily an exhibition of great learning is not needed now. The Shattuck lecture, with its marvelous wealth of scientific instruction, and with the exhaustive treatment of the subject, so ably presented by our honored guest; the various dissertations that have been given in the different sections, together with the comments and discussions by which they have been followed, have supplied all the intellectual and scientific aliment that is needed to redeem the exercises of these anniversary days from the charge of being useless or unprofitable, and this one hour may well be devoted to lighter themes.

And so I will invite you to be patient with me while I shall indulge in some of the reflections, and make some of the suggestions, and state some of the conclusions that have been evolved from the experiences and in the course of a practice extending over a period of nigh forty years. And as the events and transactions of those forty years pass in review before us like the shifting scenes of a panoramic landscape, memory will be busy with its visions and thought gravitates easily and naturally into meditative and reminiscent moods. And it is but the natural exercise of the ordinary functions of mental activity that leads to a general survey of the whole broad field that lies before us, and attempts to penetrate, even with our imperfect vision, some of the mysteries that lie beyond.

The changes of those years have been many. The men who were then in active life, and who were then giving character to the medical profession, are gone. But few of those who were in active practice when those forty years began, are with us now. New customs have supplanted the old. New practices have displaced those that prevailed at that time. New measures have been introduced. Former ones have become obsolete, and with the men that sustained them are gone to the shades. Altogether the former things have passed away. Changes are apparent everywhere, and but little remains except the memory, of those fleeting but eventful years. But medical science has not stood still. Increased facilities for acquiring knowledge, improved instrumental aids, and industry and devotion have produced their results.

In some lines of human endeavor the advancement and the progress of medical science has been magnificent and great. In the department of surgery, and in all that pertains to the surgical art, its achievements and its victories have outrivaled the dreams of visionaries of a few years ago. To us, from whom the future is hidden, it almost seems as though the limit had about been reached.

It is not easy for one endowed with only common faculties of observation and reason, to imagine in what direction improvement in surgical processes can much farther go. Yet others have thought so before our time. Ambrose Paré thought so once, and informed the world in 1579 that there seemed to be but little left for posterity to accomplish "but a certain small hope to add some things." His words sound to us like boasting. But the man who sent the torturing searing iron, the hot pincers and the blazing pitch to the museums of the antiquaries, to rest there forever as surgical appliances and as curiosities of the days gone by, by substituting for them the simple ligature for the arrest of hemorrhages, may well be pardoned for some self-glorification, for the changes he himself had wrought in surgical processes, though there yet remained such marvels of progression to be revealed in the future, that then were hidden from his dazzled gaze. We wonder, as a clearer perception of his position dawns upon us, if the medical antiquary of three and a half centuries hence, as he delves into the archives of our epoch, will indulge in the smile of complacency or of derision, with which we read his words.

And we wonder also what can happen that shall make the chasm between our own times and the centuries that are coming, as wide as that which separates us from the times of which he wrote. Yet we know not what a day may bring forth. Surprises in surgery are constantly occurring, and it may be confidently predicted that in some way or other a progressive future awaits the art of surgery yet.

In the department of medicine, however, though the changes have been many, if it is true that by their fruits ye shall know them, we cannot feel quite the same assurance that the real advances in dealing with diseases have been correspondingly great. Yet we do not forget the work that medical science has done. We do not forget Jenner, nor Pasteur, nor Koch, nor those who follow in the paths where they have led. We do not forget that great learning, immense wealth and untiring industry are laid upon its altar, and are expended without stint or limit in the study of diseases, and we are not unmindful of the result.

We do not forget the means that have been perfected for our assistance, nor the aids that have been placed in our hands. We do not forget all that we owe to the clinical thermometer,

[1] The Annual Discourse delivered before The Massachusetts Medical Society, June 11, 1902.

the use of which had never been suggested fifty, and scarcely forty years ago. We do not forget all that has been learned from urinary analyses, that were rarely thought to be essential then.

We do not forget the hypodermic needle, nor how opportunely or providentially the antitoxins have come to our aid. We do not forget the thyroid extract, by means of which the unsightly and distressing myxedema has been made to yield. We do not forget what the Rœntgen rays are doing in making plain what was hitherto invisible, nor that their palliative, if not curative, action upon sarcoma and carcinoma and epithelioma are rapidly passing beyond the experimental stage.

We do not forget the improvement that followed when the indiscriminate use of the lancet yielded its place to milder measures or to gentler stimulation, nor the disgust that was avoided when the nauseating doses of a former period were so largely superseded by the triturate tablet and the sugar or gelatine coated pill.

And we do not forget the wonderful improvement in pharmaceutical preparations, that the progress of the times, as directed by medical science, has demanded, and that these latter days have ushered in; and contrasting them with the vile concoctions that were forced upon the sick and the suffering, in the days when crab's eyes and blind puppies, earthworms and human skulls, had a place in recognized formulæ, in standard pharmacopeias of the period, and a commercial value as staple articles in the catalogue of pharmaceutical supplies, we felicitate ourselves with great joy and gladness, that the lines have fallen to us in more pleasant places, and bless with sincerest gratitude our ancestral lineage that our existence was delayed to these later days.

And finally, we do not forget the great multitude of investigators that have so long been focusing their microscopic lenses upon every form of pathological condition, with the hope and determination of tracing the ultimate causes of every form of disease.

We do not forget that never in the history of medicine or of the world have the searchlights of science been cast more persistently or more determinedly upon these bewildering problems, to work out their solution, than in these later years.

Never have clearer heads or keener intellects or braver hearts grappled with these perplexing difficulties, either to find the way to overcome them or to demonstrate the impracticability of the attempt. Indeed, so far has science already led us, that the personal element in the profession is being largely eliminated from the account, and the oldtime independent thought, self-reliant judgment and prompt, decisive action — not always without their errors, it must be admitted, yet useful in many ways — that belonged to a former generation, are rapidly and it is to be feared altogether, disappearing; and where once the way seemed clear before us, and pathognomonic symptoms clearly and sharply defined; we now hesitate and falter, if we do not positively decline — even while disease is rushing onward with increasing and dangerous rapidity — to render a diagnosis, until the revelations of the microscope or the bouillon cup have either exploded or sustained the views we have entertained. And we do not question their conclusions. We only learn to distrust our own.

And if there are those among the older practitioners who ask if the best interests of the sick and the dying are always subserved in this way; whether the accuracy of a mathematical demonstration is always secured by methods like these; if there are those who claim that habits of lifelong observation and years of experience at the bedside are entitled to some consideration still; if there are those who believe that the trained perception, the quick ear, the keen eye, the sensitive touch, that years of practice have intensified, if they have not perfected, are entitled to a place for practical purposes in the armamentarium of the physician that neither the exhibitions of the microscope nor the logic of the laboratory can fully supply, and that they will sometimes lead to just conclusions, before either the microscope or the laboratory can so prepare and adjust their specimens as to pronounce definitely upon the result; yet even these are willing to concede, when they do not conceal their misgivings, and while reserving to themselves the privileges of private judgment and independent action, do not hesitate to fall into line in the great procession that marches to the music of progression where the heralds of science blaze the way. And it is well. Heaven grant to these pioneers of science an unobstructed sway! Heaven grant to them abundant success to their labors! Heaven grant that their work may continue to prosper, until they shall find not only the germs of all diseases, but shall also discover the means that shall dislodge them from their place!

All honor to those noble men. All honor to those worthy ones who are denying themselves so many of the things that add to life's enjoyment, that they may devote their best years to this beneficent work. All honor to those who are teaching us the beginnings of disease. Let all encouragement be given them to continue in the paths they are pursuing, till they shall also teach us how to bring their work to a successful end. Let all praise be theirs for results already won. We honor them for their devotion to the work they have undertaken; we respect their conclusions; we follow their directions; we adopt their recommendations; we proclaim their fame while they are living, and rear monuments to commemorate and prolong their memories when they are gathered to their rest.

But the old conviction comes back to us still. If the purpose of study and of treatment is to cure disease, and so to promote the welfare of humanity, then the ultimate purpose of medicine is not yet in sight. When all our investigations are completed, when our studies and researches are done, when the improvements in management and the additions to our resources have either

demonstrated their value or failed in our hands, the grand object of curing disease by medication, so far at least as many diseases are concerned, is not gained.

Tuberculosis remains the same unconquered and unconquerable foe to human life that it has been always. And in cases where improvement has been noted, it has been accomplished less by medication than by hygienic means. Pneumonia swept away 5,282 victims in 1900 in Massachusetts alone. Typhoid fever remains typhoid fever still. And neither improved — or at least varied — methods of treatment, nor cold ablutions, nor chilling immersions, nor Widal tests, nor microscopic views, nor corpuscular computations, have perceptibly changed its character in any essential particulars, from the fatal and fearful affection that baffled the skill of the physician in the days of our predecessors, and that resists with equally stubborn obstinacy the best directed efforts of our own. It regards neither rank nor condition; it abates not one degree of its destructive energy, whether its visitation fall upon the heedless victim of his own carelessness and needless exposure, or on our own cherished and beloved governor, who relinquishes the chair of State and retires from the duties of the gubernatorial office long enough to come in here with us year after year, to honor us with his presence, and to speak to us words of encouragement and praise.

And the humiliating thought that adds the keenest pang to our affliction is that both the sanitarian and the medical profession are committed to the opinion that its place is in the catalogue of preventable disease. There were fifteen diseases whose fatality was greater in Massachusetts, in both 1890 and in 1899. Whether its rank throughout the country in those years was higher we do not know. But in 1896 Dr. Bradford tells us, in the Annual Address [2] for 1899, that it claimed 75,000 victims in the United States.

We know not and are not now considering "whether disease is a part of the plan of creation," but we know that existence is hedged round with so many unfavorable conditions, that danger surrounds us like an atmosphere from life's beginning to its close. In whatsoever paths our feet are guided, disease is everywhere present with us still.

We do all that medical science in the present state of its development suggests and all that experiences teaches, to counteract the ills that beset us, that we are obliged to acknowledge we cannot prevent at present and do not always cure. We build hospitals in every city, and furnish them with every convenience and necessity for the care of the helpless and the sick. We secure to them the best attendance that the medical profession can supply. We build expensive laboratories, and equip them in liberal fashion with every useful appliance, in the hope that every new aspect as it makes its appearance, as well as every structural change, may be noted and assigned to its appropriate place in the etiology of disease. We exhaust our knowledge of the pharmacopeia and the products of the earth, the sea and the atmosphere in devising new antidotes for the relief of whatsoever maladies afflict the children of men. We experiment with every new remedy or combination of remedies that is commended to our attention as possessing special adaptation to special diseases or uses, to the end that we may thoroughly test their virtues, and when they have disappointed us sufficiently we cast them aside. We invoke the aid of all the resources that can be made available or be supplied from any quarter, to counteract the ravages of those living organisms that science tells us are wasting life away. We dismember the body when its life has departed that we may subject its every tissue to a scrutiny that was impossible while its subject was living, to ascertain the ultimate structure as well as function of the minutest filament of muscular fibre or the smallest spiculæ of bone. Neither nerve tissue nor brain substance escapes us. Nothing is overlooked, and nothing satisfies until we have resolved the whole human structure to Virchow's universal cell, and located all our many troubles in the cellular transformations and atomic changes that have their origin there.

We stifle our feelings of humanity and pity, in the interest of science, and subject the lower orders of creation to direst suffering and agonizing death, and composedly study from their vicarious anguish the pathologic processes that, artificially induced in their less respected bodies, seem to be identical with the cellular changes that take place in the human system in the same disease, and in so doing, hope to learn from their distresses how to relieve our own.

We try to follow in the paths wherein the men of science lead us, though we may not fully comprehend their ways. We study the published reports of their proceedings, with the determination — if not with an entirely successful attempt — to master and appropriate to our own uses the lessons of wisdom that they teach us, and make in some measure their wealth of scientific lore our own.

We apply ourselves with diligence and assiduity to the mastery of the marvelous vocabulary and nomenclature that has been developed in the progress of the science, and tax our mental machinery to its limit, while we wrestle with the intricacies and technicalities of accurate scientific expression, till microbe and leucocyte, bacteria and bacillus, and spherical cell, and cylindrical cell, and spindle cell, and micrococcus, and streptococcus, and staphylococcus, and diplococcus, and spores, and ptomaines, and spirillium, and vibriones, become familiar, if not always distinctly differentiated or perfectly understood, terms.

We divide ourselves into schools and systems and specialties, and argue and dispute with one another in controversial earnestness, even to the verge of desperation and ill temper, in vainly attempting to discover or determine which modes of procedure of all that are presented are best,—

[2] Medical Communication, Massachusetts Medical Society, vol. viii, No. 1, 1899, Annual Address, p. 33.

for the patient's well being, if so it may be,— or, failing that, for bringing to our own exchequer the amplest return.

We do all this, and we do much more. We hold ourselves in readiness to respond to every call for medical assistance, however slight the occasion or attended with whatsoever of inconvenience or self-sacrifice it may be.

We sink into the depths of despondency and discouragement when death defeats our best endeavors, and hardly recover from our disappointment to a normal plane of hope and cheerfulness when — as does sometimes happen — we have the satisfaction of believing that we have been instrumental in prolonging a life. We grapple courageously and fearlessly with diseases of every description, however dangerous in their character they may be, as though there were neither contagion nor infection nor personal danger in the world.

We do all these things. We fight to the last to save our patients, but the arch-enemy is mightier than we. Disease and death will not be vanquished. They remain with us still. The fight with them goes on forever. It has been going on through all the centuries. It is going on still. The combat is never ended. The battle is never won. Our efforts to overcome them are thus far largely futile. Our most earnest endeavors to eradicate them are thus far at least partially in vain.

Men die — die in the vigor of useful and prosperous manhood ; die when life's responsibilities are greatest; die when ties of affection are strongest; die when life seems most essential to the family and to the world. Youth and beauty are stricken by the fell destroyer, and go down to the silent chamber, ere yet the first taste of life has lost its exhilarating flavor, and fade out of existence ere yet the mildew of time has touched the hem of the garments that adorned their primal bloom. Fathers and mothers stand in hopeless but unavailing sorrow round the couch where the pride of their eyes and the joy of their hearts is breathing out its infantile and agonized existence, and gaze imploringly, beseechingly — and it may be reproachfully— into the face of the physician, whose countenance does not cheer them, whose word can yield them neither hope nor encouragement, and whose impotent hands are powerless to bring them relief. There is no need to overdraw the picture; but it is useless to keep the truth from sight.

Statistics might reinforce these statements, but everyone knows that they are true. Or if there are those who doubt them, let them search the registration reports, and review their own experiences for themselves. We are assured that the death-rate is diminishing, and gladly believe that it is true. But granting all that is claimed for increasing longevity, the rate is yet sufficiently high. The churchyards are constantly receiving their accessions, are multiplying in numbers everywhere, and are extending their areas; and because they are encroaching too largely on valuable territory, as well as becoming in themselves a menace, the crematory fires are kindled and are blazing with fervent heat.

And this deplorable mortality is not confined to the aged, whom all know must die. Neither can it be attributed to a scarcity of physicians, for there are but eight states in all our broad land where there are 1,000 persons to each physician ; and from thence the range is down to one in 420 in California, which seems of all the states in the Union, to be most abundantly supplied. In Massachusetts, in whose welfare we are more particularly interested, the ratio is one to every 539. Throughout the whole country there is, or was, in 1898, one registered physician to every 647 persons. And yet this excessive mortality exists, and it is not an accident of recent times. It is as ancient as the historic page. It was thus in the days of the psalmist. It was thus when the poet paraphrased his words :

> "Tis but a few whose days amount
> To threescore years and ten."

It was true when these words were written, and it is true now. Disease is lurking everywhere. Life is imperilled at every step. The causes that induce the one and sustain the other seem mingled in unutterable and inextricable confusion, and overwhelm us in doubt and perplexity, from which, while existing conditions continue, we can look forward to no release.

The atmosphere that supports respiration is laden with pathogenic germs. The elements that supply nutrition become the messengers of death. The mother's kiss imparts contagion, and the hand that is grasped in the fervor of friendship finds contamination concealed in its clasp. The balmy Southern breezes that refresh and cool the fevered forehead waft their miasm from the Savannas of the southland, and the rugged northern tempest that imparts its energizing vigor brings its microbe with its chill. It was a microbe that sapped out the lifeblood of the blue-eyed and fair-haired creature who grew up with you in your boyhood, whose hand restrained you in the recklessness of adolescence, when even your mother's wishes were not always obeyed, and guided you into paths that have led to your present high estate, and whose loss left a void in your existence that the world has never filled, when she died ; and it was a microbe also that caused the bread she ate to rise.

The same organisms that produce the ferment that keeps the earth in condition suitable for human habitation, are more destructive to those who dwell upon its surface than the rifle or the sword.

The insect world arrays itself with the forces that compass our destruction, and comes swarming round us in its myriad forms, not alone destroying our comfort with its annoying presence, but exposing us to dangers that are too subtile for our unsuspecting senses to recognize, but too powerful also, in their aggregate numbers, to be easily dispelled or controlled. And even the contemptible and villainous little mosquito, seemingly

too insignificant to be worthy of notice, and which we feel it to be beneath the dignity of manhood to recognize, even as an annoyance — if it is the truth that is told about him — has sins and transgressions little less diabolical than murder, laid to his charge. Some one may object to the use of the masculine pronoun here, because they tell us that it is the female, in this instance, that makes the mischief, as it was at creation's birth. But perhaps the generic title may be permitted here as being adapted to our present purpose, while we leave them to arrange the question of individual responsibility between themselves. Yet against the insidious attacks and incursions even of so despicable an enemy, we have neither defense nor protection, save only by calling to our relief, assistance, and even preservation, the whole gigantic machinery of the Standard Oil Trust, which, backed by all the Rockefeller millions, is able to furnish only a partial guarantee of immunity, in the ratio of fifteen square feet to the ounce. In this new David and Goliah contest the advantage is certainly again with the sling. Yet life has greater foes than he; for when the worst has been said against him, it must be admitted that at worst he is an open enemy. Whatever potentialities of mischief may be concealed within his diminutive figure, his attacks are never disguised. We can see him, we can hear him, we can feel his sting; and warned in this manner of his presence, we are given some opportunity to protect ourselves.

But the greatest foes of existence are those that do their work unseen and in silence, and that nothing less powerful than a microscope can render visible to human sight. Yet the devotees of science assure us that in these microscopic organisms are traced the elementary sources of all disease; and they assure us, also, that it is to counteract or prevent their ravages that the best energies of medical science can be most effectually applied.

*(To be continued.)*

## Original Article.

### THE IMPORTANCE OF MILK ANALYSIS IN INFANT FEEDING.[1]

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Within the past few years various methods have been devised for the "modification" of cow's milk. The purpose of these "modifications" is to combine cream, milk, milk-sugar and water in such proportions as to produce mixtures containing any desired percentage of fat, milk-sugar and proteid. All of these methods have one thing in common, namely, they assume that there is a fairly constant percentage of fat in a given number of ounces from the upper portion of a quart of cow's milk after the cream has risen. The following analyses show that this assumption is not true for individual milk, and that the percentage of fat in cow's milk varies very much.

[1] From the Pharmacological Laboratory of the Harvard Medical School, and from the Chemical Laboratory of the Massachusetts General Hospital.

TABLE I.

| | Upper 8 ounces. Per cent. | | | | Lower 24 ounces. Per cent. | | | |
|---|---|---|---|---|---|---|---|---|
| No. | Fat. | Sugar. | Proteids. | Ash. | Fat. | Sugar | Proteids. | Ash. |
| 1 | 13.60 | 4. | 4.42 | 0.472 | 0.30 | 4.90 | 3.42 | 0.62 |
| 2 | 14.40 | 3.60 | 4.73 | 0.504 | 0.30 | 4.90 | 3.96 | 0.60 |
| 3 | 9.60 | 4.35 | 4.24 | 0.57 | 1.40 | 5. | 3.80 | 0.60 |
| 4 | 15.20 | 4.40 | 4.66 | 0.52 | 0.70 | 5.15 | 4.02 | 0.63 |
| 5 | 11. | 4. | 4.52 | 0.65 | 0.70 | 4.90 | 3.69 | 0.58 |
| 6 | 14. | 4.40 | 5.24 | 0.55 | | | | |
| 7 | 8.20 | | | | | | | |
| 8 | 10. | | | | | | | |
| 9 | 9.20 | | | | | | | |
| 10 | 12.20 | | | | | | | |
| 11 | 8. | | | | | | | |
| 12 | 10.20 | | | | | | | |

ANALYSIS No. 1.

| Upper 8 ounces. | Per cent. | Lower 24 ounces. | Per cent. |
|---|---|---|---|
| Fat | 13.60 | Fat | 0.30 |
| Sugar | 4. | Sugar | 4.90 |
| Proteids | 4.424 | Proteids | 3.418 |
| Mineral matter | 0.472 | Mineral matter | 0.62 |
| Total solids | 22.496 | Total solids | 9.238 |
| Water | 77.504 | Water | 90.762 |
| | 100.00 | | 100.00 |
| **Actual weight in grams.** | | **Actual weight in grams.** | |
| Milk | 5. | Milk | 5. |
| Total solids | 1.1248 | Total solids | 0.4619 |
| Mineral matter | 0.0236 | Mineral matter | 0.031 |

ANALYSIS No. 2.

| Upper 8 ounces. | Per cent. | Lower 24 ounces. | Per cent. |
|---|---|---|---|
| Fat | 14.40 | Fat | 0.30 |
| Sugar | 3.60 | Sugar | 4.90 |
| Proteids | 4.728 | Proteids | 3.966 |
| Mineral matter | 0.504 | Mineral matter | 0.60 |
| Total solids | 23.232 | Total solids | 9.766 |
| Water | 76.768 | Water | 90.234 |
| | 100.00 | | 100.00 |
| **Actual weight in grams.** | | **Actual weight in grams.** | |
| Milk | 5. | Milk | 5. |
| Total solids | 1.1616 | Total solids | 0.4883 |
| Mineral matter | 0.0252 | Mineral matter | 0.03 |

ANALYSIS No. 3.

| Upper 8 ounces. | Per cent. | Lower 24 ounces. | Per cent. |
|---|---|---|---|
| Fat | 9.60 | Fat | 1.40 |
| Sugar | 4.35 | Sugar | 5. |
| Proteids | 4.242 | Proteids | 3.808 |
| Mineral matter | 0.57 | Mineral matter | 0.60 |
| Total solids | 18.762 | Total solids | 10.808 |
| Water | 81.238 | Water | 89.192 |
| | 100.00 | | 100.00 |
| Actual weight in grams. | | Actual weight in grams. | |
| Milk | 5. | Milk | 5. |
| Total solids | 0.9381 | Total solids | 0.5404 |
| Mineral matter | 0.0285 | Mineral matter | 0.03 |

ANALYSIS No. 4.

| Upper 8 ounces. | Per cent. | Lower 24 ounces. | Per cent. |
|---|---|---|---|
| Fat | 15.20 | Fat | 0.70 |
| Sugar | 4.40 | Sugar | 5.15 |
| Proteids | 4.664 | Proteids | 4.028 |
| Mineral matter | 0.52 | Mineral matter | 0.634 |
| Total solids | 24.784 | Total solids | 10.512 |
| Water | 75.216 | Water | 89.488 |
| | 100.00 | | 100.00 |
| Actual weight in grams. | | Actual weight in grams. | |
| Milk | 5. | Milk | 5. |
| Total solids | 1.2392 | Total solids | 0.5256 |
| Mineral matter | 0.026 | Mineral matter | 0.0317 |

ANALYSIS No. 5.

| Upper 8 ounces. | Per cent. | Lower 24 ounces. | Per cent. |
|---|---|---|---|
| Fat | 11. | Fat | 0.70 |
| Sugar | 4. | Sugar | 4.90 |
| Proteids | 4.624 | Proteids | 3.702 |
| Mineral matter | 0.552 | Mineral matter | 0.588 |
| Total solids | 20.176 | Total solids | 9.89 |
| Water | 79.824 | Water | 90.11 |
| | 100.00 | | 100.00 |
| Actual weight in grams. | | Actual weight in grams. | |
| Milk | 5. | Milk | 5. |
| Total solids | 1.0088 | Total solids | 0.4945 |
| Mineral matter | 0.0276 | Mineral matter | 0.0294 |

ANALYSIS No. 6.

| Upper 8 ounces. | Per cent. | Lower 24 ounces. |
|---|---|---|
| Fat | 14. | |
| Sugar | 4.40 | |
| Proteids | 5.248 | |
| Mineral matter | 0.552 | |
| Total solids | 24.200 | |
| Water | 75.80 | |
| | 100.00 | |
| Actual weight in grams. | | |
| Milk | 5. | |
| Total solids | 1.21 | |
| Mineral matter | 0.0276 | |

It is instructive to notice in the complete analysis that the percentage of sugar in every instance is *higher in the lower milk* than in the cream, and that the percentage of proteids is *higher in the cream* than it is in the lower milk. These results agree with those quoted by Hammarsten.[2]

The above milks which were analyzed were bought from various milkmen in or about Boston. So far as I could learn they were from "night-milkings." At the time of analysis they were from fifteen to eighteen hours old. In milk numbered 3 the cream had not risen at the time of its delivery. The bottle containing this milk was packed in broken ice and remained there for five hours.. At the end of that time the cream layer was distinct, yet notwithstanding this a considerable percentage of the cream had not separated from the lower milk, as was shown by the high percentage of fat in the lower portion of the milk. This failure of the cream to separate might have happened if the milk had been used for home modification. In all of the other specimens the cream layer was distinctly marked at the time the cream was removed. A quart of each specimen was used for analysis and in every case but one the upper eight ounces were removed. These eight ounces constituted the "cream" from which modifications would ordinarily be made.

From the six milks of which complete analysis was made, the lower twenty-four ounces were removed by siphonage. From the milks which were analyzed for fat alone, only the upper eight ounces were removed by means of a "chapin dipper." Specimen numbered 9 was sold as "cream" to a patient of mine with the statement that it contained 12% of fat. The buyer explained to the dealer that it was wanted for "home modification." The analysis showed 9.20% of fat.

### METHOD OF ANALYSIS.

The method used in making the analyses is one recommended by Dr. Charles Harrington in his book on "hygiene." I take this opportunity to thank him for the kind assistance which he has rendered me at different times.

*Estimation of percentage of fat; Babcock Method.* — Seventeen and six-tenths cc. of milk are measured by means of a graduated pipette, and introduced into a flask of special design which has a long, graduated neck. Then an equal volume of strong sulphuric acid, specific gravity 1,800, is added, and the two liquids are thoroughly mixed by gentle rotary motion. The flask is placed in a centrifugal machine and whirled for five minutes. Boiling water is added up to the base of the neck of the flask, and the flask is whirled for three minutes longer. After this, boiling water is added in sufficient quantity to bring the fat layer well up into the neck of the flask, and the whirling is continued for from one to two minutes longer. The percentage of fat is deter-

[2] Textbook of Physiological Chemistry, 1900, p. 396.

mined by reference to the scale. If the acid is too strong it may char the sugar and turn the fat dark, and thus interfere with the reading. If the acid is too weak the casein may not be held in solution, and particles become mixed with the fat and destroy the accuracy of the test. In order to insure accuracy the reading must be made as soon as possible after the whirling is completed. Otherwise the fat hardens in the tube and gives incorrect results. The remedy for this is the *cautious* application of heat, or of hot water, to the neck of the flask. When reading the percentage of fat the lower and upper borders of the fat should be held on a level with the eye, otherwise it is difficult to avoid an error of at least one-tenth of 1%.

*Estimation of percentage of sugar by polariscopy.*— Sixty-five and ninty-five hundredths gm. of milk, that is, twice the normal weight of lactose, are weighed in a glass flask graduated to 102.6 cc. The flask has a ground-glass stopper; 1 cc. of acid nitrate of mercury solution is added, and the contents of the flask are thoroughly mixed by shaking, after which distilled water is added to the mark 102.6 cc. The contents are thoroughly mixed and filtered through dry filter paper. The filtrate must be perfectly clear to make an accurate reading with the polariscope. A second reading should be made to control the first one.

The normal sucrose weight, that is to say, the amount of *sucrose*, which dissolved in water and made up to 100 cc. will show 100° on the scale when observed through a 200 mm. tube, is 26.048 gm. The weight, 65.95 gm., represents *twice* the normal *lactose* weight. The graduation, 102.6 cc., is adopted instead of 100 cc. because the dried, precipitated curd of a milk of average specific gravity has a bulk equal to the excess of 2.6 cc. more than 100 cc. Twice the normal lactose weight is used in order to lessen a possible error in the reading, that is, the error in reading is divided by two.

*Estimation of percentages of total solids, mineral matter and proteids.*— Five gm. of milk are weighed in a platinum dish. The weight of the dish is ascertained before each analysis. The milk is allowed to run into the dish from a pipette. This is done as rapidly as possible up to the last drop that is needed to make the weight 5. gm. Then one drop is added and any surplus is removed by means of a small piece of filter paper. In this way the loss of weight by evaporation is avoided, and an accurate balance is obtained. The milk is then evaporated to dryness over a steam bath. The dish is then placed in a thermostat heated to 100° C. and allowed to remain until the weight becomes constant. It is then placed in a dessicator and when cool it is weighed. The difference between this weight and the weight of the empty dish represents the total solids in the quantity of milk taken, and multiplied by twenty expresses the *percentage* of total solids in the sample. The dish containing the residue is then ignited in a bunsen flame until nothing remains but the mineral matter. The dish is then placed in a dessicator, cooled and weighed. This weight less the weight of the empty dish gives the weight of mineral matter in the quantity of milk taken. The *percentage* is obtained by multiplying this result by twenty.

Two specimens were analyzed each time, so that one analysis should control the other.

Table II shows the number of ounces from the upper one-fourth of a quart of each of the milks analyzed in Table I that must be added to a twenty-ounce modification to make that modification contain 4% of fat.

TABLE II.

| No. | Fat. | Cream. |
|---|---|---|
| 1 | 13.6% | 5 7-8 oz. |
| 2 | 14.4% | 5 4-8 oz. |
| 3 | 9.6% | 8 3-8 oz. |
| 4 | 15.2% | 5 2-8 oz. |
| 5 | 11. % | 7 2-8 oz. |
| 6 | 14. % | 5 6-8 oz. |
| 7 | 8.2% | 9 6-8 oz. |
| 8 | 10. % | 8 oz. |
| 9 | 9.2% | 8 6-8 oz. |
| 10 | 12.2% | 6 4-8 oz. |
| 11 | 8. % | 10 oz. |
| 12 | 10.2% | 7 7-8 oz. |

Table III shows the percentage of fat which actually would be present in a twenty-ounce modification made from the upper one-fourth of a quart of each of the milks analyzed in Table I, if the usual rule were followed, which assumes that 10% of fat is present in the upper one-fourth of a quart of "set milk." Each modification on this basis is *estimated* to contain 4% of fat.

TABLE III.

| No. | Fat in Cream. | Fat in Modification. |
|---|---|---|
| 1 | 13.6% | 5.44% |
| 2 | 14.4% | 5.76% |
| 3 | 9.6% | 3.84% |
| 4 | 15.2% | 6.08% |
| 5 | 11. % | 4.40% |
| 6 | 14. % | 5.60% |
| 7 | 8.2% | 3.28% |
| 8 | 10. % | 4. % |
| 9 | 9.2% | 3.68% |
| 10 | 12.2% | 4.88% |
| 11 | 8. % | 3.20% |
| 12 | 10.2% | 4.08% |

In addition to the errors that can be avoided by analysis of the milk, it is necessary to consider

the errors dependent upon faulty modification. Unless explicit directions are given about the method of modification, mistakes are almost certain to occur. Exact directions should be given about the quantity to be removed from the top of the milk and the quantity to be used in the modification; the way in which the top milk should be removed; the way in which the milk sugar should be measured, whether packed down or shaken lightly into the measure.

The second column of Table III shows a difference of almost 100% in the amount of fat that would be present in "modifications" made from different creams when figured on a basis of 10% of fat in the "cream." Milk from the same source as each of the milks analyzed was used for home modification. In a number of cases the results were unsatisfactory, as might be expected from such great variation in the percentage of fat.

There is considerable variation in the degree of disturbance caused by too much fat in modified milk. Vigorous infants who are several months old may thrive in spite of it, but even these babies, as a rule, show some symptoms of digestive disturbance sooner or later. A common symptom is loss of appetite, the baby takes less and less food, and yet does not appear to be especially ill. In other cases some acute illness, such as a cold, is followed by symptoms of indigestion, and in these cases it often requires a much longer time than usual, often weeks or even months, before the digestive functions become normal again. Some cases have acute gastro-enteric disturbance when the percentage of fat is too high. This usually is not so serious, because the remedy is applied so much earlier.

In general it may be said that the most harm is done to infants a few weeks old. These cases make a bad start; they lose weight; have more or less vomiting or regurgitation, and usually do not digest their food well. The parents or the physician are very apt to try other foods, and in many cases a condition of atrophy results.

The results of too little fat in modifications of milk are usually not so serious so far as the mere lack of fat is concerned. The infants do not gain in weight as they should and they are apt to be constipated. A deficiency of fat in the food is recognized much sooner than an excess, because there is a general tendency to believe that an infant is hungry no matter what symptoms are present. This belief leads those in charge to increase the strength or the quantity of the food on very slight provocation, and therefore infants are not likely to be underfed for any length of time. A more serious objection to the use of milk which contains a low percentage of fat in the cream, for modification, is that it is impossible with it to prepare a modified milk containing a moderately high percentage of fat (over 3.50) combined with a low percentage of proteids.

It often happens that a low percentage of proteid is desired, combined with a moderately high percentage of fat; for example, a 4% of fat, 7% of sugar, 1% of proteid; or 3.50% of fat, 6.50% of sugar, 1% of proteid. It does not matter in most of these cases if the percentage of proteid is a little over one, and as a matter of fact it has to be when modifications are made from "gravity" cream. It often does matter, however, if the percentage of proteid is 1.60 or 1.75. It requires so much of the cream containing a low percentage of fat to give the desired percentage of fat in the modification that the percentage of proteid is unavoidably high. The remedy for this is either to use a milk in which the upper one-fourth of a quart of the "set milk" contains at least 12% of fat, or what amounts to the same thing, to take off less than the upper one-fourth. Determine by analysis the percentage of fat in the upper five, six or seven ounces, as the case may be, from a quart, and use the number of ounces for modification that analyzes 12 or 13% of fat. This applies only to the cases in which a moderately high percentage of fat combined with a low percentage of proteid is needed.

In home modifications made from gravity cream it is customary to assume the presence of 4% of proteid, both in the cream and in the lower milk. Table IV enables a comparison to be made between the percentage of proteid *actually* present in a twenty-ounce modification with 4% of fat and the percentage of proteid *assumed* to be present in the same modification when the proteids are figured on a 4% basis. In those milks which have a high percentage of fat in the upper one-fourth, the discrepancy between the percentage of proteid in the modification figured at 4% of proteid in the cream and the *actual* percentage present in the modification, as shown by analysis of the cream, is not very great, because so little of the cream is required to give the desired percentage of fat in the modification. In those milks, on the other hand, in which the percentage of fat in the upper one-fourth is low, say from 8 to 10, the difference is marked and might be liable to cause digestive disturbances in many cases.

Table IV, based upon the six complete analyses in Table I, shows the percentage of proteids which would be present in a twenty-ounce modification made from each of the six milks, using as cream the upper one-fourth of each quart of milk after it had "set." Each modification is figured to contain 4% of fat.

TABLE IV.

| No. | Proteids figured at 4%. | Proteids actually present. |
|---|---|---|
| 1 | 1.17% | 1.29% |
| 2 | 1.10% | 1.29% |
| 3 | 1.67% | 1.77% |
| 4 | 1.05% | 1.22% |
| 5 | 1.45% | 1.63% |
| 6 | 1.15% | 1.50% |

*(To be continued.)*

## Clinical Department.

### TYPHOID SPINE (SPONDYLITIS TYPHOSA; PERISPONDYLITIS TYPHOSA).[1]

BY ELBRIDGE G. CUTLER, M.D., BOSTON,
*Visiting Physician to the Massachusetts General Hospital.*

The term typhoid spine was first applied by Gibney to a condition of the spine resembling Potts' disease, which occasionally occurs after typhoid fever, but without the deformity which follows the former. The condition was thought by Gibney to be due to an inflammation of the structures surrounding the vertebræ, that is, a perispondylitis. The cases which he recorded were characterized by excessive pain and stiffness of the back. All save one made a good recovery. In this one slight impairment of the gait persisted.

This complication occurs more often during convalescence, though it may appear at any time between the beginning of convalescence and three months later, but some cases have been observed late in the fastigium at the time of the morning drop of the temperature. The patient complains of pain in the lumbar or sacral regions, perhaps after a slight blow or shock or jar, or independently of such injury. The chief symptoms are stiffness of the back, pain on movement and tenderness on pressure, the latter symptom being the least constant. In addition there are certain nervous manifestations, sometimes even hysterical. The physical examination aside from the tenderness mentioned reveals nothing. Fever is not usually present unless there be other complications. The prognosis is favorable, complete recovery following in most cases, though deformity (kyphosis) has been observed.

The disease, according to Gibney, Osler, Kühn [2] and Taylor,[3] is a spondylitis or a perispondylitis, though Osler considers that in most cases the condition is a neurosis. No post-mortem examination of the condition is on record so far as I know. The other lesions of bone which are recorded in the course of typhoid fever are periostitis and osteomyelitis, and the bacillus of Eberth has been discovered to be the source of the trouble in a large number of these cases. The staphylococcus pyogenes aureus has, however, been isolated as well in one case mentioned by Parsons.[4]

The treatment consists of rest in bed on the back and the application of a plaster or leather jacket to give support.

This case is reported because of its rarity and to secure a permanent place in the literature.

Henry Bohaker, age thirty-two, single; born in Nova Scotia, living in Manchester, Mass.; gardener. Entered the hospital Nov. 24, 1900, with a diagnosis of typhoid fever.

History as follows: Measles as a child; subject to headaches; otherwise always well. Constipated; appetite habitually good; denies venereal; no accidents.

*Present illness.*— Three weeks ago, that is, about Nov. 1, commenced to have sharp pains up and down back, groins and legs. Grew weak gradually; took to bed on 21st. No nose bleed or diarrhea; no vomiting; chilly at times. For a week has felt feverish, and worse in the last three days. Headache has persisted for three weeks. Slight cough, as he says, to clear out throat. Raises very little mucus; no palpitation. Moderate soreness in the abdomen a week ago; no swelling anywhere; sleeps poorly; passes normal amount of urine; bowels moved this morning; appetite poor.

*Physical examination.*— Well developed and nourished. Face flushed; apathetic; pupils equal and react; tongue dry and thickly coated. Prominent papillæ; teeth in excellent condition; throat clear. Chest shows no abnormal differences in expansion, fremitus, voice or respiration. Heart apex in fifth space, one-half inch inside nipple line. No enlargement to right; action regular, good force; soft systolic murmur at apex and transmitted to pulmonic area. Aortic and pulmonic second sounds equal. Pulse regular, good volume, soft, slightly dicrotic; artery not thickened. Abdomen full, soft, tympanitic, not tender. Few scars in the region of umbilicus from electric belt. Liver from fifth space to costal margin. Spleen not palpable; no rose spots; skin hot and dry; no edema, no increased glands; reflexes present, mastoids not tender. Whites, 5,000; hemoglobin, 65%; Widal negative.

Liquid enteric diet; lemon, glycerin and borax mouth wash; Doebel's spray every four hours. Baths as per schedule if temperature is 102.5° or more.

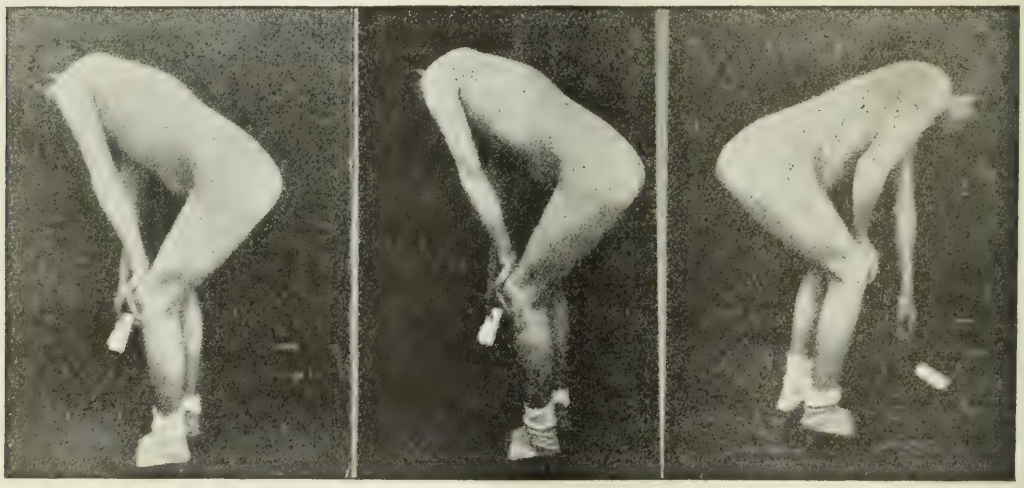
Nov. 25: Temperature remained steadily high with small drops with baths. Spleen not felt. Urine high, acid; specific gravity 1,025; large trace of albumin; chlorides diminished; sugar none; diazo present, bile none. Slight sediment, consists of a very few hyaline and fine granular casts, with few to many renal cells adherent. Occasionally normal blood, and small round squamous cells and leucocytes. 26th: Continues about the same. Whites, 6,000. Shivers considerably after bath. 27th: Considerable distension accompanied by pain above the pubes. An enema with turpentine and glycerin and rectal tube gave relief and three good results. Whites, 6,000. During evening patient vomited several curds of milk. Received albumin water only during night. 28th: Much distended; icebag to abdomen; omit nourishment. 29th: Still distended. 30th: Distended, face flushed and apathetic; icebag.

Dec. 1: Distended most of time. 2d: Abdomen slightly softer. 3d: Required catheterization at 1.30 A.M. and 11 A.M. Urine normal, acid; specific gravity, 1,018; very slight trace of albumin; chlorides diminished; slight sediment, rare hyaline cast, no blood; occasional round squamous cell and leucocyte. Incontinence of feces from the 5th to the 10th; pulse 120. On the 10th

[1] Read before the Clinical Section of the Suffolk District Medical Society April 16, 1903.
[2] Münch. Med. Woch., June 4, 1901.
[3] Philadelphia Medical Journal, Dec. 28, 1901.
[4] Johns Hopkins Hospital Reports, Studies in Typhoid Fever.

required strychnia on account of poor pulse, $\frac{1}{60}$ gr. every six hours. 17th: Stools streaked with dark blood. 19th: Some blood in the stool. 20th: Five bloody stools in twenty-four hours; pulse and temperature remain unaffected. 23d: Very delirious; pulse very poor, dicrotic. 26th: Marked delirium. 27th: Pad soaked with blood. 28th: There were two more hemorrhages. 31st: Fissure of the anus discovered which discharges pus freely.

Jan. 1: Urine normal, acid; specific gravity, 1,015; slight trace of albumin; chlorides diminished; slight sediment, consisting of a rare hyaline cast, no blood, few small and medium round occasionally pyriform cells, small squamous cells and leucocytes. 2d: Incontinence and retention continue. 12th: Condition better; passes urine voluntarily. 18th: Pain in ears; temperature normal. 19th: Right ear opened, large serous discharge. Back shows much tendency to hurt. (Apparently bed sore was a disturbing feature.)



21st: Temperature up, ear much quieter; whites, 18,000. 23d: Whites, 11,400; much brighter. 27th: Ear discharges but little.

Feb. 5: Drum punctured and the patient improved up to the 16th, when patient complained of hunger, and urine was in the following condition: Specific gravity, 1,012; acid, pale, no albumin, diminution of chlorides, urates 26 gm.; sugar, bile and diazo none; no sediment; occasional squamous cell and leucocyte. 24th: Ear still discharging slightly. Was referred to Out-Patient Department for treatment of his back, which was nearly well, and to the Eye and Ear Infirmary for ear. Discharged well.

May 22, 1901: Patient at the hospital was diagnosticated to have had typhoid fever from Nov. 24 to Feb. 24. When discharged he had a slight raised red fluctuating mass over the left sacro-iliac sychondrosis, without tenderness (furunculus). The temperature was normal for twenty-four days after the drop while in the hospital. The lumbar part of the back has felt weak ever since his discharge, so that he can hardly stoop forward. Can walk slowly without much trouble, but has a dull ache in the left iliac bone and lower lumbar region, on sitting down or standing still. Has to lie flat on his back for an hour or two after going to bed, because of pain in the bones. Similar but less severe trouble with right side. Kept about for ten days after discharge; then in bed for two weeks. Pain at this period was in the right side and so severe that sitting up was impossible. After this, pain shifted to the left, where it has been ever since. Slight cough for two weeks. Slight dyspnea. The jar of any sudden movement, such as stooping or going down stairs, causes much discomfort in lumbar regions. To raise from stooping, has to aid himself by his hands on his knees and thighs (see figures). No chills or fever. Steady gain in weight. Bowels moved today.

*Physical examination.*—Cheeks full and brown, considerable subcutaneous fat. Abdomen prominent. Left pupil slightly larger than right. Scars of turpentine stupes on the abdomen, applied during typhoid. Heart and lungs negative; liver fifth rib to costal margin; spleen undetermined. Abdomen generally tympanitic, not tender, no masses. Rises to sitting position with some difficulty; props himself up with hands. On leaning forward from upright position the whole spine moves as one piece, and patient points to the lumbar region as the seat of pain. Slight prominence of third, fourth and fifth lumbar and upper sacral vertebræ; no tenderness. With patient lying on abdomen, limitation of lumbar flexibility backward, with slight muscular spasm. Rectal examination negative; reflexes normal; blood: whites, 9,200, hemoglobin, 90%; Widal, instantaneous; extra diet; slept well, no change. Urine: Pale, acid, specific gravity, 1,012; albumin, slightest possible trace; chlorides normal; sugar, bile, diazo, negative; urea, 1.47%. Slight flocculent sediment; no casts, no blood, few squamous cells and leucocytes.

Diagnosis of typhoid periostitis of the spine was confirmed by Dr. J. E. Goldthwait, who advised fixation and observation. A radiograph showed on careful study no difference from that taken in a healthy subject.

May 25: Some pain, with movements in lower back and above iliac crests. 28th: Patient com-





plains of pain in back, lumbar region, through the groins and lower abdomen, promoted by turning from side to side; not present when quiet.

June 2: Plaster applied for cast of spine; removed and sent to harness maker's. 12th: No improvement. Occasionally waked from sleep by pain from turning in bed, which persists frequently for hours. 13th: Leather jacket fitted (see figures). 15th: Great relief of pain with jacket; patient can move about much more freely; stoops forward with greater freedom. To report. Discharged much relieved.

July 3: Reports that for first week after discharge felt about the same, with pain in the left lumbar region on movement and dull ache in the left groin. For the past week much better. No pain while lying down. Slight dull ache while walking about. Walked two miles this morning without more than slight discomfort.

A letter received from the patient is as follows:

August 10, 1901.

Dear Sir: In reply to your note of the 9th, would say, for the first week after leaving the hospital I could not see any improvement whatever; after a week or so I could see a gain every day, less pain each day until it was all gone. I have had no pain in back for about three weeks or so. Yes, I am better than when I was at the hospital July 3. I was there on the 29th. Dr. Lord examined my back. He advised me to take the jacket off for a while every day. I have done so. I can get around very well without it, but the back is stiff and lame without the jacket. There is a dull ache in the groins, which runs down in the private parts, sometimes in both sides; most, when walking or standing. The parts sweat very much. If you could recommend anything for this I would be very thankful. I remain,

Yours very truly,

Henry O. Bohaker.

In a letter just received the patient gives his present condition:

April 22, 1902.

Dear Sir: In reply to your note would say my condition is about the same as when I saw you last September. My general health is good; appetite good. My back seems to be all right except when stooping at work. The muscles of the back seem lame and stiff at times, and there is a slight pain down the groin, more so after hard work. I weigh about 150 pounds, 20 pounds more than I did before I was sick.

## ANALYSIS OF TWENTY-SIX CASES OF TYPHOID SPINE.*

BY FREDERICK T. LORD, M.D., BOSTON.

From 1889 to Jan. 1, 1902, twenty-six cases of typhoid spine have been reported in the literature. An analysis of these has been made in the hope that, in the survey of a number of cases, some general data may be obtained. Of the reported cases twenty-two of the twenty-six were in males.

To no especial factor, other than typhoid, can the occurrence of the spinal symptoms be ascribed. As a precipitating cause, however, mechanical strain is mentioned in six. Of these, two followed a fall,[2] [3] two the reassumption of blacksmithing,[13] [15] one stair climbing[14] and one twisting the spine while sawing.[22] The time of onset, as indicated by pain which was constantly the initial symptom,

* Read before the Clinical Section of the Suffolk District Medical Society April 16, 1902.

varies within rather wide limits: from the latter part of the typhoid to three months after defervescence. In fourteen cases the pain started during the typhoid or within two weeks after it. In eight cases it occurred within six weeks, and in the remaining four within three months. The pain was usually severe, situated in the lumbar or dorsolumbar region, frequently radiating to the hips, less often to the iliocostal space, abdomen and thighs. Remissions and exacerbations in the pain were common. Tenderness was frequently associated with the pain. It was mentioned in sixteen cases. Swelling of the soft parts in the affected region or neighboring tissues was noted in six cases. Stiffness of the spinal column was mentioned in eight cases. This symptom occurred on rising or walking or even when lying in bed.

Involuntary urine and feces were present in one case.[14] In this the typhoid lasted for fifteen days. On the twenty-first day of the illness, a typhoid relapse began, ending on the twenty-eighth. After an interval of nearly a week, the symptoms of typhoid spine were noted, pain in the lumbar region, with local tenderness and a rise of temperature for three or four weeks. The knee jerks were much diminished at first, later lost, to return again. There was also paresthesia in the legs, muscular cramps, besides involuntary urination and defecation. The process lasted for four or five months.

| Case No. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | Total. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Muscular spasm | | | | | | | | | | | | | | 1 | 1 | | | | | | | | | | 1 | | 3 |
| Radiating pain | | | | | | 1 | 1 | | | 1 | | 1 | 1 | | 1 | | | 1 | 1 | 1 | | | | 1 | | | 10 |
| Disturbed sensation in lower extremity; hyperesthesia | | | | | | | | | | | | | | | | | | | | 1 | | | 1 | | | | 2 |
| Anes | | | | | | | | | | | | | | | | 1 | | | | | | | 1 | | | | 2 |
| Paresthesia | | | | | | | | | | | | | | 1 | | | | | 1 | | | | | | | | 2 |
| Increased knee jerks | | | | | | 1 sl. | ? | | | | | | 1 | | | 1 ank. clon | | 1 | 1 sl. | 1 | | | | | 1 | | 7 |
| Absent knee jerks | | | | | | | | | | | | | 1 | 1 | | | | | | | | | | | | | 2 |
| Kyphosis | | | 1 sl. | 1 | | | 1 sl. | | | | | | | | | 1 | 1 | 1 | 1 | | | | 1 | | | | 8 |
| Hysteria | | | | | | | 1 | | | | | | | | | 1 | | | 1 | | | | | | | | 3 |
| Neurasthenia | | | | | | 1 | | 1 | | | 1 | | | | | | | | | | | | | | | | 3 |
| Rise of temperature | | 1 | | | | | | | | | | | 1 | 1 | 1 | 1 | | 1 | 1 | | | 1 | 1 | 1 | | | 10 |

Symptoms referable to the nerve roots, such as muscular spasm, in other than the adjacent spinal muscles, radiating pain, disturbances of sensation and the patellar reflex, have been correlated in the table above, with the presence of a kyphosis, hysteria, neurasthenia and a rise of temperature.

As will be seen from the table, radiating pain was the most frequent of the nerve root symptoms, occurring in ten of the twenty-six cases. As might be expected, it was not infrequently associated with a disturbance of the knee jerks. In seven cases the patellar reflex was increased. In two it was lost. In one there was an association of its absence with its previous increase.[18] Of the twenty-six cases, therefore, the knee jerk was disturbed in eight, and of these, five were associated with radiating pain. Muscular spasm was described as cramps in the legs in three cases in which it is mentioned. In one of these there was adductor spasm also.[25] Disturbed sensation was present in five cases, in four associated with a disturbance of the patellar reflex. Its site was in the lower extremity, and in one case also in the lower trunk.

Symptoms of hysteria or neurasthenia were noted in six cases. In four of the six cases, reported by Dr. Osler, the patients were said to be nervous or hysterical. In Lovett and Withington's case a diagnosis of hysteria was made by Dr. Prince. In W. J. Taylor's case there were stigmata of hysteria.

Dr. Osler's first case was neurasthenic.[6] There was pain in the back, radiating to the abdomen, hips, and from the hip to the knee. The knee jerks were slightly increased. No organic change was found on physical examination. In his second case,[7] the patient was nervous and hysterical at times. There was pain radiating to the thighs and knee. The lower dorsal vertebræ were slightly prominent. The knee jerks were perhaps slightly increased. His next case[8] was nervous, perspiring easily, the hands and feet usually moist and cold. Local pain was practically the only symptom observed in this patient. His last example[11] likewise was nervous and apprehensive, with localized pain the most prominent symptom.

In Lovett and Withington's case,[16] though there were symptoms of hysteria, there was a marked kyphosis, involving the eleventh and twelfth dorsal and first lumbar vertebræ. Pain, tenderness and muscular spasm in the affected region were prominent symptoms. There were also disturbances of the reflexes and of sensation.

W. J. Taylor's case,[19] with stigmata of hysteria, had also a very distinct posterior deformity in the lumbar region, with thickening and rigidity. The right hip was painful, the right thigh numb to the knee, and the knee jerks slightly increased.

In the last two mentioned cases, Lovett and Withington's[16] and Taylor's,[19] the nerve root symptoms seem more plausibly the result of perispondylitis than of hysteria.

In Dr. Osler's second case[7] there was slight prominence of the lower dorsal vertebræ, and it seems natural to infer a pathological process, even though there was a nervous and hysterical element at times, in consideration of the association of nervous symptoms and deformity in Lovett and Withington's and Taylor's cases.

The most interesting data concern the presence of a kyphosis, for from this, in connection with the nerve root symptoms, the suspicion of an organic basis for the process is as far as may be from the clinical signs confirmed. There is no mention of spinal deformity in ten cases. It is definitely stated as not present in eight and described in eight cases. In two of these it is said to be slight. In all but one[23] it involved several vertebræ. In this case it seems to have been confined to the first lumbar vertebra alone. The kyphosis in Gibney's Austrian Tyrol case was cervical, in all the others it was in the lower dorsal or lumbar region or both. As Dr. Gibney's case of the cabman in the Austrian Tyrol deviates from the type of the disease as seen in the other reported cases, its inclusion in the series may properly be questioned. This man, age 45, had what his physician called typhoid at twenty-two. The typhoid lasted four weeks; then after a few days he began to have pain in the neck. Deformity developed, and this with torticollis had persisted for twenty-three years. Sufficient evidence for its exclusion seems lacking.

Scoliosis was present in two cases.[23 24] Both these cases are reported by Neisser. In the first the scoliosis was associated with a kyphosis; in the second the scoliosis was the only spinal curvature.

The temperature was not mentioned in ten cases. It was stated as normal in six, elevated in ten. Of the ten cases with an elevated temperature, three had complications which might have explained a rise. Of the remaining seven cases, the temperature in two[23 24] ranged from 101.3° to 103.1° for a period of four and two months respectively.

The duration of the acute symptoms was not stated in four cases. In Gibney's Austrian Tyrol case the acute symptoms lasted for two years. Of the remaining twenty-one cases, the shortest period was fifteen days, the longest thirteen months. The average duration was about four and one-half months.

Relapse after an interval of freedom occurred in three cases.[5 6 12] Its occurrence is not at variance with the course of other typhoid complications or sequelæ. For example, Dr. H. C. Parsons, in the Johns Hopkins Hospital Report, 1895, vol. v, page 438, reports the appearance, subsidence and reappearance of a costal typhoid node.

The most satisfactory treatment has been rest in the horizontal position and the application of a plaster jacket, immobilizing the spine as nearly as possible, or plaster may be used as a model and a leather jacket, laced in front, prove more convenient.

The prognosis is good.

In general, the pathology of the process seems most reasonably a perispondylitis or spondylitis or both. A few of the cases may be neuroses. The coexistence of a deformity and nervous symptoms in one-half of the neurotic cases suggests that all the neurotic cases may be organic as well. Localized pain was present in all the twenty-six cases. It was associated with local tenderness in sixteen. Stiffness of the spinal column was noted in eight. These symptoms, taken together with radiating pain in ten cases, of disturbed knee jerks in eight and the association of these two in five, with muscular spasm in other than the adjacent spinal muscles in three, and disturbed sensation in the distribution of the spinal nerves in five, suggest the involvement of the nerve roots in a periostitis. A rise of temperature in seven, without other cause than the spinal lesion, is still further suggestive of organic trouble. The existence of kyphosis in eight cases seems to confirm the organic character of the nerve root symptoms, and definitely indicate bony as well as periosteal involvement.

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The Huxley Lecture.— The Huxley Lecture, which is given at the Charing Cross Hospital, London, will be delivered this year by Dr. William H. Welch of Baltimore.

## SOME CASES OF MALARIA ACCOMPANIED BY ACUTE ABDOMINAL SYMPTOMS.[1]

BY JAMES M. JACKSON, M.D., BOSTON.

I HAVE asked permission to report a few cases of malaria, because they seemed to me very remarkable, in which the chief symptom has been abdominal pain of such intensity as to warrant the diagnosis of peritonitis or appendicitis. It is not uncommon to have some abdominal pain at time of the chill, but it is certainly very unusual to have severe cramps in the abdomen preceding, as in one case, for three weeks the onset of the chill.

The first case is that of Nellie C., age thirty, married, living in Somerville. Always well, and no history of malaria previous to present attack.

*Present illness.*— Three weeks ago suddenly taken ill with diarrhea, steady pain, attended with severe cramps in lower abdomen, and not localized on either side. For first twenty-four hours vomited continuously, but since then has only vomited a few times. Cough with whitish expectoration for past week. For past three days symptoms have been much worse, the pain in abdomen very severe and accompanied by hard cramps. Had a chill day before yesterday and one today. Tenderness over lower abdomen, perhaps more marked on left than right. No distention of abdomen and walls not tense. By vagina nothing abnormal made out except marked tenderness in vault, particularly on the left. Spleen not to be felt and liver to be felt one finger-breadth below margin of ribs.

Patient was sent to hospital by Dr. H. A. Lothrop, for some obscure abdominal trouble, and Dr. F. B. Harrington summoned. Preparations were made for operation, but in the meantime the blood had been looked at, as a matter of routine. Plasmodiæ were found and the case was transferred to the medical side, where, under quinin, all symptoms, even cough, disappeared, and she was discharged well in two weeks.

This is a very unusual case, I think, and shows the advantage of a very careful examination, especially in cases where there is even the least doubt about the diagnosis. The diarrhea, pain and cramps in the lower abdomen, the vomiting lasting over a period of three weeks, followed by two chills and a collapsed condition, certainly point to a severe abdominal disorder of some sort. The diagnosis of appendicitis or a septic peritonitis was certainly warranted. Of course, on examination, only general tenderness was made out, and no localized tumor was felt. Moreover, there was no rigidity of the abdominal wall, which one would as a rule expect with a peritoneal process, but how often it happens in a septic peritonitis that no rigidity or tenderness in the abdomen is felt.

Dr. Lothrop has kindly given me a brief statement of the case as he saw it on the morning of entrance to the hospital: When called to case he found patient in high fever, cyanotic, perspiring profusely, pulse rapid and very weak. Patient had been vomiting all day. Whole abdomen was distended and tense, with tenderness especially marked in the right iliac fossa. Patient appeared to have a mortal sickness. Dr. Lothrop's diagnosis at the time was appendicitis, perforation and general peritonitis. He saw the case later in the day, after admission to hospital. By that time the condition had improved and the abdominal symptoms had almost disappeared, so that he immediately retracted his diagnosis, and the finding of the plasmodiæ settled the question at once.

The second case is likewise remarkable in that the patient was brought to the accident room as an emergency, with a diagnosis of acute peritonitis. An abstract of the history is as follows:

Sophia H., age twenty-four, married; born in Norway, resident of Arlington.

*Past history.*— Always well. No previous history of malaria. No disorder of catamenia.

*Present illness.*— For three weeks has been feeling poorly. Ten days ago she thinks she caught cold, and complained of general malaise, headache, backache, chilly sensation, and vomited several times. Grew worse steadily, and went to bed five days ago, complaining chiefly of great prostration, vomiting and severe general abdominal pains. Two days ago tried to walk, when she was seized with vomiting and increase of abdominal pain. Went back to bed, and for the first time had a chill. Bowels were constipated and patient unable to sleep. She was brought to the accident room as an emergency and the surgeon sent for.

*Physical examination.*— Well developed and nourished. Face pale, herpes on lip; tongue moist, pale and clean; pulse rapid, small volume and weak; lungs normal. Heart: Slight systolic murmur at apex, otherwise normal. Abdomen not distended, not tender, covered with eruption resembling acne. No rose spots; liver normal in size. Spleen to be felt on deep inspiration. The history of general abdominal pain, vomiting, great prostration and chill, and the appearance of the patient at the time, made the attending surgeon feel that this was probably a case of septic peritonitis, but at the same time the size of the spleen made it seem advisable to wait until the blood could be looked at. Examination of fresh smears showed many full-grown plasmodia of tertian type.

Patient was transferred to medical side and recovered shortly under quinin.

The third case, Mrs. N., was admitted to hospital as an emergency for operation. Diagnosis made outside was "general peritonitis." Patient lives in Boston.

*Previous history.*— Always well, except for malaria seven years ago, while living in Hyde Park, and an occasional slight attack of rheumatism. Six years ago was operated on for fissure in ano. Three weeks ago began to feel weak and "miserable," as she expressed it. For past ten days headache and vomiting. Six days ago

[1] Read before the Clinical Section of the Suffolk District Medical Society April 16, 1902.

went to bed on account of great weakness, frontal headache, vomiting, pain in epigastrium, and fever. Four days ago pain in epigastrium became very severe and lasted all day. Abdomen became very tender, especially in the upper part. Toward evening pain became intense, requiring morphin. At 9 P.M. patient had chill (this being the first), high fever, sweating, and pain in abdomen became even more severe and general in character. Yesterday, that is, the day before entrance to the hospital, was more comfortable, but could retain no food, and pain in abdomen continued as before. Toward evening she became delirious and complained always of pain in the abdomen, more marked above the umbilicus; bowels constipated. This morning patient seemed very low, dull and stupid, chill at 10.30, temperature rising to 105°, pulse 132, respiration 32, at 1.30 P.M., when patient was transferred in great haste to the hospital.

The physical examination at time of entrance was as follows: Dark complexion, yellowish tinge to sclera; well nourished; pupils react; tongue slightly coated; speaks little; evidently in pain; knees drawn up; pulse regular, fair volume; lungs normal. Heart: Apex sound loudest in fifth space, one and one-half inches within nipple; no murmurs; no enlargement; spleen enlarged by percussion, edge to be felt on deep inspiration; tenderness in epigastrium on pressure; no dulness; no localized spots of tenderness in lower abdomen; no rose spots; patella and cutaneous reflexes present. Plasmodia malariæ found in blood in very small numbers (two organisms in three slides) at 4 P.M.; white count, 8,900. Patient was transferred to medical side, and under quinin the symptoms almost entirely disappeared in the next two days.

Here, again, a case of malaria was sent to the accident room as an emergency, by a very competent and experienced physician, with a diagnosis of peritonitis of unknown origin. The patient was certainly very ill, and the surgeon would have been justified in exploring the abdomen. That the white count showed but 8,900 did not argue against peritonitis, but this with the enlargement of spleen led to a more careful examination of its blood and to the finding of plasmodia malariæ.

The following case is more complicated, as a definite lesion was found which would explain the presence of pain, but there are many points in common with the other cases, and the question arises whether the malarial organisms ever take any part in lighting up an old inflammation.

Minnie S., age 26, married; born in Massachusetts and lives in Brighton.

*Previous history.*— Can recall no illness in childhood. Five years ago, severe sunstroke, unconscious for seven hours. Since then has suffered from headache about half of the time. Two years ago had prolapse of womb following confinement. From time of last confinement (ten months ago) has had more or less pain in right iliac and pelvic regions.

*Present illness.*— On June 17, 18, 20, 22 and July 4 had chills followed by fever, which ceased after considerable quinin was taken. Then perfectly well till July 15, when she woke with cramps in right lower abdomen. Nausea without vomiting; no chills, no fever, no headache. July 16 could not stand on account of pain in right iliac region. Intense frontal headache and pain in eyes; no chills, no vomiting. Required morphin for pain. July 17: Pain in lower abdomen worse. Very weak and exhausted, fainted several times; frontal headache; chill at 2 P.M., lasting thirty minutes, followed by sweating and slight fever; vomited soon after. Passed a comfortable night. July 18: Soreness in right iliac region but no sharp pain. No chill, headache or fever. July 19: Was sent to the hospital with diagnosis of pelvic peritonitis. Physical examination of abdomen showed spleen enlarged; edge felt. Tenderness and resistance in right iliac region.

*Vaginal examination.*— Cervix very large, not soft; large laceration, not tender. Distinct resistance on right side, with tenderness, giving the impression of a cellulitis. Plasmodia found in blood at 6.30 P.M. All fully developed pigmented forms in active motion. 10.30 P.M.: Only hyaline bodies and young forms seen, with little pigment. Whites, 5,100.

In eight days the patient was well and only a slight resistance on the right of the uterus was to be felt. The patient had undoubtedly a pelvic peritonitis, but whether this was only a coincidence or whether the malarial organism had any part in starting it up is of course a question. All symptoms disappeared shortly under quinin, and probably rest in bed was all that was needed to relieve the pelvic condition.

The fifth case came to the Out-Patient Department with a well-marked malaria. He volunteered the following statement, which is rather interesting:

Howard C., age 25, married; conductor; residence, Cambridge. Has been under treatment for malaria, but of late the chills have been attended with great pain in the abdomen, not localized, but general. Pain persists for several hours after the chill ceases, and always leaves him with considerable tenderness in the epigastrium. No vomiting; bowels rather constipated.

The last case, that of Benjamin E., was attacked with severe pain in head three days before entrance. Next day seized with severe cramps in abdomen, which became gradually worse till just before entrance, when he had an attack of vomiting, followed by chill and fever. The symptoms in the case were not as severe as the others, and in light of past experience, the blood was carefully looked at before summoning the surgeon, and the cause of the trouble was found.

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Two people, according to the *Philadelphia Medical Journal*, recently detained at the Reception Hospital, North Brother's Island, and pesthouse in Flatbush, on account of alleged smallpox, have sued the city for damages.

## THE DIAGNOSIS OF MALARIA BY STAINED SPECIMENS OF BLOOD.[1]

BY H. F. HEWES, M.D., BOSTON.

THESE cases of malaria with atypical symptomatologies, reported by Dr. Jackson, emphasize very forcibly one point in connection with the practice of medicine, namely, the necessity of the examination of the blood as a routine practice in all conditions of disease of doubtful diagnosis; or, at all events, in all such conditions where pyrexia is present. As a rule, such an examination will be of value simply in a negative way, showing that we have no malaria, no anemia or no condition in which leucocytosis is a feature. In many cases, however, we shall come upon, expectedly or unexpectedly, some abnormal blood feature, a leucocytosis, an eosinophilia, a marked anemia, the finding of which will be of great aid in the diagnosis. And in some cases the finding of the malarial parasite or the filaria will give us an absolute diagnosis.

The utilization of this method of examination in conditions where malaria is a suspected or possible diagnosis is not at the present time as general as correct practice demands. This negligence has heretofore had some excuse. By the method of examination of a fresh specimen of blood or by the methods of examination of stained specimens which have existed up to the present, the finding of the parasite frequently, if not always, necessitated in the hands of anybody but an expert the obtaining of the specimen of blood at a period near the time of the paroxysm when the parasite (tertian) appeared in its fully developed pigmented form in the blood. This was not possible in the routine of cases.

Today, however, we have methods of staining blood which enables us to recognize the parasite at whatever stage of development it may be. I refer to the eosin-polychrome-methylene-blue staining method which Leishman has constructed by a combination of the Romanowsky stain and Jenner's method of solution in and fixation by methyl alcohol, or to the equally efficient but more complicated adaptation of the same Romanowsky method devised by Nocht. These methods, especially the former, are so simple in application as to be feasible for the busy practitioner if he have simply an elementary knowledge of staining procedures.

When stained by these methods the malarial organism, whatever its type or stage of development, always shows in its substance a dark red or purple red chromatin granule. It is this granule which serves to distinguish the blue staining intracorpuscular plasmodium from any other basic staining substance which may be in the blood.

I have pictured here on the board the appearance of the malarial organism in its various phases of development as it appears in stained specimens. As you see, the organism has in all cases the following general characteristics: It appears as a blue staining intracorpuscular body, having, according to its stage of development, a spherical, or ring, or spider-like shape, and contains, if young, no pigment, if advanced, many pigment granules. In the substance of each organism, separated by a clear zone from the rest of the substances, is a red-staining granule, or a group of such granules.

A more detailed description of the appearances of the malarial organisms when stained by this method, as well as a description of the makeup of the stain and the manner of its use, will be found in Dr. Wright's article on the subject in the *Journal of Medical Research*. Dr. Wright has introduced a modification in the preparation of the stain which simplifies its manufacture over the original Leishman method.

With the possession of these accurate and simple methods of blood staining for malarial parasites,— methods which are at the same time useful for the other purposes of blood examination, the recognition of leucocytosis in its various forms, of pernicious anemia, of the granular stiffling of lead poisoning, and the anemias,— there can be in future no excuse for the failure to make diagnosis of active malaria through neglect to examine the blood, or indeed failure to get the record of the blood finding in any case of doubtful character, whatsoever its nature.

[1] Read before the Clinical Section of the Suffolk District Medical Society, April 16, 1902.

## Reports of Societies.

### THE MEDICAL ASSOCIATION OF THE GREATER CITY OF NEW YORK.

(Concluded from No. 25, p. 672.)

STATED meeting April 14, 1902, the president, DR. ANDREW H. SMITH, in the chair.

The time of exposure depends primarily upon the intensity of the x-radiation. Our effort should be to standardize every step of treatment. If we use a coil we must know the volts and amperes and the number of interruptions per second; if a static machine, the number and diameter of the plates and the number of revolutions per minute. With these data established, we should adopt a standard intensity of x-radiation, a standard distance of the tube from the patient's skin, and a standard duration and frequency of application. Roughly speaking, he said, he selected a tube just beginning to be hard (corresponding to from five to seven inches spark-gap of the coil) giving a good photographic picture of the hand in one minute, at a distance of two feet, and giving equally clearly a good fluoroscopic outline of the skeleton of an average man at the same distance. He selected a distance of eight inches and a duration of from six to eight minutes, and gave a treatment three times a week. In this manner, where sound skin intervened, he usually got a dermatitis of a mild type in from one to two weeks. Instead of stopping treatment when this appeared, he went right on (often shifting, however, the

central focus of the tube) until he had converted a bright erythema into a brown, or even blackish, "tan." The patient once properly "tanned," it was extraordinary how great an intensity of x-ray might be administered. To some of his patients, whose skin was now as black as a dark mulatto's, he was giving treatments of from eleven to fifteen minutes three times a week, with no harm to the skin. He wished distinctly, however, to put himself on record as refusing to advise anyone else to "tan" a patient with the x-ray. It was mainly a question of systematic and standardized technique, and each operator must decide for himself whether the process should be adopted. It was commonly advised to cease treatment as soon as dermatitis set in, but in cases of internal cancer it would be impossible to succeed unless we could continue in spite of the erythema, and tan the patient in the way described.

He said he could not protest too strongly against the submission of a patient to x-ray treatment by unskilled hands. It is the state of the vacuum and the consequent quality of the radiation produced which is both the fickle and the dangerous feature of the administration. There is always some danger, even in skilled hands, and likewise uncertainty enough, but in unskilled hands the danger is as great as the report of the results obtained is valueless. In such hands a negative result has no meaning, an affirmative result is an accident; and he thought it would be wise if a school of instruction for x-ray workers could be established.

In exterior cases, such as epithelioma, papilloma, rodent ulcer, lupus, etc., a shield protecting the sound skin was desirable, though he saw no reason for insulating it. The indications of experience thus far obtained in this class of cases justify a resort, as a rule, to the x-ray, in preference to any other treatment. A small and isolated epithelioma may sometimes be preferably cut or scraped out or treated with caustics, but cases of large areas of destructive epithelioma and lupus have already been reported in great number where nothing yet known except the x-ray would have saved the patient from extensive surgical mutilation and possible death. In interior cases, such as osteosarcoma and carcinoma of the breast and other tumors either immediately or remotely underlying the skin, the high vacuum tube, with its deeply penetrating x-ray, is indicated. In this class of cases he said he had no hesitation in claiming that the x-ray has an immediate and continuous effect of relief from pain and of circumscription and retrogression of the disease. In a case of inoperable abdominal sarcoma referred to him by Dr. L. Weber the gnawing, constant pain entirely ceased within the first week. The tumor is now so much reduced in size that it can scarcely be felt by palpation, while fluoroscopic examination shows it to be actually reduced more than one-half. In a similar case which he is now treating, the pain ceased at once, and the patient can walk about and attend to business. In two cases of malignant growth at the pyloric orifice of the stomach the pain has entirely ceased, and the patients can, for the first time in many months, take solid food. In two cases of epithelioma within the fauces, the sensations of burning and discomfort have been relieved, the tumors are reducing in size, and, to say the least, an advancing disease is arrested in its progress. Whether these cases will be cured or not the treatment has not as yet extended over a sufficient period of time to determine. In carcinoma of the breast the results thus far were most hopeful, although unfortunately, of a large number under treatment, all but one were of long standing. One recurrent carcinomatous tumor of the breast he had reported cured, and it remains cured to date.

Dr. Morton is at present treating a case of appendicitis in which the patient was suffering daily pain, and an immediate operation had been advised. After the first week there were no further symptoms of the disease except one mild attack without pain. As further instances of interior effect he mentioned two cases of melancholia which he had cured by x-raying the brain, and a case of tic douloureux (which had undergone two operations to remove the nerves) which he had relieved by x-raying the Gasserian ganglion. There was, therefore, no question in his mind that the x-ray should be employed in internal cancer and in other diseases internally located.

In so-called operable cases of cancer, and particularly in carcinoma of the breast, the propriety of employing the x-ray will no doubt long be debatable ground. For his own part, he now believed that no case should be operated upon until it had first been treated by the x-ray. The earlier a case can be treated the more rapidly will it yield to the influence of the x-ray. Circumscription of the area of invading disease, retrogression of the growth, and relief from suffering can be confidently predicted. So long as a malignant growth continues to improve under x-ray treatment, no operation is necessary. Of the two, the x-ray and an operation, the former appeals to the patient as an infinitely preferable procedure, and, should it fail, no time has been lost. In operable cases where infection (distribution of the disease) has once visibly or palpably occurred, there was in his mind no shadow of doubt that the x-ray should be first employed. In relation to the propriety of using the x-ray before an operation, he said he could contribute an interesting observation. In a case of rapidly advancing epithelioma of the upper jaw a bright, beef-red, diffused coloration extended almost across the mucous membrane of the roof of the mouth. At the third treatment a clean line of demarkation appeared just to one side of the median line presenting a characteristic serpentine edge. Here clearly the disease was circumscribed, and if operation should be deemed advisable, this outline would unquestionably be of the greatest service to the surgeon in making his work complete. So, likewise, in all malignant tumors, their outlying areas contract in extent and the tumors, so to speak, kemalize, growing harder and smaller.

That the x-ray should be used after an operation would seem to be also a justifiable conclusion. It can search out foci and areas of infection unreached by the knife and unsuspected by the operator. As to inoperable cases of cancer, there can be no discussion. There is but one simple axiom: so long as improvement continues, continue the treatment.

Under proper conditions of treatment the x-ray is capable of building up tissue. Dr. Morton related a case illustrative of this point, and also stated that in the two cases of melancholia mentioned in which the brain was treated, the hair, which had previously been dry and scant, became glossy, abundant and healthy.

DISCUSSION.

DR. C. L. LEONARD of Philadelphia said that his remarks might perhaps be of service in bringing out something on the other side. The employment of an unknown agent in an empirical method has resulted in the production of beneficial results in cases of malignant disease. The application, in a similar manner, of the electricity developed by the static machine or the induction coil, in the production of Rœntgen rays, but without the Rœntgen tube or generator, has resulted in the production of equally beneficial results. Since these results were produced with the same apparatus, but without the Rœntgen tube, the therapeutic agent must be considered some other than the Rœntgen rays, until they have been shown to possess additional therapeutic value. It is highly probable that the therapeutic agent is electricity employed in this form, since the experimentation of reliable men, previous to the discovery of the Rœntgen rays, demonstrated that electricity is capable of modifying the growth of malignant disease. If the successful treatment of all superficial and deep-seated growths is to be developed along this line of therapeutic progress, the actual agents employed must be recognized, and their separate value determined. Crude empiricism and the treatment of disease by one agent under the guise of another will never lead to scientific advancement or successful therapeutic methods.

At present the most efficient method of treating malignant disease is the early and radical removal of all suspicious tissue by surgical operation. Anything that delays such early and radical removal of the focus of the disease is detrimental to the best interests of the patient. Prompt surgical operation is therefore the most scientific conservatism. The diffusion, in the lay and medical press, of the opinion that all forms of malignant disease can be cured by radiation treatment, before this has been proved, will lead to fatal delay in many patients who might have been saved, or at least had their lives prolonged, by early radical operation. It should be clearly understood that this method is still in an experimental stage; that, so far as we know at present, the beneficial results are confined to superficial lesions, and that sufficient time has not yet elapsed to prove that no recurrence or metastases will take place in benefited cases. Dr. Morton had stated that by the use of the x-ray in different ways we were enabled to reach different depths of disease in the body; but he had to confess that he was as yet skeptical on this point. He had never seen a burn appearing on the opposite side of the body or of a limb from that which had been subjected to irradiation. The application of the method, he thought, should be reserved for non-operable and recurrent lesions and primary superficial growths where the diagnosis is in doubt, or where the more benign character of the lesion makes it permissible to seek a more cosmetic result than would be possible by surgical operation.

DR. L. A. WEIGEL of Rochester, N. Y., said that in time the actual limitations of radiotherapy would be clearly defined. At present we do not know the safe limit for using the x-ray; we cannot as yet determine just what the reaction is going to be. In two cases in which he had employed it on the breast, tanning of the face had occurred, and in another case there had been loss of hair and eyebrows. There is a vast difference in reaction in different individuals. Scar tissue reacts badly, and anemia and other conditions of malnutrition increase the liability to unfavorable reaction. According to Codman, the known limits of danger are wide. It would be better, he states, to adopt a standard of intensity of exposure which, so far as inches and minutes are concerned, would represent the unit of dose. The other factor, the quality of tube, could then (as nearly as possible) be arranged to agree. This would leave the idiosyncrasy more directly to be measured by the number of times it would be necessary to repeat the exposure.

DR. C. W. ALLEN spoke of the difficulties and dangers attending the use of radiotherapy, and said that it required the most careful attention to detail. He also confirmed the statements made as to the remarkable efficacy of the method in the alleviation of pain, as illustrated in his own cases, and said that if it never accomplished anything more than to afford relief from suffering and to inspire patients with new hope, it had already proved a great boon.

DR. CARL BECK thought that we should not exact too much in the way of definite knowledge at the present time. No one had ever identified the bacillus of syphilis, and yet we were able to treat that disease with the greatest success. With regard to the x-ray, he did not see how to explain the difference of the reaction in different individuals except on the hypothesis of idiosyncrasy. While it might be stated with truth that the x-ray is the *only* treatment for lupus today, he was still somewhat doubtful as to its curative effect in cancer. In some of the cases in which he had employed it, however, the results had proved more beneficial than he had anticipated. But in his opinion, it would be extremely unwise to substitute the x-ray for the scalpel. It should not be resorted to as long as the knife could be used; and it was a fact that at the present day the prog-

nosis in malignant disease is greatly improved for the reason that patients consult the surgeon earlier than was formerly the case. After the knife had been extensively used, however, it was well to make application of the x-ray, which might be of service in destroying any cancer cells that might be left.

Dr. H. B. Delatour related a case of tumor of the transverse colon in which radiation treatment had proved successful. It had been found impossible to remove the growth by operation, and an anastomosis had been made below it. After eight months the patient was now apparently in perfect health. In all his x-ray cases the relief of pain had been marked and lasting. All his patients had been given a new lease of life for a time, at least, and all had become inspired with a feeling of hopefulness which of itself had had a most beneficial effect.

Dr. George G. Hopkins spoke of the prompt effect of radiation treatment in permanently removing fetor in cancerous disease, and related a case in illustration. Having described some cases of chronic eczema cured by the x-ray, he said it would be very desirable if we could arrive at some definite conclusions in the matter of technique, such as the time of exposure, distance, tubes, frequency of *séances*, etc. There could be no question, he thought, that we had in this a therapeutic agent of marvelous power. As to the use of electricity, independently of the x-ray, the late Dr. George M. Beard had made trial of this in almost every variety of external and internal disease, but as a rule the results were not to be compared with those obtained with radiotherapy. At one time the electrical treatment of tumors by the insertion of needles had had a considerable vogue. In many instances its effect in reducing the growths was extraordinary, but it was found that the method was attended with such great danger that it had to be abandoned.

Dr. A. B. Johnson said that all were agreed that the x-ray, or whatever the agent employed under that name, was capable of producing certain definite effects. While a number of cases were undoubtedly cured by it, he did not believe that at the present time we were justified in resorting to it, in preference to surgery, in any condition. He had already seen the ill effects which the reports of its success had produced in the minds of many individuals. In a number of instances patients with properly operable carcinomata had come to him insisting that they be treated by means of the x-ray, and they had been turned away because they would not consent to a surgical operation. Some of these he had seen later, when the disease had advanced and the case was entirely unfit for operation. At the same time, he was willing to admit that the time might come when this condition of affairs would no longer exist. The cases of cancer in which he had employed the x-ray were inoperable ones; and on this account his results were perhaps less favorable than those of some others. The statement had been made that while growths were under this treatment secondary growths do not take place. He had had one case, however, in which the nodules at the original seat of disease had disappeared, but during the last three months, at least fifty nodules had made their appearance in other parts. In a case of carcinoma of the jaw also, the growth was apparently very much improved, yet the patient had been attacked by a secondary carcinoma of the neck. He had not thus far succeeded in curing a patient in a single instance, but he was happy to say that some of his cases were at the present time in excellent condition.

Dr. Morton, in closing the discussion, said that he was not a little surprised to find that Dr. Leonard had receded from the accepted position that it was the x-ray which is the agent producing the effects noted, and attributed these effects to the action of electricity. Personally he had always recognized that the x-ray is itself an effect of high potential electricity. An aluminum screen was usually employed for shutting off electric pulsations; yet the effects in question were developed just the same. It was impossible, he thought, to sweep away the mass of facts which had now accumulated with a few cases in which it was claimed that similar results had been obtained without the use of radiation. In the paper he had laid special stress on the point that the effects of the x-ray are not confined to the surface, but are also energetic in the interior of the body. As to the tanning of the skin, the process, he believed, was exactly identical with sunburn. The question of tubes was a very interesting one. Whether hard, soft or medium tubes were employed, there was a certain critical moment when the tube was at its best. As at present produced, the x-ray was certainly a very fickle agency; but the whole technique was being rapidly standardized. Dr. Beck had spoken as a surgeon. It seemed to him (Dr. Morton) logical that if it were advisable to employ the x-ray after an operation, it might be resorted to before, as well. We all know that this question of x-ray versus operation was going to give rise to a great deal of discussion, and he hoped that the matter would be dealt with in all fairness and with due regard to existing facts.

## Recent Literature.

*Memoirs and Letters of Sir James Paget.* Edited by Stephen Paget, one of his sons, with portraits and other illustrations. Pp. 438. London, New York and Bombay: Longmans, Green & Co. 1901.

Memoirs of distinguished men are rarely dull reading, but this volume, comprising an autobiographical sketch and many letters of Sir James Paget, commands a place of very special interest. Not only is this interest awakened by the charming personality of the man which it commemo-

rates, but also by the fact that the period covered by his life was contemporaneous with the development of modern medicine in England.

The first part of the book is taken up with a simple, straightforward narrative from his own pen of the difficulties of early practice, the stress of a scientific life and the ultimate complete success of the methods adopted to develop the traits and habits of thought of a broad-minded physician. We most cordially recommend these entertaining chapters to all young physicians in search of a career. Sounder advice could not be given. Interpolated between the chapters of this memoir are commentaries in smaller type which do much to fill the gaps and elucidate various matters which are merely touched upon or omitted altogether from the main text. The repetition which this method involves and the constant interruption of the chief narrative are objections which the somewhat fragmentary character of the autobiographical sketch in a measure necessitates.

The second part of the book, something over two hundred pages, is taken up chiefly with letters and the running comment required to make them intelligible. They are of much interest, showing as they do Paget's wide interests and acquaintance with the leading men of science during the many years of his active life.

Taken as a whole the book offers a well-delineated picture of the life of a man remarkable in his personal relations, in his capacity as the best type of a medical practitioner and as a liberal contributor to the progress of his chosen profession. He was eminently what a few years ago would have been called a "God fearing man." The printing is admirable, with a liberal use of types of varying size; the binding and illustrations are examples of the acknowledged excellent work of the publishers.

*Lectures on Chemical Pathology in its Relation to Practical Medicine.* Delivered at the University and Bellevue Medical School, New York City. By C. A. HERTER, M.D., Professor of Pathological Chemistry, University and Bellevue Medical School, New York; Visiting Physician to the City Hospital; Late Consulting Physician to the Babies' Hospital; Consulting Pathological Chemist to the Craig Colony for Epileptics, etc. Philadelphia: Lea Brothers & Co. 1902.

This book fills a need, and consequently is sure of a hearty welcome by the medical profession. The writer is amply competent from his own large experience in original work along chemical lines to deal with the problems which the subject presents, but he is especially well fitted to estimate at its proper worth the work of others, because of the broad horizon which his varied activities in medicine have given him. Dr. Herter has done for chemical pathology what Foster has done for physiology.

The thirteen lectures are most attractively written. There is no mere recital of laboratory facts, but a nice balance between experiments, clinical observation and theory. As a result the reader feels that he is in a position to draw his own conclusions. The mind is not worn out with the recital of dry data, but is constantly stimulated to original thought. It is just the book which the professor of clinical medicine requires, which all students of medicine, old or young, want.

In the Chemical Defences of the Organism against Disease the author describes the bactericidal rôle played by the gastric juice, the urine and vaginal secretion. The modern views of the bactericidal and globulicidal action of blood and serum are presented in a most lucid way. Acid intoxication is considered. Three lectures are devoted to the Chief Food Stuffs and their Fate in the Body in Health and Disease. They contain, in addition to what is usually written on such a subject, the latest chemical work. The proteid molecule and its cleavage products are thoroughly described. The salts of the food receive the most complete and readable consideration with which we are familiar in any textbook, and the reader is put in a good position to follow the original work, which is coming out so fast.

One chapter is devoted to the much discussed ion question, the organic acids of the food, tea and coffee.

Knowledge concerning fermentation and putrefaction in the digestive tract is still in such an embryonic state that it takes courage to approach the problem. But when one finishes Dr. Herter's two chapters upon these questions he feels much more in a position to follow the present studies along these lines and to better appreciate the clinical disturbances which arise in his patients. The lecturer's broad grasp of the subject is communicated to the reader.

The Chemical Pathology of Gastric and Intestinal Digestion occupy two chapters; two more are devoted to Hepatic Disease; another is to Diabetes, about which the writer is so well qualified to write, and the volume closes with the subjects of starvation, under-nutrition and obesity.

It is an art to write such a book. We hope the author will realize his "talent" and give us frequent future editions, for perhaps in no other way can he so advance medicine.

*Treatise on Surgery by American Authors.* For Students and Practitioners of Surgery and Medicine. By ROSWELL PARK, M.D., Professor of Surgery in the University of Buffalo, N. Y.; Surgeon to the Buffalo General Hospital, etc., etc. New third edition. Philadelphia and New York: Lea Brothers & Co. 1901.

This well-known work, which has in five years reached its third edition, now appears in a new garb, namely, as one royal octavo volume of 1,350 pages, with 692 engravings and 64 full-page plates in colors and monochrome, and weighing seven and three-fourths pounds.

Americans are regarded as loving a "comprehensive" book, and disliking to spend time in re-

ferring from one volume to another; but it is questionable if after a hard day's work a seven and three-fourths pound volume would be an attractive one.

Aside from this criticism, we agree with the statements of the editor and publisher describing the volume. Apparently, much effort has been made to thoroughly revise the work and to make it a book representing the most advanced ideas and methods in the surgery of today.

Its general arrangement appears unchanged. Part I is entitled Surgical Pathology; Part II, Surgical Disease; Part III, Surgical Principles, Methods and Minor Procedures; Part IV, Injury and Repair; Part V, Surgical Affections of the Tissues and Tissue Systems; Part VI, Special or Regional Surgery.

The subjects of bacteriology, auto-intoxication, surgical sequelæ of acute non-surgical diseases, surgical pathology of the blood and tumors have received special attention.

In the construction of the work Dr. Park has aimed to make each topic a complete and condensed account of the theory and practice representing surgery in its present advanced position; but he has also wisely striven not to neglect the vast experience and knowledge of the past. Much care has also been taken to provide fitting illustrations.

The matter of size and weight aside, the book has unquestionably been brought to a higher standard of excellence by its revision. The subjects are in many cases so treated as to not only present the specific topic concisely and comprehensively, but also so as to suggest to the reader, desirous of studying it more in detail, lines of investigation relating to pathology, etiology, treatment, etc., by stating present theories, or noting briefly the views of other investigators. In this the book is of value to the practitioner as well as the student.

Space does not permit a detailed review of this massive volume, but one can justly say that the impression received as each chapter is examined is that the work as a rule has been well done. This impression also deepens as one tests it in actual clinical work. One also notes that its editor, Dr. Park, has personally contributed a far larger part (more than one-fifth of the total number of pages) of the text than is usual in this class of book. It gives to the volume a more personal character and is less encyclopedic. Dr. Park is to be congratulated on the results of his efforts and the volume deserves careful study by those interested in this department of medicine.

*The Rœntgen Rays in Medical Work.* Third edition. By David Walsh, M.D. New York: William Wood & Co. 1902.

This book contains 316 pages, a large proportion of which are devoted to the surgical uses of the x-rays, namely, the localization of foreign bodies, a subject which is well presented and illustrated, the recognition of fractures and dislocations, of congenital and other bony deformities, and of diseases of the bones. The section relating to the uses of the x-rays in medical diagnosis comprises only twenty pages and is inadequate. The remainder of the body of the book contains brief sections on the uses of the x-rays in dental surgery, obstetrics and gynecology, legal medicine, anatomy, physiology, veterinary surgery, and therapeutics; a few pages on x-ray burns; and seventy-three pages by Dr. Lewis Jones on apparatus, but the newest forms of these are not described. The reader turns hopefully to the appendices for the most recent information and finds that the first appendix consists of a translation of Rœntgen's preliminary communication to the Würzburg Physico-Medical Society; but that the second contains more recent matter principally on the uses of the x-rays in surgery but also an excellent contribution of ten pages by Dr. A. W. Crane of Michigan on their use in the diagnosis of diseases of the thorax and abdomen. This appendix also includes a section on the therapeutic uses of the x-rays, but it consists of six pages only, four of which are given to their use in depilation. As the author is connected with a skin hospital it is difficult to understand why this important side of the subject has been so neglected. A number of the radiographs are poor, and some bear the evidence of having been retouched. While the writer reports briefly and very well much of the work that has been done in this department of medicine, he fails to do justice to the subject.

*A Textbook of Bacteriology.* By George M. Sternberg, M.D., LL.D., Surgeon-General, U. S. Army. Ex-president of the American Medical Association and of the American Public Health Association; Honorary Member of the Epidemiological Society of London, of the Royal Academy of Medicine of Rome, of the Academy of Medicine of Rio de Janeiro, of the Société Française D'Hygiene, etc., etc. Second Revised Edition. New York: William Wood & Co. 1901.

This is a large, attractive-looking volume of about 700 pages and is well illustrated. While it is denominated a second edition, it is practically a third and abridged edition of the writer's well-known "Manual of Bacteriology," which was such a useful and welcome book to bacteriologists about ten years ago.

To the present edition considerable additions have been made, including a section on protective inoculations in infectious diseases and one on the bacteria of plant diseases. The book as it appears today is largely made up of sections of the manual of 1892 combined with a certain amount of new matter, so as to form a book of smaller size than the manual and one designed for the use of students of medicine.

Considered as a textbook for medical students, it may be said to be worthy of some commendation, but in the reviewer's opinion it is not so useful as other books published for the same purpose. Advanced students of bacteriology will find little

that is helpful in the book. It is deficient and behind the times in bacteriological technique, a subject of vital importance to the student. It still contains a good deal of the text of the first edition that is now antiquated or could be eliminated with advantage as being of no importance to medical students. On the other hand, it needs some additions; for example the enlarging and rewriting of the section on the diplococcus intracellularis meningitidis, which is now given less than a page, and the insertion of a paragraph, at least, on the important subject of actinomycosis.

The book is larger and more expensively made than its contents and purpose require; it costs more, therefore, than do other and more useful books of the same kind.

*Health, Speech and Song.* A Practical Guide to Voice Production. By JUTTA BELL-RANSKE. London: Swan Sonnenschein & Co.; New York: E. P. Dutton & Co. 1902.

This is a small book of about 150 pages illustrated with pen and ink copies of a few familiar anatomical cuts. The book is intended for teachers and students of singing, and was perhaps not meant to fall into the hands of physicians. If it should happen to do so it will probably arouse various sentiments in their minds. They will recognize the sketches mentioned above, but the text will be hard to follow. There are several pages devoted in whole or in part to anatomy and physiology, in spite of the assertion that "all that it is necessary for teachers and students of song to realize is that the arytenoidei control the opening or closing of the vibratory glottis by regulating the cords, and furthermore stimulate the muscles of the larynx which influence the resonator." Great stress is laid on the fact that the "vocal organ is an instrument" and the mechanism of the instrument is gone into in detail; for example: "The respiratory glottis measures out a certain quantity of air, controlled by the resistance of the tensioned cords, which are regulated by the arytenoidei, and hence are given the name of the guarders of the portals of song. The action of the controllers stimulates the contraction of the ring-shield muscles, which furthermore tension the vocal cords, an action which stimulates all the muscles of the upper or vocal glottis and influences the whole of the resonator by the muscles connected from the upper horns of the shield to the soft palate. This connection shows us the wonderfully consistent construction of the most perfect of all organs; the regulations working gradually upwards from the root, stimulating each other through one governing muscle when the various elements are in working order." Breathing, sounds and vibrations, "psychology" and kindred subjects are discussed equally graphically. The author very properly condemns wrong breathing and faulty methods of vocal instruction and all those who teach by them. The usefulness of the book would be increased if the proper methods of singing and breathing were described.

THE BOSTON

# Medical and Surgical Journal.

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## SUTURE OF THE SPINAL CORD.

A DOCTRINE firmly fixed in neuropathology is that neurones in the central nervous system do not regenerate after injury, whereas peripheral neurones show a marked tendency to recover under similar conditions. No satisfactory explanation of this unique fact, which both clinical and experimental research have in general substantiated, has been forthcoming. There is some small evidence to show that in the lower animals a very slight regeneration of central fibres may occur after injury to the cord. In man such evidence is exceedingly scanty, so that for all practical purposes an injury to the central nervous system has been regarded as wholly irremediable. So deeply rooted is this opinion that the burden of proof lies heavily upon anyone who asserts a contrary proposition.

This has, however, recently been done by two Philadelphia surgeons, Drs. F. T. Stewart and R. H. Harte, who report a case in the *Philadelphia Medical Journal* for June 7, under the title "A Case of Severed Spinal Cord in which Myellorraphy was followed by Partial Return of Function." In justice to the writers and to the general importance of the subject such a case requires the most critical scrutiny before a general acceptance of the deductions may be expected. The patient was a young woman who was shot by a thirty-two calibre bullet at the level of the seventh thoracic spine. It is stated that "there was immediate and complete abolition of motion and sensation below a line transecting the lower part of the tenth dorsal spine, etc." The superficial and deep reflexes could not be elicited. No mention is made of the condition of the sphincters, and unfortunately no statement as to the means used of testing sensation. In view of the very great importance of this preliminary exam-

ination, it is to be regretted that there is not more evidence of care in its performance. From a neurological point of view it must be regarded as inadequate to establish the proposition that the cord was completely severed.

The operation was done three hours after the accident, which perhaps did not allow time for so thorough an examination as the outcome rendered desirable. After removing the necessary spines and laminæ the following appearances presented themselves:

> The rent in the membranes, through which could be seen the leaden bullet and a number of small fragments of bone lying between the ends of the severed spinal cord, was exposed. After removing the bullet, the fragments of bone and the lacerated nervous tissue, the distance between the segments of the cord was three-fourths of an inch; this statement was verified by the assistants, Drs. Mitchell and Van Meter, by the etherizer, Dr. Fraley, and by Dr. Newlin, who was watching the operation. The wound was flushed with salt solution and the ends of the cord approximated with three chromicized catgut sutures passed by means of a small staphylorrhaphy needle, one suture being passed anteroposteriorly through the entire thickness of the cord and the other two being passed transversely. This part of the operation was attended with unusual difficulties because of the narrow space in which the suturing was conducted, because of the consistency of the cord, and because of the wide interval between the fragments, the catgut frequently tearing out before the ends were finally brought together. The dura mater could not be approximated.

Of these observations we have nothing to say, but in view of what immediately follows a certain skepticism regarding their accuracy appears justified:

> Fifth day.— Complained of pain in the right knee, of thrills traveling up and down the extremities, and of cramps in the legs. Can feel a squeeze of the calf as a pulling sensation in the back.

Are these statements compatible? Is it conceivable that five days after approximating and suturing a spinal cord over a distance of three-quarters of an inch regeneration could have taken place, sufficient to give rise to distinct sensory reactions in the legs? Whatever slight evidence there may be to show that the cord regenerates at all after injury, there is certainly none at hand to demonstrate that cut nerve fibres could transmit impulses at the end of five days. The observations made at the time of operation and those immediately after cannot be reconciled. Either the cord was not completely severed or else the sensory phenomena on the fifth day were wrongly interpreted. On the seventh day the somewhat curious statement is made that "pin prick of the soles of the feet is felt in the midback," and there was also on this day a feeble contraction of the leg muscles. From this time on there was slow but steady improvement, both in sensation and motion, and also in the condition of the sphincters, so that at the end of sixteen months the patient was able to stand, with some assistance, and in great measure had recovered her sensation.

It is maintained by the writers that inasmuch as the cord was seen at operation to be entirely severed, therefore the partial recovery which took place must have been due to the regeneration of spinal axones. If the premise is correct the conclusion is certainly justified, but we are forced to doubt the accuracy of the premise. The case proves too much. To draw together by sutures passed through the cord the two ends, separated by three-quarters of an inch, and establish conductivity on the fifth day, is too subversive of physiological and pathological knowledge to permit of unreserved acceptance. The case is of great interest as a contribution to spinal surgery, but it must be received with much caution by all physicians who aim at scientific accuracy.

## THE FLY IN THE APOTHECARY'S OINTMENT.

The measure to provide for the production of vaccine material under the direction of the State Board of Health, which was the subject of a petition to the legislature from the chairman of the Board of Health of Boston, was introduced early in the session of the legislature, but was unfavorably reported upon by the Committee on Public Health.

While the matter was under discussion, certain developments relative to seriously objectionable methods of production which were disclosed relative to a vaccine establishment in Massachusetts led to the introduction of an order by Mr. Adams of Melrose, April 25, 1902, for an investigation by the State Board of Health as to a plan of production and distribution of vaccine for "free use in the Commonwealth." A resolve was finally introduced in the House May 12 for such a report, by the State Board of Health, together with a further report as to the condition and purity of vaccine in use during the past winter and upon the "condition and practices employed in vaccine producing institutions in this state."

After dragging slowly through the legislature, this resolve was finally enacted June 10, and in reply the State Board of Health very promptly reported upon the same subject June 12, outlining a plan and the necessary appropriation for carrying it out. This report of the board was brief, definite and to the point, and contained sufficient information to enable a committee to act promptly upon so important a question.

Smallpox is a disease which requires prompt and decisive action in consequence of its liability

to spread rapidly, and there was no reason for further delay in the matter. Smallpox has prevailed in the city to an extent not experienced since 1872. It is still prevailing and is liable to increase during the coming fall and winter, yet in the face of these facts the Committee on Public Health, on June 23, reported the following resolve:

"*Resolved*, That the State Board of Agriculture is hereby authorized and directed to investigate as to the feasibility and probable cost of producing vaccine lymph at the Massachusetts Agricultural College for free distribution within the Commonwealth, and to report the result of such investigation, together with such recommendations as the board may consider advisable, to the general court on or before the fifteenth day of January in the year nineteen hundred and three."

By the terms of this resolve the question of free vaccine distribution under state authority is needlessly delayed another year, and the subject, after having been once reported upon by the State Board of Health, is now entrusted to the Board of Agriculture.

The submission of this question of a purely medical nature, involving matters of a bacteriological and pathological character, to an agricultural board and also of conducting the work at a long distance from the densely settled population of the state, while all the best facilities for such work already exist in the metropolitan district, is open to question.

It should be remembered that last winter, when the question of state production of vaccine material was first introduced, the Druggists' Association of Massachusetts appeared with able counsel to defeat the movement. How far this legislative committee has succeeded in aiding this association in its charitable endeavors remains to be seen.

## THE CONDUCT OF MEDICAL MEETINGS.

EACH succeeding year sees an increasing complication in our national and state medical society meetings. The membership of these various societies is continually increasing, and with this increase there is a natural tendency that more and more papers should be presented at the stated meetings. This means that an extra burden is thrown upon the committee of arrangements, and new problems are continually offering themselves for solution. It is easy to complain of the poor management of such society meetings; it is a very difficult matter, however, to suggest reasonable methods of improvement.

In this connection we note with some interest that at the recent very successful meeting of the American Surgical Association, held at Albany, it was decreed that only eight minutes should be allowed for the reading of papers. The result of this arrangement was that thirty papers were presented and considerably more than a hundred discussions made possible. At first sight eight minutes would seem to be a short time in which to present even the barest results of any medical research. This is, however, not the fact. It is unquestionably possible to condense into this time the salient features either of a clinical or a scientific report, leaving out naturally all the extraneous and usually unessential details which are so apt to creep into the ordinary medical contribution. This association furthermore provided galley proofs of the various papers presented, which naturally made possible a very much more intelligent treatment of the subjects under discussion.

How far this plan adopted by the Surgical Association may be made generally applicable it is difficult to say. Experience has, however, certainly shown, as in the case of the meetings of the American Association of Pathologists and Bacteriologists, that long programs may be finished if only the chairman is willing to enforce the time limit upon the various readers. This is not always a pleasant thing to do, but unquestionably it leads, on the whole, to the most satisfactory results in spite of certain evident drawbacks. Certain well-known societies, on the other hand, have a habit of printing long and elaborate programs, and then enforcing in so lax a fashion the limit of time that not more than one-half or two-thirds of the papers are read at the meetings. This is a manifest injustice to those readers who come toward the end of the program. It not infrequently happens that they have prepared their papers with care, have perhaps brought to the meeting elaborate drawings or specimens only to find that their efforts are entirely ignored. Such treatment at the hands of the managers of society meetings evidently must discourage many who would otherwise willingly be contributors.

If extensive discussions are desired, and it must be admitted that the enforcement of the time limit frequently interferes with this part of the program, general subjects should be taken up rather than a large number of more or less independent topics. Such a method of encouraging the discussion of important medical questions has been tried with success at the Massachusetts Medical Society meetings and at various other of the national organizations. No doubt much is learned each year, and we need have little concern that, in spite of the enormous growth of certain of our medical societies, of which the American Medical Association stands as a typical

example, we may look for a more and more systematic conduct of the meetings from which much may be expected, not only from a social, but also from a literary point of view. This result requires not only the devoted work of those having the meetings in charge, but also the earnest co-operation of every contributor to those meetings. Each man should bear in mind the fact that others as well as himself have contributions to offer, and should make every endeavor, therefore, to condense into the shortest possible space the essence of the remarks which he thinks worth contributing to the society.

## MEDICAL NOTES.

Changes in the Medical Faculty of the University of Maryland.— Dr. L. McLane Tiffany having resigned the chair of surgery in the University of Maryland faculty of physic, Dr. Randolph Winslow has been elected professor of surgery. Dr. John Holmes Smith has been elected professor of anatomy, Dr. D. M. R. Culbreth professor of materia medica, Dr. Frank Martin and Dr. St. Clair Spruill clinical professors of surgery, and Dr. Joseph W. Holland demonstrator of anatomy.

Investigation of Cancer.— Prof. von Leyden's commission, which in October, 1900, began an investigation of the spread of cancer, has just published a report, stating that 4,430 men and 7,714 women were under medical care in Germany, afflicted with that disease. This shows that the victims of cancer number 215 in each million of the population. Patients over seventy years of age were most numerous. Seventy per cent. of all cases suffered from cancer of the digestive organs.

Difficulty in Filling Army Medical Places. — It is reported that of one hundred and twenty-nine candidates for positions in the medical corps of the United States Army, only eighteen have been accepted, as a result of recent examinations. This argues either that the examinations are exceptionally severe or that inferior men present themselves for the positions.

Frank Billings, M.D., President of American Medical Association.— Dr. Frank Billings of Chicago, Shattuck Lecturer this year at the annual meeting of The Massachusetts Medical Society, professor of medicine and dean of the faculty, Rush Medical College, has been elected president of the American Medical Association for the ensuing year.

Gift to the University of Pennsylvania.— It is reported that a gift of $100,000 has recently been made the University of Pennsylvania to be added to the building fund of the new medica laboratories. It is to be devoted to the department of pathology.

### BOSTON AND NEW ENGLAND.

Acute Infectious Diseases in Boston.— For the week ending at noon, June 25, 1902, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: Diphtheria 24, scarlatina 24, measles 57, typhoid fever 9, smallpox 4.

Children's Hospital on Bumkin's Island.— It is expected that the new Children's Hospital on Bumkin's Island, near Boston, will be formally opened in July. The hospital has been constructed by means of a gift from Mr. A. C. Burrage of Boston, at an estimated expense of about $150,000. It is designed to accommodate about two hundred crippled children; every means has been taken to render the buildings convenient to this end.

Harvard Medical Alumni Association.— The annual meeting of the Harvard Medical Alumni Association was held June 24, at the Harvard Medical School, with the president, Dr. Clarence J. Blake, presiding. The routine business of the association was transacted and the following councillors elected for a term of four years: Dr. R. C. Cabot, Boston; Dr. N. B. Potter, New York, and Dr. G. A. Harlow, Milwaukee.

Hospital for Milford, Mass.— Mr. Eben S. Draper has presented to the Milford (Mass.) Hospital Association land valued at $3,000, upon which he proposes to erect a hospital at an estimated cost of $50,000, in case Milford and neighboring towns will provide for the running expenses.

Smallpox in Cambridge, Mass.— Upwards of forty cases of smallpox have recently occurred in Cambridgeport, traced in the first instance to a negro family. Every precaution is being taken to check the spread of the disease, although the hospital facilities for smallpox are being taxed to the utmost in caring for the patients.

Jane Toppan Insane.— Jane Toppan, formerly a professional nurse, who has been held for several months on a charge of murder in having caused the deaths of a number of persons committed to her charge, has been adjudged insane, and sent to the Taunton Insane Hospital for life.

Appointment of Dr. Charles S. Little.— Dr. Charles S. Little of the McLean Hospital, Waverley, has been appointed to the superintendency of the State School for Feeble-Minded Children at Concord, N. H.

A CENTENARIAN.— Nathaniel B. Cross, the oldest resident of Claremont, N. H., died June 22. He is said to have celebrated his 102d birthday anniversary Feb. 12 of this year.

NEW YORK.

COMMITTEE FOR DISSEMINATING KNOWLEDGE REGARDING TUBERCULOSIS.— With the object of disseminating knowledge in regard to tuberculosis and its prevention, and of aiding consumptives in the city, the Charity Organization Society has formed a committee of representative physicians and others. The physicians are Drs. E. G. Janeway, H. M. Biggs and J. D. Bryant and others; on the committee are the president of the Board of Health, the charities' commissioner, and Mr. Robert W. DeForest, the head of the Tenement-House Department. In a statement regarding its work it is announced that the first task of the committee will be an exhaustive investigation of some of the social aspects of tuberculosis. Little attempt, it is stated, has been made to establish the relation between infected living apartments and the victims of the disease, or to indicate the possibility of recovery or improvement, resulting from improved diet and improved light and air when patients are treated in their own homes, nor has there been any systematic effort to ascertain how far the infection can be prevented by instruction in the nature of the disease and in the precautions which should be taken to prevent its spread. In co-operation with the relief agencies, it is hoped that much additional information may be obtained concerning the desirability of making an entire change in the physical environment of those suffering from the disease, even when this involves considerable financial outlay. The financial burden imposed by the existence of 20,000 consumptives in New York City alone is very great.

THE SOFT COAL NUISANCE.— Ever since the commencement of the coal strike the city has been a great sufferer from the soft coal nuisance, and the Health Department has been blamed by many for not putting a stop to it. Commissioner Lederle states, however, that this would have been done long since but for the leniency of the criminal courts in paroling or releasing on insignificant bail such violators of the smoke ordinance as have been called to account. Fortunately, the elevated railroad company, the burning of soft coal by whose engines caused the greatest amount of discomfort and injury to health, has yielded to public pressure and returned to the exclusive use of anthracite.

A FREE BATH FOR THE POOR.— Mrs. Abram A. Anderson, who ten years ago gave $350,000 to the Roosevelt Hospital, has ordered the construction of a free bath for the use of the poor of the East Side which, with the land, will cost $100,000. When completed it will be presented to the Association for Improving the Condition of the Poor.

APPROPRIATION FOR NEW BUILDINGS FOR THE HEALTH DEPARTMENT.— At a meeting of the Board of Estimate, held June 6, $475,000 was appropriated for a contagious hospital and other new buildings for the Health Department.

BEQUESTS TO HOSPITALS.— By the will of Mrs. Regine Bunzl, $1,000 each is bequeathed to the Mount Sinai Hospital, the German Hospital, and the Montefiore Home and Hospital for Chronic Invalids.

## Obituary.

### EDWARD NEWTON WHITTIER, M.D.

THE medical profession of Boston has been bereft of one of its choicest members by the death of Dr. Edward Newton Whittier. The end came suddenly on the 14th inst., by sclerosis and obstruction of the coronary artery; he was spared the severe attacks of angina which accompany this cardiac disability, and only one seizure, at the end of a long and fatiguing journey to minister to his injured son, gave distinct and unequivocal warning of the nature of the disease. He passed away as he would have chosen to be called, before the infirmities of age began to declare themselves or his mental powers had become impaired.

Dr. Whittier was born July 2, 1841, at Portland, Me. He entered Brown University in 1858, and before he graduated the initial events of the Civil War occurred and Whittier left his books and did not resume them until peace was restored between the North and the South in 1865. With a spirit and a purpose which were characteristic, he sought early opportunity to enter the service of the Union, and his first term was of three months with the First Rhode Island Volunteer Regiment. Immediately upon his return from this term of duty he joined the Fifth Maine Battery and was commissioned a second lieutenant and presently he became first lieutenant. At the battle of Gettysburg, this battery, then under his command, won conspicuous distinction by resisting effectually a night attack by the enemy upon the Union troops stationed on Culp's Hill. For this service and for services equally gallant later, under General Sheridan, in the valley of the Shenandoah in 1864, Dr. Whittier received the special medal of honor conferred by Congress for "faithful, gallant and meritorious services"; a brevet rank of captain of volunteers was also given to him.

He resumed his course at Providence after his discharge from the army, and was much gratified when the college passed a retro-active order restoring him to his place in the class of 1862.

His medical education was obtained at the Harvard Medical School, and of all the teachers in the faculty at this time no one appealed to him so sincerely or so cordially as Dr. Calvin Ellis; their minds always worked in entire sympathy. In 1873 Dr. Whittier became a member of the visiting staff of the Massachusetts General Hospital, a position which he held many years and very acceptably. In 1877 he was appointed assistant in clinical medicine, and his teaching service in the Harvard Medical School continued until 1888, when he held the grade of assistant professor in clinical medicine. Numerous students of the school of his time can testify of the clearness, the thoroughness, the logical system which characterized his teaching and made each clinical exercise conducted by him an exercise

which fixed itself in the student's memory indelibly and usefully. Since resigning his appointment in 1888 he has devoted himself with great success to private practice, and it is fair to say that at no period of his life has he been more widely esteemed than at the time of his last sickness. He was the trusted counsellor in case of illness. Those who knew him superficially complained sometimes that he was not serious in the presence of sickness, that he looked to the more frivolous things of life in the sickroom instead of the sedate and solemn aspects. But if Dr. Whittier was brought into the presence of a real crisis, a genuine danger, all this apparent indifference fell away and left the man of action. Here he was at his best — alert, considerate, trustworthy. He would have been slow to claim for himself a mind trained especially in the laboratory; his training was in the sickroom, as the ripened fruit of wide experience. He was not a ready writer or a fluent speaker, but a keen and accurate thinker, and his best powers were always held in readiness for the service of his fellow-men. He was generous, self-sacrificing, magnanimous, a lover of nature, a true knight, without fear and without reproach.

## Correspondence.

### DRAWBACKS DIFFICULT OF AMELIORATION AT THE ANNUAL MEETING OF THE MASSACHUSETTS MEDICAL SOCIETY: REPLIES.

Boston, June 23, 1902.

Mr. Editor: The communication of "Growler" in the journal of June 19 vividly describes the annoyances connected with the recent meeting of The Massachusetts Medical Society. Doubtless many of your readers will agree with him that the remedies are simple. As one who has been somewhat conversant with matters relating to the meetings, I venture to make a reply.

Many of the things of which he complains have been in the past the subject of much thought on the part of those in charge of the arrangements for the annual meeting, but their remedies have not been found "simple."

It is to be hoped that before another year the management of the Medical Library will take steps to eliminate the squeaking of the seats in John Ware Hall. As to the "flamboyant headgear" of the sisters, I presume it is hardly possible to have an usher go about, as is done in the theatres, and request that the hats be removed.

Few physicians read their papers loudly and distinctly, and the acoustic properties of Paul Revere Hall in Mechanic Building are execrable. But that building has been the only one available in recent years which has sufficient accommodations for the exhibit and the annual dinner. We cannot well have these in one building and go to another for the literary exercises. A year ago, when Mechanic Building could not be obtained, papers were read in Chickering Hall and the dinner was with great difficulty served in Symphony Hall, but the exhibit had to be given up, to the disappointment expressed by many members, especially by those coming from a distance. The Committee of Arrangements for the next anniversary are already at work and if they can find a better place than Mechanic Building for the meeting they will endeavor to secure it.

In times past, and for several years, the doors were closed during the delivery of the Shattuck Lecture and the Annual Discourse, but so much dissatisfaction and disappointment were expressed by those who came a little late that the plan was abandoned. A friend remarks: "Shutting doors is absurd. If a man wants to come and hear what he can, getting away from his patients, he has a right to do so — ought to be encouraged to do so."

The reference to the "dislocation of the program" is somewhat obscure. The papers were read in the order printed thereon. The Annual Discourse was begun at 12.30. That was necessitated by the opening of the session at 9.30 instead of at 9, as formerly. When called at 9 it was difficult to secure a quorum of ten members, and frequently the required number could not be secured much before 9.30. The Rules and Orders of the society require that the orator be called upon at 12, noon, and it was so printed in the program. The rule was suspended this year by vote of the meeting, and notice was given that a motion will be made at the next annual meeting that the rule be annulled.

Trusting that our friend "Growler" will see from the above that those who are responsible for the arrangements for the meetings of the society have not been wholly unmindful of the annoyances to which he refers, and have tried as far as they have been able to remedy or to minimize them, I remain,

Yours very truly,

Barker.

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Boston, June 23, 1902.

Mr. Editor: Dr. Growler's growls regarding the recent meeting of The Massachusetts Medical Society when "boiled down" seem to be about as follows: That the acoustics of Paul Revere Hall are bad; that John Ware Hall is noisy; and he might have added that, in spite of the recent improvements, there is still great difficulty in hearing; that some women, at even this late day, prefer to wear their hats in public meetings; that papers are too long and not to the point; and that the program was dislocated.

Regarding the last, I have been unable to find out that any variation from the printed program was made during the meeting. I think a courteous request from Growler to have the offending hat removed would have done away with the need of any complaint in print. As to having papers confined to the subject matter in hand, I assert that it is an impossibility. Offences will occur and occur after the most careful explanations, and be committed by the men one would least expect to offend; and Growler's own needless verbosity is a proof of my assertion. I know, however, that it will be said that at the meetings of a certain society no one ever exceeds the allotted time. True, the papers are kept within the time-limit, but too often that time is much too great for sustained interest from even a selected audience. It may be added as an additional reason why scientific papers often bore, is the fact that very few medical men are good speakers. The cultivation of the voice for the sick-room and in the laboratory is not conducive to public speaking. Happy, well-turned, pointed phrases are frequent, but they are only too often lost if the number of auditors exceeds half a hundred.

As to giving up Paul Revere Hall, I think I can hear the chairman of the Committee of Arrangements saying: "That's all very easy, but where shall we go and do better?" Before I knew where the annual meeting was to be held, I wrote to the gentlemen who were to take part that they must look to their delivery, as the hall in which the meeting would be held would be a very difficult one to speak effectively in. I knew I told the truth of whichever of three halls might be chosen.

That doors should be closed is, on a moment's reflection, an impossibility, as the meetings are for busy doctors who must often be late or not attend at all or have time to be present and take part in the discussion of some single subject or paper, as we may infer was Growler's own position when he complains of the dislocation of the program.

I am sure that the Committee of Arrangements, as well as that to Procure Scientific Papers, will welcome any really constructive suggestions which may be made, either privately or publicly.

Very respectfully,

Arthur K. Stone, M.D.

## METEOROLOGICAL RECORD

For the week ending June 14, in Boston, according to observations furnished by Sergeant J. W. Smith of the United States Signal Corps:

| Date | Barometer. Daily mean. | Thermometer. Daily mean. | Thermometer. Maximum. | Thermometer. Minimum. | Relative humidity. 8.00 A.M. | Relative humidity. 8.00 P.M. | Relative humidity. Daily mean. | Direction of wind. 8.00 A.M. | Direction of wind. 8.00 P.M. | Velocity of wind. 8.00 A.M. | Velocity of wind. 8.00 P.M. | We'th'r * 8.00 A.M. | We'th'r * 8.00 P.M. | Rainfall in inches. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S....8 | 29.55 | 66 | 79 | 52 | 78 | 64 | 71 | W | N W | 7 | 24 | O. | C. | .07 |
| M...9 | 29.93 | 60 | 71 | 49 | 58 | 46 | 52 | W | S W | 18 | 11 | C. | C. | |
| T...10 | 29.81 | 63 | 73 | 53 | 56 | 95 | 76 | S W | S W | 16 | 14 | O. | O | .03 |
| W..11 | 29.93 | 58 | 63 | 52 | 55 | 68 | 62 | E | S | 10 | 16 | F. | R. | T. |
| T...12 | 29.78 | 69 | 85 | 53 | 78 | 74 | 76 | S W | N E | 14 | 9 | F. | O. | T. |
| F...13 | 29.90 | 58 | 66 | 51 | 97 | 86 | 82 | S E | S E | 6 | 1 | R. | O. | .31 |
| S...14 | 30.10 | 60 | 66 | 54 | 86 | 79 | 82 | N E | E | 4 | 5 | F. | C. | T. |
| ☞ | 29.86 | | 72 | 52 | | | 72 | | | | | | | .41 |

*O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow. †Indicates trace of rainfall.
☞ Mean for week.

## RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, JUNE 14, 1902.

| CITIES. | Population Estimated, 1902. | Reported deaths in each. | Deaths under five years. | Percentage of deaths from: Infectious diseases. | Acute lung diseases. | Diphtheria and croup. | Scarlet fever. | Cerebro-spinal meningitis |
|---|---|---|---|---|---|---|---|---|
| New York | 3,665,352 | 1,235 | 420 | 27.77 | 9.71 | 3.88 | 1.62 | .40 |
| Chicago | 1,852,828 | 461 | 121 | 21.90 | 8.24 | 1.52 | 1.73 | — |
| Philadelphia | 1,349,624 | 412 | 121 | 23.78 | 8.74 | 4.12 | 1.45 | .24 |
| St. Louis | 603,717 | — | — | — | — | — | — | — |
| Baltimore | 525,330 | 159 | 53 | 28.93 | 7.54 | 1.25 | .62 | — |
| Cleveland | 411,826 | — | — | — | — | — | — | — |
| Buffalo | 375,742 | — | — | — | — | — | — | — |
| Pittsburg | 341,401 | 132 | 47 | 34.08 | 9.09 | 1.51 | 2.27 | 1.51 |
| Cincinnati | 332,032 | — | — | — | — | — | — | — |
| Milwaukee | 304,975 | — | — | — | — | — | — | — |
| Washington | 289,537 | — | — | — | — | — | — | — |
| Providence | 185,870 | 46 | 11 | 10.87 | — | — | — | — |
| Boston | 588,736 | 187 | 47 | 24.59 | 12.83 | 2.13 | 1.60 | — |
| Worcester | 127,337 | 33 | 7 | 12.12 | 15.15 | — | 6.06 | — |
| Fall River | 111,872 | 27 | 11 | 25.92 | 14.81 | — | — | — |
| Lowell | 99,574 | 35 | 12 | 25.71 | 11.43 | 5.71 | — | 2.85 |
| Cambridge | 96,334 | 23 | 6 | 21.74 | 4.24 | 4.34 | 4.34 | — |
| Lynn | 71,144 | 13 | 3 | 7.70 | 7.70 | 7.70 | — | — |
| Lawrence | 67,275 | 20 | 13 | 25.00 | 20.00 | — | — | — |
| Springfield | 66,854 | 22 | 9 | 22.72 | 4.54 | 4.54 | 9.09 | — |
| Somerville | 65,882 | 12 | 2 | 15.40 | 15.40 | — | — | — |
| New Bedford | 65,574 | 17 | 4 | 5.88 | 5.88 | — | — | — |
| Holyoke | 48,065 | 7 | 1 | — | — | — | — | — |
| Brockton | 43,208 | 4 | 1 | 25.00 | — | — | — | 25.00 |
| Haverhill | 40,392 | 15 | 4 | 6.66 | 13.33 | — | — | — |
| Salem | 36,567 | 13 | 1 | — | — | — | — | — |
| Newton | 36,336 | 9 | — | 22.22 | 11.11 | — | — | — |
| Malden | 35,390 | 10 | — | 20.00 | — | — | — | — |
| Chelsea | 35,264 | 7 | 1 | 14.30 | 28.60 | — | — | — |
| Fitchburg | 33,848 | 4 | 1 | 25.00 | — | — | — | — |
| Taunton | 32,759 | 12 | 2 | 33.33 | 16.67 | — | — | 8.33 |
| Everett | 27,114 | 5 | 2 | 40.00 | — | — | — | 20.00 |
| North Adams | 26,583 | 6 | 1 | 16.67 | 16.67 | — | — | — |
| Gloucester | 26,151 | 4 | 1 | — | — | — | — | — |
| Quincy | 25,397 | 5 | 1 | 40.00 | 20.00 | — | — | — |
| Waltham | 24,612 | 1 | — | — | — | — | — | — |
| Pittsfield | 22,311 | 6 | — | — | 33.33 | — | — | — |
| Brookline | 21,679 | — | — | — | — | — | — | — |
| Chicopee | 20,390 | 4 | 2 | 25.00 | 25.00 | — | — | — |
| Medford | 20,014 | 1 | — | — | — | — | — | — |
| Newburyport | 14,478 | 5 | — | — | 20.00 | — | — | — |
| Melrose | 13,384 | 2 | 1 | — | — | — | — | — |
| Westfield | 13,038 | 3 | — | — | 33.33 | — | — | — |
| Attleboro | 12,846 | — | — | — | — | — | — | — |
| Adams | 12,813 | — | — | — | — | — | — | — |
| Milford | 12,546 | — | — | — | — | — | — | — |
| Framingham | 12,109 | — | — | — | — | — | — | — |
| Peabody | 11,957 | — | — | — | — | — | — | — |
| Revere | 11,894 | 3 | — | — | — | — | — | — |
| Gardner | 11,344 | — | — | — | — | — | — | — |
| Weymouth | 11,337 | 3 | 1 | — | 33.33 | — | — | — |
| Southbridge | 10,858 | 1 | — | — | — | — | — | — |
| Watertown | 10,000 | — | — | — | — | — | — | — |
| Plymouth | 10,336 | — | — | — | — | — | — | — |

Deaths reported 2,979; under five years of age, 909; principal infectious diseases (smallpox, measles, scarlet fever, cerebrospinal meningitis, diphtheria and croup, diarrheal diseases, whooping cough, erysipelas, fevers and consumption) 743, acute lung diseases 286, consumption 340, scarlet fever 47, erysipelas 8, typhoid fever 38, whooping cough 25, cerebrospinal meningitis 12, smallpox 27, measles 35, diarrheal diseases 119.

From whooping cough, New York 14, Chicago 2, Philadelphia 3, Baltimore 2, Boston 3, Lawrence 1. From measles, New York 12, Chicago 6, Philadelphia 7, Baltimore 3, Pittsburg 6, Boston 1. From erysipelas, New York 5, Philadelphia 1, Boston 2. From smallpox New York 13, Philadelphia 3, Boston 9, Lowell 2.

In the seventy-six great towns of England and Wales, with an estimated population of 14,862,909, for the week ending May 31, the death-rate was 16.5. Deaths reported 4,710; acute diseases of the respiratory organs (London) 261, whooping cough 108, diphtheria 54, measles 151, smallpox 59, scarlet fever 59.

The death-rate ranged from 6.5 in Wallasey to 25.9 in Barrow-in-Furness; London 16.6, West Ham 15.0, Croydon 10.2, Brighton 16.3, Portsmouth 10.9, Southampton 14.0, Bristol 12.6, Birmingham 17.9, Leicester 14.2, Nottingham 16.9, Birkenhead 18.1, Liverpool 22.9, Manchester 21.2, Salford 23.0, Bradford 16.8, Leeds 13.6, Sheffield 18.8, Hull 12.1, Newcastle-on-Tyne 17.1, Cardiff 13.6.

## CHANGES IN THE MEDICAL CORPS OF THE NAVY FOR THE WEEK ENDING JUNE 14, 1902.

J. W. Ross, surgeon, retired. Detached from duty under the War Department at the Hospital Las Animas, Havana, Cuba, and ordered home.

E. M. BROWN, assistant surgeon. Ordered to the Naval Hospital, Mare Island, Cal., for duty.

FOR THE WEEK ENDING JUNE 21, 1902.

J. B. DENNIS, passed assistant surgeon. Detached from the Naval Academy and ordered to the "Hartford."

R. S. Blakeman, passed assistant surgeon. Detached from the "Hartford" and ordered home, and granted three months sick leave.

L. W. Bishop, assistant surgeon. Detached from Cavite Naval Station, and ordered to duty with Marine Brigade.

## CHANGES IN THE STAFF OF THE CARNEY HOSPITAL.

Dr. W. M. Conant has resigned the position of surgeon.

Dr. R. A. Kingman has resigned the position of gynecologist.

Dr. M. Storer has been appointed visiting gynecologist.

Dr. J. M. Hastings has been appointed gynecologist to out patients.

Dr. C. F. Painter has been appointed visiting orthopedic surgeon.

Drs. E. S. Hatch, R. B. Osgood and H. S. Warren have been appointed assistant orthopedic surgeons.

## RECENT DEATHS.

JOHN CLIFFORD LINCOLN, M.D., M.M.S.S., died in Hyde Park June 18, 1902, aged forty-nine years.

DR. WILLIAM H. BARTON, pathologist of the State Hospital for the Insane at Morris Plains, New Jersey, died at the Mount Sinai Hospital, New York, on June 20, from blood poisoning contracted while making an autopsy.

DR. MAURICE B. EARLY of New York died on June 21, at the age of fifty-three. He was born in Richmond, Va., and was a nephew of Jubal Early, the Confederate general. He was graduated from the medical department of the University of the City of New York in 1869.

DR. OBED L. LUSK of Long Island City, borough of Queens, New York, died on June 20. He was graduated from the Chicago Medical College in 1882. For four years Dr. Lusk was sanitary superintendent of the borough of Queens, and previous to that had been Health Officer of Queens County.

DR. GEORGE F. CAREY of New York, a specialist in diseases of the eye and ear, died on June 17, at the age of sixty-six. He was born at Limerick, Ireland, and was graduated from the College of Physicians and Surgeons, New York, in 1874. At the time of his death he was assistant surgeon to the Manhattan Eye and Ear Hospital, and ophthalmic and aural surgeon to the New York Foundling Hospital.

# THE BOSTON MEDICAL AND SURGICAL JOURNAL

GEORGE B. SHATTUCK, M.D., Editor
E. W. TAYLOR, M.D., Assistant Editor

VOLUME CXLVII

JULY—DECEMBER, 1902

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## Address.

### THE PRESENT STATUS OF THE PRACTICE OF MEDICINE, AND THE URGENT NEED OF MORE STRINGENT APPLICATION OF HYGIENIC AND SANITARY LAWS.[1]

BY WILLARD S. EVERETT, M.D., HYDE PARK, MASS.

(Concluded from No. 23, p. 683.)

Such, then, appears to be the status of medicine, as these first years of the century begin. We note many improvements, we recognize many and great advances in the administration of medicines, but we cast our gaze outward over a world of sickness and suffering yet. The normal condition of existence should be one of perfect health. The perfect type of life on this earth is a sane mind in a sound body, from the earliest moment of existence, through the intermediate stages of development and maturity, until it shall terminate finally in the processes of natural decay. Yet a condition of perfect health in any large community is nowhere to be found. Some allowance may perhaps be charged to the inherent imperfections of our nature. But if we attempt to account for the universal prevalence of disease upon any such theory, we deceive ourselves.

Do we find encouragement and comfort in comparing our own times with the past? We search through its annals, as guided by the light of history, to find that in the sixteenth century the average duration of human life was from eighteen to twenty years. At the beginning of the nineteenth it had reached to thirty years. And now, as the twentieth century opens, it is said to have been extended beyond forty years. But why tell of that? Why count that as a victory for therapeutics which possibly may have been accomplished in other ways? Are we certain that the administration of medicine has produced the change?

Running parallel with all this increasing longevity, and precisely corresponding with it, both in regard to times and localities, are better modes of living, fewer unseemly and unwholesome practices, wider streets, purer air, and the introduction of sewerage systems and unpolluted water supply — all advances in sanitary and hygienic conditions, with which therapeutic agencies have nothing to do.

And what of the future now? Signs are not wanting that indicate along what lines the advances of the twentieth century shall come. And prevention seems, in the light of history, more promising in its results than attempts at cure. Probably hygienic measures will never supersede the use of therapeutic remedies in the treatment of disease. But we well may anticipate with satisfaction the approach of that season when they shall be blended together in a closer and more beneficent union than the world has ever yet known.

[1] The Annual Discourse delivered before The Massachusetts Medical Society, June 11, 1902.

Preventive medicine is no new thing. Nor is it one whose importance or influence upon the public health need be urged upon a body of physicians for the novelty of the subject or for the originality of the thought. Its importance has long been recognized. Boards of health have been appointed specially to enforce its requirements. Volumes have been written upon public hygiene. Preventive medicine and the discussions that have followed its recommendations have long occupied a prominent position in the medical literature of the times. Discourses have been read to us that have placed the subject before us in a manner as convincing and as truthful as can find expression in language, and in terms that admit of no reply.

Boards of health, both state and local, have urged upon us the need of improvement in sanitary conditions, with force of statement and cogency of reasoning that no argument can refute. Public health associations make sanitary science their chief purpose and study. National conferences of state and provincial boards of health seek to secure co-operation and uniformity of methods of doing their work. The American Medical Association organizes a section to discuss state medicine and public hygiene. The American Climatological Association wrestles with the problems that our ever varying and always trying climate presents. They all tell the same story. They all say, Pure air, pure food, comfortable clothing, freedom from exposure to pathogenic germs.

We have been told also, until the repetition induces a sense of weariness, that wherever putrefactive processes are going on; wherever there are accumulations of that material which we call filth in contradistinction from dirt; wherever stagnant pools or swamps abound; wherever marshes exhale their deleterious vapors; wherever tenements are overcrowded, and wherever lack of proper ventilation exists; wherever food products of every kind are placed upon the markets, and so upon the tables of the hungry, in improper condition; wherever agricultural processes are carried on, specially such as relate to milk production and meat supply, without proper regard to sanitary requirements and purity and cleanliness; wherever the effluvia from sink-drains and house offal mingle with and vitiate the air that is breathed; wherever noxious weeds or plants contaminate the atmosphere with their infectious exhalations; wherever drinking water is polluted from any cause; wherever streams and rivers are made foul by waste from manufactories, or from being used as receptacles of decaying matter of every description, all along their courses; wherever the smoke nuisance envelops us like a cloud; wherever these things exist, we have been told sufficiently often that danger exists also. There the microbe revels; there the bacillus watches for his prey. And there preventive medicine and preventive measures are needed always, to destroy their power of doing harm.

It is true that the work of the medical profession appears in all this. It is true that it is science — medical science — that makes these matters plain. It is true that it was medical science that first discovered the microbe, and it was medical science also that first suggested the measures that should terminate his work. It is true that the guiding hand of medical science has given direction to all these proposed or actual measures of sanitary improvement and reform. It is true that it is because of medical science that the rivers of waters that take their rise among the unpolluted springs and streams of the highlands and the mountains are rushing onward with impetuous speed through their conduits and channels, in haste to allay the thirst of the famishing millions that crowd the cities' contracted areas. It is true that because it is the best method for its disposal that medical science can devise at present, that so much of the waste of the earth that is concomitant with existence is drained through miles of impervious conductors and buried in the sea. It is true that whatever improvement is to be noted in these, and in other particulars, has resulted from medical science and the facts that medical science has made known. It is true that they who have been instrumental in inaugurating all these reformatory enterprises, whose benefits are already so great, as well as in projecting others which it must rest with the future to complete, have been chiefly medical men. It is true that it has been the voice of medical science that has set forth so clearly the dangers that still are threatening, and it is the voice of medical science also that is yet busy in calling for measures of relief. It is true that it has been the trumpet blasts of medical science that have brought these topics to our attention, and have thundered their ominous warnings so often and so loudly in our ears.

But repetition does not stimulate to activity. Argument does not renovate a broken constitution. Discussion does not destroy the industrious germ. And so, in defiance of all that medical science or common knowledge has taught us, these dangers yet remain — a constant menace to life and health. Our rivers are too often streams of pollution; our tenements are overcrowded; our food products are not always above suspicion; our milk supply is not always free from danger; our drinking water is not always pure. And so there is work yet for medical science to accomplish.

The intense activities that have marked the nineteenth century have gone far in many beneficent directions, but they have left to the twentieth an inheritance of labor and of duty that must not be postponed.

Dr. Salmon, veterinary of the Bureau of Animal Industry in the Department of Agriculture at Washington, makes this remark: "Without doubt there should be greater efforts than have yet been put forth in this country to secure a pure and wholesome food supply. Those who are working in this direction need the encouragement and aid of the general practitioner of medicine, I might say of the whole medical profession. They need even more than this — the experience and knowledge which are gained by the men in the active practice of medicine."

Thus does the representative of our government at Washington recognize the agency and influence of the medical profession in the prosecution of this department of its work, thereby practically making the acknowledgment that the work is not yet thoroughly nor satisfactorily done. And so, because it is not, our strong men perish, and so our children die. When sixteen children in every hundred born in Massachusetts have died before they were one year old, through twenty successive years — twenty-five in every hundred, according to high authority, is the ratio in all large American cities; — when 11,500 of the little ones die in a single year, as happened in Massachusetts, in 1900; when 47,266 persons, or very nearly one in every fifty, of the total population of the State exclusive of those who die by violent death and also those who are reported as dying of old age, die in Massachusetts in a single year, a large percentage of whom die from zymotic or infectious diseases, which should be largely if not wholly preventable, there is certainly something left for medical science and the twentieth century to accomplish which all the centuries that have preceded it have left incomplete. These facts appear in the registration reports for 1900.

And to him whose nature is easily moved to sympathetic sorrow for affliction, they may well be deemed sufficient to bring into activity a train of sentimental reflection that quickens the heart throbs and suffuses the eyes. The suffering and distress of those whose support is thus taken from them, and the moans of the despairing mothers of the eleven and one-half thousand babes that are dying, should burst asunder the clouds of indifference that surround the subject and cause the deaf heavens to hear.

While these unsanitary or unsafe conditions prevail, whose existence is a matter of common observation, which every man of science assures us invite disease; while these fatalities continue, as we must believe largely in consequence of such condition, faithfulness to the obligations of an honorable calling, that is charged with the great responsibility of the preservation of the public health, demands that the medical profession shall devote its energies more systematically and more determinedly to the inauguration of improved systems of sanitation that may result in better things.

And so there has been no reluctance in bringing the subject of preventive medicine before a gathering of physicians, confident in the assurance that it cannot be out of place. The times are propitious and the need is great. It must be the coming topic for discussion and for settlement and for urging upon popular support and favor, as these early years of the century begin. Its benefits are certain; its possibilities are great. Perhaps in this way we may discover the expla-

nation of some of the hidden mysteries of our being that seem incomprehensible now.

Perhaps we may learn why it is that the food that nourishes the body becomes its destroyer, too. Perhaps it will yet tell us why the same region that engenders the chill and the ague becomes a balm to the sensitive lung. The guiding stars of science indicate that the paths of progress lead in this direction, and undoubtedly the most encouraging and satisfactory successes of the period are to come in this way. It may win fame for no one, to be identified with the movement, in favor of sanitary science, but it will furnish an opportunity for doing a world of good. It may be less fascinating than a surgical exploit, but its beneficence may be multiplied hundreds of times. It is a marvelous achievement certainly, when it happens, and should bring renown and honor to the operator, to lift the curtain of darkness that veils the light of reason, and by a bold and hazardous surgical operation to restore a wretched and pitiable idiot to useful and rational life. It is a wonderful thing truly, and is deserving of all admiration, to suture a stab wound in the heart successfully, and so to prolong a life.

But probably these occurrences will not come very frequently into the ordinary life of the physician, and it may be that even Dr. Sternberg of New York, with all his great abilities, who was so successful in the former instance, and Dr. Nietert of the City Hospital at St. Louis, who performed the stab wound operation, may be compelled to rest their claim for exceptional distinction in these classes of cases — and they may well be content to do so — upon their success in a single case.

Opportunities for doing great things do not often happen, and perhaps in the practice of medicine, least frequently of all. But here the little things count. And he who secures to the children of Massachusetts a milk supply that shall yield the required nutrition, and yet be free from pathogenic organisms, will save thousands of lives. He that shall devise some method of harmlessly destroying or removing decomposing material, wherein disease germs originate, will save thousands more. Whoever will find a way to prohibit the pollutions that accumulate upon the earth's surface, and that are now permitted to contaminate the water that is used for domestic purposes, from reaching their present destination, will delay the flight of uncounted numbers to the celestial regions, and will prolong their stay upon the earth. But certain question arise and need to be answered.

When so many organizations and agencies are working so actively and so harmoniously together, with these objects in view, what reason for dissatisfaction or discontent remains? Just this one: results at present are not commensurate with humanity's needs. When peace and harmony combine so happily to work out the solution of these intricate problems that interest so many, what excuse can be given for fermenting a feeling of uneasiness and unnecessary fear? Simply this: nigh fifty thousand persons die in Massachusetts every year, at an age when the insurance tables of expectancy would have assigned to them a longer life.

But what more can be done? The one thing that more than anything else is needed is to awaken a public sentiment that, realizing and comprehending the great importance of these measures, will not only justify and encourage an expenditure that shall be adequate to the destruction of conditions that foster the development of diseases, but shall imperatively demand such expenditure and such destruction wherever disease germs are found.

If, then, efforts are properly directed, and if superintended by competent guides and directors, the closing years of the century that is opening should witness results in the department of medicine hitherto unattainable and that shall equal or rival the surgeon's most extravagant claims. If the valleys and waste places are teeming with dangerous bacteria, they must be exalted. If the mosquito is such a dangerous creature, the places of its abiding must be destroyed. The mountains may not be brought low in every instance and the mountain wind may not be tempered by human devices nor adapted to the needs of the tubercular diathesis, but the human subject may be taught, perhaps, to protect himself from its chill. If the appearance of the milker is suspiciously or conspicuously uninviting, he must be made to see the necessity of either changing his occupation or his methods of doing his work.

And so on — and so on! Through every department of human experience there is need for constant supervision, watchfulness and care. If individual interests or rights, even, are invaded and become antagonistic to the public needs, then individual interests and rights must be made subordinate to public necessity, when public safety is the issue that is involved; and, if it be possible that whatever is for the public benefit can be detrimental to the interests of the individuals of which the public is composed, then compensation for the injury that is inflicted must be allowed.

It will be objected — and not without reason — that the expense of such a movement will be enormous, and it is true. But the loss of fifty thousand, or thereabouts, of useful and cherished Massachusetts lives per annum, is a more costly and deplorable sacrifice still. The cost is not an insuperable objection nor obstacle against the expenditure of whatsoever of treasure these improvements and reforms may require. The means can be provided to procure the laborers, and the laborers are ready to do the work, and results will fully justify — even if they do not amply repay — all the expense that need be incurred. And means can be found by which all these things can be done.

Capital can furnish means to do great things. It can tunnel mountains. It can cover a whole land with a network of railroads, even to its most inaccessible regions, and settle its waste places with a busy, thriving and prosperous people that

increases its wealth and its power. It can find means to turn the waters of Niagara into a source of revenue. It can cross mighty rivers with bridges of enormous span. It can find means to flash its signals unheralded through the air. It can secure communication with most distant regions, and astonish them with messages that pass the sunlight, in their journey around the world. It can illumine its mansions with the lightning of heaven and literally hitch it to its car. It can execute and maintain enormous trusts. It can combine steamship lines. It can monopolize traffic and transportation and trade. It can spend uncounted thousands in testing and perfecting a piece of heavy ordnance and it can build forts and arsenals without considering the cost. It can build battleships that are apparently invincible. It can create navies that are at once the wonder and admiration, as well as dread and terror, of the world. It can equip and maintain armies that no power on earth has yet been able to withstand. It can support camps and courts. It can fit out costly expeditions to most distant places, to observe under most favorable conditions the occultation of eclipses or the transit of a star. It can extract luxury, as well as profit, from winter's dreary and desolate fields of ice.

It can find remunerative employment in blasting out huge and shapeless masses from the barren and unimpressionable granite quarry, and transforming and fashioning them into forms of surpassing beauty, and adapting them to purposes where ornament blends with permanent use. It can dig treasure from the mines of the earth, and refine it at the smelting furnace and stamp it at the mint, in quantities that are most conveniently handled with a derrick and gathered with a spade. It only fails of its purpose and is beaten and defeated when it attempts to find a northwest passage to reach the northern pole, and to construct a practical, safe and useful flying machine.

And the amount of money that has been lavished on either of these questionable — even if successful — projects would, it is very probable, give us all that we ask or need. And it neither satisfies or pacifies our desires, nor convinces our judgment, to tell us that we transgress the bounds of prudence when we ask it to come to our assistance when so many precious lives are involved. It is idle to tell us that whatsoever of capital is demanded to secure the public health and safety — whether it be much or little — cannot be furnished without either perceptibly impairing its energies or seriously obstructing its designs.

There is no doubt, there can be none, that the ravages of disease will be greatly diminished and the death-rate correspondingly changed when suitable measures shall be adopted for carrying projects like these into execution, and thus affording protection to those who do not or cannot protect themselves. And if, indeed, their excessive cost should seem to justify a doubt of their expediency, yet the times are come upon us when every consideration and dictate of humanity, of philanthropy, of zeal for the public safety, of interest in the progress of medical science, demand that the experiment shall be no longer delayed.

It is time to end this homily, that seems but just begun. The subject is inexhaustible. But the hand will move upon the dial plate, and you are growing weary, and a more alluring entertainment is awaiting you in the hall below. The great multitude that represents the medical profession in Massachusetts are gathering, eager and impatient, to exchange those kindly greetings and interchanges of recognition that cement more strongly the sympathetic tie that binds them, as they gather round the social board. Our annual festival does not fail. Year by year, as the sun approaches the solstice, we note — if we do not always welcome — its return. It has its delights and its enjoyments, but it has its suggestions too. Year by year we find ourselves moving farther and farther upward toward the head of that great procession that marches, not only into the anniversary dinner, but into "the pale realms of shade" as well, whither so many have preceded us whose forms and features have been familiar to us in years that are gone, when we were marshaled to our places in the rear, and whom we have watched year by year, to see them gradually putting off the robes of stately manhood, to wear the crown that only age could bring them, and then to disappear, that they who joined the society in the decade next in order, might move upward to the places that had belonged to them.

The century is at its beginning. At its close no one of us will remain. But that matters not; the world will move on. Medical science will continue its work for humanity, will make new discoveries, will find new and better ways of controlling diseases, will establish more perfect and effectual methods of arresting and destroying the causes on which they depend. Generations will come and go. The young, hopeful, ardent, eager, aspiring, ambitious graduate in medicine will take his diploma and enter upon his work with high resolve and noble purpose to win distinguished honors and achieve a brilliant success, as his prdecessors for generations have hoped to do. The middle-aged practitioner will pursue his daily round of duty with a calmness and serenity of spirit that no adverse circumstance can disturb, that are born of faith in the value and usefulness of his profession and his labors, and with resignation to the many hardships of his lot, that will sustain him and reinforce his courage when the stimulus of ambition and expectancy has been withdrawn. The aged veteran in the service will look backward reflectively over the paths that he has trodden and where his fathers have traveled before him, contrasting the new ways with his own, and then will sleep as they sleep.

But The Massachusetts Medical Society will live on; surviving all changes, keeping fully abreast with all advances, it will live on. Strong in the abiding affection and veneration of its members,

stronger still in the confidence and support of the people, for whose welfare it exists, but strongest of all in the ever increasing and ever expanding range of its benefactions, it will live on, and on; and if it shall be true to its history and equal to the opportunities that await it, it shall rise to higher — and still higher — planes of usefulness and honor, and the voice of millions shall reverberate down the ages in strains of thanksgiving, gratitude and praises for all the blessings it has secured to men.

## Original Article.

### THE IMPORTANCE OF MILK ANALYSIS IN INFANT FEEDING.[1]

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[Concluded from No. 26, p. 686.]

IT is interesting to compare the above results* with analyses which I have made of twenty-six modifications of milk procured from an establishment that devotes especial attention to the preparation of milk for infant feeding. Everything pertaining to the examination of these specimens was done by me and every precaution was taken to avoid any chance of error. Only unopened bottles of milk that had been delivered for the use of patients were analyzed. The contents were thoroughly mixed before examination. The same method was employed in the examination of these milks that has been described in the first part of this article. Two specimens were examined from each sample of milk to avoid any chance of error.

TABLE V.

| | Formula ordered. Per cent. | | | | Formula supplied. Per cent. | | |
|---|---|---|---|---|---|---|---|
| No. | Date. | Fat. | Sugar. | Proteids. | Fat. | Sugar. | Proteids |
| 1 | Dec. 18, 1901 | 4. | 7. | 2. | 4.20 | 7.20 | 1.80 |
| 2 | " 19, 1901 | 3.50 | 6.50 | 1.50 | 2.50 | 5.50 | 1.62 |
| 3 | " 19, 1901 | 3. | 6. | 0.75 | 2.60 | 4.80 | 0.86 |
| 4 | " 20, 1901 | 4. | 7. | 2. | 3.50 | 6.50 | 2.28 |
| 5 | " 20, 1901 | 3.50 | 6.50 | 0.75 | 3.20 | 5.50 | 1.02 |
| 6 | " 21, 1901 | 1.50 | 5.00 | $0.\frac{50}{25}$ whey mixture | 1.60 | 5.35 | 0.96 |
| 7 | " 21, 1901 | 4. | 6. | 3. | 3.60 | 6.80 | 3.04 |
| 8 | " 23, 1901 | 3.50 | 6.50 | 1.50 | 2.80 | 3.75 | 2.16 |
| 9 | " 24, 1901 | 3.50 | 6.50 | 0.75 | 3.50 | 7.25 | 0.86 |
| 10 | " 24, 1901 | 4. | 6. | 3. | 4.20 | 6.75 | 3.09 |
| 11 | " 25, 1901 | 4. | 7. | 1. | 3.40 | 7.40 | 1.03 |
| 12 | " 26, 1901 | 3.50 | 6.50 | 1.50 | 3.20 | 5.90 | 2.20 |
| 13 | " 30, 1901 | 4. | 7. | 1. | 3.40 | 6.50 | 1. |
| 14 | Jan. 3, 1902 | 3. | 6. | 1. | 2.20 | 6.40 | |
| 15 | " 7, 1902 | 3. | 6. | 1. | 2.60 | 6.40 | 0.81 |
| 16 | " 9, 1902 | 1. | 5. | 2.50 | 1. | 4.45 | 2.71 |
| 17 | " 15, 1902 | 3. | 6. | 1. | 2.40 | 5.90 | 1.03 |
| 18 | " 23, 1902 | 3. | 6. | $0.\frac{90}{50}$ whey mixture | 2.30 | 7.55 | 1.49 |
| 19 | " 24, 1902 | 3. | 6. | $0.\frac{90}{50}$ whey mixture | 2.30 | 5.75 | 1.63 |
| 20 | " 27, 1902 | 4. | 7. | $0.\frac{90}{50}$ whey mixture | 3.30 | 6.55 | 1.68 |
| 21 | " 29, 1902 | 2. | 5. | $0.\frac{50}{25}$ whey mixture | 1.30 | 6.25 | 0.67 |
| 22 | Feb. 28, 1902 | 4. | 5.50 | 2. | 3. | 5.75 | 2.30 |
| 23 | Mar. 7, 1902 | 3.50 | 6.50 | $0.\frac{75}{25}$ whey mixture | 2. | 7.15 | 1.81 |
| 24 | " 15, 1902 | 4. | 7. | 1. | 3.10 | 7. | 0.95 |
| 25 | " 18, 1902 | 4. | 7. | 1. | 3.40 | 7.10 | 0.87 |
| 26 | " 24, 1902 | 4. | 7. | 1.50 | 3.10 | 6.50 | 1.19 |

TABLE V.

ANALYSIS No. 1.

| Specimen No. 1. | | Specimen No. 2. | |
|---|---|---|---|
| | Per cent. | | Per cent. |
| Fat | 4.20 | Fat | 4.20 |
| Sugar | 7.20 | Sugar | 7.20 |
| Proteids | 1.80 | Proteids | 1.80 |
| Mineral matter | 0.30 | Mineral matter | 0.30 |
| Total solids | 13.50 | Total solids | 13.50 |
| Water | 86.50 | Water | 86.50 |
| | 100.00 | | 100.00 |
| Actual weight in grams. | | Actual weight in grams. | |
| Milk | 5. | Milk | 5. |
| Total solids | 0.675 | Total solids | 0.675 |
| Mineral matter | 0.015 | Mineral matter | 0.015 |

ANALYSIS No. 2.

| Specimen No. 1. | | Specimen No. 2. | |
|---|---|---|---|
| | Per cent. | | Per cent. |
| Fat | 2.50 | Fat | 2.50 |
| Sugar | 5.50 | Sugar | 5.50 |
| Proteids | 1.62 | Proteids | 1.62 |
| Mineral matter | 0.24 | Mineral matter | 0.22 |
| Total solids | 9.86 | Total solids | 9.84 |
| Water | 90.14 | Water | 90.16 |
| | 100.00 | | 100.00 |
| Actual weight in grams. | | Actual weight in grams. | |
| Milk | 5. | Milk | 5. |
| Total solids | 0.493 | Total solids | 0.492 |
| Mineral matter | 0.012 | Mineral matter | 0.011 |

[1] From the Pharmacological Laboratory of the Harvard Medical School, and from the Chemical Laboratory of the Massachusetts General Hospital

* See issue of last week.

ANALYSIS No. 3.

| Specimen No. 1. | Per cent. | Specimen No. 2. | Per cent. |
|---|---|---|---|
| Fat | 2.60 | Fat | 2.60 |
| Sugar | 4.80 | Sugar | 4.80 |
| Proteids | 0.86 | Proteids | 0.86 |
| Mineral matter | 0.16 | Mineral matter | 0.16 |
| Total solids | 8.42 | Total solids | 8.42 |
| Water | 91.58 | Water | 91.58 |
| | 100.00 | | 100.00 |
| **Actual weight in grams.** | | **Actual weight in grams.** | |
| Milk | 5. | Milk | 5. |
| Total solids | 0.421 | Total solids | 0.421 |
| Mineral matter | 0.008 | Mineral matter | 0.008 |

ANALYSIS No. 4.

| Specimen No. 1. | Per cent. | Specimen No. 2. | Per cent. |
|---|---|---|---|
| Fat | 3.50 | Fat | 3.40 |
| Sugar | 6.50 | Sugar | 6.50 |
| Proteids | 2.28 | Proteids | |
| Mineral matter | 0.30 | Mineral matter | (lost) |
| Total solids | 12.58 | Total solids | 12.62 |
| Water | 87.42 | Water | 87.38 |
| | 100.00 | | 100.00 |
| **Actual weight in grams.** | | **Actual weight in grams.** | |
| Milk | 5. | Milk | 5. |
| Total solids | 0.629 | Total solids | 0.631 |
| Mineral matter | 0.015 | Mineral matter | |

ANALYSIS No. 5.

| Specimen No. 1. | Per cent. | Specimen No. 2. | Per cent. |
|---|---|---|---|
| Fat | 3.20 | Fat | 3.10 |
| Sugar | 5.50 | Sugar | 5.50 |
| Proteids | 1.02 | Proteids | |
| Mineral matter | 0.14 | Mineral matter | |
| Total solids | 9.86 | Total solids | 9.82 |
| Water | 90.14 | Water | 90.18 |
| | 100.00 | | 100.00 |
| **Actual weight in grams.** | | **Actual weight in grams.** | |
| Milk | 5. | Milk | 5. |
| Total solids | 0.493 | Total solids | 0.491 |
| Mineral matter | 0.007 | Mineral matter | |

ANALYSIS No. 6.

| Specimen No. 1. | Per cent. | Specimen No. 2. | Per cent. |
|---|---|---|---|
| Fat | 1.60 | Fat | 1.60 |
| Sugar | 5.35 | Sugar | 5.35 |
| Proteids | 0.96 | Proteids | 0.97 |
| Mineral matter | 0.19 | Mineral matter | 0.16 |
| Total solids | 8.10 | Total solids | 8.08 |
| Water | 91.90 | Water | 91.92 |
| | 100.00 | | 100.00 |
| **Actual weight in grams.** | | **Actual weight in grams.** | |
| Milk | 5. | Milk | 5. |
| Total solids | 0.405 | Total solids | 0.404 |
| Mineral matter | 0.0095 | Mineral matter | 0.008 |

ANALYSIS No. 7.

| Specimen No. 1. | Per cent. | Specimen No. 2. | Per cent. |
|---|---|---|---|
| Fat | 3.60 | Fat = (small stick in fat) = × | 3.70 |
| Sugar | 6.80 | Sugar | 6.80 |
| Proteids | 3.04 | Proteids | 2.96 |
| Mineral matter | 0.46 | Mineral matter | 0.46 |
| Total solids | 13.90 | Total solids | 13.92 |
| Water | 86.10 | Water | 86.08 |
| | 100.00 | | 100.00 |
| **Actual weight in grams.** | | **Actual weight in grams.** | |
| Milk | 5. | Milk | 5. |
| Total solids | 0.695 | Total solids | 0.696 |
| Mineral matter | 0.023 | Mineral matter | 0.023 |

ANALYSIS No. 8.

| Specimen No. 1. | Per cent. | Specimen No. 2. | Per cent. |
|---|---|---|---|
| Fat | 2.80 | Fat | 2.80 |
| Sugar | 3.75 | Sugar | 3.75 |
| Proteids | 2.172 | Proteids | 2.15 |
| Mineral matter | 0.29 | Mineral matter | 0.32 |
| Total solids | 9.012 | Total solids | 9.02 |
| Water | 90.988 | Water | 90.98 |
| | 100.00 | | 100.00 |
| **Actual weight in grams.** | | **Actual weight in grams.** | |
| Milk | 5. | Milk | 5. |
| Total solids | 0.4506 | Total solids | 0.451 |
| Mineral matter | 0.0145 | Mineral matter | 0.016 |

ANALYSIS No. 9.

| Specimen No. 1. | Per cent. | Specimen No. 2. | Per cent. |
|---|---|---|---|
| Fat | 3.50 | Fat | 3.50 |
| Sugar | 7.25 | Sugar | 7.25 |
| Proteids | 0.868 | Proteids | 0.978 |
| Mineral matter | 0.132 | Mineral matter | 0.142 |
| Total solids | 11.752 | Total solids | 11.870 |
| Water | 88.248 | Water | 88.13 |
| | 100.00 | | 100.00 |
| **Actual weight in grams.** | | **Actual weight in grams.** | |
| Milk | 5. | Milk | 5. |
| Total solids | 0.5876 | Total solids | 0.5935 |
| Mineral matter | 0.0066 | Mineral matter | 0.0071 |

ANALYSIS No. 10.

| Specimen No. 1. | Per cent. | Specimen No. 2. | Per cent. |
|---|---|---|---|
| Fat | 4.20 | Fat | 4.20 |
| Sugar | 6.75 | Sugar | 6.75 |
| Proteids | 3.096 | Proteids | 3.096 |
| Mineral matter | 0.446 | Mineral matter | 0.454 |
| Total solids | 14.492 | Total solids | 14.50 |
| Water | 85.508 | Water | 85.50 |
| | 100.00 | | 100.00 |
| **Actual weight in grams.** | | **Actual weight in grams.** | |
| Milk | 5. | Milk | 5. |
| Total solids | 0.7246 | Total solids | 0.725 |
| Mineral matter | 0.0223 | Mineral matter | 0.0227 |

ANALYSIS No. 11.

| Specimen No. 1. | | Specimen No. 2. | |
|---|---|---|---|
| | Per cent. | | Per cent. |
| Fat | 3.40 | Fat | 3.40 |
| Sugar | 7.40 | Sugar | 7.40 |
| Proteids | 1.036 | Proteids | 1.07 |
| Mineral matter | 0.17 | Mineral matter | 0.19 |
| Total solids | 12.006 | Total solids | 12.06 |
| Water | 87.994 | Water | 87.94 |
| | 100.00 | | 100.00 |
| Actual weight in grams. | | Actual weight in grams. | |
| Milk | 5. | Milk | 5. |
| Total solids | 0.6003 | Total solids | 0.603 |
| Mineral matter | 0.0085 | Mineral matter | 0.0095 |

ANALYSIS No. 12.

| Specimen No. 1. | | Specimen No. 2. | |
|---|---|---|---|
| | Per cent. | | Per cent. |
| Fat | 3.20 | Fat | 3.20 |
| Sugar | 5.90 | Sugar | 5.90 |
| Proteids | 2.20 | Proteids | 2.23 |
| Mineral matter | 0.28 | Mineral matter | 0.27 |
| Total solids | 11.58 | Total solids | 11.60 |
| Water | 88.42 | Water | 88.40 |
| | 100.00 | | 100.00 |
| Actual weight in grams. | | Actual weight in grams. | |
| Milk | 5. | Milk | 5. |
| Total solids | 0.579 | Total Solids | 0.58 |
| Mineral matter | 0.014 | Mineral matter | 0.0135 |

ANALYSIS No. 13.

| Specimen No. 1. | | Specimen No. 2. | |
|---|---|---|---|
| | Per cent. | | Per cent. |
| Fat | 3 40 | Fat | 3.30 |
| Sugar | 6.50 | Sugar | 6.50 |
| Proteids | 1.00 | Proteids | 1.144 |
| Mineral matter | 0.16 | Mineral matter | 0.17 |
| Total solids | 11.06 | Total solids | 11.114 |
| Water | 88.94 | Water | 88.886 |
| | 100.00 | | 100.00 |
| Actual weight in grams. | | Actual weight in grams. | |
| Milk | 5. | Milk | 5. |
| Total solids | 0.553 | Total solids | 0.5557 |
| Mineral matter | 0.008 | Mineral matter | 0.0085 |

ANALYSIS No. 14.

| Specimen No. 1. | | Specimen No. 2. | |
|---|---|---|---|
| | Per cent. | | Per cent. |
| Fat | 2.20 | Fat | 2.20 |
| Sugar | 6.40 | Sugar | 6.40 |
| Proteids | 0.864 | | |
| Mineral matter | 0.108 | | |
| Total solids | 9.572 | | |
| Water | 90.428 | | |
| | 100.00 | | |
| Actual weight in grams. | | Actual weight in grams. | |
| Milk | 5. | | |
| Total solids | 0 4786 | | |
| Mineral matter | 0.0054 | | |

ANALYSIS No. 15.

| Specimen No. 1. | | Specimen No. 2. |
|---|---|---|
| | Per cent. | |
| Fat | 2.60 | |
| Sugar | 6.40 | |
| Proteids | 0.816 | |
| Mineral matter | 0.19 | |
| Total solids | 10.006 | |
| Water | 89.994 | |
| | 100.00 | |
| Actual weight in grams. | | |
| Milk | 5. | |
| Total solids | 0.5003 | |
| Mineral matter | 0.0095 | |

ANALYSIS No. 16.

| Specimen No. 1. | | Specimen No. 2. |
|---|---|---|
| | Per cent. | |
| Fat | 1.60 | |
| Sugar | 4.45 | |
| Proteids | 2.718 | |
| Mineral matter | 0.376 | |
| Total solids | 8.544 | |
| Water | 91.456 | |
| | 100.00 | |
| Actual weight in grams. | | |
| Milk | 5. | |
| Total solids | 0.4272 | |
| Mineral matter | 0.0188 | |

ANALYSIS No. 17.

| Specimen No. 1. | | Specimen No. 2. | |
|---|---|---|---|
| | Per cent. | | Per cent. |
| Fat | 2.40 | Fat | 2.40 |
| Sugar | 5.90 | Sugar | 5.90 |
| Proteids | 1.036 | Proteids | 1.01 |
| Mineral matter | 0.172 | Mineral matter | 0.17 |
| Total solids | 9.508 | Total solids | 9.48 |
| Water | 90.492 | Water | 90.52 |
| | 100.00 | | 100.00 |
| Actual weight in grams. | | Actual weight in grams. | |
| Milk | 5. | Milk | 5. |
| Total solids | 0.4754 | Total solids | 0.474 |
| Mineral matter | 0.0086 | Mineral matter | 0.0085 |

ANALYSIS No. 18.

| Specimen No. 1. | | Specimen No. 2. | |
|---|---|---|---|
| | Per cent. | | Per cent. |
| Fat | 2.30 | Fat | 2.30 |
| Sugar | 7.55 | Sugar | 7.55 |
| Proteids | 1.486 | Proteids | 1.536 |
| Mineral matter | 0.294 | Mineral matter | 0.288 |
| Total solids | 11.63 | Total solids | 11.674 |
| Water | 88.37 | Water | 88.326 |
| | 100.00 | | 100.00 |
| Actual weight in grams. | | Actual weight in grams. | |
| Milk | 5. | Milk | 5. |
| Total solids | 0.5815 | Total solids | 0.5837 |
| Mineral matter | 0.0147 | Mineral matter | 0.0144 |

ANALYSIS No. 19.

| Specimen No. 1. | | Specimen No. 2. | |
|---|---|---|---|
| | Per cent. | | Per cent. |
| Fat | 2 30 | Fat | 2.30 |
| Sugar | 5 75 | Sugar | 5.75 |
| Proteids | 1.636 | | |
| Mineral matter | 0.314 | | |
| Total solids | 10.00 | | |
| Water | 90.00 | | |
| | 100.00 | | |
| Actual weight in grams. | | Actual weight in grams. | |
| Milk | 5. | | |
| Total solids | 0.50 | | |
| Mineral matter | 0.0157 | | |

ANALYSIS No. 20.

| Specimen No. 1. | | Specimen No. 2. | |
|---|---|---|---|
| | Per cent. | | Per cent. |
| Fat | 3.30 | Fat | 3.30 |
| Sugar | 6.55 | Sugar | 6.55 |
| Proteids | 1.686 | | |
| Mineral matter | 0.272 | | |
| Total solids | 11.808 | | |
| Water | 88.192 | | |
| | 100.00 | | |
| Actual weight in grams. | | Actual weight in grams. | |
| Milk | 5. | | |
| Total solids | 0.5904 | | |
| Mineral matter | 0.0136 | | |

ANALYSIS No. 21.

| Specimen No. 1. | | Specimen No. 2. | |
|---|---|---|---|
| | Per cent. | | Per cent. |
| Fat | 1.30 | Fat | 1 30 |
| Sugar | 6.25 | Sugar | 6.25 |
| Proteids | 0 676 | Proteids | 0.674 |
| Mineral matter | 0.13 | Mineral matter | 0.142 |
| Total solids | 8.356 | Total solids | 8.366 |
| Water | 91.644 | Water | 91.634 |
| | 100.00 | | 100.00 |
| Actual weight in grams. | | Actual weight in grams. | |
| Milk | 5. | Milk | 5. |
| Total solids | 0.4178 | Total solids | 0.4183 |
| Mineral matter | 0.0065 | Mineral matter | 0.0071 |

ANALYSIS No. 22.

| Specimen No. 1. | | Specimen No. 2. | |
|---|---|---|---|
| | Per cent. | | Per cent. |
| Fat | 3. | | |
| Sugar | 5.75 | | |
| Proteids | 2.308 | | |
| Mineral matter | 0.308 | | |
| Total solids | 11.366 | | |
| Water | 88.634 | | |
| | 100.00 | | |
| Actual weight in grams. | | Actual weight in grams. | |
| Milk | 5 | | |
| Total solids | 0.5683 | | |
| Mineral matter | 0.0154 | | |

ANALYSIS No. 23.

| Specimen No. 1. | | Specimen No. 2. | |
|---|---|---|---|
| | Per cent. | | Per cent. |
| Fat | 2. | Fat | 1.90 |
| Sugar | 7.15 | Sugar | 7.15 |
| Proteids | 1.816 | Proteids | |
| Mineral matter | 0.248 | Mineral matter | |
| Total solids | 11.214 | Total solids | 11.106 |
| Water | 88.786 | Water | 88 894 |
| | 100.00 | | 100.00 |
| Actual weight in grams. | | Actual weight in grams. | |
| Milk | 5. | Milk | 5. |
| Total solids | 0.5607 | Total solids | 0.5553 |
| Mineral matter | 0.0124 | Mineral matter | (lost) |

ANALYSIS No. 24.

| Specimen No. 1. | | Specimen No. 2. | |
|---|---|---|---|
| | Per cent. | | Per cent. |
| Fat | 3.10 | Fat | 3.10 |
| Sugar | 7. | Sugar | 7. |
| Proteids | 0.954 | Proteids | 0 92 |
| Mineral matter | 0.158 | Mineral matter | 0.172 |
| Total solids | 11.212 | Total solids | 11.192 |
| Water | 88.788 | Water | 88.808 |
| | 100.00 | | 100.00 |
| Actual weight in grams. | | Actual weight in grams. | |
| Milk | 5. | Milk | 5. |
| Total solids | 0.5606 | Total solids | 0.5596 |
| Mineral matter | 0.0079 | Mineral matter | 0.0086 |

ANALYSIS No. 25.

| Specimen No. 1. | | Specimen No. 2. | |
|---|---|---|---|
| | Per cent. | | Per cent. |
| Fat | 3.40 | Fat | 3.30 |
| Sugar | 7.10 | Sugar | 7.10 |
| Proteids | 0.878 | Proteids | 0.974 |
| Mineral matter | 0.178 | Mineral matter | 0.172 |
| Total solids | 11.556 | Total solids | 11.546 |
| Water | 88.444 | Water | 88.454 |
| | 100.00 | | 100.00 |
| Actual weight in grams. | | Actual weight in grams. | |
| Milk | 5. | Milk | 5. |
| Total solids | 0.5778 | Total solids | 0.5773 |
| Mineral matter | 0.0089 | Mineral matter | 0.0086 |

ANALYSIS No. 26.

| Specimen No. 1. | | Specimen No. 2. | |
|---|---|---|---|
| | Per cent. | | Per cent. |
| Fat | 3.10 | Fat | 3. |
| Sugar | 6.50 | Sugar | 6.50 |
| Proteids | 1.194 | Proteids | 1.104 |
| Mineral matter | 0.236 | Mineral matter | 0.234 |
| Total solids | 11.03 | Total solids | 10.838 |
| Water | 88.97 | Water | 89.162 |
| | 100.00 | | 100.00 |
| Actual weight in grams. | | Actual weight in grams. | |
| Milk | 5. | Milk | 5. |
| Total solids | 0.5515 | Total solids | 0.5419 |
| Mineral matter | 0.0118 | Mineral matter | 0.0117 |

The results of the above analyses are as follows: Every one of the twenty-six modifications was incorrect. The most constant error was in the percentage of fat which usually was too low. The percentage of proteids in most of the modifications was too high and the errors in the percentage of sugar varied in each direction. These errors were appreciable, and often amounted to from 20 to 25% of the total quantity specified in the formula. The percentage of total solids was too low in all cases.

These results furnish evidence of negligence on the part of the establishment in question. A complete analysis of the milk could hardly be demanded in every case because such analysis requires a great deal of time and special training and in most cases it is not essential. It is easy to determine the percentage of fat in the cream used for modification. The determination requires but a few minutes to do, and is *absolutely essential* to insure even approximate accuracy. That this test was neglected, or very inaccurately performed, is shown by the above analyses. Such a concern must base its reputation upon the alleged accuracy of its methods. These commercial modifications are not more accurate than home modifications made with the average milkman's milk when directions are carefully given and followed and are not nearly so accurate as home modifications with milk in which the percentage of fat has been accurately determined.

One obvious conclusion to be drawn from the above analyses and from clinical observation is that within certain limits, accurate percentages of the constituents in modifications of milk are not essential in a large proportion of cases. This is shown by the large number of infants that thrive on inaccurate modifications of milk whether prepared at home or elsewhere.

It is the belief of a number of men who make a study of infant feeding, that a comparatively small number of modifications of milk are sufficient if one is careful to begin with a *relatively weak food* and to regulate carefully the quantity at each feeding and the intervals between the feedings. The infant's weight, the character of its dejections, and its general condition show when changes in the food are needed.

The time when accurate percentage modification is most essential is in the early weeks of life. It is safe to say that if more care were exercised during the first and second months of life there would be a marked diminution in the number of infants that do badly. It is the *start* that counts far more than any other one thing in infant feeding.

SUMMARY.

(1) The general statement that the upper one-fourth of one quart of cow's milk in which the cream has risen, contains 10% of fat, represents the average of a large number of milks. There is too much variation in milks from different cows to enable one to figure modifications of milk on this basis with any degree of accuracy.

(2) The results of the great variation in cow's milks would not be of so much consequence if the percentage of fat in the cream were always low. Too much fat in a modified milk is more likely to cause digestive disturbance than too little.

(3) It is advisable, therefore, to have the percentage of fat determined in the cream at least once whenever an infant begins to use modified milk. It is also advisable to have the fat determination repeated at the times of year when the cattle's food is changed.

(4) It is not advisable to modify milk with a cream in which the percentage of fat is too low — under 10% — because if one obtains a sufficient percentage of fat in the modification the percentage of proteids will be too high in many cases.

(5) If the percentage of fat is too low in the upper eight ounces from one quart of "set milk," it is better to take fewer ounces off of the top, determine the percentage of fat in these ounces, and use such a number of ounces of cream as contains 12% or more, of fat. If more proteid is required it can be obtained by the addition of lower milk which is almost free from fat.

(6) A safe rule would be to have at least one determination of fat made, no matter how many ounces are taken from the top of the "set" milk, and afterward to continue to take the same number of ounces off each time.

(7) In order to make a modification of milk in which a high percentage of fat is combined with a low percentage of proteid it is necessary to use a cream that contains a high percentage of fat. In general it is better to use a cream removed from the milk at home than to use cream bought for this purpose, because the latter is much more likely to be stale and to have undergone changes due to heat or to age.

(8) Within certain limits, accurate percentage modifications of milk are not essential to the well-being of a majority of the babies that are fed on modified milk. Proof of this is afforded by the fact that so many infants do well when fed on modified milk and yet it has been shown by the results of analysis that these modifications are rarely accurate. Unfortunately it is not always possible to tell beforehand to which class a given case belongs, and this is a sufficient reason, even if there were no others, for modifying the milk as accurately as possible. A complete analysis of the milk requires too much time and training to make it a practical procedure, except in special cases. The determination of the percentage of fat in the cream used for modification is easily made, requires but a few minutes to do, and enables modifications of milk to be made that are accurate enough for most cases, if in addition directions for modifying are carefully given and followed.

(9) The *advantage* of modifications of milk furnished by establishments is that it is convenient. It relieves the family of all responsibility so far as the preparation of the infant's food is concerned.

Three great objections to the use of commercial modifications of milk are: (*a*) inaccurate modifications; (*b*) stale milks; (*c*) expense.

(*a*) The claim is made by those interested in the sale of commercial modifications of milk that the percentages of fat, sugar and proteids are accurately determined in each modification. This claim of exactness forms the basis upon which such commercial modifications of milk largely depend for their success. The foregoing twenty-six analyses show how little dependence can be placed upon such statements.

(*b*) People who reside beyond the limits of wagon delivery, and most people do so for several months each year, have to use on Sundays and a part of Mondays milk that is delivered on Saturdays, and of a necessity milked on Fridays. It is claimed that no deleterious changes take place in these milks if they are kept cold. A sufficient number of clinical observations have been made to show that such a claim is unwarranted.

(*c*) The cost of modifications of milk made at home is less than twenty-five cents a day. Compare this with the cost of commercial modifications of milk, to which must be added in many cases the cost of transportation.

(10) The technique of fat determination by the Babcock method is simple and easily acquired. The entire outfit, including a centrifugal machine, flasks, pipettes and acid can be purchased for nine dollars. The time required for a fat determination by this method is about fifteen minutes.

## ON THE CLASSIFICATION OF THE BENIGN THYROID TUMORS.[1]

BY JOSEPH HERSEY PRATT, M.D., BOSTON,
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THE word "goitre" is probably a corruption of the Latin *guttur*—the throat. Like many terms of popular origin it is used rather loosely and is defined differently by different writers. I have followed Wölfler, Orth, Kaufmann, and Ziegler in applying the term to all enlargements of the thyroid gland. Virchow, Murray, and Ewald restrict it to the benign thyroid tumors, while von Eiselsberg would limit it to hypertrophies of the gland, thus excluding all true tumor formations. If the use of the word is to be restricted it would seem best to designate as goitre only that form of thyroid tumor which occurs endemically in certain regions.

Goitre is said to occur in endemic, epidemic and sporadic forms. Both Hirsch and Osler, in their studies on the geographical distribution of goitre, complained that they were able to learn nothing of the presence or absence of the endemic disease in Massachusetts. I have recently made inquiries of physicians in various parts of the State, without being able to discover a single focus of the disease. Although endemic goitre does not exist here, I have collected in Boston over fifty specimens of thyroid tumors which were removed during life or found at autopsy. These would be classified as "sporadic" cases, although the evidence is all opposed to the view that they are caused by the same agent that produces the endemic enlargement. Like other glandular organs the thyroid may be the seat of a variety of new growths, and the etiology of these tumors will probably remain obscure until more is known of the origin of tumors in general.

*Hypertrophy.*—The majority of writers regard the glandular enlargements of the thyroid, which in histological structure resemble the adult normal gland, not as true tumors, but as hypertrophies. They usually follow Virchow in assuming that the enlargement is due to hyperplasia of the epithelium of the normal vesicles or to an increase in the colloid contents of the vesicles. The following facts and observations, however, favor the view that many of these enlargements, although histologically similar to the normal gland, are real neoplasms. They are classified in this paper as simple adenomata.

(1) Wölfler has brought forward evidence tending to show that these growths develop from embryonic remains in the stroma. Among the goitres he studied in Bilroth's clinic he found only four that he regarded as examples of hypertrophy, all the others he looked upon as adenomata.

(2) Many of these enlargements occur as definitely circumscribed, sometimes encapsulated masses. I have published[2] the photograph of a thyroid which contained more than a dozen encapsulated nodules, 4 mm. to 1.5 cm. in size, composed of tissue resembling normal thyroid.

(3) Enlargements in structure not distinguishable from the normal thyroid have formed metastases. Housell has collected twelve cases from the literature.

In his classic work on "Tumors" Virchow divided goitres into the following groups: (1) hyperplastic, (2) fibrous, (3) colloid, (4) cystic, (5) vascular.

This classification with slight modifications is the one generally used today. It is, however, inadequate because based entirely on the microscopic appearances of the tumors, and does not distinguish between the so-called hyperplastic goitres and the less benign and hence more important types of thyroid tumors.

A classification proposed by Wölfler has never been widely adopted, probably because it is too complicated. He attempted to group all the benign glandular thyroid tumors according to their mode of origin. But as nothing is definitely known in regard to their mode of origin it is simpler and more satisfactory for surgical diagnosis to arrange them in groups according to their structure. They can thus be divided into three primary classes: (1) simple adenoma, (2) fetal adenoma, (3) papilliferous adenoma.

[1] Read before the Boston Society for Medical Improvement, Jan. 20, 1902.

[2] Wood's Reference Handbook of the Medical Sciences, 1902, iv, p. 376.

*Simple Adenoma.*— This is the most common form. Over 90% of thyroid tumors belong to this class. It includes the endemic goitre. The hyperplastic goitre of Virchow's classification represents the undegenerated simple adenoma. It seems quite evident that the other forms of goitre described by Virchow — the fibrous, colloid, and cystic — belong to this same primary type. They are probably the result of secondary changes in the "hyperplastic goitre." The simple adenoma may occur as multiple tumors, but usually single. It may appear as a diffuse growth or be distinctly encapsulated. The right lobe of the thyroid is more frequently involved than the left. Tumors developing from the isthmus are rare. They vary in size from small nodules 1 cm. or less in size to masses as large as a man's head (Alibert, Keser). But enormous enlargements are almost never seen except in regions where goitre is endemic, and they are said to be always cystic. None of the thyroid tumors I have examined in Massachusetts have measured more than 10 cm. in diameter.

The undegenerated simple adenoma resembles the normal thyroid tissue in consistence and color. Histologically the structure cannot be distinguished from the normal adult thyroid. It is composed of closed vesicles 1 mm. and less in size, filled with colloid and lined with a single row of usually cuboidal epithelial cells. Sometimes, however, the cells are low and flattened, and sometimes high and cylindrical. Between the vesicles is the connective-tissue stroma, carrying blood vessels, nerves and lymphatics. Here and there in this intervesicular tissue small groups of epithelial cells can usually be found. The cells are arranged in solid masses or form small rosettes. These are probably areas of undeveloped thyroid tissue. Wölfler maintains that the simple adenoma is formed by the growth of these scattered groups of embryonic thyroid cells. The histological appearances lend more support to this theory than to Virchow's teaching that goitres are due to the overgrowth of normal follicles, or to Hitzig's view of development from epithelium specially differentiated in regard to its staining properties and secretion.

Secondary changes in the simple adenomata are common. There is frequently an increased production of colloid. The vesicles become enlarged and are distended with colloid. The tumor is then called a "colloid goitre." On naked-eye examination the large vesicles are plainly seen filled with a reddish-brown to reddish-yellow jelly-like substance.

Reinbach holds that the colloid in goitres is formed by the degeneration of the cells, but most authorities agree with Müller in regarding the colloid substance of both normal and goitrous thyroids as a secretion.

With continued increase of colloid the walls of adjoining distended vesicles rupture or become atrophied by pressure and cysts are produced. Thus a *cystic goitre* is formed. The cysts may be single or multiple and they often attain a considerable size by the coalescence of many vesicles. Their contents are frequently tinged with blood or contain modified blood pigment. Blood cysts are sometimes formed from the rupture of vessels, but it is improbable that the cysts in goitres are usually hemorrhagic in origin, as Bradley maintains.

The fibrous stroma of simple adenomata varies in amount, but is usually not abundant. Occasionally nodules or bands of fibrous tissue are present, or the tumor may be largely composed of fibrous tissue and is then known as a "fibrous goitre." The formation of fibrous tissue is probably secondary to the degeneration and atrophy of the glandular tissue, or in some cases may be the result of chronic inflammation. Fibrous goitres are rare.

The hyaline degeneration of the stroma of goitres is of frequent occurrence. The necrosis and breaking-down of this tissue leads to the formation of cysts. These cysts of softening are common, and frequently of large size. They usually contain a turbid fluid, composed of cellular and fatty detritus, polynuclear leucocytes, blood pigment, calcium oxalate, and cholesterin crystals.

A good example of a fibrous goitre which has undergone central softening is contained in the Warren Museum of the Harvard Medical School. The cyst measures 5 cm. in diameter. Its wall, which is 1.5 cm. in greatest thickness, is formed of dense hyaline fibrous tissue. The inner portion of the wall is infiltrated with polynuclear leucocytes.

Lime salts are often deposited in necrotic areas in the walls of old cysts. Large calcified plates may form. In the Warren Museum is a cyst about 5 cm. in diameter, the wall of which is entirely converted into a calcified shell. I have seen a similar specimen in Professor Chiari's laboratory in Prague.

Occasionally true bone has been found in goitres. Lücke reported two cases in which there was typical bone formation with bone corpuscles and medullary spaces.

Jores noted that the arteries of goitres are very prone to undergo degeneration. The intima is usually thickened and frequently calcified, and the elastic tissue is degenerated. The changes in the vessels may account for the early degeneration and necrosis of these tumors.

Extensive amyloid infiltration of the vessels has been observed by Friedrich, Virchow and others. It may give a waxy appearance to the entire tumor. Hence the term "waxy goitre" applied by Beckmann.

*Fetal adenoma.*— In structure it resembles the fetal thyroid. Fetal adenomata vary in size from a few millimetres to four or more centimetres and are often multiple. They are usually provided with a definite capsule, but occasionally are not sharply circumscribed. Their color is grayish white or reddish and their consistence is soft. They are very vascular. Histologically the fetal adenoma is composed of epithelial cells arranged

in solid columns and masses, or in circles surrounding small spaces. There may be a few vesicles containing colloid. Usually there is little or no colloid in the tumor. The stroma is generally scanty, but is sometimes moderately abundant, and may be the seat of a mucoid degeneration (*Adenoma myxomatosum*—Wölfler). Different specimens exhibit considerable variation in structure. It seems best, however, to group under the head of fetal adenoma all those tumors that conform in their general characteristics to this type. These tumors are worthy of further clinical and pathological study, as they may be less benign in character than is now assumed.

It is possible that the vascular goitres of the older writers were fetal adenomata. The term "vascular goitre" is still used, although there is no evidence of the existence of any goitre composed primarily and mainly of blood vessels. Berry insists that the term should be abandoned. Wölfler says it is histologically untenable. v. Eiselsberg, however, in his recent monograph, describes and depicts a thyroid tumor which he regards as a vascular goitre "in the histological sense." His description is meagre and his drawing not convincing. Fresh hemorrhage into a fetal adenoma might have produced the same histological picture.

*Papilliferous adenoma.*— This rare type occurs in two forms: (*a*) the papilliferous adenoma which develops from the walls of old cysts; (*b*) the true cystoma which closely resembles the papilliferous adenocystoma of the ovary.

This important class of thyroid tumors lies on the border line between the benign and malignant growths. Cases have been reported by Barker and Wölfler in which they took on a low degree of malignancy.

Wölfler was the first to describe the papilliferous adenoma, but all his cases were epithelial ingrowths from the walls of preformed cysts. The second form — the true cystoma — must be very rare. I have not found it described in the literature. My collection includes two cases, which are quite similar in appearance. One of these has been reported by Dr. H. C. Low.[8] The tumor measured about 8 cm. in diameter and was encapsulated. On section it presented a cauliflower-like appearance.

Histologically both kinds of papilliferous tumors consist of branching processes lying within a definite cyst or cystic spaces. The growth is composed of delicate connective tissue stalks covered with cuboidal or columnar epithelium. There is rarely any colloid formation, but occasionally a vesicle filled with colloid is seen. The stroma may undergo mucoid degeneration.

There is no doubt that some of these tumors may assume malignant properties and invade the surrounding tissues. In a papilliferous adenoma which developed from the inner wall of an old monolocular cyst I have seen numerous mitotic figures. Just as the fibrous walls of ovarian cysts frequently prevent the extension of adenocystoma into the peritoneal cavity, so in this thyroid tumor, the cyst-wall of dense fibrous tissue appeared to act as a barrier to prevent the infiltration of neighboring structures.

*Pseudopapilliferous cysts.*— In a simple adenoma, groups of thyroid vesicles may by the coalescence of surrounding colloid cysts be left as small masses projecting into cysts. These little nodules may on naked-eye examination be mistaken for papilliferous growths. There is a good specimen in the Warren Museum.

In the following table the benign glandular tumors of the thyroid are grouped according to the classification described above.

I. *Simple adenoma.*— Closed vesicles filled with colloid. The structure resembles the normal thyroid.
   - Colloid goitre
   - Cystic goitre
   - Fibrous goitre

   } Simple adenomata that have undergone secondary changes.

II. *Fetal adenoma.*— Solid masses or rosettes of epithelial cells. Little or no colloid. The structure resembles the fetal thyroid.

III. *Papilliferous adenoma.*— Branching papillæ lying in cystic spaces: (a) developing from the walls of old cysts; (b) true adenocystoma resembling the adeno-cystoma of the ovary.

For a full bibliography of thyroid tumors the following works should be consulted:

Von Eiselsberg: Die Krankheiten der Schilddrüse. Deutsch. Chir., Stuttgart, 1901.
Berry: Diseases of the Thyroid Gland, London, 1901.
Index Catalogue of the Surgeon-General's Library. Second series, Washington, 1901.

[8] Medical and Surgical Reports of the Boston City Hospital, 1901.

## TUBERCULOSIS OF THE TESTICLE.[1]

BY PAUL THORNDIKE, M.D., BOSTON,
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AND W. T. BAILEY, M.D., BOSTON.

WHEN I undertook the work of looking up such cases of tuberculosis of the testis as were accessible to me, I did so with the hope of getting a little information on two or three points of clinical interest, for instance, how often the testicular lesion was the primary one; that is to say, how often its removal could offer a chance of eradicating the disease; and what are the remote results of castration as regards the reappearance of the disease. The 75 cases which I have collected with the assistance of Drs. T. C. Beebe and W. T. Bailey, have not been of much help in elucidating these points, both because of the poor quality of the clinical records and because of the fact that few of the cases could be traced to their present addresses.

Total number of cases, 75; cases, 20 to 30 years of age, 50%; 20 to 40 years of age, 67%; family history, negative in 86%; past history, negative in 53%; gonorrhea, in 30%; gonorrheal epididymitis, in only one case; left side affected, in 60%; right side affected, in 36%; both affected, in 18%; trauma assigned as cause, in 12%; pre-

[1] Read before the Boston Society for Medical Improvement April 7, 1902.

vious urinary symptoms, absent in 59 cases; previous urinary symptoms, present in nine cases; symptoms indicating prostatic involvement, present in only one case; examination of lungs not recorded in 39 cases; negative in 23 cases; positive in 13 cases; epididymis alone involved, in 42 cases; epididymis and testis involved, in 32 cases; vas deferens involved, in 12 cases; by rectal examination, vesicles involved, in 16 cases; prostate involved, in 13 cases; prostate negative, in 13 cases; pathological records, present in 36 cases.

So far as these cases tell us anything the disease is one which occurs in young adults, and in about one case out of three a gonorrhea was the immediate forerunner of the tuberculous process. In only 20% of the cases were there any symptoms referable to the urinary tract, and in only 16% was the vas deferens palpably involved at the time of operation. These last two statements are of importance from the point of view of the operative treatment of the disease, and are the only two points to which I wish to draw your attention in this paper. In the first place, then, in only 20% of the cases were there any symptoms referable to the urinary tract. This means that in most of the cases operations if done at all were performed either because of the mere presence of a diseased focus or in order to palliate or remove an active, inflammatory mass. Inasmuch as indurated nodules in the globus major or minor are so common as a result of inflammations of a gonorrheal or other non-tuberculous process, the presence of small masses alone is quite insufficient as an operative indication, and the bulk of the cases are not operated upon until more acute local symptoms render such a procedure necessary. This means that most cases do not come to operation until a fairly late stage in the development of the disease. Much has been written and many cases have been reported illustrating the value of removing the epididymis and leaving behind the testis in cases where the latter organ does not seem to be involved, and Rovsing in his paper of three years ago, in which he reports two of the earliest cases of this sort, says: "It is well known that the genital tuberculosis in man begins in the vast majority of cases in the epididymis. From here the tuberculosis spreads through the vas deferens and vesiculæ seminalæ to the prostate gland; later, often after many years, it invades the testis, if this is invaded at all." These are positive statements. It is the writer's custom to investigate carefully the condition of a testis before removing it for tuberculous disease, but it has never been his good fortune to operate upon one early enough to make it possible to leave the testis behind. In these cases which the writer has collected, the testis as well as the epididymis was involved thirty-two times out of seventy-five (43%), and the writer does not believe that it is possible to state so positively that the testicular involvement is usually late and may never occur at all.

The second point: In only 16% of the cases was the vas deferens palpably involved at the time of operation. This seems at variance with the commonly accepted view that the disease as it ascends does so by direct extension along the vas deferens, just as it does up or down the ureter in cases higher up in the genito-urinary tract. But the point of clinical importance which is suggested here is this: Is it necessary to remove all the diseased area in order to benefit the patient? Should one refrain from operating because of the impossibility of doing this? One reads often in the most recent writings that "involvement of the prostate and seminal vesicles is a direct contra-indication for castration." The same statement is made of involvement of one of the important internal organs. The writer has never hesitated to operate for the proper surgical indication, because the disease was known to be present in other organs, either those in immediate communication with the vas deferens (prostate and vesicle) or those more remote. He has at present under observation three cases which have been enormously benefited by such operations: (1) A case of Potts' disease of the spine, paraplegia, involvement of the prostate and vesicles, as well as the testis and cord. Castration resulted in enormous improvement in the patient's general condition, and no apparent ill effect as far as stirring up the remaining foci of disease is concerned. (2) A case of hip disease in which a conservative operation upon one epididymis which was acutely involved in a tuberculous process was of great benefit to the patient. (3) A case of phthisis in which the removal of a tuberculous testis was followed by very great improvement in the general condition of the patient. It must be true that the removal of a large focus of disease in this region is often of the greatest value, just as is a similar removal in cases of typical or atypical resection of an involved joint, where one does not necessarily remove all of the disease in order to accomplish a great benefit to his patient. Modern surgical technique is constantly rendering the remoter parts of the body easier and easier of access, and it is becoming possible to operate more and more thoroughly upon prostates and seminal vesicles which are involved in a tuberculous process; but such operations must always be formidable ones and will be the exception rather than the rule, at all events, for many years to come. Many patients will willingly consent to a lesser procedure when absolutely refusing the greater one, and it becomes a matter of real moment to know whether these partial removals are contra-indicated by experience as well as by tradition. The writer does not think so.

## TUBERCULOSIS OF THE URINARY TRACT.[1]

BY EDGAR GARCEAU, M.D., BOSTON,

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From various sources the author collected 194 cases in which some operation on the kidney was

[1] Read before the Boston Society for Medical Improvement April 7, 1902.

performed, To these cases were added those in Bang's [2] list to the number of 135, and those in Facklam's [3] list to the number of 88. The total is 415.

Analyzed these cases were as follows:

| | |
|---|---|
| Nephrectomies | 257 |
| Nephrotomies | 42 |
| Nephrotomies followed by nephrectomies | 84 |
| Nephrectomies and total resection of the ureter | 16 |
| Lumbar nephrectomy and partial resection of ureter | 10 |
| Resections | 6 |
| Total | 415 |

GENERAL SUMMARY.

| | |
|---|---|
| Total number of cases | 415 |
| Total number of deaths | 122 |
| Immediate deaths (within one month) | 74 |
| Deaths later | 48 |
| Percentage of immediate deaths | 17.8 |
| General mortality | 29.4 |
| Deaths from tuberculosis elsewhere in body | 49 |

SURVIVALS.

| | | |
|---|---|---|
| Total number of survivals | | 293 |
| Time not stated | 95 | |
| No improvement | 3 | |
| Improved only and still affected by the disease | 49 | |

RECOVERIES.

| | |
|---|---|
| 1 year or under | 88 |
| 2 years | 20 |
| 3 " | 11 |
| 4 " | 13 |
| 5 " | 3 |
| 6 " | 3 |
| 7 " | 1 |
| 8 " | 2 |
| 9 " | 1 |
| 10 " | 0 |
| 11 " | 2 |
| 12 " | 1 |
| 21 " | 1 |
| | 293 |

| | |
|---|---|
| Total survivals two years or more | 58 |
| Percentage | 14 |
| Total number of cases well from within a few months of operation, and therefore promising cases, added to survivals two years or more | 241 |
| Percentage of promising cases | 58 |

These results are disappointing. The reason they are not better is because renal tuberculosis is rarely primary in the kidney. Although there are 241 "promising cases" which were reported as "well," yet in many of them tuberculosis must have been present, and was either not reported or was unrecognized. The small percentage of cures (14) two years or more, favors this view, and further proof is furnished by autopsy records. In 3,224 autopsies performed at the Boston City Hospital and at the Massachusetts General Hospital during the past ten years, caseous renal tuberculosis was found twenty-four times. The kidney was never the only organ affected by the disease. Of the 415 cases analyzed by the author there were 122 deaths, and of these deaths tuberculosis in some other organ was the cause in 49 instances. Tuberculosis of the opposite kidney was reported twenty-four times (5.7%). The lungs were the most frequently diseased. Unquestionably tuberculosis elsewhere in the body existed many more times than was reported. This was through omission to report the condition, or through inability to recognize latent tubercular foci, such as mediastinal or retroperitoneal glands. That these latent foci may cause a further outbreak is a matter of record. After two of the nephrectomies, death occurred in one instance seven years after the operation from tuberculosis of the opposite kidney, and in the other, eight years after the operation from general tuberculosis.

On the other hand, there were some brilliant cures, the most remarkable of which was one of Czerny's cases in which cure had persisted for twenty-one years after operation without tubercular manifestation in the interim.

But such cases are rare, and a patient who has been nephrectomized for tuberculosis should never consider that the future is safe. The corollary to this is that these patients should take the utmost care of themselves in order to maintain their constitutions up to the highest pitch of vigor, for by this means alone can they hope to keep down the disease which is lurking somewhere within them.

RELATION OF SEX TO THE DISEASE.

In the 415 cases nephrectomy was done in females 266 times, in males 128 times and 22 times the sex was not given. This does not coincide with autopsy records. In the 3,424 autopsies already referred to there were 24 cases of the caseous type, and 40 of the miliary. Of the caseous cases 16 occurred in males and 8 in females.

The experience of other observers is the same. Morris [4] records that in 2,610 autopsies performed at the Middlesex Hospital, 44 cases of tuberculosis were found, of which 29 were miliary and 15 caseating. Of the 29 cases 18 were in males and 11 in females, while of the caseating cases nine were in males and six in females. Brown [5] in 567 autopsies at the Presbyterian Hospital in New York found tuberculosis of the kidney 23 times, of which 13 were in males and 10 in females. The varieties were not stated.

This great disproportion between clinical and post-mortem records is quite remarkable. Morris explains it by saying that the frequent coexistence of renal with vesical tuberculosis or with the disease in some other part of the male genito-urinary organs renders many men unfit for operation upon the kidney. It is possible that the greater difficulty of recognizing latent renal tuberculosis in the male may be responsible for many hitherto unrecognized cases. There is good ground for this assertion, because pain in the kidney may be entirely absent in renal tuberculosis.

RELATION OF AGE TO THE DISEASE.

The following table gives the ages at which the disease occurs:

| | |
|---|---|
| 1-10 years | 9 |
| 10-20 " | 40 |
| 20-30 " | 135 |
| 30-40 " | 140 |
| 40-50 " | 40 |
| 50-60 " | 4 |
| 60-70 " | 2 |
| Age not given | 45 |
| Total | 415 |

[2] Annals of Surgery, 1898, No. 27, p. 20.

[3] Die Wegen Nierenphthisie, Vorgenommenen Nephrotomien, etc. Archiv. f. klin., Chir., 1893, xlv, 715. (A few of Facklam's cases were omitted as the diagnosis of them appeared uncertain.)

[4] Surgical Diseases of the Kidney and Ureter, London, 1901, i, 484.

[5] Ann. des Mal. des Organes Genito-Urinaries, 1898, No. 16, p. 538.

THE RELATION OF CASEOUS TUBERCULOSIS TO MILIARY TUBERCULOSIS OF THE KIDNEY.

We have seen that the miliary form is by far the commoner. In the forty miliary cases occurring at the Massachusetts General and the Boston City hospitals, it was found that miliary tuberculosis pure and simple never occurred alone in the kidney, and that it was always dependent upon an old focus in some other part of the body, the lungs having been affected with the chronic type of the disease in half the cases, and the other organs in the body having been affected a few times each. It was interesting to note that in one of the cases of miliary tuberculosis the kidney was the only organ affected with the miliary type of the disease, the primary focus here having been an intestinal ulcer. In all the other cases miliary tuberculosis of other organs accompanied the renal tuberculosis, the lungs and spleen having been affected more times than others — twenty-seven times each. There were two cases in which small caseous nodules were found in miliary tuberculosis of the kidney; in one case, three nodules of very small size were present in the kidney, evidently the result of coalescence of miliary tubercles; in another case the caseous nodule was $1\frac{1}{2}$ cm. in diameter. The first case was in a male. As he had miliary tuberculosis of the lungs, liver, spleen and kidneys, as well as tubercular meningitis, there was no prospect of his surviving long enough to have allowed the nodules in the kidney to enlarge and produce a caseous nephritis. The second case was in a female, with chronic tuberculosis of the lungs, Fallopian tubes, mesentery and retroperitoneal lymph glands. She might have survived but it is doubtful also. We may add to these two cases, that in which miliary tuberculosis of the kidney alone occurred with the intestinal focus; if he had survived, caseation might have taken place. Morris [6] also records that in his twenty-nine cases of miliary kidney, small caseous foci were twice found.

It is fair to say that miliary tuberculosis of the kidney, a part of miliary tuberculosis of the other organs of the body, never goes into the caseous form to any great extent, the patient dying before this occurs, and death being due to extensive tubercular infiltration in other parts of the body rather than in the kidneys. The miliary tuberculosis of the kidneys in these cases is an end result.

Miliary tuberculosis of other organs than the kidney is often seen in the caseous variety. In the twenty-four cases cited it occurred in the lungs nine times, in the spleen nine times, and in the brain three times.

RELATION OF NEPHROPHTHISIS TO TUBERCULOSIS ELSEWHERE IN THE BODY.

In the 415 cases tuberculosis of other organs was mentioned 54 times, the lungs having been affected 37 times. The type of the disease was chronic in all the cases. Caseous tuberculosis of both kidneys was mentioned 27 times (6.5%) and immediate death followed in 24% of these cases. The disease had not been recognized in the opposite kidney before nephrectomy. These figures are misleading, and do not give a correct idea of the occurrence of tuberculosis elsewhere in the body. The reason is, as already stated, because the primary focus may be concealed. It is quite possible for an obsolete tubercular process in some other part of the body to give rise to renal tuberculosis. Such a focus may exist in the lung in the form of a cicatrized process, or it may be an old retroperitoneal or mediastinal or cervical lymph gland. Such instances of infection are occasionally met with at autopsy, and of the twenty-four cases of caseous tuberculosis cited, in four this was the condition, there having been no other active focus anywhere else. In two of these cases the glands alone were found, and in two others there was obsolete pulmonary tuberculosis. These cases of old glandular tuberculosis must be explained as the result of their filtering the germs either swallowed or inspired; one of the cases mentioned was disease of the retroperitoneal glands, the other of the mediastinal. The distribution of the foci in the other cases, sometimes alone and sometimes together, was as follows: Lungs thirteen times, pleuræ two times, intestines six times, mediastinal glands eight times, retroperitoneal glands three times, larynx once, Fallopian tubes once, uterus once, prostate once, spinal column once, abdominal cavity once, liver once. In addition to these foci, miliary distribution was common, and was found altogether thirty times in various organs.

It is of course impossible to say how old these foci were, and it may be argued that in some cases, at least, the various foci may have been secondary to a primary focus in the kidney. There is no means of proving that this is not so, and this question is therefore involved in some obscurity. It could be satisfactorily answered only by autopsies in early cases of renal tuberculosis, and as the disease is rare it is probable that many years must elapse before the solution of the question.

Morris [7] is quite in accord with these findings, and he says that occasionally the kidney is found at autopsy to be the only organ actively diseased, but that old foci of cured tuberculosis are always found in the prostate testes or lungs.

When we consider the much greater facility for infection that is presented to organs in more direct communication with the air, we may safely say that the primary focus of the disease is rather in these organs, lungs, intestines, etc., than in the kidney, which from its situation is less exposed in this way.

THE RELATION BETWEEN GENITAL AND URINARY TUBERCULOSIS.

Infection through the urethra would at first sight seem to be a common method of infection. But this is not the case for the following reasons:

[6] Ann. des Mal. des Organes Genito-Urinaries, 1898, No. 16, p. 484.

[7] Ann. des Mal. des Organes Genito-Urinaries, 1898, No. 16, p. 538.

(1) A healthy bladder will not become infected even if the germs succeed in passing the sphincter. This is evidenced by the undoubted fact that the bladder will sometimes remain healthy for years in a case of renal tuberculosis, and will remain so until the disease has reached it by extension along the ureter, or until there is some solution of continuity of the mucous membrane of the bladder, which gives the germs a nidus in which to grow; (2) it seems highly probable that the mucous membrane of the urethra cannot be very susceptible to the action of the tubercle bacillus, in view of the very frequent contact with the germs in both sexes when there is existing tubercular lesion of the genitalia in either. This is borne out by clinical experience, for the cases of urethral tuberculosis are so rare as to be curiosities. In the published cases, of which the author has seen but ten, the lesions were for the most part in the posterior urethra near the site of the vesical tuberculosis, and they do not start from the meatus and travel along the canal, as might be expected if the infection had been external. In a female with tubercular endometritis whose meatus and urethra are exposed to the tubercular uterine discharge, we seldom see a vesical tuberculosis. The same is true of tubal and ovarian tubercular disease, a vesical tuberculosis rarely coexisting. The blood current and lymphatics are the only routes which could carry the infection in these cases. While this mode of infection is possible, it is not more likely to occur from a uterine or a tubal focus than from a focus elsewhere in the body. Judging from the rarity of cystitis other than tubercular in connection with purulent diseases of the adnexæ and uterus, we may draw the inference that tuberculosis of the bladder is not more likely to occur than infection from some other germ. In not one of the 415 cases collated by the author was any reference made to the condition of the genital apparatus in the female, and it is probable that if there had been a great number of inflammatory lesions of these organs, which might have given rise to the suspicion of tuberculosis in them as as well in the bladder, some reference would have been made to the fact.

In the eight female cases of caseous tuberculosis occurring in the twenty-four cases cited there was tuberculosis of uterus and tubes in one of them, but in this solitary instance the bladder was free from the disease, which was confined exclusively to the kidney.

This same view as to the non-co-existence of tuberculosis in the genital and vesical tuberculosis in the female is held by Senn,[8] who states that while tuberculosis of the Fallopian tubes is common enough, being estimated by Winckel as high as 50% of all tubercular cases of the female genitals, it is exceptional that the urinary organs are simultaneously affected. In the male, however, the relation between the two systems is very close, on account of the anatomical position of the organs.

[8] Tuberculosis of the Genito-Urinary Organs, 1897, p. 160.

In the sixteen cases cited of caseous renal tuberculosis in the male, the genitalia were affected eight times, or 50%. The distribution was as follows: Seminal vesicle five times, epididymis twice, prostate three times, testis once, prostatic urethra twice. In all these cases with the exception of three the bladder was also found to be tuberculous.

In Morris' records[9] of 15 cases there were five in which the genitals were also affected. Watson[10] was able in 21 cases of tuberculosis treated by him to locate the disease as primary in the genitals of the male 11 times. Villard,[11] in an anatomical study of 176 autopsies in which genital tuberculosis was present in the male, found vesical tuberculosis in 56.6% of the cases. Guyon,[12] in a clinical analysis of 222 cases of urogenital tuberculosis, found 40 cases of genital tuberculosis, 74 of tuberculosis of the urinary organs and 108 of combined urogenital tuberculosis. In 42 post-mortem examinations he found only one case of isolated genital tuberculosis, 14 of tuberculosis of the urinary organs and 27 of combined urogenital tuberculosis. It is very evident, therefore, from these figures, that there is a close relation between the two systems in the male.

### THE COMMONER SEAT OF ORIGIN OF TUBERCULOSIS, KIDNEY OR BLADDER.

That vesical tuberculosis as a primary disease is commoner in males than in females there can be no question. The figures that have just been given prove this beyond a doubt. It may be of interest to add that in forty cystotomies whose records were examined by the author, the operation was done twenty-nine times in males and only six times in females, and in five the sex was not given. But when we turn to the clinical cases and autopsies of caseous renal tuberculosis, there is a discrepancy. In the sixteen cases referred to in males the bladder was positively found free from the disease in eight of them, while of the eight female cases, in one the bladder was normal and in four no mention was made of its condition, and in the remaining three vesical tuberculosis existed. From these findings it would appear that the kidney is oftener affected primarily in males.

Clinical records are still more surprising, for we have seen that in 415 cases there were 266 nephrectomies in the female as compared with 128 in the male. Morris' explanation of this may be correct. With extensive genital tuberculosis nephrectomy is not promising. It is possible, also, that many male cases do not survive long enough to allow extension of the tubercular process to the kidney. In the female it seems likely that the kidney must be the commoner seat of origin. The difficulty of infecting the bladder through the urethra is in favor of this hypothesis; the delicate structure of the kidney, its great vas-

[9] Tuberculosis of the Genito-Urinary Organs, 1897, p. 484.
[10] Boston Medical and Surgical Journal, 1895, p. 121.
[11] Ann. des Mal. des Organes Genito-Urinaries, 1894, No. 12, p. 112.
[12] Loc. cit., 1891, p. 445.

cularity and its physiological function as an eliminating organ are also in favor of it.

It seems probable that in the near future this point will be definitely ascertained, for with the cystoscope the condition of the bladder will be more carefully recorded and earlier diagnoses will be made.

## TUBERCULOSIS OF THE PROSTATE.[1]

BY L. R. G. CRANDON, M.D., BOSTON.

THE facts concerning the frequency and mode of invasion of the prostate by tuberculosis I shall attempt to give here, together with the symptoms, diagnosis and prognosis.

*Frequency.*— When the urogenital system suffers from tuberculosis, the prostate in two-thirds of the cases is one of the parts affected. Thus, Marwedel has collected 147 cases of urogenital tuberculosis, of which 102 showed involvement of the prostate. Tuberculosis in the prostate probably occurs much more often than it is diagnosticated. I have an example of this kind (see below) where it was quite unsuspected in life. In fact, from autopsy records, probably one-third of all cases have no symptoms. That it frequently supervenes in cases of chronic posterior urethritis is undoubtedly true, and this disease in such instances probably tends to lower the resistance of the parts to tuberculous invasion. Finally, all agree that the tuberculous prostate is often associated with tuberculosis elsewhere, especially of bone. Tubercle bacilli have been found in the healthy prostate of an individual suffering from phthisis (Jani), and the miliary form of the disease in the prostate has been noted (Meyer).

*Mode of invasion.*— The mode of invasion of the prostate by tuberculosis has been sought for many years. Theories, as well as pathological observations, both gross and microscopic, seem, in one series of cases or in another, to give support now to one, now to another manner of infection by the tubercle bacillus. As preliminary to this question, one should ask first: "Can the disease be primary in the prostate?" As to the original locus of the disease, most observers believe that there is sufficient evidence that tuberculosis in the prostate is nearly always secondary to other urogenital foci. The only dissenter of note from this view (Krzywicki) says that the prostate is the centre-point, that the primary origin of the tuberculosis in the prostate can be demonstrated in fourteen out of his fifteen cases by the presence of old cheesy deposits, while elsewhere it is more recent, and he believes that the prostate, where it does suffer from tuberculosis secondarily, serves as a means to transfer the disease from the genital to the urinary system or *vice versa*.

That tuberculosis may be primary in the prostate, I believe, is no longer to be questioned. Marwedel has one undoubted case. Hannemann also reports a case with some detail, where the process was clearly most advanced in the prostate, and I have, through the courtesy of Drs. Gavin, Thorndike and Mallory, a case which I will demonstrate. This is the case of a man of sixty-seven years who had the obstructive symptoms of enlarged prostate, and died after a time of an intercurrent affection. At the autopsy no tuberculous deposit was found in the body throughout or in the urogenital system, except in one lobe of the prostate where there is a single large, round caseous mass surrounded by typical tuberculous tissue. The enlargement of the prostate in this case is of the usual type, and not due to tuberculosis. Epididymis, vas deferens, seminal vesicle, ejaculatory duct, bladder, ureter and kidney on both sides show no tuberculosis. There is some amyloid in the kidney cortex.

In this case the deposit in the prostate was, so far as could be found, not alone the only manifestation of tuberculosis in the urogenital system, but also the only one in the body. The disease, therefore, so far as gross pathology goes, may undoubtedly be primary in the prostate.

Taking now the cases which are commoner by far — where the prostate together with some other part of the urogenital system is infected — it is a matter of the utmost importance, from the point of view of treatment and prognosis, to determine, if possible, the direction in which the disease is advancing. As to whether the disease goes from the kidney down or from the epididymis up, there is no sort of agreement among pathologists. One view is that it descends, that is, that urogenital tuberculosis is a disease of elimination, that the bacilli come through the glomeruli, may attack the pelvis of the kidney, then advance downwards through the prostate into the genital system. The most noteworthy supporters of this view are Cohnheim and Steinthal.

That the disease ascends rather than goes downwards is supported by equally good observers. They believe tuberculosis of the prostate to be secondary to deposits in the epididymis, and that from the prostate and seminal vesicles the disease goes to the higher genito-urinary organs. Virchow and Rokitansky favor this view, and Klebs also finds no case of downward extension of the disease. Simmonds says that the disease begins in the epididymis, and Orth speaks of it as always ascending.

Bearing upon this matter of the sequence of infection by tuberculosis along the urogenital system, I have a case, the material of which I got through the kindness of Dr. J. H. Pratt.

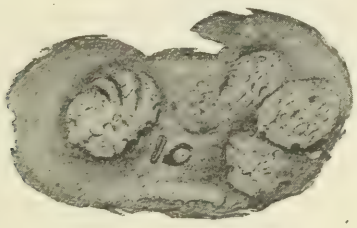
This case is one of well-marked Addison's disease that had also prostatic symptoms, namely, pain, enlargement and obstruction, all of which came on only in the last few months of life, giving clinical grounds for the presumption that the disease of the adrenals preceded that of the urogenital system. Examination after death shows well-marked old tuberculosis of the left adrenal,

[1] Read before the Boston Society for Medical Improvement April 7, 1902.

but no disease of the right adrenal or of either kidney. The left seminal vesicle is dilated and filled with caseous material and its walls tuberculous, while the prostate is infected throughout, the process, however, being older and more extensive on the left. The epididymis and testis on both sides are normal. The left ureter, about 3 cm. from the bladder, is dilated and has cheesy, tuberculous walls, but microscopic examination every 5 mm. along the left vas deferens — particularly the portion near the ureter — shows no infection.

If this case has any weight, it supports the view which considers urogenital tuberculosis as, at times, an eliminative infection. The disease of the adrenal is undoubtedly old, at least over three years. The connection between the adrenal and

FIG. 1.



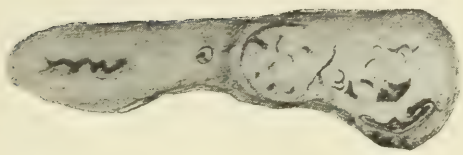


FIG. 2.

Tuberculous prostate, showing an isolated tuberculous mass in the left lobe, healthy left ejaculatory duct and seminal vesicle. Extensive disease of prostate and vesicle on the right. This specimen favors the belief that the disease in this instance was earlier in the prostate than in the vesicle.

the kidney, I admit, is not clear unless it be through the capsular blood supply. But the fact remains that the ureter on the same side has been infected through its mucous lining by the tubercle bacillus, carried there possibly, it is true, by blood infection, or, on the other hand, possibly, by the urine secreted by the kidney, the adrenal of which has tuberculosis. There is no tuberculous ulceration at the ureteral orifice nor in the bladder, but the prostate is diseased on both sides. On the right the process is above the fibrous, horizontal septum of the prostate, and nearer, therefore, and more accessible to infection which might come from the bladder neck through the prostatic ducts, than to extension by contiguity from the opposite side of the prostate. On the more extensively diseased side of the prostate also, the apparent age of the tubercles, as indicated by their size and caseation, is no greater near the seminal vesicle than in the uppermost part of the gland. The more diffuse process in the left prostate would infect the left ejaculatory duct and so its vesicle, while the rounded nodule in the right prostate is not in relation with its ejaculatory duct (See Figs. 1 and 2).

The possibility of infection of all these separated places by the blood stream cannot, of course, be ruled out, but in microscopic examination of the prostate at least, here and there may be found apparently the beginnings of new foci and these beginnings are near or in the walls of the acini, often in the smaller divisions, where the drainage is least good, and here one finds minute nodules each surrounded by small, round cells and a few epithelioid cells. No vessels, small or large, appear as centres of the disease. Such observations seem to warrant the conclusion that in this case, at least, the infection of the prostate took place through its glands which are open to the urethra, rather than by the blood stream or contiguity from the seminal vesicle. If infection of the prostate took place from the urethra, it may of course have been from a tuberculous seminal discharge, but the fact that the ureter above showed the disease favors the belief that the separated foci are due rather to an infection from above borne by the urine. The persistence with which the disease kept to the left side I cannot explain, unless the whole process is some sort of lymphatic infection.

Stonham reports a case not unlike this, where the prostate is enlarged, the left lobe is tuberculous, the left seminal vesicle and ejaculatory duct are infected, while those on the right are healthy. There are numerous minute tubercles in the neck of the bladder.

On the other side of the question, to support the view that urogenital tuberculosis may be primary in the epididymis, there is a sufficient number of cases in the literature, both clinical and pathological, to place it beyond doubt (Jacobson).

I can only conclude, therefore, that tuberculosis in the prostate may be primary there or may reach it from any part of the urogenital tract, either above or below.

*Diagnosis.*— The diagnosis of tuberculosis in the prostate, since the disease may be primary here, is of great importance, at least from the point of view of prognosis. A gleet or a catarrhal prostatitis persists; there is pain in the prostate or neck of the bladder; there may be a drop of blood at the beginning of micturition instead of at the end, as in stone. There is an increased frequency of micturition and may be some burning. The urine is slightly turbid, but in it are no renal elements as in pyelonephritis. The prostate, by rectum or bimanually, is found to be soft, slightly enlarged and tender, especially far back and including the area of the trigonum. One or both vesicles may show enlargement, but it is to be remembered that this is probably secondary, and that the prostate and the prostatic urethra are probably already involved, though clinically, nodulation of the vesicle is felt where the prostate is apparently healthy. To finally rule out stone,

the sound should be used but with the greatest gentleness, for nothing so serves to stir up a tuberculous process in the prostate as instrumentation. Malignant disease must be always in mind. Tuberculosis elsewhere in the body, old or recent, serves to help in the decision and the bacilli may sometimes be demonstrated in the prostatic milkings or the secretion may cause tuberculosis when injected into a guinea-pig.

*Treatment* I shall not consider.

*Prognosis.*— The prognosis must always be grave, since primary cases frequently do not lend themselves to diagnosis until there is extensive tuberculous disease elsewhere, and secondary cases carry with them the implication of tuberculosis in other parts so serious as to be the more important factors of a case.

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(2, 3, 9, 10, 11, 16 and 20 were quoted by 12.)

## Reports of Societies.

### BOSTON SOCIETY FOR MEDICAL IMPROVEMENT.

ARTHUR K. STONE, M.D., SECRETARY.

Regular meeting Jan. 20, 1902, Dr. W. T. Councilman in the chair.

Dr. J. H. Pratt read a paper

ON THE CLASSIFICATION OF THE BENIGN THYROID TUMORS.[1]

Dr. J. C. Warren: What interested me in the subject of the evening was the fact that I had not been able ever to obtain a clear idea of the classification of thyroid tumors. I was familiar, of course, with the works to which Dr. Mixter has alluded, but the classifications did not seem to correspond with the tumors as I saw them in my practice. In a paper I wrote some years ago on the operative treatment of thyroid tumors I adopted a provisional classification, which seemed to me to meet the clinical wants of the surgeon which divided these tumors into parenchymatous, cystic and vascular. The surgeon finds usually a general enlargement of either one-half or the whole of one lobe of the thyroid gland, and at times one of those enlargements fluctuates and contains fluid. Again, one sees acute cases that are highly vascular; and finally, the exophthalmic type. I think it is interesting to compare these varieties with the exophthalmic type, because that is not always easy of recognition. I presume the non-exophthalmic vascular type corresponds perhaps to the fetal type which Dr. Pratt has described, as he speaks of his fetal form of goitre as highly vascular. The parenchymatous would correspond to the adenoma, and the cystic would be a variety, of course, of adenoma. We know a little better what we are doing if we appreciate the fact that we have really after all only a very simple classification and that there are not a great many varieties of the tumor which differ very essentially from each other. One of the principal difficulties that I have to contend with is the differential diagnosis between goitre and adenoma and exophthalmic goitre. We all know that goitre is associated with more or less disturbance of the vascular system; pressure upon the veins interferes more or less with the action of the heart in large adenomatous goitres, and we have as a result tachycardia. On the other hand, in many forms of exophthalmic goitre we do not have the characteristic protrusion of the eyeball. In all goitres we have more or less tendency to enlargement of the blood vessels, and in some, as Dr. Pratt has shown tonight, we have almost an angiomatous type without its being simply a disturbance of the circulation; so that I have been in the habit of late years of getting an opinion of a specialist before I consented to perform a surgical operation upon the particular case presented to me. Perhaps some of the gentlemen present may be able to say something on that topic, which I think would be a valuable one, that is, a ready method for the surgeon to be warned of the symptoms of exophthalmic goitre so that he will not operate upon one mistaking it for an ordinary tumor.

The question of operation on these tumors, if it is suitable for operation, is another which I think is not clear in the minds of surgeons. Many a lady has an enlarged thyroid gland. Some are rather proud of it. In a good many celebrated cases enlargement of the neck has been considered more or less an ornament; that is, there are certain cases that grow to a certain size and cease growing and cause no further disturbance. There are others that go on progressively, slowly but surely, until the person arrives at a period of life when the vitality is not so great as in youth, when this thing slowly gets a grip upon the throat, binds itself around the trachea, flattens the trachea out, twists it about — we have a scabbard sheath trachea. Finally, constant turning the head in one direction or another, twists up the trachea so as to destroy the lumen entirely and we have what the

[1] See page 10 of the Journal.

Germans call *kropftodt* or sudden death from strangulation. Now, we have got to take that probability into consideration when we are advising a patient whether she shall have a goitre operated upon or not, that is, we have got to study the prognosis pretty carefully, and that is a point I should like to see worked out. I should like to know what the chances are in the life history of these different types which have been described tonight. At one time it was thought thyroid extract was going to replace surgery, and for a while I think physicians were in the habit of trying that remedy rather than sending their cases to the surgeon. Of late years I have noted a tendency to revert to surgery, as if the thyroid extract had not met their expectations.

DR. C. B. PORTER: I did not come with any idea of saying anything at all, but perhaps from the clinical side it might be interesting to report one or two cases. The reader spoke of the calcareous degeneration of the tumor. I remember very distinctly a very trying case which I once had where the tumor was extremely hard, pressing upon the trachea in such a way that I did not dare to undertake its removal without doing a preliminary tracheotomy. This was before the days of cocain, and I told the patient that she would have to bear the pain of the first incision of the skin. She bore that very well and the dissection through the cervical fascia, and then said she thought she could breathe so much easier that she could take ether for the rest of the operation. I yielded, thinking the pressure was relieved, but as soon as she became unconscious she ceased to breathe. The most of the surface of the trachea was covered with this tumor, which was so stony hard I was obliged to use bone forceps to divide it and forcibly tear it from the trachea before I could open the trachea. All surgeons who operate upon thyroid tumors know the bloody character of the operation, and that great care must be used not to get into the capsule of the thyroid itself if possible, and to control hemorrhage as one goes, otherwise when half through the operation the patient has lost so much blood as to be in a dangerous condition. Some of these experiences have happened to me before the days of saline infusion, and the exsanguine patient was formerly in a more precarious condition than now.

DR. PRATT: Dr. Mixter's interesting case of sudden enlargement of the thyroid is somewhat similar to one reported by Dr. Osler. In Dr. Osler's case, however, the hemorrhage into the goitre produced compression of the trachea and a fatal issue was the result.

In regard to the differential diagnosis between simple goitre and exopthalmic goitres it may be well to mention Guttmann's sign. Guttmann claims that over exophthalmic goitres you always get a bruit which is never present over simple goitres. Dr. George Dock has examined patients with a view of determining the presence or absence of this sign over a period of four years, and has stated that he confirmed Guttmann's results; over the exophthalmic goitre he always heard a bruit and never heard it in the endemic goitres that he examined in Michigan.

Another point in regard to the diagnosis is the other symptoms that are presented. Walter Edmunds says that all cases of goitre which present symptoms not referable to pressure should be classed as cases of exophthalmic goitre.

## BOSTON SOCIETY FOR MEDICAL IMPROVEMENT.

ARTHUR K. STONE, M.D., SECRETARY.

REGULAR meeting April 7, 1902, DR. W. T. COUNCILMAN in the chair.

DR. EDGAR GARCEAU read a paper on

TUBERCULOSIS OF THE URINARY TRACT.[1]

DR. L. R. G. CRANDON read a paper on

TUBERCULOSIS OF THE PROSTATE.[2]

DR. PAUL THORNDIKE and DR. W. T. BAILEY presented a paper on

TUBERCULOSIS OF THE TESTICLE.[3]

DR. REYNOLDS: I am very much interested in what Dr. Thorndike has just said. I think one of the most important points in connection with renal tuberculosis from the practical standpoint is the fact that we know so very little of the natural history of the disease left untreated and the fact that proper constitutional, hygienic treatment does so much for the patients. We have certainly gained a facility in diagnosing tuberculosis in its early stages in the kidneys, but I am very sure that we have not yet reached the point where we can diagnose the extent of the disease, where any method of diagnosis that we have at our disposal will tell us whether there is one little focus in the kidney or whether the kidney and ureter are extensively diseased. I think our line of development is very probably to be along the course of more and more emphasis of the value of hygienic treatment. But today, if we are able to demonstrate that one kidney is healthy and one diseased, we are so likely on operation to find the diseased kidney nothing but a deleterious mass and not a kidney, and the cases do so magnificently after the removal of the kidney, that I am disposed to call a halt on the position that we are not justified in removing kidneys because they are tuberculous, in the presence of no marked constitutional effect. The moment that the patient is running down, losing ground, after a fair trial of hygienic measures, with one sound kidney, I believe the kidney and ureter of the other side better come out, even though it may yet be shown with wider knowledge that many of those cases may eventually get well under hygienic measures.

One other point I think is worth speaking of. The experience I have had with gentlemen who

[1] See page 13 of the Journal.
[2] See page 17 of the Journal.
[3] See page 12 of the Journal.

have sent me cases of renal tuberculosis has convinced me that even men in leading positions in the profession are very commonly impressed with the belief that the symptomatology of renal tuberculosis is based largely on a palpably enlarged kidney and an evening temperature with the coexistence of pus in the urine. Now, as a matter of fact, in tuberculosis limited to one kidney and ureter the symptomatology, as I have seen it, is the absence of any temperature, frequently the absence of any palpable enlargement of the kidney, even though, when one gets down on it, it may be quite a little enlarged, and the presence of pain referred to the meatus after urination, with tenesmus of the bladder, associated with intermittent pus in the urine. When the urine is always full of pus it may be due to almost any cause, but if we take the specimens passed by the patient and put each urination in a separate bottle and arrange them along a shelf and see in the course of twenty-four hours two or three specimens full of pus and the rest clear, that pus comes from the kidney, and if every case of intermittent pus is subjected to examination for the tubercle bacillus I think we shall find a good many cases of renal tuberculosis in the early stages when they are still susceptible of hygienic cure, that are not today suspected, because in the majority of such cases, as I have seen them, the symptomatology is that of urinary frequency and pain referred to the meatus, and is not what is commonly understood as renal symptomatology at all.

Dr. Garceau: It seems to me that the principal point to be determined in the future in regard to the treatment of renal tuberculosis, in its early stages at least, is whether surgery or hygiene combined with a suitable climate shall hold the first rank. This is a very important question to decide and it is probable that a considerable length of time must elapse before it is satisfactorily solved. Unfortunately, the treatment by change of climate must necessarily be limited to those patients who are in affluent circumstances. It is not enough that a patient should live in a suitable locality; he should also be free from mental worry, for if his mind is not at ease the conditions for recovering are not of the best and the experiment will probably fail. This at once limits the number of cases to a comparatively few individuals.

The disease is a very discouraging one, for, even with the best treatment, the prognosis must always be uncertain, and there can be no assurance that there will not be a further outbreak in the future.

## ANNUAL MEETING OF THE ASSOCIATION OF MILITARY SURGEONS.

The Association of Military Surgeons, which met in Washington, D. C., June 5, 6 and 7, was honored by the presence at its opening exercises of President Roosevelt, the secretaries of war, the Navy and the Treasury, the surgeons-general of the Army, Navy and Marine Hospital Service, and a number of delegates from foreign armies. Perhaps no other medical organization ever began its annual meeting in the presence of such a distinguished and brilliant gathering as crowded the National Theatre on the occasion above referred to.

The opening address of President Roosevelt was as follows: "I am glad to have an opportunity to bid welcome to the members of the association and their friends today. The men of your association combine two professions, each of which is held in high honor by all capable of appreciating the real work of men — the profession of the soldier and the profession of the doctor. Conditions of modern civilization tend more and more to make the average life of the community one of great ease compared to what has been the case in the past, and, together with what advantages have come from this softening of life and rendering it more easy, there are certain attendant disadvantages. It is a very necessary thing that there should be some professions, some trades, where the same demands are made now as ever in the past upon the heroic qualities in a man, and those demands are made alike upon the soldier and the doctor, and how much more upon those who are both soldiers and doctors — upon the men who have continually to face all the responsibility, all the risk, faced by their brothers in the civilian branch of the profession, and who also, in time of war, must face much the same risks, often exactly the same risks, that are faced by their brothers in arms whose trade it is to kill and not cure.

"It has been my good fortune, gentlemen, to see some of your body at work in the field, to see them carrying the wounded and the dying from the firing line, themselves as much exposed to danger as those they were rescuing, and to see them working day and night in the field hospitals afterward, when even the intensity of the strain could hardly keep them awake, so fagged out were they by having each to do the work of ten.

"I welcome you here, and I am glad to have the chance of seeing you. I wish to say a word of congratulation to you upon the association. In all our modern life we have found it absolutely indispensable to supplement the work of the individual by the work of individuals gathered into an association. Without this work of the association you cannot give the highest expression to individual endeavor, and it would be a great misfortune if the military members of the medical and surgical profession did not take every advantage of their opportunities in the same way that is taken by the members of the medical and surgical profession who are not in the Army, or Navy or Marine Hospital Service, but who are in civilian life outside. I am glad to see you gathered into this association.

"Just one word of warning: Pay all possible heed to the scientific side of your work; perfect

yourselves as scientific men, able to work with the best and most delicate apparatus, and never for one moment forget — especially the higher officers among you — that in time of need you will have to do your work with the scantiest possible apparatus, and that your usefulness will be proportioned, not upon your complaint that you did not have apparatus enough, but upon the way you have worked with what you had. Remember that, and remember also — and this especially applies to the higher officers — that you have got to supplement in your calling the work of the surgeon with the work of the administrator. You have got to be doctors, military men and able administrators."

Addresses of welcome were also made by DR. ADAMS, representing the medical society of the District of Columbia, and COMMISSIONER MCFARLAND, representing the citizens of Washington. The address of the president of the association, COLONEL HOFF, pointed out the broader mission of the association in placing the medical services of the government and states upon a common basis and maintaining them at a high state of efficiency. He urged the teaching of military hygiene in the medical colleges of the country, and advocated the establishment of a national medical school in Washington, for the government medical services and the instruction of members of the National Guard, to be operated in connection with a great military hospital and school of instruction for men of the hospital corps and female nurses. The taking on of an international character by the association was also suggested.

The literary program of the society was both varied and valuable, seventy-three papers on matters relating to military medicine, hygiene and surgery having been submitted. The Sander prize, consisting of $100 in gold and a gold medal valued at $100, was awarded to Lieut.-Col. Valery Havard, U. S. Army, for his essay "The Most Practicable Organization for the Medical Department of an Army in the Field," his essay being pronounced by the jury of award the best of all submitted.

The financial reports showed that the association was free from indebtedness and had a surplus of about $4,000 in the treasury. The journal published by the association was shown not only to pay for itself, but to be issued at a profit over all operating expenses. The social program of the convention included a reception at the New Willard Hotel, an afternoon of field exercises by the Hospital Corps at Washington Barracks, and a trip down the Potomac on the U. S. S. *Dolphin*.

Officers of the association for the ensuing year were elected as follows: President, Brig.-Gen. Robert A. Blood, Massachusetts Volunteer Militia; First Vice-President, Medical Inspector J. A. Wise, U. S. Navy; Second Vice-President, Surgeon-General Walter A. Wyman, U. S. Marine Hospital Service; Treasurer, Lieutenant H. A. Arnold, Pennsylvania National Guard; Secretary and Editor, Major James E. Pilcher, U. S. Volunteers.

The next meeting of the association will be held in Boston, Mass., June, 1903. The medical officers of the Massachusetts Volunteer Militia have always strongly supported the Association of Military Surgeons, every officer at the present time being a member of the society.

## AMERICAN MEDICAL ASSOCIATION.

FIFTY-THIRD ANNUAL SESSION, HELD AT SARATOGA, N. Y., JUNE 10-13, 1902.

### SECTION ON PRACTICE OF MEDICINE.

#### FIRST DAY.

THE chairman, DR. FRANK A. JONES of Memphis, Tenn., considered the standard of education necessary for a student to begin the study of medicine. French, German, Greek, Latin and mathematics he considered elements of accomplishment and stood the student well in hand to know them, but he did not believe that without them he was incapacitated to study medicine. He pleaded for a better knowledge of English. It was a source of gratification and pride to the medical profession of this country that we have much endowed medical institutions, and he predicted that the time was at hand when public-spirited rich men of affairs would recognize the importance of endowed medical institutions and donate funds. If a student possesses a high school education, if he knows English grammar, if he knows rhetoric, he thought he should be qualified to study medicine in any English-speaking school. If he had a fair knowledge of languages, so much the better for him, although it was not an absolute essential. It was his opinion that if the student had an English qualification, a four-years' course of eight months' each should be all that could be asked for.

#### NATIONAL BOARD OF EXAMINERS.

He questioned the advisability of forming such a board, on account of the expense attached to going to and from the place of meeting. He believed that each state should have, as most now have, an examining board composed of representative men, and if a student who was going to that state to practise passes a satisfactory examination before that board, then he should be entitled to practise. He believed that we should encourage reciprocity between state boards.

#### AMEBIC DYSENTERY IN MICHIGAN.

DR. GEORGE DOCK of Ann Arbor, Mich., read this paper. From the facts detailed there could be no doubt the case was one of amebic dysentery, the first he had ever seen or heard of in Michigan. It recalled to him many interesting facts in the history of dysentery and of the amebæ found in the stools. Although dysentery was early looked upon as a disease of the tropics,

largely owing to Kartulis' epoch-making observations and the striking relation of amebæ to "tropical" liver abscesses, it could not be forgotten that the parasites were first recognized in St. Petersburg, and in chronic dysentery. He claimed that the ameba coli was probably a parasite having a world-wide distribution. The discovery of the amebæ in different parts of the country, and the results of the work of Councilman tended to fix its geographical and anatomical, as well as the clinical, features of the disease. We must still learn the exact relation of the ameba coli to dysentery and intestinal ulceration, not to mention the remoter complications in the liver and thoracic organs. In view of the fact that Gasser produced colitis in cats by injections of garden earth, Sorgo with non-amebic dysenteric dejections, and also the fact that the previous observers have usually produced lesions not identical with those in human amebic enteritis, we must await further observations. The occurrence of amebæ in the stools of persons apparently well, or in those of patients with cholera or other diseases, or in the feces of lower animals, cannot be considered proof that the amebæ found in dysentery have no pathogenic relation. From certain observations he was of the opinion that it could be assumed that amebæ are not present in about one-half of all normal intestines, in all parts of the world. In the literature upon this subject there were many contradictory observations and the subject had been still further confused by premature efforts at nomenclature.

Dr. McCrae of Baltimore said that several years ago he had seen one case with Dr. Osler, occurring in a man who had never been out of Maryland, which contradicted the assertion made that all cases came from the South. The disease was not infrequent in the State of Maryland. A point of special interest was the increasing number of cases occurring in children. A majority of such cases followed the ingestion of gutter-water from the streets.

Dr. James J. Walsh of New York had seen two such cases occurring in New York; in one of these the patient had never been outside the State.

Dr. E. Lipman of New York referred to the occurrence of a large number of cases of liver abscess seen at Mt. Sinai Hospital.

Dr. George Dock, in closing, said that he forgot to state that he did not include in his paper the possibility of infection from soldiers returning from Cuba or the Philippines.

### THE ORIGIN OF THE VESICULAR RESPIRATORY SOUND.

Dr. C. F. Hoover of Cleveland read this paper. The origin of vesicular breathing was attributed by Laennec to friction of the inspired air in the bronchioles and its entrance to the infundibula from the bronchioles. This explanation was sanctioned by Skoda and others, and remained unquestioned until Baas attempted to explain upon purely acoustic grounds the impossibility of any audible sound originating in tubes the size of the bronchioles from the passage of a current of air with the slow velocity which must attend the entrance of inspired air in the vesicles of the lung. Penzoldt later offered experimental evidence to sustain the logic of Baas. His experiment consisted in inflating a calf's lung and placing it over the trachea of a man, who was instructed to breathe in the ordinary manner; if a stethoscope be placed on the inflated lung the observer will perceive the tracheal breathing transformed to the vesicular type of respiration. This is accounted for by the refraction and partial reflection of sound waves, which must occur during their transmission through such heterogeneous media as are presented in the inflated lung. If a more homogeneous medium be used, such as a calf's liver, the tracheal breathing retains its so-called bronchial character. Sahli tried the experiment as described by Penzoldt, but found that the respiratory murmur transmitted through the inflated lung retained its bronchial character. The only modification, according to Sahli, is a diminution in the intensity of the respiratory sound. His own observation confirmed those made by Sahli. In repeating this experiment it seemed to him that only a vigorous use of the imagination could transform the audible sound into a vesicular murmur. Vesicular breathing and bronchial breathing have several differences which will not admit of the transition of the former into the latter on the acoustic grounds cited by Baas. The term sound and murmur are differentiating terms which are descriptive of the two phenomena. Bronchial respiration gives a clearly definite and simple sound, which can be assigned to a certain pitch. Vesicular respiration gives a confused mingling of sounds which suggest a multiplicity of points of origin. The pitch is much lower and the respiratory sound is of shorter duration than in bronchial breathing. However remote and faint bronchial breathing may be, the long duration of the expiratory sound remains the same, whereas in vesicular breathing the expiratory sound is relatively short whatever may be its intensity.

### THE CAUSAL RELATION OF BLOOD POVERTY TO GASTRIC ULCER, WITH REPORT OF AN ILLUSTRATIVE CASE WITH ATYPICAL FINDINGS.

Dr. Robert N. Wilson of Philadelphia read this paper. With regard to the causation of peptic ulcer of the stomach he concluded (1) that in many, perhaps in most cases, a high grade of anemia precedes the appearance of the peptic ulcer, and that this anemia usually assumes the chlorotic form; (2) that with few exceptions gastric ulcer is attended by the symptoms of marked anemia. In certain cases in which the blood picture fails to show a reduction in the hemoglobin percentage and in the number of red cells, the fact seems to be due to concentration of the blood dependent upon anemic causes; (3) that general anemia means anemia also of the pylorus, and consequent inanition of its mucous membrane; (4) that the venous outlet from the

pylorus is one that in anemic subjects would predispose still further to an unhealthy condition of the muscular and membranous coats of the pyloric wall; (5) that hyperacidity is usually present in chlorosis and often in other forms of anemia; and that when present in any condition it is an influence predisposing to gastric ulcer, when associated with an anemic gastric wall; (6) that hyperacidity is not essential to self-digestion of the stomach wall, provided that wall lack proper nourishment and stimulation from a healthy or sufficient blood supply; (7) that any form of hemorrhage, menstrual, operative or anemic, may either predispose to, or accentuate, an already present anemic condition of the gastric wall; and that such hemorrhages are *de facto* often followed by gastric ulcer; (8) that the foregoing facts, in association with the general one that gastric ulcers are seen almost invariably in anemic subjects, warrant the conclusion that blood poverty is a leading and the usual predisposing cause of peptic ulcer.

DR. FENTON B. TURCK of Chicago called attention to observations made showing that one of the chief factors in the causation of gastric ulcer was lack of motility. He also referred to a report in which it was shown that ulcers appeared in the jejunum after a gastric enterostomy; here there was a lack of motility together with some disturbance of the splanchnics and especially the liver circulation, resulting in a peptic ulcer of the jejunum. In his own observations carried out one year ago, confining guinea-pigs and rabbits in a cage of small dimensions, kept constantly darkened, of the few that lived some showed the chlorotic type of blood, and in some of these there appeared peptic ulcer. His own opinion, from a purely clinical standpoint, seemed to show the influence of two factors, the disturbance of the circulation and the lack of gastric tone, or motility, a condition sometimes called *myasthenia*.

DR. JAMES J. WALSH of New York said it was a well-recognized fact that an anemic condition was the basis of gastric ulcer always. He referred to the traumatic causation occurring, as it does, in those using vibrating machines, such as knitting machines, typewriters, etc.

DR. H. B. FAVEL of Chicago referred to the active determining factor in cases of gastric ulcer, the lack of hemoglobin; he considered this the active determining cause and wished to emphasize it on account of its importance in the subject of therapeutics.

DR. ELMER LEE of New York said that such a condition could not take place in a strong healthy being; to have a perforation of a human stomach there must be some lowering of the vitality, such as an undernutrition.

### ON THE ASSOCIATION OF GRAVES' DISEASE AND GLYCOSURIA.

DR. HEINRICH STERN of New York said the association of glycosuria with Graves' disease may occur: (1) As alimentary glycosuria, *e saccharo*; (2) as spontaneous transitory glycosuria; (3) as diabetic glycosuria. Under the ten cures of Graves' disease, which he had seen within two years, alimentary glycosuria could be induced in one instance. Transitory glycosuria associated with Graves' disease he had seen in one case, a negress, forty-one years of age, who soon died after this association had arrived. He had also seen a case of Graves' disease associated with true diabetes millitus. He said there were altogether twenty-four cases reported in which the two affections have occurred at one and the same time. This case was the only one as yet described by an American observer. He said the association may occur in one of the following ways: (1) Diabetes antedates Graves' disease; (2) both affections are produced contemporaneously; (3) diabetes ensues after Graves' disease is fully established. Where both affections are produced at the same time, or where Graves' disease is the original and diabetes the secondary affection, there must be an interdependence. This interdependence is seen by the comparative frequency of alimentary glycosuria *e saccharo* in hyperthyroidism; it is also demonstrated after thyroid medication, where it occurs occasionally. It is not due to hyperthyroidism as such, but to a ferment not occurring in the thyroid secretion.

DR. E. F. WELLS of Chicago said that when he considered the frequency with which Graves' disease is encountered and the frequency with which diabetes is encountered, it was to him remarkable that only twenty-four cases should be found in the literature in which they were associated. It was also strange when we consider that the two affections, in many ways, were so nearly related. For a number of years in exophthalmic goitre he had derived much benefit from the use of codein in fairly large doses; the beneficial use of this drug, of course, was well known in diabetes. We used the drug in doses of from ½ to 2 gr. in the twenty-four hours.

DR. JONES of Buffalo said he had recently in his private practice an obese man, of middle age, who presented the ordinary symptoms of lithemia, with urine of high specific gravity, with a sediment full of uric acid, pulse of low pressure, small and weak, a feeling of weariness, pain in the back, etc. His urine also contained a large amount of sugar, except when he was on an absolute diet. The slightest departure from an albuminous diet was followed by the presence of from 36 to 47 gm. of sugar in twenty-four hours. The patient, when given 10 gr. of thyroid extract in a day, had an increase in the amount of sugar.

*(To be continued.)*

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ACCORDING to the *Medical News* a novel method for the dissemination of antituberculous literature has been resorted to in the Argentine Republic. A manufacturer of matches has sent out 3,500,000 boxes of matches bearing printed instructions against the propagation of tuberculosis, together with portraits of physicians who have made a special study of the disease.

THE BOSTON

# Medical and Surgical Journal.

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## THE ILLNESS OF KING EDWARD VII.

The anxiety and the foreboding with which we first watched the progress of King Edward's illness have given place to satisfaction and thankfulness. However lightly appendicitis may be regarded by those who look upon it as a fad of modern American surgery, this fearful disease cannot be regarded by those familiar with its serious and treacherous possibilities with anything but misgivings and alarm.

Unlike the ordinary person, patients of exalted rank, through the very responsibilities of that rank, sometimes fail to receive in appendicitis that immediate application of the best surgical treatment which, in the case of an ordinary patient, by the removal of the appendix, puts a stop to all further peritoneal complications. Few men have the courage to apply at once, and at the most favorable time, a heroic remedy to an important personage,— a laparotomy to an American president or an appendectomy to an English king,— and yet all must admit that the President, as well as the humblest American citizen; the King, as well as the lowliest English subject, would have thereby the best chance of recovery in a gunshot wound of the abdomen or in an acute infection of the appendix.

A patient with appendicitis, admitted to an American hospital, is looked upon as an emergency case. The surgeon is summoned at once, and, except in the rarest instances, he removes the appendix. This promptness of operation, especially when it removes the appendix before extensive infectious processes have had time to take place, saves a very large percentage of these patients. When, however, after some days' duration the inflammatory process is well localized and when there is a distinct improvement, when the patient's general condition or the condition of special viscera makes operative treatment especially hazardous, then we think the best sentiment of the profession in America is toward conservatism, toward palliation,— careful nursing, careful feeding and absolute rest.

Our English confrères were doubtless confronted with conditions like the foregoing. They followed a course which, on the whole, exposed their august patient to the least risk of death; for, however brilliant removal of the appendix early in the disease might have proved, it might, through the manifold sources of disaster only too familiar to the experienced surgeon, have resulted in calamity and death. We congratulate the physicians and surgeons in attendance upon the success of their treatment. The responsibility of deciding in the very beginning whether to follow a radical or a conservative course must indeed have been a heavy one. The decision in favor of medical treatment was, fortunately, attended by none of those sudden outbursts of virulence so often met with, and when at last an operation became imperative it was an operation of comparatively little immediate risk. It does not seem too much to say, however,— and probably in this the English surgeons would themselves concur,— that, in a clear case of appendicitis, appendectomy performed in the very first hours of the attack, even under the unfavorable general conditions said to exist in the King's case, would have been quite as safe an operation as the laparotomy performed later for a localized abscess.

We are well aware of the difficulties of always interpreting correctly acute abdominal symptoms, even if they are strongly suggestive of lesions which in themselves at the earliest possible moment demand operation. It is one thing to explore these doubtful cases in the young and vigorous; it is quite another thing to explore them in patients of impaired vigor who are past middle life. In the former case the benefit of the doubt demands boldness; in the latter it justifies delay; in both it requires caution. King Edward's case must have presented in the beginning elements of doubt which rendered an operation at that time inadvisable. By the time the diagnosis was clear, the patient had successfully passed the dangers of localization, and the problem had become the comparatively easy one of local drainage. As the event has proved, the operation was performed at a time when the dangers were slight and the outlook favorable.

In this country the advanced professional sentiment is overwhelmingly in favor of the earliest possible operation in appendicitis, unless there are in the patient's general condition or in the condition of special viscera, distinct contra-indi-

cations. That the appendix should be removed at some time or other, is the prevailing opinion even among the more conservative, though surgeons may differ in some cases as to the best time to remove it. We think that we are not going too far in saying that in England the prevailing sentiment is that which was held in this country the first few years after Fitz demonstrated the true pathology of perityphlitis and named it appendicitis. That treatment we may call the expectant treatment, the hopeful treatment — the treatment of expecting and hoping that the patient will without operation recover from his attack, operation being reserved for severer cases, for sudden emergencies, and for the so-called interval cases. Abundant experience has convinced the profession in America that the expectant and the hopeful treatment are delusive and treacherous, and that the only rational treatment is the removal of the appendix at the earliest possible moment — always provided that there are no contra-indications in the patient's general condition or in special viscera. Under certain circumstances delay seems to some surgeons the wisest course — when, for instance, the process is well localized and the symptoms are not severe, and the patient is distinctly improving; but even this conservative course meets with strong opposition. Many American surgeons of the largest experience believe that all cases of appendicitis should be operated upon by the immediate and invariable removal of the appendix. In a case of localized abscess they would never content themselves with simple drainage. Simple drainage in appendicular abscess of long standing and of firm adhesions seems to us, however, the safer and the more reasonable procedure, removal of the appendix being reserved until after the restoration to perfect health. We therefore heartily approve the choice of operation made by the surgeons of the King.

The perityphlitic abscess is, in this community at least, practically a thing of the past. Like the ovarian tumor of enormous dimensions, it is largely a matter of history. Though we are convinced of the immediate safety of drainage in localized abscess, we do not share in that optimism which assumes that the appendix has "exploded for good," or that it is often sloughed and discharged with the pus of the abscess. We have, in a few instances, washed out of an abscess cavity a complete slough of the appendix. Total gangrene of the appendix is, nevertheless, rare, as compared with partial gangrene, and in a great majority of cases a large portion of the diseased and threatening appendix remains.

We know but few of the facts in the King's case. We are, however, sure that in a mild attack of undoubted appendicitis which was progressing favorably in a man of sixty, with large abdomen and thick abdominal wall, of unfavorable general condition, we should insist upon the most conservative course of treatment. Even if we knew beforehand that such a patient had an appendix which was to certain degree pathological, we should hesitate a long time before subjecting him to the prophylactic operation. In a case like that of King Edward's, after recovery from the palliative operation, we should long hesitate before advising appendectomy, even if everything was as favorable for that operation as circumstances would admit, hoping either that no occasion for surgical intervention would arise, or, if it should, that the appendix might then be removed in the very beginning of the attack. We are convinced, however, that in the vigorous patient of youthful or of middle age, a single attack of acute appendicitis with abscess, operated on by drainage, justifies, if it does not demand, removal of the appendix after the full reestablishment of health.

It must, we think, be admitted that under no course of treatment, except removal of the appendix in the very beginning, could this particular case have pursued a more favorable course. Indeed, an operation in the increasing stage, when the adhesions were fragile, could hardly have failed to contaminate extensively the peritoneal cavity. Infections of an abdominal cavity loaded with omental and mesenteric fat, in a patient past middle life and of impaired resistance, is, in our opinion, a calamity to be avoided whenever possible, and especially when the disease, constitutionally and locally, is progressing favorably. From all that we can learn of King Edward's case, an operation, had the diagnosis of appendicitis been clear, would have been indicated in the very beginning of the attack, even if that beginning was a mild one; or at any time during the attack, if the symptoms were severe; or when, after progressing favorably, they showed the least unfavorable sign; and, finally, whenever there was positive evidence of a localized abscess. We do not feel sure that, had he recovered from this attack without operation, the so-called *interval operation* would later have become justifiable without renewed evidence of persistent and threatening disease.

We wish again to congratulate the English people and their sovereign upon the successful efforts of their physicians and surgeons in this most trying case.

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SMALLPOX IN COLORADO.— It is reported that one hundred and thirty cases of smallpox occurred in Colorado in May with thirteen deaths.

## IS JANE TOPPAN RESPONSIBLE?

In 1832, Haslam, who was considered one of the leading experts in mental disease in England, testified in court that he had never seen a sane man in his whole life, adding, "I presume the Deity is of sound mind;" and to one who has studied criminals in jail and out the definition of Jane Toppan's insanity by the medical experts, as reported in the newspapers, is a very fair characterization of a considerable portion of those persons who make vice and crime their business.

Haslam's definition of insanity, if we may call it such, is much better than many that have been given in court of late; and it is a good working hypothesis in that we can label people insane or sane according to the requirements of the case. In the opinion of one of President Grant's attorney-generals there was a political necessity to hang Guiteau, and he was labelled sane. When young women shoot their seducers the situation may be such that juries quite readily label their ideas and impulses insane. Jane Toppan's trial would have been a costly one to the State and would have given the newspapers an opportunity not helpful to the morals of the community. It would have been difficult, if possible, to get evidence sufficient to secure a conviction, and commitment to an insane asylum for life was doubtless the best possible solution of the problem. It seems, therefore, expedient to label Jane Toppan insane, unless and until some future experts declare that she has recovered and governor and council set her free, as the Pocasset murderer was discharged from the Danvers Hospital after surprising experts and others by getting well.

Jane Toppan's crime or insanity, so far as we understand the excellent account of the trial in the *Boston Herald* of June 24 and 25, depends entirely upon a confession to her counsel and to one of the medical experts, which comes from a person in jail indicted for murder who had already not established a reputation for telling the truth. She is alleged to have stated, although that fact was not brought out in court, that she is a sexual pervert and got gratification from murder. The *Herald's* report indicates that she also got some sort of pleasure in exploiting her case.

The number of sexual perverts in the community is very large, and that symptom is not sufficient to constitute a degenerate. Jane Toppan was employed by competent and critical physicians as in their opinion an uncommonly excellent and trustworthy nurse, in spite of the fact that she had been discharged from two hospitals for sufficient reasons; and she served in so many intelligent and observing families that she had opportunities, of which she says that she availed herself, to kill thirty-one patients under the very eyes of their medical advisers. After one successful undetected murder, murderers tell us, the moral difficulties involved in killing people may be not much, if any, greater than in killing other animals.

It was Bishop Butler, we think, who made an often-quoted remark that if he began yielding to his morbid ideas and impulses he should not stop this side of insanity, and that fact is true of a large part of the world. If it were not for the accountability to which they hold themselves and to which their community holds them, how many of them would be puzzling experts to decide whether they are insane or vicious? In the discussion of the Guiteau case in the *American Law Review*, a distinction was drawn between mental unsoundness, as detected by the refinement of medical diagnosis of the present day, and irresponsibility for crime. In the same way, when a diagnosis is made now of early tuberculosis or unsuspected nephritis or concealed insanity, there is still the question how far normal function is interfered with. In tuberculosis and nephritis everybody knows what he and others are talking about. In insanity we must define our definitions. The medical expert's question of mental unsoundness settled, there still remain the personal equation and the question of accountability.

We shall await with great interest the forthcoming analysis of the evidence in this case and the expert statement, which we are promised, of the medical opinions formed and of the facts upon which those opinions are based. In the meantime, we shall not attempt to express our opinion on the question of Jane Toppan's responsibility.

We do feel sure that a hospital for the insane is not a secure enough place for a criminal of Jane Toppan's type, and that provisions should be made for such offenders against the law, either at the asylum for the criminal insane or at the prison for women.

## MEDICAL NOTES.

Chicago Mortality Statistics.— In spite of the unfavorable character of the weather the June mortality of Chicago was not materially higher than that of June, 1901 — the record year for healthfulness. During the week ended Saturday, the 28th, there were 397 deaths recorded, as compared with 450 during the previous week, and 423 during the corresponding week last year. The annual death-rates were respectively 11.31, 12.89 and 12.54 per 1,000 of population, and for the month the rate will probably not exceed 12.90, as against 12.47 for June, 1901.

DEGREE OF LL.D. FOR PHYSICIANS.—Dr. Leonard Wood has this year received the degree of LL.D. from Williams College, and Dr. Roswell Park of Buffalo the same degree from Yale.

BOSTON AND NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON.—For the week ending at noon, July 2, 1902, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: Diphtheria 21, scarlatina 20, measles 49, typhoid fever 4, smallpox 13.

ADAMS NERVINE ASYLUM.—According to the recently issued annual report of this institution the number of admissions was 98, and the total number of patients treated was 142. This compares favorably with the average for the past 21 years, which is 86 admissions and 114 under treatment yearly. Of the persons admitted during the year, eleven had previously been patients in the asylum. Several applications for readmission were declined because the cases seemed to be chronic, incurable, or for other reasons undesirable.

ENLARGEMENT OF THE LONG ISLAND HOSPITAL RECOMMENDED.—At the recent quarterly meeting of the public institutions conference the Pauper Institutions' trustees, through its chairman, brought out the urgent need of enlarging the Long Island Hospital, Boston Harbor, the estimated cost of which would be about $120,000. The visiting staff of the hospital has repeatedly urged the necessity for larger accommodations for patients, particularly in view of the fact that a large number of tuberculous persons are now being treated there.

SUIT AGAINST TRUSTEES OF PETER BENT BRIGHAM HOSPITAL.—Suit has been brought against the recently incorporated Peter Bent Brigham Hospital by a nephew of the testator to recover a portion of the estate, which now amounts to upward of $4,338,000. The claim of the plaintiff seems to turn on the question as to whether the fourteenth article of the will provides for an accumulation of property beyond the term allowed by law.

NEW YORK.

EVIDENCE OF TESTAMENTARY INCAPACITY.—Mrs. Elizabeth Sodens had often stated that she would make no will, as she wished her only son, a cripple, to have her property. Two years before her death she began to exhibit signs of paresis, and the symptoms were accompanied by aphasia, shown in her inability to form sentences or to express ideas. She suffered from delusions, but at times appeared to be entirely rational. A year before her death, while on a visit to a niece, she made a will in conflict with her previously expressed intention. Only about a month before its execution, however, she had told a friend that a will was foolishness, saying she was glad she had none to make, and that everything belonged to her son. Apparently, from the statement made by the surrogate, she said the same thing after the will was made. Surrogate Hoysradt of Dutchess County has refused to admit the will to probate, holding that the evidence showed that she lacked testamentary capacity. In the course of his opinion he said: "The expression of Mrs. Sodens of her desire to have her property go to her son should be accepted as the natural design of a rational mind. The intervention of a brain disorder . . . . followed by the execution of the instrument offered as her will, and the subsequent statement that she had made no will and that the property belonged to her son, accompanied with the attack of violent insanity progressing until her death, combined to preclude, in my judgment, the presence of testamentary capacity where no explanation of the inconsistency is given."

UNSANITARY MARKETS.—The various public markets in the borough of Manhattan have been pronounced unsanitary and a menace to the health of the community in an elaborate report, comprising special reports from a number of inspectors, presented to the president of the Board of Health on June 13, by Dr. F. H. Dillingham, assistant sanitary superintendent. In it is stated that unless the recommendations of the inspectors for the rectification of the evils found are promptly complied with, certain markets should be declared a public nuisance and ordered vacated.

OFFICERS OF MEDICAL SOCIETY OF STATE OF NEW JERSEY.—The Medical Society of the State of New Jersey on June 26 elected the following officers: President, E. L. B. Godfrey of Camden; First Vice-President, Henry Mitchell of Asbury Park; Second Vice-President, A. W. Taylor of Beverley; Third Vice-President, Walter B. Johnson of Paterson; Corresponding Secretary, E. W. Hedges of Plainfield; Recording Secretary, W. J. Chandler of South Orange; Treasurer, Archibald Mercer of Newark.

## Correspondence.

### THE MASSACHUSETTS MEDICAL SOCIETY: A REJOINDER.

BOSTON, July 1, 1902.

MR. EDITOR: I am sorry that Dr. Stone should have taken so much to heart my remarks upon some features of the meeting of The Massachusetts Medical So-

ciety just past. I did not intend any blame to him or any other of the officers who, I am most ready to admit, must have worked very hard to contribute so much to the comfort and enjoyment of their fellow-members, and who, I am glad to learn from the letter of Barker, still have in hand these matters which must be so difficult to arrange to the satisfaction of everybody. But I continue to think that a little friendly criticism from an unofficial standpoint is quite as useful as the indiscriminate "taffy" which is apt to be served so freely at these, as at most other, anniversary meetings.

I will try to avoid "needless verbosity."

If Paul Revere Hall is the best that can be had "there is no use talking" — for me, and very little for the essayists.

I did not think or say that the papers were "bores." On the contrary, the subjects were interesting and, I have no doubt, well treated. The "boredom" consisted in the vain effort to hear them intelligibly.

As to the construction of medical papers in general, I did not intimate that anybody ever wandered from the subject, although I have heard such suggestions made, but simply that there are many things which are properly introduced into a paper or memoir which is to be printed which should be left out of the essay to be read within a few minutes.

Professor Child is reported to have criticised a theme by saying: "Strike off the beginning and the ending and any passages that you consider particularly fine."

The paper which is to be read aloud should be arranged for that purpese and no other.

In your editorial in the same number which contains the letters of Barker and of Dr. Stone, you yourself, Mr. Editor, mention instances in which the time limits of papers have been strictly adhered to. I noticed in one of the daily papers a few days ago that at some religious meeting, the speakers, presumably clergymen, who must be a great deal more difficult to suppress than doctors, were kept strictly to their ten minutes, to the great satisfaction of the audience and the approval of the reporter. If ten men try to read twenty minutes each, when they have been distinctly told twelve, it is much less of a hardship and injustice to them to cut them short than to cut off entirely men who have undoubtedly made just as careful preparation.

The time set in the program for the annual address should be religiously observed. In one of the district societies many years ago the annual orator, one of the oldest and most respected members, declined to deliver his address because his time had been so discourteously overrun, not by papers but by a heated discussion which the presiding officer was too good-natured to interrupt. Nobody knows to this day whether that address was ever written.

GROWLER.

## THE MASSACHUSETTS MEDICAL SOCIETY: A SUGGESTION.

BOSTON, July 1, 1902.

MR. EDITOR: No one is entirely satisfied with the annual meetings of The Massachusetts Medical Society — that fact is patent from reading the recent letters of your various correspondents. One observer thinks he would be satisfied if there were better acoustics and less noise. Hard-working committees have evidently given much thought to the problem and tried many experiments in hopes of improving the meetings and are still unsatisfied. On the whole, however, the meetings have improved; bear witness, the exclusion of the pill distributers, the better dinners, although the number partaking of them has greatly increased, the reception after the Shattuck Lecture, the work of the Bureau of Information, the presence of the Glee Club and the discussion of single subjects by both the sections and the annual meeting.

It is doubtful if much more can be accomplished, unless the papers be censored and a trained reader be secured to present them, which, to be sure, would be at the loss of all individuality; or unless the now existing halls are remodeled or new properly constructed halls built, in which readers, possessing both brain power and voice power, should speak to the edification of the whole society which is on hand and eager to hear from the beginning to the end of the session.

Even should such an ideal state of things come to pass there might still be a chance to improve the meetings of the society. Is it not possible that a mistake is made in an attempt to combine serious work too intimately with sociability? In order to draw out expressions of opinion here is a suggestion: Let there be two general meetings of the society; the annual meeting in June when everyone is in a holiday mood, and the second in the fall or early winter when the serious work of the year is at hand. The program of the annual meeting might be as follows: Meeting of the councillors, Cotting lunch, business meeting, Shattuck lecture, annual discourse, social hour with music, dinner, and after-dinner speaking, music and social hour. The fall meeting, with an afternoon and evening session, would be devoted entirely to a consideration of papers on practical subjects. A good supper should be served between the sessions for those who come from a distance.

These second meetings could occasionally be held outside of Boston and might be found useful to awaken a somewhat latent enthusiasm for the society which exists in many portions of the state.

Such in a very crude way is a suggestion, which possibly might be developed to advantage. There are obstacles in the way, which would have to be overcome, as well as strong prejudices, and to some, doubtless, the suggestion of an out-of-town meeting will recall unpleasant memories. At least this is a suggestion and whether it is "construction," as one of the correspondents calls for, is for you and your readers to judge.

Very respectfully,

INNOVATOR.

## A SUSPICIOUS AGENT.

BOSTON, July 1, 1902.

MR. EDITOR: It is safe to scrutinize the statements of a person now soliciting photographs of and subscriptions from physicians, for a book about to appear.

Yours truly,

FRED'K C. SHATTUCK, M.D.

## METEOROLOGICAL RECORD

**For the week ending June 21, in Boston, according to observations furnished by Sergeant J. W. Smith of the United States Signal Corps:**

| Date | Barometer | Thermometer. | | | Relative humidity. | | | Direction of wind. | | Velocity of wind. | | We'th'r * | | Rainfall in inches. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Daily mean. | Daily mean. | Maximum. | Minimum. | 8.00 A.M. | 8.00 P.M. | Daily mean. | 8.00 A.M. | 8.00 P.M. | 8.00 A.M. | 8.00 P.M. | 8.00 A.M. | 8.00 P.M. | |
| S...15 | 29.88 | 60 | 66 | 54 | 100 | 97 | 98 | N E | E | 3 | 7 | R. | O. | .11 |
| M..16 | 29.59 | 65 | 76 | 54 | 97 | 84 | 90 | E | W | 1 | 12 | O. | O. | T. |
| T..17 | 29.60 | 66 | 74 | 59 | 73 | 62 | 68 | N W | N W | 18 | 12 | C. | C. | |
| W..18 | 29.94 | 67 | 79 | 55 | 60 | 52 | 56 | W | W | 17 | 10 | C. | C. | |
| T..19 | 29.82 | 68 | 74 | 61 | 66 | 92 | 79 | W | N W | 8 | 6 | O. | C. | .26 |
| F..20 | 29.88 | 69 | 79 | 59 | 62 | 60 | 61 | W | N E | 9 | 5 | C. | C. | |
| S...21 | 29.88 | 62 | 67 | 58 | 78 | 95 | 86 | E | S E | 2 | 4 | O. | R. | .31 |
| ☞ | 29.80 | | 74 | 57 | | | 77 | | | | | | | .68 |

* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow. † Indicates trace of rainfall. ☞ Mean for week.

## RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, JUNE 21, 1902.

| CITIES. | Population Estimated, 1902. | Reported deaths in each. | Deaths under five years. | Percentage of deaths from | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | Infectious diseases. | Acute lung diseases. | Diphtheria and croup. | Scarlet fever. | Diarrheal diseases. |
| New York . . | 3,665,352 | 1,208 | 424 | 31.87 | 7.20 | 2.65 | 2.22 | 10.10 |
| Chicago . . | 1,852,828 | 450 | 124 | 26.89 | 9.77 | 2.20 | .22 | 6.22 |
| Philadelphia. | 1,349,624 | 432 | 154 | 20.37 | 5.56 | 2.56 | .93 | .23 |
| St. Louis . . | 603,717 | — | — | — | — | — | — | — |
| Baltimore . . | 525,330 | 214 | 88 | 37.38 | 3.27 | .46 | .46 | 17.29 |
| Cleveland . . | 411,826 | — | — | — | — | — | — | — |
| Buffalo . . . | 375,742 | — | — | — | — | — | — | — |
| Pittsburg . . | 341,401 | 142 | 72 | 36.62 | 7.74 | .70 | .70 | 15.49 |
| Cincinnati . | 332,032 | — | — | — | — | — | — | — |
| Milwaukee . | 304.975 | — | — | — | — | — | — | — |
| Washington . | 289,537 | — | — | — | — | — | — | — |
| Providence . | 185,870 | 42 | 13 | 23.81 | 4.76 | .23 | .23 | 9.52 |
| Boston . . . | 588,736 | 166 | 39 | 25.89 | 8.43 | 1.80 | 1.20 | 2.40 |
| Worcester. . | 127.337 | 28 | 12 | 14.28 | 14.28 | — | — | 3.57 |
| Fall River. . | 111.872 | 31 | 9 | 38.71 | 9.68 | — | 9.68 | 12.90 |
| Lowell . . . | 99,574 | — | — | — | — | — | — | — |
| Cambridge . | 96,334 | 12 | 2 | 16.67 | 8.33 | — | — | — |
| Lynn. . . . | 71,144 | 14 | — | 42.88 | — | — | — | — |
| Lawrence . . | 67,275 | 22 | 13 | 40.90 | 14.28 | — | — | 21.42 |
| Springfield . | 66,854 | 15 | 5 | 13.33 | — | — | — | 6.66 |
| Somerville . | 65,882 | 14 | 4 | 35.70 | 7.14 | — | — | 14.28 |
| New Bedford. | 65,574 | 13 | 2 | 15.40 | — | — | — | 7.70 |
| Holyoke . . | 48,065 | 13 | 8 | — | — | — | — | — |
| Brockton . . | 43,208 | 9 | 4 | 22.22 | — | — | — | — |
| Haverhill . . | 40,392 | 7 | — | 28.60 | 14.30 | — | — | — |
| Salem . . . | 36,567 | 10 | — | — | — | — | — | — |
| Newton. . . | 36,336 | 5 | — | — | — | — | — | — |
| Malden . . . | 35,390 | 10 | 2 | 10.00 | 10.00 | — | — | — |
| Chelsea. . . | 35,264 | 8 | 1 | — | 12.50 | — | — | — |
| Fitchburg. . | 33,848 | — | — | — | — | — | — | — |
| Taunton . . | 32,759 | 9 | 1 | 11.11 | 22.22 | — | — | 11.11 |
| Everett. . . | 27,114 | 2 | — | — | — | — | — | — |
| North Adams | 26,583 | 6 | 4 | 33.33 | 16.67 | 16.67 | — | — |
| Gloucester . | 26,121 | 8 | 4 | 25.00 | — | 12.50 | — | — |
| Quincy . . . | 25,307 | 9 | — | 33.33 | 11.11 | — | — | 11.11 |
| Waltham . . | 24,612 | 4 | 1 | 25.00 | — | — | — | — |
| Pittsfield . . | 22,311 | 1 | — | — | — | — | — | — |
| Brookline . . | 21,679 | — | — | — | — | — | — | — |
| Chicopee . . | 20,390 | 6 | 4 | 33.33 | — | — | — | — |
| Medford . . | 20,014 | 7 | — | 57.20 | — | — | — | — |
| Newburyport | 14,478 | 5 | 1 | 20.00 | — | — | — | — |
| Melrose . . | 13,384 | 5 | 1 | 40.00 | — | 20.00 | — | — |
| Westfield . . | 13,038 | 5 | 2 | — | 60.00 | — | — | — |
| Attleboro . . | 12,846 | — | — | — | — | — | — | — |
| Adams . . . | 12,813 | — | — | — | — | — | — | — |
| Milford . . | 12,516 | — | — | — | — | — | — | — |
| Framingham | 12,109 | 6 | — | 16.67 | — | — | — | — |
| Peabody . . | 11,957 | — | — | — | — | — | — | — |
| Revere . . . | 11,894 | — | — | — | — | — | — | — |
| Gardner . . | 11,544 | 3 | 1 | 33.33 | 33.33 | — | — | — |
| Weymouth . | 11,337 | 1 | — | — | — | — | — | — |
| Southbridge . | 10,838 | — | — | — | — | — | — | — |
| Watertown . | 10,600 | 5 | — | — | — | — | — | — |
| Plymouth . . | 10,336 | — | — | — | — | — | — | — |

Deaths reported 2,958; under five years of age, 996; principal infectious diseases (smallpox, measles, scarlet fever, cerebrospinal meningitis, diphtheria and croup, diarrheal diseases, whooping cough, erysipelas, fevers and consumption) 848, acute lung diseases 211, consumption 353, scarlet fever 41, whooping cough 33, cerebrospinal meningitis 9, smallpox 15, measles 46, diarrheal diseases 232.

From whooping cough, New York 9, Chicago 7, Philadelphia 3, Baltimore 7, Pittsburg 4, Boston 2, Lawrence 1. From measles, New York 22, Chicago 6, Philadelphia 5, Baltimore 2, Pittsburg 7, Providence 1, Boston, Lawrence and Gloucester 1 each. From erysipelas, New York 5, Chicago 3, Philadelphia 1, Pittsburg 2. From smallpox New York 8, Philadelphia 3, Pittsburg 2, Boston 1, Cambridge 1.

In the seventy-six great towns of England and Wales, with an estimated population of 14,862,909, for the week ending June 7, the death-rate was 16.0. Deaths reported 4,569; acute diseases of the respiratory organs (London) 200, whooping cough 132, diphtheria 59, measles 173, smallpox 49, scarlet fever 55.

The death-rate ranged from 6.6 in Handsworth to 29.7 in Wigan; London 14.9, West Ham 15.5, Croydon 10.2, Brighton 15.1, Portsmouth 17.9, Southampton 12.6, Bristol 12.5, Birmingham 16.8, Leicester 12.3, Nottingham 13.9, Birkenhead 13.9, Liverpool 19.8, Manchester 21.3, Salford 18.6, Bradford 19.1, Leeds 19.0, Sheffield 17.6, Hull 12.5, Newcastle-on-Tyne 21.7, Cardiff 12.7.

## RECENT DEATHS.

DR. ERNEST POTTER JENKS of New York died of Bright's disease on June 25. He was born in Boston May 18, 1866, and was graduated from the Brookfield High School. He was graduated from Brown University in 1889 and from the College of Physicians and Surgeons, New York, in 1898. At the time of his death he was one of the attending physicians at the Vanderbilt Clinic and the Demilt Dispensary. Dr. Jenks presented to the Jenks Museum, founded by his uncle, a number of fine specimens prepared and mounted by himself.

DR. HUBERT F. PRAEGER of Brooklyn, N. Y., died suddenly from cardiac disease on June 23, at the age of fifty-two. He was graduated from the Jefferson Medical College, Philadelphia, in 1878, and had practised in Brooklyn for over twenty years.

DR. BENJAMIN ANDREWS, a retired physician of Brooklyn, N. Y., died on June 26 from the effects of cerebral apoplexy. He was eighty-three years of age and was graduated from the College of Physicians and Surgeons, New York, in 1847.

DR. FREDERICK W. THUM of Newark, N. J., thirty-seven years old, died on June 27 from blood-poisoning, following an operation.

## OFFICIAL LIST OF THE CHANGES OF STATION AND DUTIES OF COMMISSIONED AND NON-COMMISSIONED OFFICERS OF THE U. S. MARINE HOSPITAL SERVICE FOR THE SEVEN DAYS ENDING JUNE 19, 1902.

BANKS, C. E., surgeon. Granted leave of absence for one day from June 16. June 18, 1902.

KALLOCH, P. C., surgeon. Granted leave of absence for ten days from June 20. June 16, 1902.

WILLIAMS, L. L., surgeon. Bureau letter of June 10, 1902, granting Surgeon Williams leave of absence for ten days, amended so that said leave shall be for six days only. June 17, 1902.

COBB, J. O., surgeon. Leave of absence for fifteen days from June 6, 1902, granted Surgeon Cobb by Bureau letter of May 24, revoked. June 17, 1902.

PERRY, J. C., passed assistant surgeon. Granted leave of absence for fourteen days. June 17, 1902.

LUMSDEN, L. L., assistant surgeon. Granted leave of absence for fifteen days from June 26. June 16, 1902.

HOBDY, W. C., assistant surgeon. Relieved from duty at Savannah, Ga., and directed to proceed to Honolulu, Hawaii, and report to Chief Quarantine Officer for duty. June 16, 1902.

CURRIE, D. H., assistant surgeon. Directed to proceed to San Francisco Quarantine, and report to medical officer in command for temporary duty during absence, on leave, of Assistant Surgeon Lumsden. June 16, 1902.

SMYTH, F. R., acting assistant surgeon. Leave of absence for three days from June 10, 1902, granted Acting Assistant Surgeon Smyth by Bureau letter of June 12, revoked. June 18, 1902.

## BOOKS AND PAMPHLETS RECEIVED.

First Annual Report of the Metropolitan Water and Sewerage Board. Jan. 1, 1902.

Hour-Glass Stomach. By B. G. A. Moynihan, M.S. (Lond.), F.R.C.S. (Eng.). Illustrated. Reprint. 1902.

Twenty-Sixth Annual Report of the Managers and Officers of the New Jersey State Hospital, at Morris Plains, for the year ending Oct. 31, 1901. Trenton: The John L. Murphy Publishing Co., Printers. 1902.

Remarks on Myasthenia and Ophthalmoplegia. By Sir William R. Gowers, M.D., F.R.S., Consulting Physician to University College Hospital; Physician to the National Hospital for the Paralyzed and Epileptic. Illustrated. Reprint. 1902.

Ueber rationelle Zusammensetzung und therapeutische Verwendung der Mineralheilwässer und der Heilbäder für Sommercuren. von Dr. W. Jaworski, Professor der inneren Medicin an der Universität Krakau. Wien: Buchdruckerei "Industrie," VIII, Schlösselgasse 11. 1902.

Minor Surgery and Bandaging, including the Treatment of Fractures and Dislocations, the Ligation of Arteries, Amputations, Excisions and Resections, Intestinal Anastomosis, Operations upon Nerves and Tendons, Tracheotomy, Intubation of the Larynx, etc. By Henry R. Wharton, M.D. Fifth edition, enlarged and thoroughly revised. Illustrated. Philadelphia and New York: Lea Brothers & Co. 1902.

# Original Articles.

## THE USE OF ALCOHOL IN MEDICINE.

### THE NUTRITIVE VALUE OF ALCOHOL.[1]

BY PROF. FRANCIS G. BENEDICT, PH.D., MIDDLETOWN, CONN.

In view of the widespread use of beverages containing from 3 to 70% of ethyl alcohol the inquiry as to whether this chemical compound possesses any nutritive value is a proper one. The inquiry is of especial importance to the medical practitioner, since alcohol is used to a very considerable extent in therapeutics and dietetics.

In discussing the nutritive value of any food material it is necessary to see in how far the substance under examination possesses certain chemical and physical properties common to our ordinary foodstuffs, and in how far it performs the commonly accepted functions of food, and what disadvantages, if any, exist as to its permanent and universal use. We may say that a food material should (1) be palatable *per se*, or be capable of being prepared in a palatable manner, otherwise the ingestion of sufficient quantity to play any rôle in nutrition would not long be tolerated; (2) it should be capable of being absorbed as it passes through the alimentary tract; (3) when absorbed it must serve either to furnish tissue-building material and thereby aid the growing organism and repair waste, or it must furnish fuel to keep the body warm and supply energy for internal or external muscular work — in performing either or both of these functions it must of necessity spare body material from consumption; and (4) it should "agree" with people, that is, cause no stomach and other disturbances.

In the fullest and widest sense of the phrase "nutritive value" we should doubtless include an estimate of the cost of such an ingredient of a general diet.

Without considering the question of palatability or pecuniary cost of alcohol in its various forms, we come at once to the question of its absorption in the body.

The absorption of any material through the mucous lining of the alimentary tract is largely dependent on the solubility of the material and the size of the molecule. When we consider the size of the proteid molecule of our common food materials, the complex molecule of the fats and even the relatively large molecule of the soluble carbohydrates, the simple structure and size of the molecule of ethyl hydroxide, leads us to expect what actually does occur, namely, a very rapid and complete absorption. This absorption takes place in the stomach, and indeed is so rapid that comparatively very little alcohol may enter the intestine. We may then properly speak of alcohol as predigested, for the action of digestive juices is not necessary to prepare it for absorption. This is true of but few of our recognized food substances.

[1] Read before The Massachusetts Medical Society, June 11, 1902.

While nearly all soluble materials would be absorbed to a greater or less extent in the alimentary tract, only those which contribute directly to the support of the body can properly be considered as possessing any nutritive value and we should now determine whether alcohol when once absorbed can perform either of the functions of food, that is, build and repair tissue or supply energy for fuel and muscular work, or is it excreted unchanged. Formerly the opinion prevailed that alcohol while readily absorbed was excreted unchanged, as is, for example, the coal-tar, sweetening substance, saccharin, and consequently *a priori* could be of no benefit to the body. A most careful examination of all the excretory products has, however, shown that in doses not exceeding 72.5 gm. per twenty-four hours, less than 2% of the alcohol is excreted as such from the body of a healthly man.[2] In no possible way can there be any great error in this observation, for the subjects were enclosed in an air-tight respiration chamber, and the amount of alcohol in the ventilating air current, urine and perspiration was determined with great accuracy. We may say that in moderate doses, at least, the alcohol is practically entirely oxidized in the body, but a small portion in general, 2 to 4% being excreted unchanged.

This fact being established the results of the transformation may be more closely studied. The proteid molecule, the chemical basis of muscular tissue, is characterized by containing the chemical element nitrogen in exceedingly complex combination, and it has been found that only that portion of our food containing nitrogen in similar form can contribute to the structure or repair of muscular tissue. Obviously the simple molecule of ethyl hydroxide containing no nitrogen cannot be considered as in any sense performing this important function of food. It must be borne in mind, however, that but a small part of our ordinary diet is capable of performing this function, and we must class with alcohol, as thus failing to build muscular tissue, the carbohydrates and fats of the diet from which the body obtains the larger share of its energy.

If we reason again from the structure of the alcohol molecule, we shall see that it is also incapable of contributing directly to the synthesis of fatty tissue, for from the well-known composition of the fats we know that in their synthesis certain complex radicals are necessary, that is, the long carbon chains of the fatty acids or carbohydrates and the residue of the glycerine molecule, a chain of three carbon atoms. All experiments thus far[3] have failed to demonstrate or even imply that alcohol can enter into the structure of the body, and we are led to the belief that not only it cannot build muscular tissue, in which failing it resembles the carbohydrates and fats, but unlike these it cannot also contribute to the structure of the adipose tissue. It is, in a

[2] Memoirs of the National Academy of Sciences, Sixth Memoir, 1902, viii, pp. 392-393.

[3] Rosenfeld: Der Einfluss des Alkohols auf den Organismus, 1901, p. 31.

word, in no sense a tissue-builder and therefore fails in one of the most important functions of a food.

We shall see later, however, that even though the organism is probably unable to build tissue from alcohol, alcohol does nevertheless exercise a very powerful influence on the formation and store of fatty tissue.

Physiological research has proven definitely that alcohol is oxidized in the body, and if the law of the conservation of energy obtains in the living organism, as we have every reason to believe it does, the potential energy of the alcohol must be transformed into kinetic energy in the body, either in the form of heat or internal and external muscular work. As the body needs a certain amount of heat to keep it warm, alcohol may thus be of benefit in furnishing a supply of heat.

Although a large number of experiments on the physiological action of alcohol have been made both on man and animals, the effect on the production of heat within the body was not investigated until 1890, when Reichert[4] made a number of short experiments (five to six hours) on dogs. These experiments, while extremely interesting and carried out with this investigator's usual skill and care, have not the bearing on the question immediately under discussion, namely, its action on man, that we see more perfectly in experiments with men. Of these latter experiments all have been made with the Atwater-Rosa respiration calorimeter at Wesleyan University.[5] The method of experimenting may be briefly described as follows: The subject is placed on a prescribed diet, suited as nearly as possible to the needs of his body, and after a four days' preliminary digestion experiment enters the respiration calorimeter. The chamber consists of a tight-walled copper box large enough to permit a man to live with comparative comfort for from three to twelve days. A ventilating current of air furnishes the means for determining the gaseous excretions, while careful analyses of feces and urine and perspiration, as well as food and drink, gives the factors for striking a balance of income and outgo of matter. As the energy of the food is measured by combustion with oxygen in a calorimetric bomb,[6] and the dry matter of the feces and urine similarly burned, the measurements of heat radiated from the body complete the data for striking a balance of income and outgo of energy after making due allowance for the body material gained or lost. The amount of water vapor, carbon dioxide and alcohol[7] in the air current is determined. The appliances for measuring heat are novel and insure great accuracy. As a direct check on the accuracy of the apparatus for determining water, carbon dioxide and heat, a weighed quantity of pure ethyl alcohol is burned in a lamp inside the chamber and the products of combustion as well as the heat measured. The amounts as determined agree with the theoretical quantities calculated from the weight of alcohol burned to within 1% — an accuracy sufficient for physiological experimenting.

When the factors of income and outgo are compared in these experiments we have a striking demonstration that the law of the conservation of energy obtains in the living organism, for it is found that the average of all experiments shows an agreement between the potential energy of the material actually oxidized in the body and the kinetic energy liberated in the oxidation in form of heat, which is inside of 1%. In some experiments 72.5 gm. of alcohol, equivalent to about 500 calories of energy, were substituted in a diet for fats and carbohydrates. The close agreement observed in all experiments with the non-alcohol diet was obtained in all the experiments with alcohol.

Having thus seen that alcohol in quantities here used, that is, 72.5 gm. per day, is oxidized in the body and the latent energy transformed into heat, it remains to be seen in what way, if any, this liberation of heat is of service to the body. If, as is commonly supposed, the alcohol is rapidly burned in the body and the heat thus liberated dissipated in a short time, the value of such a supply of heat may be questioned; but when we examine the analytical data we see that there was neither an excessively rapid combustion nor was there any abnormal radiation of heat from the body.[8] The experiments of Reichert, previously referred to, did indeed indicate a slight increase of heat radiation as the result of administering alcohol; with man this was not noticed, though the experiments were frequently of from five to nine days' duration.

It is well known that with excessive doses of alcohol the pharmacodynamic action on the nervous system results in a marked lowering of the body temperature.[9] The temperature observations made during the experiments with the respiration calorimeter fail to show any diminution in body temperature — a result that is in accord with practically all previous work in which moderate doses of alcohol were ingested. It is reasonable, therefore, to assume that the energy furnished by the alcohol does aid the body in maintaining its temperature and may be of service in the performance of internal or external muscular work. The proof of this latter point is, however, not at hand. That the energy furnished by alcohol does not in part, at least, contribute to the performance of muscular work, involves the assumption that the energy thus furnished is of a different nature from that yielded by the fats and carbohydrates in their combustion. We may say that it is highly probable that such a difference does not exist, and assume with an equal degree of probability that the energy required for muscular work is drawn from the oxidation of alcohol as well as the other food ingredients. As a mat-

[4] Therapeutic Gazette, February, 1890.
[5] Bulletin 63, Office of Experiment Stations, U. S. Department of Agriculture, 1899.
[6] Storr's (Conn.) Experiment Station Report, 1897, p. 199.
[7] Journal American Chemical Society, 1898, 20, p. 299.
[8] Memoirs of the National Academy of Sciences, 1902, Sixth Memoir, viii, 272-276.
[9] Schaefer's Physiology, 1898, i, 820.

ter of fact, when the total energy transformed with a diet containing no alcohol is compared with that transformed in a similar, parallel experiment in which 500 calories of the diet are furnished by alcohol, no noticeable difference appears. So far, then, as these experiments go, and with the quantities of alcohol used, no difference can be detected between the energy furnished the body by alcohol and that furnished by the ordinary nutrients of food, and, though failing to build tissue, alcohol can properly be classed as a source of energy to the body.

In thus furnishing fuel to the body it must spare either other food material or, what is still more important, body material from consumption. A diet deficient in energy results in an immediate draft upon body material, chiefly fat, for the lacking energy. Alcohol added to such a diet invariably lessens the quantity of body material disintegrated. Similarly, a diet just sufficient to maintain the body in equilibrium, when augmented by alcohol, results in a storage of fat in the body, or, if the diet is more than sufficient and fat has been stored, the amount stored will be increased. Marked instances of this protecting power of alcohol for fat are to be found in the published data of the Middletown experiments.

The contention has frequently been made that alcohol, even in moderate doses, influences the general metabolism of the body in such a way as either to increase or diminish the production of carbon dioxide and the consumption of oxygen. Widely varying results have been obtained on this point, though the best and most trustworthy work shows that the variations in the carbon dioxide production and oxygen consumption are no larger than the variations appearing in a diet containing our ordinary nutrients.

Another and more serious question has been the effect of alcohol on proteid metabolism. Does the ingestion of a moderate amount of alcohol in twenty-four hours result in a more rapid disintegration of muscular tissue? This question naturally arose from the observation frequently made that in many instances the day after the ingestion of alcohol following an alcohol-free diet the nitrogen elimination in the urine is noticeably greater than before.[10] If we carefully examine all the experimental evidence it must be admitted that on the whole no tendency of alcohol to exert a direct poisonous action on proteid metabolism can be noted, for while the experiments of short duration in most instances show a somewhat greater elimination of nitrogen in the urine on the few days immediately following the ingestion of alcohol, the experiments of long duration invariably show that in a few days the normal excretion is soon re-established and in many instances a gain of nitrogenous material to the body is clearly shown. The whole matter rests on the loss of a gram or two of nitrogen; and in interpreting the results of experiments of this nature, it is necessary to take into consideration several important points: (1) The elimination of nitrogen in the urine is not a measure of the tissue destroyed; (2) the diuretic[11] effect of alcohol might account for the slight increase in nitrogen elimination generally appearing for a few days after the ingestion of alcohol; (3) any marked change in diet, even when the nitrogen content is unaltered, is often accompanied by a marked disturbance of the nitrogenous equilibrium, and whatever fluctuations of the equilibrium are caused by alcohol in the diet are no greater than those caused by the ingestion of fat[12] under exactly similar conditions. The whole body seems to undergo a process of readjustment when a new diet is given, and in some instances the first few days are marked by a loss of nitrogen in the urine, as is the case when alcohol or fat are included in the diet, while in others the change is accompanied by a gain of nitrogen to the body.

We may safely say that the most accurate experiments give no positive proof or even valid ground for asserting that alcohol in moderate doses influences proteid metabolism any more than does fat. It cannot properly be designated as "proteid poison,"[13] but it can and frequently does protect body proteid from consumption.

While when used moderately alcohol may be said to "agree" with most people, its rapid absorption precluding difficulties of digestion, when used in excess, on the other hand, it produces, as do many of our common food materials, stomachic and other disturbances that are frequently of a serious nature. Unlike an inordinate fondness for sweets nature does not rebel so vigorously against an excessive use of alcohol, and while opsomaniacs are relatively uncommon, dipsomaniacs are only too common. Even the coffee and tea habits cannot be compared in any sense with the strong habit so frequently acquired by users of alcohol. It is just this habit-forming property of alcohol leading to its consumption in excessive quantities, under which conditions the distinctly toxic properties of the compound are so manifest, that brings us to a halt in our estimate of the nutritive value of alcohol. The toxic properties of alcohol are not possessed by any other common food material, and consequently must be considered a drawback to its habitual use for nutriment in quantities large and small. Furthermore, if excessive doses are so disastrously toxic, may we not reasonably question the effect of moderate doses and suspect an insidious action, that may not be apparent in the necessarily short chemical, physical and physiological examination, of the subject, food and excreta, which is afforded by the usual experimental period. Experiments in the chemical or physiological laboratory, no matter how accurately made, can never of themselves furnish the data for determining satisfactorily the effects of the persistent use of moderate quantities of alcohol

[10] Rosemann: Der Einfluss des Alkohols auf den Eiweissstoffwechsel, Arch f. d. ges. Physiol, 1901: Bd. 86, pp. 307-503; Rosenfeld: Der Einfluss des Alkohols auf den Organismus (1901), pp. 7-22.

[11] Rintaro Mori: Arch. f. Hygiene, (1887) vii, 354.

[12] Kayser: v. Noordens Beiträge, H. 2, S. 1.

[13] Miura: v. Noordens Beiträge, H. 1, S. 1.

upon the general bodily and mental condition of man. It is to the pathologist and psychologist that we must look for answers to this question. While accurate and impartial observations on this point are rarely found, surely the work of Kraepelin,[14] Aschaffenburg[15] and Hodge[16] is significant in its indications, and we must, at least, hold that alcohol has in many instances, even in moderate doses, a retarding action on many vital processes, and accordingly should be used for nutriment only with full cognizance of such action.

From a review of the work up to the present time, it can be seen that it would be manifestly unfair not to accord to alcohol a value as fuel and as a protector of body material — a value that may at times be of incalculable service to the physician, but would it not be equally manifestly unfair to deny that the latent toxic property of alcohol is such that in many, if not in the majority of cases in which it is used as a food, such use is irrational?

In health obviously the multitude of other materials whose nutritive value is beyond dispute renders the use of alcohol as a food entirely unnecessary. Pathological conditions in which nutriment from this source alone can be used are comparatively rare, though in many cases, as in acute infectious diseases, doubtless the ease of absorption and high calorific value more than counterbalance the toxic effects. Upon the intelligence of the physician, however, should rest the use of this compound as nutriment.

## THE BASIS FOR THE USE OF ALCOHOL IN THERAPEUTICS.[1]

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I HAVE, first of all, to thank you for the compliment you have paid me in inviting me to take part in this discussion. It is true that I might have selected another topic in preference to one which has been in the past and still is the cause of so much heart-burning as the therapeutic use of alcohol. But, at the same time, the position of the pharmacologists has been so much misunderstood, that I am very glad to have an opportunity to place it in its proper light. And as a pharmacologist I first must utter a protest against the prevalent idea that we base our statements wholly upon animal experiments. Any observation as to the action of a drug that is made in such a definite way that it can be verified by others is gratefully accepted by us, whether the subject of the experiment be a human being, sick or well, or one of the lower animals. But where a physician gives merely an impression, colored by his temperament or his hopes, we cannot take cognizance of it; and in this the pharmacologist differs in no whit from the medical profession, in which the dangers of accepting subjective impressions as evidence is generally recognized.

In regard to the use of alcohol in therapeutics, perhaps more than in the case of most drugs, this tendency to substitute impressions for verifiable facts prevails, and in looking over the more recent therapeutic literature of the subject I have been struck by the almost complete absence of observations in which changes in the pulse, respiration or temperature are recorded in any more definite way than by such expressions as "improved, strengthened, relieved." The experimental pharmacology of alcohol is now fairly well known; may we workers in the laboratory not expect something more definite from the clinicians?

The difference between the experimental observers and the clinicians in regard to alcohol is largely one of interpretation and not of facts. Each has exceeded the limits of the province in which alone his opinions should be paramount and has invaded that of the other, in which his experience is limited. Thus the experimentalist, basing his opinions on a limited number of observations, may be heard announcing that alcohol is of no value in disease. He forgets that effects that are deleterious in one organ are often more than counterbalanced by changes wrought elsewhere, and that our knowledge of the action of drugs and of pathology is far too limited to permit us to deduce general rules in therapeutics. On the other hand, the clinician lays himself open to attack when he attempts to interpret in scientific terms the phenomena of which he is a witness at the bedside. As long as he confines himself to stating that alcohol is of value in a disease, he is beyond the reach of a laboratory worker. His statements may be disputed by other clinicians, but the experimentalist is incompetent to do so. But when he explains that the effects he has observed are due to the action of alcohol on the heart or to its stimulating the central nervous system, he invades the territory of the experimental investigator, who has a right to criticize such interpretations on the basis of his own results, which, though few in number, permit of more accurate inferences being drawn from them. The discrepancy between the views of different observers in the question of alcohol is, therefore, to be dissipated by more mutual consideration; the clinician, while maintaining the correctness of his observed facts, must be prepared to modify his theories in view of the experimental results; the laboratory worker must accept the clinical facts, as equally valid with those in his own experience, and must adapt his theories to these facts, or abandon them.

I have thought it necessary to make these prefatory remarks because there seems to be a quite unnecessary divergence of views as to the question of alcohol. I shall now consider successively the changes elicited by alcohol in the central nervous system, the respiration, the heart and the

[14] Psychologische Arbeiten, vols. 1 and 3.
[15] Inaugural Dissertation Jena 1891.
[16] Popular Science Monthly, 50, pp. 796-812. 1897.

[1] Read before The Massachusetts Medical Society June 11, 1902.

digestion, and the question of its value as a food, and shall attempt to determine how far the experimental results agree with the clinical.

The effects of alcohol on the central nervous system differ very considerably in different individuals. In the lower animals they are marked by depression, the symptoms being exactly similar to those of chloral or of the other narcotics. Occasionally, a transient excitation occurs, but this is due to the irritant action in the stomach, and is absent when more dilute solutions are administered or when the alcohol is ingested in small repeated doses. In human beings the same depressant effect is often seen, the first symptoms being more or less drowsiness and heaviness, which subsequently pass into slumber. But in the majority of cases the first effects elicited are feelings of good-fellowship, well-being and liveliness, with increased confidence in the mental and physical powers. This is often followed by some excitement, marked by loquacity, laughter and exaggerated movements of all kinds. The face is flushed, the eyes bright and the pulse and respiration are accelerated. Larger quantities lead to uncertainty and inco-ordination of the movements, shown in difficult and stammering speech and staggering gait, and still larger amounts induce sleep and narcosis, which may pass into complete anesthesia, and eventually prove fatal. The symptoms of intoxication, therefore, appear to differ in the lower animals and in man, for, while in the former there are no signs of excitement, in the latter this feature may be very marked in the beginning. And even in man the effects of alcohol offer marked contrasts in different individuals and even in the same individual at different times. For the excitement is very much more marked when drinking is indulged in in company with others, while when alcohol is taken with less exhilarating environments or in solitude, the excitement stage is very much less marked or may be entirely absent.

The effects of alcohol have been explained in two different ways: The first view, which appears at first sight to be the more natural one, is that it stimulates the cerebral cells to greater activity and then depresses them; that is, alcohol is believed to act on the cerebral gray matter in the same way as strychnin on the spinal cord. And this view, that alcohol is a central nervous stimulant, is still very widely entertained both by the laity and by clinicians, while the majority of experimental observers rather leans to the view suggested by Schmiedeberg and supported by Bunge, Kraepelin and many others, that the stimulation of the brain is only apparent. According to this theory, the excitement is caused, not by the augmented vitality of the nerve cells, but by a loss of the associations which ordinarily retard the expression of mental activity. To adopt a mechanical simile, the brain may be compared to an engine fitted with powerful brakes. An acceleration of the motion may be due either to increased power of the engine (stimulation) or to the brakes being raised, and it may be very difficult for an onlooker to determine which is the true explanation. The apparent evidences of increased mental activity under alcohol, however, have proved for the most part illusory, when carefully investigated. The closer one approaches to the engine, the more evident it becomes that what appeared to be the result of increased power, is really the effect of the removal of the brakes. One argument against the stimulant action of alcohol is the narrow limits to which it is confined. All the central nervous stimulants with which we are acquainted act on some particular part, in small doses, it is true, but when larger amounts are ingested, the stimulant action spreads over a wider area of the central nervous system and gives rise to the symptoms characteristic of stimulation of that area. Caffein, for example, first stimulates the mental functions apparently, but in large quantities involves the motor sphere of the brain and may finally stimulate the cells of the cord. Alcohol, on the other hand, appears to have only a depressant action on nervous tissues, except in the human cerebrum. It is true that the exceptional development of the human brain might permit of a departure which is without analogy with other forms of poisoning.

But when the excitement stage is more closely investigated, it becomes apparent that all the cerebral functions are not facilitated by alcohol. It is common knowledge that under the influence of alcohol an individual may be more brilliant in conversation, more witty, more social, more generous in sentiment, but that he is not so careful in his statements, and has not that consideration for his own position or that of others which he ordinarily manifests. He loses his self-control and self-restraint, and thereby often proves more entertaining and social than in ordinary life, but he also loses his sense of responsibility and his power of discriminating between the trivial and the important or between the merely plausible and the actually proved. In a word, it is generally recognized that some of the highest functions of the brain are thrown out of action by alcohol administered in quantities which induce the phase of exhilaration. The further question is what functions are actually increased in activity and how far is this increase dependent upon the reduced activity of the processes which are depressed by alcohol. The question is of course a psychological one, which can be answered only by a psychological analysis, which is as yet very far from complete. But it is obvious to everyone that the exhilarations may be due to a loosening of the associations which ordinarily control our actions and feelings. The normal adult, in an environment which in a child would cause every symptom of exhilaration, maintains his self-control, partly because the position has lost its novelty, that is, he has associations which are wanting in the child, partly because the exuberance and gesticulations natural to the child are kept in check by his sense of the ridiculousness of these manifestations in later years. Remove these inhibiting associations, destroy the self-

control of adult life, and the man becomes a child again in his sense of exhilaration and symptoms of excitement. It would take more time than I have at my disposal to enter further into these considerations. My object is attained if I have suggested to you that the symptoms of intoxication, which are ordinarily regarded as indicating stimulation of the brain, do not necessarily involve this interpretation, but may be explained by a removal of those associations which ordinarily inhibit the external manifestations of emotion.

Much valuable evidence as to the effect of alcohol on mental processes has been gathered in the psychological laboratories, especially by Kraepelin and his pupils, who have subjected the question to a large number of ingenious psychological tests in the last few years. Even before Kraepelin took up the theme, however, it was generally recognized that the supposed effect of alcohol in increasing the ability to do work and in increasing the resistance to fatigue was really contrary to practical experience. Over and over again it has been demonstrated beyond question that regiments supplied with alcoholic liquors are less capable of long marches and suffer more from fatigue than others to which no alcohol is issued. But Kraepelin has shown this to hold good for forms of work in which more mental capacity is required than the marching of soldiers. For typesetters do a smaller amount of work and make a much larger number of misprints when even a small amount of alcohol is allowed, than when they perform their work without this drug. And other tests performed by Kraepelin and his students all show a lessened capacity for mental work and a smaller ability to keep the attention directed to one object. Thus, when a student was set to learn a number of meaningless syllables or a row of figures, he took a longer time to do so and made more errors in repeating them under alcohol than normally. Similarly arithmetical calculations of all kinds were carried out much more slowly and with more errors, and the writing was slower and gave the impression of being that of an uneducated person who seldom had occasion to use his pen. Only in one respect was any increased aptitude shown, namely, in the transformation of an idea into movement. This might suggest that the motor functions are accelerated under alcohol, but another explanation is equally applicable, namely, that an ordinary movement is hampered by a series of associations and that when these are destroyed by alcohol the movement may be carried out more quickly. At the same time the associations in ordinary life not only retard the movement but also restrict and direct it, and the result of their absence under alcohol is shown by the awkwardness and inaccuracy with which the movement is executed.

It is noteworthy that in these experiments, those mental processes which were ordinarily performed readily were less retarded than others in which the subject was less practised and which required more effort. That is, the powers most recently acquired and most readily lost are those on which alcohol first acts, while those operations which have become habitual are less impaired. This is in complete accord with what is observed in the earlier stage of intoxication or exhilaration. The most recent acquisitions in adult life are the power of self-control and the feeling of self-respect which are manifested in regard for the conventions of life and in the prudence which leads one to avoid many procedures which in earlier life he might have indulged in without reproach. And under alcohol these are the first mental processes to be disordered. *In vino veritas*, in intoxication the natural man is exposed, stripped of the trammels of convention and robbed of the fruits of experience and education.

Many other results of these experiments are of interest, but cannot be entered on here. One feature, which bears a familiar aspect and which was brought out very clearly in many instances, is the confidence of the subject of the experiment that his efforts were unusually successful under alcohol while the impartial record showed results far below the level attained during abstinence.

In all of these experiments the amount of alcohol taken was small, in no case sufficient to induce any of the more evident symptoms of intoxication. It is therefore of great interest to find in some of the later publications of Kraepelin's laboratory, that distinct impairment of the psychical powers were found to persist for a much longer time than would be anticipated; the average efficiency was not regained until from twelve to twenty-four hours had elapsed after the alcohol had been taken. If this proves to be true in the case of persons who have acquired a tolerance for alcohol, many individuals are never completely normal, their mental powers never recovering entirely from one dose of alcohol before the next is taken. Some interesting observations regarding the length of time during which alcohol may be retained in the body unoxidized have recently been made by Grehant. He found that in animals to which a large dose had been given, alcohol may be detected in the tissues for twenty-four hours.

The results of these investigations on the mental state under alcohol as well as many others which I have not discussed, appear to place the theory that alcohol acts as a narcotic upon a firm basis. I do not hold that it is absolutely determined, but some more satisfactory evidence must be brought forward in favor of the stimulation theory before it can be considered as a rival of that of Schmiedeberg. And this evidence must be more definite than is ordinarily offered. It must define what functions are stimulated, and must not be a repetition of the old statement, that the tone and vigor of the nervous system is maintained by alcohol.

But the acceptation of the narcotic theory is not equivalent to condemning the therapeutic use of alcohol for its effects on the brain, as is ap-

parently supposed. We must rather consider whether the results aimed at by the clinician, when he prescribes alcohol, have not been misnamed stimulation, and whether they are not narcotic in nature, and hence in entire agreement with the experimental results. And it is difficult to understand what use we could make of alcohol in disease were it a cerebral stimulant; for no mental exertion is encouraged in acute disease, but every effort is made to restrain the activities of the patient in every direction. The room is darkened, every noise is excluded as far as possible, exciting conversation and reading are forbidden. How absurd it would be to take all these precautions to induce bodily and mental rest, and at the same time to order a drug with the intention of promoting cerebral activity! The truth appears to be that when the clinician applies the term stimulant to alcohol, he uses the word in quite a different sense from that in which it is understood by the experimental observer. His meaning is less definite and he wishes to indicate only the improvement often noted in the general condition without considering whether this is due to an augmentation or a retardation of the mental processes. The same confusion is met with in regard to opium, which also was formerly regarded as possessing stimulant properties which recommended its use in acute diseases accompanied by cerebral symptoms. The result of both drugs is in reality cerebral depression, which manifests itself in a condition of euphoria. The disease often loses its strongest ally when the anxiety and worry of the patient are allayed by alcohol. He feels less concern and more resignation, not through his soul rising triumphant through the stimulant action of alcohol, but through his brain being less capable of dwelling on his disabilities because it is partially narcotised.

The depressant or narcotic action of alcohol, then, far from being in conflict with its clinical use, supplies a definite and logical explanation of the improvement so often noted at the bedside after its administration. And this effect of alcohol in allaying the subjective symptoms, relieving the nervous strain and promoting the rest and comfort of the patient is not surpassed by that of any other drug. For while the narcotics are legion and new ones arise monthly to supply the place of those discredited, few of them act on the cerebrum with equal power without involving other organs. None of them can be taken more readily and act less on the alimentary tract, and the great majority of them reduce the activity of the vital centres in the medulla along with that of the higher brain. The distinctive feature of alcoholic action is a slight depression of the mental faculties leading to euphoria, which can be elicited without any other organ being affected detrimentally. This action is not a specific one and in this era of specifics may not appear to be of first-class importance; but as long as we have no specific for many common disorders, anything which induces rest, and thus allows the reparative processes a fairer field, must be considered in combating disease.

The action of alcohol on the respiration has long been a subject of experimental investigation, and although the main facts are now agreed upon, their interpretation is still a matter of dispute. During the exhilaration and excitement of intoxication the number of the respirations is generally found to be increased, but this may be due to the muscular movements and need not indicate any augmentation of the activity of the respiratory centre, and as the excitement is not elicited in therapeutics these observations do not concern us. A number of estimations have been made in cases in which no excitement was induced, and though the results show a good many discrepancies, the evidence thus gained is to the effect that the amount of air inhaled is generally increased by alcohol even when no signs of excitement are displayed and in some cases when a well-marked narcotic action is elicited.

This is not indisputable evidence, that the respiratory centre is stimulated, however, for some increase in the respiration is induced reflexly by food of any kind when it passes into the stomach, and alcohol may be expected to induce more powerful reflex movements from its irritant action in the stomach. Some investigators have, therefore, ascribed the changes in the respiration after alcohol to reflexes arising from its local action in the stomach, and have denied that it has any direct effect on the respiratory centre except a depressing one, which is only elicited by enormous doses. The question is certainly a difficult one to determine. In some experiments which I have performed the alcohol was diluted and disguised by the addition of syrup containing some volatile oil. I found that a considerable increase in the air breathed occurred after the administration of the mixture, but in some cases in which the same amount of syrup was given without alcohol a similar augmentation followed. Some years ago Loewy attempted to measure the excitability of the respiratory centre more directly than by merely measuring the amount of air breathed before and after alcohol. Unfortunately his experiments were too few to permit of a positive inference being drawn, but they certainly failed to indicate any increase in the irritability of the centre. It is impossible to take up a definite position in regard to this question, then, and we must wait for further research to determine whether the augmentation of the air inhaled under alcohol is due to direct central action or to reflexes arising from the stomach. It may appear that the whole matter is one of academic interest only, without practical bearing on therapeutics; but on further consideration this is seen not to be the case. For, if the augmented respiration is caused only by the local action in the stomach, this indicates that much of the surplus oxygen is used in doing the work of absorbing the alcohol, and that the rest of the body profits to a correspondingly small extent from the increased aeration. And further, in those conditions in

which a respiratory stimulant is indicated, the centre must be conceived to be in such a depressed state that it fails to react to the stimuli supplied by the gases of the blood. This has to be combated by increasing the irritability of the centre, for it would seem improbable that nerve cells which fail to react to the powerful natural stimulus supplied by the accumulation of gases in the blood, can be aroused by the weaker ones arising from gastric irritation. The use of alcohol as a respiratory stimulant is, therefore, not supported by experimental investigation, but on the other hand it is not wholly condemned. When we turn to clinical experience for enlightenment, we find an equally divided verdict. Some physicians advise alcohol in respiratory failure, while others have found it useless, and it is impossible to determine which view is correct, for neither side gives any measurements.

While the position of alcohol as a respiratory stimulant is thus still unsettled, no question whatever can be entertained as regards its effects on the circulation. In small doses it does not affect the heart except through the increased movement when excitement is induced, while in very large amounts it acts as a cardiac depressant. An ounce of whiskey injected into a dog's vein has the same effect on the heart as the inhalation of chloroform for a short time. Smaller doses have a correspondingly less deleterious action, but whatever dose is used, no increase in the efficiency of the organ follows. Examinations of the pulse in the human subject give a similar result; no change in the rate can be made out apart from the insignificant acceleration due to the act of swallowing and the local irritation; and no alteration has been found in the area of cardiac dulness or by the various methods of estimating the blood pressure in man. As regards the blood vessels, alcohol causes some dilation of the superficial vessels, but this has no effect on the general blood pressure in animals. Very large quantities reduce the blood pressure to some extent and smaller amounts injected intravenously have the same effect.

Yet alcohol has long enjoyed a reputation as a cardiac stimulant. This is due in part, I think, to the fact that it is often given in desperate cases, and if a favorable result ensues, some credit is given the treatment, while if the case proves fatal it is ascribed to the disease. But I do not think it is to be discarded in circulatory disorders, for here again its cerebral action may prove of value by lessening the anxiety and other mental symptoms. Similarly morphin is of value in hemorrhage, not because it acts on the circulation or accelerates coagulation, but because it prevents restlessness and puts the body in the most favorable position for repair to take place. It may seem paradoxical, but the real basis for the use of alcohol in acute circulatory disturbance appears to be the fact that in ordinary quantities it has no action on the circulation, while it promotes rest.

The effects of alcohol on digestion have been the subject of much controversy, but I think it may be held as proved that any beneficial results are due to changes effected in the walls of the stomach and intestines and not to alcohol influencing favorably the activity of the ferments, at any rate in the forms in which it is ordinarily taken. The slight irritant action on the gastric mucous membrane certainly entitles alcohol to a position in the somewhat indefinite group of carminatives, although it has not yet been shown to increase the gastric movements. Its presence in the stomach and intestine appears to promote the absorption from these organs. But apart from these properties which alcohol possesses, in common with many other drugs, it has been shown to alter the gastric functions in a way which so far as is known at present is unique. After alcohol reaches the blood a very profuse secretion of fluid takes place into the stomach, it matters not whether the alcohol is given by the mouth or injected as an enema. This fluid sometimes contains considerable quantities of pepsin, sometimes merely traces, this apparently indicating that alcohol does not actually augment the secretion of ferment, but only increases the fluid which carries with it what pepsin is preformed in the gland. It has been recognized of recent years that one of the functions of the stomach is to dilute the food in order to permit of the action of the ferments, and this action of alcohol in promoting the escape of fluid into the stomach may be of advantage in cases in which the mucous membrane fails to react to the presence of food. Again, it has been demonstrated beyond question that the secretion of the stomach depends largely upon the appetite and the taste and odor of the food. Persons to whose senses alcohol and its accompanying ethers are grateful, may thus be able to digest food taken with alcohol better than they otherwise would, and some supporters of the narcotic action of alcohol believe that its effect in promoting sociability and "making glad the heart of man" may also predispose the individual to enjoy his food and thus indirectly accelerate its digestion.

It is obvious that these various factors may reinforce each other in some conditions, while in others they may have less obvious results, or may even be in abeyance, and this is in accord with the results of clinical observations. For while some have found that in the human stomach alcohol accelerates proteolysis, others state that this process is retarded, and a third group holds that it is first retarded but afterward accelerated. The truth probably is that the effects of alcohol vary in different individuals and in different conditions of the mucous membrane of the stomach, and further investigation of the subject is required before the indications for its use as a stomachic can be defined accurately. In all probability far more cases of gastric disorder are treated with alcohol than are really benefited by it, for it is to be remembered that the preparations of the bitter tonics which are most in vogue contain a high percentage of alcohol.

The question of the nutritive value of alcohol which has occupied such a large place in the pub-

lic mind recently, has been discussed by Dr. Benedict, a much more competent authority than I. I desire only to draw your attention to one or two points bearing on its usefulness as a food in diseased conditions. The first of these is that alcohol must be used in large quantities in order to be of any value as a food, for half a pint of whiskey is equivalent to some two ounces of fat. This amount of whiskey is, however, sufficient to cause marked cerebral symptoms, and the use of alcohol as a food in ordinary circumstances may therefore be dismissed from consideration. But in some cases, notably in high fever, it is found that much larger quantities can be borne without any symptoms of cerebral disturbance, and at the same time large draughts are being made on the resources of the body, and it is impossible to replenish these by ordinary means, for the fats and carbohydrates are not assimilated. Heroic measures are required in order to maintain the integrity of the tissues, and alcohol may be taken into consideration as a readily available source of energy, even if not devoid of suspicion in ordinary circumstances. And it is a matter of common observation that a quantity of alcohol equivalent to the fats of the food in health induces no symptoms of intoxication in these cases, so that there would seem to be no reason to object to it as a nerve poison. But objections have been raised from another source, since it has been shown repeatedly that large quantities of alcohol predispose to infection, and some extremists have gone so far as to state that the recent results of Abbott, Laitinen and others condemn the use of alcohol in any dose and under any circumstances.

I do not wish to enter upon the division of the subject that has been assigned to my friend, Dr. Meltzer, but I should like to state that in all the experiments in which alcohol administered during the disease proved deleterious, the animals showed more or less distinct symptoms of intoxication, while in the cases with which I am dealing at present the patients show an extraordinary tolerance. I desire to speak guardedly on this question, but think that it is safe to state that while the food value of the small quantities of alcohol ordinarily tolerated is insignificant, in certain cases it is borne in quantities which materially aid in maintaining the resources of the body, and that there is no convincing evidence that when used for a short time in those cases it lessens the resistance to the invasion of disease.

As regards the use of alcohol as a narcotic, Laitinen's results with small quantities of alcohol (equivalent to 2 to 4 oz. of whiskey per day for an average man) given after infection do not indicate any distinct deleterious action except in those experiments in which animals were inoculated with tuberculosis, in which, as he states, it is impossible to measure the dose accurately. Besides, it is to be noted that the narcotic effects of alcohol could scarcely have the same beneficial results in animals as are daily observed in patients, for the subjective effects of disease are entirely absent or only slightly developed in the former. It may be added that anesthesia in any form reduces the resistance to infection also, and that if we are to exclude alcohol for this reason, we must logically abandon chloroform, ether and opium.

A danger in the therapeutic use of alcohol, which is generally recognized, is that of forming the habit. No one can deny that if this is of frequent occurrence, it is of itself sufficient to condemn all use of alcohol. But cases of chronic alcoholism arising from its medicinal use are fortunately rare and form an insignificant fraction of those arising from its social use. I can only wish that the medical fraternity were as guiltless in regard to other drug habits, such as that of morphin. There are conditions in which the prescription of alcohol must be guarded on this account,— notably in chronic diseases and as a stomachic,— but the most serious feature in regard to the use of alcohol is that it is not sufficiently appreciated that it is a drug and ought to be used as one. At present it is too often advised merely as a matter of routine, very often at the suggestion of the patient or his friends, without consideration as to whether it is rationally indicated or whether experience has proved it of value in the conditions under treatment. I am strongly of the opinion that this haphazard use of alcohol explains in large part the skepticism in regard to its value, and that if half as much consideration were given to its suitability to the condition as is given before most other drugs are prescribed, the position of alcohol in therapeutics would be more assured than it is and a great gain would accrue from the more accurate definition of its sphere of usefulness.

In conclusion, I would sum up these remarks by saying that alcohol deserves a place in therapeutics as a narcotic, and to a less extent as a stomachic, and in certain conditions as a food. I would not disguise the fact that it has drawbacks, like every other drug, but would plead that we must not allow ourselves to be guided entirely by consideration of any one of its properties, but must estimate in each case whether the sum total of its effects, good and evil, will benefit the condition.

## THE INFLUENCE OF ALCOHOL UPON INFECTION AND ITS USE IN THE TREATMENT OF ACUTE INFECTIOUS DISEASES.*

BY S. J. MELTZER, M.D., NEW YORK CITY.

It is a very old idea that wine is a good thing for the sick and the infirm. "Drink no longer water, but use a little wine for thy stomach's sake and thine often infirmities," wrote a wise and holy man nearly nineteen hundred years ago. And a few centuries before him wine was ordered for patients by the greatest physician history knows to record. Through nearly twenty-four centuries, from Hippocrates down to our own days, physicians of all creeds and systems have

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employed alcoholic beverages as an aid in their struggle against diseases. Systems of medicine, however, influenced at all times the extent to which this therapeutic agent was employed; and as in the long history of the science of medicine numerous systems came and went, rose and fell, continual changes, rises and falls also mark the history of the employment of alcohol as a medicine. The influence of the systems, however, extended only to the degree, the extent, to which alcohol was used; beyond and independent of any system there seems to have lived, and still lives in the minds of all observant practitioners a strong empirical conviction that some dose of alcohol "does the patient good." The task of each new theory was to provide the philosophers among the physicians with arguments why alcohol should be given and how it affects the patient or the disease. The influence of the theory upon the practice seems to vary with the mental attitudes of the different civilized races: the more philosophical the mind of a nation is, the greater is the influence of a theory, for good or for evil. The so-called Brunonian system offers an instructive illustration. John Brown was an Englishman who lived in the eighteenth century. Influenced probably by a conception of irritability, as it was established by Haller, Brown brought forward the theory that life is kept up by stimuli, and diseases are either asthenic or sthenic; their cure, therefore, has to be either an increase or a decrease of stimulation. The employment of alcohol in sickness found in this theory the most promising explanation: alcohol is a stimulant. In Germany this theory was received with enthusiasm, and it had the unfortunate effect that physicians administered alcohol to their patients in very large, harmful doses. This abuse, says von Jaksch,[1] killed hundreds of patients. With the downfall of this theory a strong and long-lasting reaction set in against the abuse, as well as against the proper use of alcohol in diseases, and Binz[2] tells us that in the forties of the last century a physician had to defend himself publicly for giving moderate doses of alcohol to a typhoid patient.

In England, the home of Brown,— but also the home of the Baconian method of studying natural science by actual observation,— the Brunonian theory was never received with great enthusiasm, and exercised only a moderate influence upon the practice of using alcohol as a drug. And here the downfall of the theory did not produce such a reaction against the legitimate use of alcohol. On the contrary, already in the thirties and forties of the last century we see clinicians like Stokes, Graves, and especially Todd, exerting their influence to enlarge the indications for the employment of alcohol. It was the inauguration of that long period during which in England alcohol was quite extensively used in febrile disease, and which is now apparently on its slow decline.

In the second half of the last century, with the advent of the experimental method in studying the sciences of medicine, alcohol became the subject of extensive experimental investigations, and it was especially in Germany that numerous experimental studies were published by Binz and his pupils and by many other prominent investigators, on the relations of alcohol to the temperature, the metabolism of the animal organism, the circulation, respiration, etc. Greatly through the influence of these scientific investigations alcohol again became a factor in therapeutics in that country. In the eighties and nineties of the last century we again find in Germany a greater enthusiasm for the use of alcohol in typhoid fever, pneumonia, puerperal fever, etc., than we meet with at the same period in England. Binz[3] summarized the reasons for giving alcohol in febrile diseases in the following manner: "Alcohol is an antipyretic, is a convenient food, and it stimulates the circulation and respiration." In addition to these points the recent progress in medicine brought out a new factor in the discussion of alcohol as a medicine.

Since the eighties of the last century most of the diseases for which alcohol was prescribed received a new character: they are now known as infectious diseases, and the question arose, what relation does alcohol have to infection? Clinicians like Runge and others, who are enthusiastic supporters of the use of alcohol in septic diseases, expressed their belief that alcohol strengthens the body in its struggle against the virulent invaders. Binz[4] says that "the opinion of our clinical teachers may in general terms be expressed as follows: Alcohol in large doses increases in an extraordinary manner the power of resistance to septic poison." Is this clinical opinion borne out by experiment?

Gentlemen, one of the theses with which I was entrusted to report to you today is on that subject, and reads as follows:

THE INFLUENCE OF ALCOHOL UPON INFECTION.

A consideration of the effects of its use upon immunity and upon the resistance capacity of the individual to septic infection.

EVIDENCE OF ANTITOXIC ACTION, IF ANY.

It is therefore the first task of my paper to offer a report on the experimental work done so far on the subjects in question.

Binz, in fortifying his above-mentioned opinion, quotes one experiment of his own. He injected into two dogs septic material taken from a decubitus of a typhoid patient. One dog received 10 cc. of alcohol three times within seventeen hours; this dog survived, the other dog died. Binz mentions this experiment in several places, but it does not appear that he made more than one experiment.

In attempting to produce cholera in animals, Koch tried first to introduce alcohol into their stomachs. This method was employed systematically by Doyen,[5] and he found that animals which received alcohol became indeed infected with cholera, while controls remained free. Doyen was inclined to believe that it was due to some

local effect of the alcohol upon the acidity of the stomach.

Thomas [6] has given rabbits for two consecutive days about 5 cc. per kg. alcohol diluted four times with water, and then injected cholera cultures intravenously. Five alcoholized animals died, the control animals withstood infections with much larger doses. In one other experiment Thomas found that the serum of an alcoholized rabbit lost its bactericidal effect upon cholera organisms.

The first extensive series of experiments were made in this country by Dr. Abbott [7] of Philadelphia at the instigation of the Committee of Fifty on the Alcohol Question. Rabbits were given alcohol 5 to 6 cc. per kg. per day before or after inoculation with either the streptococcus pyogenes, bacillus coli, or the staphylococcus pyogenes aureus. In the inoculations with streptococcus nearly all the alcoholized animals died, while most of the non-alcoholized survived. In the inoculations with the colon bacillus the alcoholized animals also showed a diminished resistance to the infection, although not so pronounced as in the inoculations with streptococcus. The inoculations with the staphylococcus did not bring out clear results.

Deléarde [8] has studied in rabbits the effect of alcohol upon immunization against rabies, tetanus, and anthrax. His conclusions are that in rabies the administration of alcohol after infection will destroy the required immunization, and that in tetanus and anthrax no immunization will take effect, if alcohol is given simultaneously. (Deléarde's statements make the impression of his having had only one experiment for each of his conclusions.)

Laitinen [9] studied the influence of alcohol upon the susceptibility to infectious material on 342 animals — dogs, rabbits, mice, guinea-pigs, chickens and pigeons. As infectious material he used anthrax, tubercle bacilli and diphtheria toxin. Alcohol was given either for a number of days previous to the infection, or started soon after. The quantity of alcohol used in these series of experiments was not less than 5 cc. per kg. per day; in many instances the animals were distinctly intoxicated. The anthrax experiments demonstrated unmistakably the deleterious effect of the alcohol. Most of the alcoholized animals died, most of the non-alcoholized animals survived the infection. The experiments with tubercle bacilli gave less striking results: In one series the alcoholized animals died after an average of thirty days, the non-alcoholized animals after thirty-four days, and in a second series the alcoholized animals died after an average of twenty and the non-alcoholized after an average of twenty-two days. In the experiments with the diphtheria toxin the alcoholization hastened the death of inoculated animals. According to Laitinen the blood of the alcoholized animals seemed to show a decrease in its alkalinity; this suggestion was already thrown out by Abbott. (In a later publication,[10] the original of which was not accessible to me, Laitinen has studied the effect of smaller doses of alcohol. Of seventy-five alcoholized animals 61% died, and of seventy non-alcoholized animals 50% succumbed to the infection.) Laitinen credits Valagussa and Ranelleti [11] with the statement that alcoholized animals show a diminished susceptibility to the toxin of diphtheria.

Pawlowsky [12] has given whiskey to guinea-pigs for some time, and found that their resistance to infection with staphylococcus citreus was considerably diminished. He also states that the alcoholized animals reacted to a subcutaneous injection with a diffuse edema, while in non-alcoholized animals an injection caused an abscess. (I would suggest here that this difference might perhaps have its explanation in the statement of Massart and Bordet,[13] that alcohol, even in great dilution, is negatively chemotactic.)

Gruber [14] and Koegler have administered to guinea-pigs small doses of alcohol (.1 to 1.5 cc. per kg.), and then infected them with the pneumobacillus of Friedlænder. They found that the alcoholization increased in general the mortality of the animals.

Goldberg [15] studied the influence of alcohol upon the natural immunity of pigeons to anthrax. Of twelve pigeons which were inoculated with a certain amount of an agar culture of anthrax, all survived; of fifteen other pigeons which were inoculated with the same amount of anthrax, but which received soon after the inoculation, or a day or two later, comparatively large doses of alcohol, twelve died. The same occurred in another series in which alcohol was administered for some time previous to inoculation. In a third series eighteen pigeons were inoculated with fatal doses of anthrax, and one-half of this number received twice a day ½ cc. of alcohol. From the results in this series Goldberg concludes that the administration of alcohol did not prolong the life of the pigeons. (But it should be added that the results also demonstrated that the alcohol did not shorten the life of the animals.)

Ausems,[16] working under Talma, also found that the administration of alcohol in small doses to rabbits before infection, diminishes their resistance to different infections. Small doses of alcohol given after the infection reduce the temperature but do not influence the course or the severity of the infection. Large doses of alcohol reduce the temperature but increase the length and severity of the disease.

In contrast to this long list of experiments adverse to alcohol I am able to record only one brief statement in favor of alcohol: according to Gruber [14] an intraperitoneal injection into guinea-pigs of a freshly sterilized culture of prodigiosus, causes a strong collapse of the animal; the temperature sinks to 34° C. and death follows in a few hours. Now Gruber states in a provisional brief report, that the frequent administration of small doses of alcohol to such animals prolonged their life for many hours, and two animals were even restored to health.

Such is the report on the influence of alcohol upon infection. It unequivocally reads adverse

to alcohol. Of the ten different systematic investigations none came out in favor of alcohol. It was studied on dogs, rabbits, guinea-pigs, mice, chickens and pigeons. The investigations extended to infections with cholera-vibrios, streptococcus, colon bacillus, anthrax, tetanus and tubercle bacillus, rabies and the toxin of diphtheria. In all these cases it was found that alcoholization before infection increases the susceptibility; alcoholization after infection decreases strikingly the resistance of the animal; it also destroys the natural and the artificial immunity, and is rather favorable than antagonistic to the fatal influence of the toxin of diphtheria.

What do these experiments on animals teach us regarding the influence of alcohol upon infectious diseases in human beings?

Gentlemen, I venture to say that these experiments — striking as they may appear — teach us as yet very little new, and nearly nothing definite, and for the following reasons: In every one of these experiments in which the alcoholization proved to be definitely unfavorable, the smallest dose which was administered to the animals amounted to 5 cc. of absolute alcohol per kg. animal, and in many cases the dose was a good deal larger, for instance, 10 cc. and even more. For rabbits, the animal which was extensively employed, the fatal dose is — according to Dujardin & Baer [17] — 7.5 cc. per kg. Let us take the minimum dose of 5 cc. as a basis, and compound it for a human being of a medium weight of 75 kg.: it would amount to 375 cc. absolute alcohol, or more than a pint and a half of strong brandy. Now who has ever given that quantity in a single dose, or even in two doses, to a patient? Surely this would lead in a normal individual to the most acute alcoholism, and perhaps even to a fatal issue. We would certainly expect, without any experimental evidence, that any infection in addition to such a toxic dose of alcohol will prove fatal. Furthermore, we also knew long ago that alcoholic individuals are less resistant to the effects of infectious diseases.

On the other hand, we have abundant proofs that similar, and even larger doses of alcohol, distributed over 24 hours, administered to human beings down with infectious diseases, do positively not show such strikingly deleterious effects as were observed in animals. Abbott or Laitinen had in their respective experiments series of four or five alcoholized infected animals, all or the most of which died, while the controls survived. Now Runge [18] published a table of twenty grave cases of puerperal fever with a recovery of 80%; all of these patients received for days and weeks very large doses of alcohol. If this does not prove anything else, it proves at least conclusively that large doses of alcohol are not as harmful to septic human beings as they seem to be to septic animals.

Observations of a similar kind have been made time and time again in typhoid fever. Between 1884 and 1887 I followed the custom of that time and treated typhoid cases with large doses of alcohol. I remember having given to a young girl of about 30 kg., nearly one pint of whiskey, every day for eleven consecutive days, without any untoward symptom. And it was during this period that I did not lose a single case of typhoid fever. Not that I wish to put up the claim that the alcohol treatment was the cause of the recoveries; I quote this experience to show that large doses of alcohol did not lower the resistance of my patients to their infection. Hundreds of other physicians had similar experiences. These experiences are reliable clinical evidences, sufficient to warrant the assertion that doses which proved so harmful to animals, are comparatively harmless when administered to human patients in a proper medical manner. These clinical observations seem to me to be well-established facts, equal in their reliability to those derived from the animal experimentation. I shall try, however, to offer some explanations for the differences in the results.

In the first place, as already indicated above, in nearly all the experiments the large quantities of alcohol were administered in one or two doses. In administering alcohol to patients we distribute the daily quantity in six or even twelve doses. By a single, large dose the body cells might become damaged beyond recovery. Then there are some other significant points. Take, for instance, the mode of administration: in most of the experiments the alcohol was introduced into the stomach of the animal through a stomach tube; Abbott states that this method led in many cases to erosions and inflammation of the stomach, which in some cases resulted in distinctly complicating infections. Another significant fact is that in none of the experiments mention is made as to how the animals were fed; it is possible that the alcoholized animals had a good deal less appetite for food, and ate less than the control animals. We notice in many protocols the remark of the loss of weight of the alcoholized animals. The physician, as you all know, pays a great deal of attention to the feeding of his patient.

Furthermore, the reduction of the amount of alcohol per kilogram animal does not offer a basis for a fair comparison. The resistance of large animals is greater than that which is due to them on account of their number of kilograms. An animal of 75 kg. may resist a quantity of poison seventy-five times the dose which is fatal to an animal of 1 kg.

Moreover, as we know, even individuals of the same species vary considerably in their resistance to the effects of alcohol. There is surely a great difference in this regard between different species, and a per kilogram dose which is fatal to the pigeon might indeed be of no account to a man.

*(To be continued.)*

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THE territorial Board of Health of Hawaii is to begin a series of experiments to determine the value of x-rays in treating leprosy. Application has been made for a physician from the U. S. Marine Hospital Service.— *American Medicine.*

## THE COMMON USE OF ALCOHOL AS A BEVERAGE.[1]

BY GRAHAM LUSK, PH.D., NEW YORK CITY,

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Wine has been used from the earliest dawn of history. Among the Hebrews its production is first attributed to the patriarch Noah, while among the Greeks and the Egyptians it was said to have been introduced by the gods, by Dionysis in Greece and by Osiris in Egypt. Among the older nationalities the vine and the olive were looked upon as the symbols of a cultured civilization. A semi-nomadic people could raise a corn crop, but a settled life and the highest husbandry were required of "him that planteth a vineyard" (Encyclopedia Brittanica).

All races of men who can obtain alcohol use it as a beverage in one form or another. If alcoholic beverages be introduced among a nation unaccustomed to their use, much drunkenness follows. G. A. Reid, in a recent book on "Alcoholism," endeavors to show that the races long accustomed to the use of alcohol have lost through early extermination those individuals whose tendency was to drink themselves to death, and who have not, therefore, bequeathed this tendency to their offspring. Thus, a certain immunity is acquired. Scientific temperance would, therefore, mean free rum. This may not be entirely untrue, but Herbert Spencer has called our attention to the fact that drunkenness was very prevalent in England a hundred and fifty years ago, and that great changes have been wrought through an altered public opinion.

There are as many contradictory statements regarding the use of alcohol as a beverage as can be found in the literature of any one subject. On the one hand we find von Voit[2] saying the flavor of wine occasionally taken is the noblest, delighting the human sense, and though it be not the milk of old age, still it makes the old feel young. On the other hand, Bunge rails at those who would partake of the excreta of yeast. Hutchinson[3] quotes Thackery's reported saying, that he had got some of his best thoughts "when driving home from dinner with his skin full of wine," whereas Helmholtz, at the Commers given in honor of his seventieth birthday, declared that he had never had a great thought come to him after taking a glass of wine. Strümpell[4] declares that moderate drinking has a cumulative toxic action similar to lead poisoning.

The use of alcohol as a food has been known for a long time. But the general use of alcoholic beverages depends upon two specific properties: (1) Alcoholic drinks possess flavor, and (2) they act upon the central nervous system. A single glass of wine containing 10 cc. of alcohol may render a meal more palatable and bring about a certain amount of what is generally supposed to be central stimulation. In the absence of this flavor and stimulant, others are sought, as in tea and coffee, for example. Before the general use of tea, it is said that Queen Anne made her breakfasts of "beef steaks and small beer."

Alcoholic beverages are numereus and well known, and the custom of their use is varied.

A clear example of the use of beer as a flavor is found among the mountains of the Bavarian Tyrol. Here, excellent cheese is eaten with coarse bread, and the monotony of this highly nutritious combination of foodstuffs is varied with the light refreshing Bavarian beer. We can appreciate the motto which runs on the monkish brewery: "God bless the beer of Ammergau." It is interesting to note that where wine instead of beer is drunk the cooking also improves. With beer coarse food tastes well, but throughout the Rheinland the delicate *bouquet* of the wines compels a more careful attention to the flavor of the accompanying food.

The brilliant researches of Pawlow[5] have given us a clearer idea of the action of a flavor than we have heretofore possessed. Many will remember that Bidder and Schmidt found that the mere sight of food by a hungry dog resulted in the flow of gastric juice through his fistula. Pawlow has gone further in this direction. He has prepared a dog with both an esophageal and gastric fistula. If such dogs be fed with meat or milk or bread, this "fictitious meal" passes out the opening in the neck, and five minutes after the beginning of such feeding a copious flow of gastric juice commences in the stomach. Pawlow was able to demonstrate that the pathway of the efferent impulses to the stomach was through the vagi. After cutting the vagi, this reflex secretion did not take place. Pawlow sought to find if the sensory stimulus for this apparent reflex flow of the gastric juice consisted simply in a local stimulus of the various sensory nerves of the mouth. To this end he prepared a dog with an esophageal and a gastric fistula and washed the dog's mouth with such substances as hydrochloric acid, pepper, mustard and salt, or the dog was given stones to swallow, all with no avail. Not a drop of gastric juice flowed from the stomach. The dog could be made to swallow stones for hours at a time, passing them out of the fistulous opening of the esophagus, but this mechanical stimulation had not the slightest reflex effect on the gastric glands. A piece of meat fed at any time during this experiment produces the flow of gastric juice in almost exactly five minutes. This first secretion of gastric juice depends, then, upon the sense of appetite, and, therefore, Pawlow describes it the "psychical secretion."

The physician in ordinary practice is too apt to think that whatever disagrees with him must of necessity disagree with his patients, forgetting thereby that what may be tasteless or repellant to him may be highly appetizing for them. Whatever stimulates the sense of appetite will aid in the preliminary "psychical secretion" of the gas-

[1] Read before The Massachusetts Medical Society, June 11, 1902.
[2] Hermann's Handbuch, 1881, No. 1, vol. vi, p. 430.
[3] Food and Dietetics, 1901, p. 327.
[4] Ueber die Alkoholfrage, 1898.
[5] Die Arbeit der Verdanung. schüseu, 1898.

tric juice, and Pawlow himself describes his personal experience after an illness which left him apparently normal except that he was without appetite for his food, all substances tasting very much alike. When in this condition, he found that a glass of wine passing through his mouth, esophagus and stomach produced sensations resulting in appetite. Wine would seem, therefore, the strongest stimulus to appetite and consequently the strongest stimulus to the flow of the psychical secretion of gastric juice.

Following the psychical flow of gastric juice, the further flow is brought about by chemical reagents, acting upon the neurosecretory apparatus. If egg albumin or bread be introduced into the stomach through the gastric fistula of a sleeping dog, there will be no secretion of gastric juice, for these substances do not contain the chemical bodies necessary for the stimulation of the gastric nerves, and mere mechanical irritation is always ineffective. On the other hand, meat or Liebig's extract of beef similarly introduced will slowly produce a flow, because meat contains substances which stimulate the neurosecreting mechanism. So also pepper, mustard, the amara, and alcohol[6] directly increase the flow of the gastric juice when introduced into the stomach. Rubner[7] states that he has noticed that alcohol helps the digestion when meat and fat are fed together. Pawlow explains this by showing that the quantity and enzymatic power of gastric juice produced by the fat meat diet is less than by meat alone. Hence game, which is comparatively free from fat, is given to invalids.

But alcohol seems to have a yet wider influence upon the gastric glands, in that it causes them to secrete when introduced into the small intestine,[8] or even into the rectum.[9] No other substance is known which will cause this effect.

We see clearly from the above that alcohol may act very generally throughout the whole intestinal canal, to stimulate the flow of the gastric juice.

The next question which arises is, does alcohol stimulate the flow of the pancreatic juice? Pawlow has told us that the great stimulus to the flow of pancreatic juice is the action of the hydrochloric acid of the gastric juice upon the wall of the duodenum. Hence we see that alcohol which promotes the gastric flow indirectly promotes the pancreatic flow as well.

Pawlow has compared the appetite to a lighted match starting a fire. The psychical secretion of gastric juice begins. Digestive products are formed which stimulate the stomach wall, directly causing a further flow of gastric juice, and finally the pancreatic juice is stimulated to flow by the presence of hydrochloric acid. White of egg introduced into the stomach directly will not be digested. White of egg eaten with appetite may be digested. Chittenden, Mendel and Jackson have shown that alcohol promotes the flow of saliva.

So throughout the intestinal canal alcohol favors the flow of the digestive juices.

It should be added that if too much alcohol be taken there is too great an irritation to the mucous membrane of the stomach, with decreased activity and resulting dyspepsia. Also alcohol in the stomach at first prevents the gelatinization of proteid necessary for peptic digestion, but this factor lasts for a short time only, as the absorption of alcohol even from the stomach is rapid and complete.

There is little doubt that alcoholic beverages taken at meal-time promote digestion through the addition of a flavor. It is, however, very doubtful whether in normal persons continued excessive encouragement of the appetite is either necessary or desirable.

Besides giving flavor to the food, alcoholic beverages also act upon the central nervous system. Rubner says that could all men rest when tired, such stimulants as tea, coffee and alcohol might be less used. Two theories have been advanced to explain the action of alcohol on the central nervous system. The first is that alcohol stimulates and afterwards depresses the nerve centers. The second theory, championed by Schmiedeberg, is that alcohol always acts as a depressant, but that the beginning of the depression is first upon the inhibitory nerve centres, thereby leaving the motor apparatus freer to act. There is a diminution of the sense of fatigue, of attention, judgment and reflective thought, and a raising of the self-esteem. Alcohol brings cheer to the tired and to the weak. This factor should not be overlooked in its use in medicine.

The effect of alcohol in physical fatigue is a many-sided one. In considering this subject it must be remembered that there is a peripheral apparatus, the muscle, governed by neurones whose cell bodies lie in the anterior horn of the cord. The discharge of these cell bodies is in turn influenced (1) from the brain by both motor and inhibitory impulses; (2) from the sensory nerves within and near the muscle itself, and (3) from all kinds of sensory nerves from all parts of the body.

It is a widespread belief that fatigue is due to the exhaustion of nerve cells. This theory has been critically reviewed by my assistant, Dr. R. S. Woodworth.[10] Dr. Woodworth shows that peripheral sensations, such as soreness, for example, are factors which naturally produce a feeling of fatigue and a consequent tendency to stop work, although in reality the nerve cells and the muscles are fully capable of continuing to act. If the narcotic effect of alcohol dulls these sensations of fatigue, work would seem easier.

It is known that many sensory stimuli entering the cord rouse the motor cells to increased irritability. Thus each sound of the rhythmical beat of a drum stimulates the cord cells that

[6] Brandl. Zeitschr. f. Biologie, 1892, Bd. xxix, p. 277.
[7] von Leyden's Handbuch der Ernährungstherapie, 1897, Bd. i, p. 108.
[8] Chittenden, Mendel and Jackson; American Journal of Physiology, 1898, i, 164.
[9] Radzikowski: Pflüger's Archiv., 1901, Bd. lxxxiv, p. 513.
[10] New York University Bulletin of Medical Sciences, 1901, i, 133.

they may more readily discharge. In the same way Féré claims that the sensory stimulation of merely washing the mouth with brandy enables one to do more work.

One can only surmise concerning the direct effect of alcohol on the motor area of the brain or on the cord cells themselves.

Concerning the action of alcohol upon the muscle substance, important results have been communicated to me by my friend, Dr. F. S. Lee of Columbia University, and I am permitted to lay them before you here. Dr. Lee finds that in the curarized frog's muscle, where all the nervous influence is removed, the immediate effect of alcohol is to increase the amount of work done even by 100%. The individual muscle contraction is quicker and fatigue is delayed. The secondary effect, that is, the result after the action of alcohol has lasted for an hour, is directly the reverse of the above, there is a depression, a decreased ability to work. If it were possible to apply these experiments to protoplasm in general and to the nerve cells in particular, we could perhaps say that the action of alcohol was first to stimulate and then to depress.

It seems hardly necessary to refer to the fact that the use of alcohol in armies as a means of obtaining additional expenditure of physical force has long since been abandoned. After taking alcohol the sum total of work done will not be increased, but rather diminished. The depressant effect is the predominating factor in the long run.

Where muscular work becomes of the minute, painstaking kind, the action of alcohol is not favorable for its accomplishment. Thus Aschaffenburg[11] found in the case of four typesetters that the effect of drinking 200 cc. of Greek wine containing 18% of alcohol was to reduce the speed of typesetting on an average of 15.2%, while it was noticed that the accuracy of typesetting was unaffected. von Vintschgau and Dietl[12] have measured the reaction time before and after drinking two bottles of Rhine wine. The reaction time was much delayed, although the persons thought that they were acting quicker than before.

Concerning the action of alcohol on intellectual activity, Smith[13] has shown that 40 to 80 gm. of alcohol will depress the mental power, as indicated by the ability to memorize or to calculate, and it especially depresses the power to improve by practice.

Fürer[14] says that a mild intoxication results in intellectual depression lasting for twenty-four hours or more.

Without doubt alcohol reduces the power to do both physical and mental work. It reduces the power to learn. All the mental work done in the above experiments was of the minute, painstaking sort. Dr. Woodworth has suggested to me that intellectual activity with some swing and freedom about it and aiming only at broad effects might be differently influenced, as seems indeed to be the case with some orators, musicians, and possibly writers.

On the whole, the moderate use of alcohol as a beverage gives additional flavor to the food, and acts as a mild narcotic, often preceded by a period of exhilaration.

[11] Kræpelin's Psychologische Arbeiten, 1896, i, 608.
[12] Pflügers, Archiv., 1877, Bd. xvi, p. 316.
[13] Archiv. f. Psych., 1895, Bd. xxvii, p. 968.
[14] Loc. cit., 1795, Bd. xxvii, p. 970.

## Clinical Department.

### REPORT OF CASES FROM THE SECOND SURGICAL SERVICE OF THE CHILDREN'S HOSPITAL, BOSTON.

BY H. L. BURRELL, M.D., R. W. LOVETT, M.D., and J. E. GOLDTHWAIT, M.D., BOSTON.

#### I. OBSCURE DOUBLE PSOAS ABSCESS; OPERATION, SUPPOSED RETROPERITONEAL TUMOR; OPERATION, DRAINAGE OF RIGHT ABSCESS; INFECTION, OPERATION, DRAINAGE OF LEFT ABSCESS.

M. W., male, eleven years; entered the hospital Feb. 6, 1902, with diagnosis of low dorsal Pott's disease and double psoas abscess. His family history was negative; he had had measles seven years ago, and scarlet fever. The history of his present illness dates back a year, when he began to drag his feet and have backache. He was treated in the Out-Patient Department, with a series of plaster jackets. He entered the wards in December of last year; was treated with bed frame and padding and discharged to Wellesley with a plaster jacket and double plaster spica.

Physical examination showed a well-developed and fairly well-nourished boy. Sharp kyphus at the twelfth dorsal spinous process. Muscular spasm of both psoas muscles. Fulness in both iliac fossæ, more marked on the right with prominence and inspection and flatness to percussion. Urine showed a very slight trace of albumin; leucocyte count, 8,200. X-ray shows little bony disease.

Feb. 15. Operation performed under ether. An incision, 5½ cm. long, was made on both sides over mass of tumor. Abdominal cavity opened and region explored. Tumor on each side runs from costal border to brim of pelvis, and seems to be continuous with kidney. Peritoneum united and abdominal wall closed without further exploration. Good recovery from ether. For several days after operation the amount of urine was low, but by Feb. 25 it had reached 1,500 cc. in twenty-four hours, under treatment with cream of tartar water. Temperature running between normal and 100° F. The size and position of tumors have not changed. Child treated with padding on a Bradford frame.

March 28. Operation, performed under ether. Incision was made along crest of right ilium, 2 cm. above crest, 10 cm. long, carried through skin and fascia; mass of tumor exposed, running along the right side of the vertebral column as far as the fingers can reach. The mass was grasped with a pair of double hooks, for purpose of examination. Immediately there was an escape

of 35 oz. of cheesy pus. Drainage established and incision partially closed. Good recovery from ether. Both tumor masses have disappeared and dressing is done, with thorough irrigation, every other day. Culture shows no growth; probably tuberculous.

For two weeks child was comfortable, showing no change in symptoms; free discharge from incision. Temperature then began to rise to 103° F., and child to complain of headache and abdominal pain. On examination it was found that there is fulness and resistance in the right iliac fossa. Widal negative; leucocyte count, 22,200. Urine shows no albumin; no sugar. The symptoms increased until temperature reached 105° F.

April 17. Operation performed under ether. Incision made in left iliac fossa just below anterior superior spine; carried through muscular layer, and edge of peritoneum defined. Psoas muscle comes into view, apparently lying over abscess. Edge turned back and incision made through sheath. Large amount of cheesy pus evacuated. Good recovery from ether.

April 23, 1902. Since last operation child has been perfectly comfortable; temperature down to normal. H. L. B.

II. POTT'S DISEASE AND PSOAS ABSCESS; OPERATION ON ABSCESS; ACUTE NEPHRITIS APPARENTLY DUE TO PRESSURE OF DRAINAGE TUBE; RECOVERY FROM NEPHRITIS.

P. S., male, nine and one-half years old; entered the hospital Dec. 24, 1901, for dorsal Pott's disease, with right psoas abscess of large size. Had been treated in the Out-Patient Department by plaster jackets, but had been neglected at home. At entrance the following physical examination was made: Fairly developed, general condition good. Lungs show good resonance; good respiratory murmur. Heart sounds clear; no murmurs. In the dorsal region of the spine there is a sharp knuckle composed of the eighth, ninth and tenth dorsal vertebræ. Considerable rigidity of the back. In the right iliac fossa there is a lump reaching about one-third of the way to the umbilicus, soft and fluctuating. On its upper edge is a bunch the size of an olive, apparently a gland. No glands in the groin. Motions in hip normal. No ankle clonus or increased reflexes. Hyperextension in left leg normal; in right leg diminished (short of a straight line); left iliac fossa normal. Circumference: Left thigh at groin, 12 inches; right thigh at groin, 12½ inches. Urine: Color normal, acid; specific gravity, 1,016; no sugar, no albumin. Blood examination: Whites, 15,200.

Operation performed Jan. 1, 1902. Incision two inches in length over centre of tumor, carried through skin, and abscess opened by incision one inch in length. Large amount (18 oz.) of cheesy pus evacuated. Cavity irrigated thoroughly with normal salt solution. Long rubber drainage tube inserted, corrosive dressing 1-10,000. Good recovery from ether.

Jan. 7, 1902. House officer was called at 3 A.M. for intense abdominal pain. Plaster spica removed; stimulation ordered; no abdominal rigidity; some tenderness deep in both hypochondria; pulse rather poor; very slight bloody discharge from end of penis; unable to pass urine; bladder empty; hot fomentations ordered. Urine: Color dark. Reaction, slight, acid; amount, 2 oz. Albumin, ⅛%; sugar, none; bile absent. Sediment: Much free blood; leucocytes; granular detritus.

Jan. 8. Urine: Color normal, with considerable brownish sediment. Reaction, acid; specific gravity, 1,013; amount, 12 oz. Albumin $\frac{1}{10}$-⅛%; sugar, none. Sediment: Large number of brown granular, hyaline, epithelial and few blood casts, with leucocytes, renal cells and blood globules adherent to nearly all. Large amount normal blood; numerous renal cells and leucocytes; sediment much stained by blood pigment; few bladder cells.

Two drachms bloody bright urine passed about 5 A.M. yesterday. First examination above was done on this. Boy passed fairly uncomfortable day on 7th with considerable vomiting through the day. Unable to retain liquids. Long tube withdrawn and shorter smaller one inserted. Examination of urine shows acute inflammation of kidneys probably due to reflex irritation from large drainage tube pressing on ureter.

Jan. 9. Urine: Color normal; considerable light brown sediment, 1,017 acid; very slight trace albumin; no sugar; amount 750 cc. Sediment: many hyaline, granular and epithelial casts; considerable pure blood; occasionally light granular casts; numerous renal cells and leucocytes and uric acid crystals, occasional bladder cells.

Jan. 10. Amount, 665 cc.; normal color; slight brownish sediment; specific gravity, 1,018, acid; no albumin; no sugar. Sediment: Many hyaline and granular casts; occasional granular casts with renal cells, leucocytes and blood adherent; numerous leucocytes, some free blood and renal cells, mucous crystals uric acid; occasional calcic oxalate crystals.

Jan. 12. Amount 370 cc.; normal; specific gravity, 1,024; acid; no albumin; no sugar.

Jan. 13. Amount, 1,289 cc.; pale; specific gravity, 1,002; very slightly acid; no albumin; no sugar.

Jan. 14. Amount, 1,775 cc.; pale; specific gravity, 1,010; very slightly acid; no albumin; no sugar.

Jan. 15. Amount, 1,245 cc.; pale; specific gravity, 1,009; no albumin; no sugar.

Jan. 28. Under cream of tartar water 24° amount of urine has risen to 1,300-2,300 cc., daily. Upon go-cart past four days. No ankle clonus; no fulness in either iliac fossa; some deep resistance is felt about sinus; discharge about 3 oz. daily. Wound doing well; general condition much improved.

Examinations of spine shows muscular spasm and motions practically as at entrance.

Discharged. R. W. L.



Separation of the Pubic Bones.

III. A CASE OF MARKED SEPARATION OF THE PUBIC BONES.

The following case is reported as illustrating an unusual condition:

J. H., a boy eleven years of age, was brought to the Children's Hospital in December of last year because of disease of the right hip joint, tubercular in character. At the time of the examination it was noticed that the pubic bones were markedly separated, there being $7\frac{3}{4}$ cm. between the spines of these bones. Both iliac bones had separated so that the anterior superior spines were the outermost portion of the iliac bones instead of the middle of the crest, as is normal. There was considerable motion owing to the looseness of the sacro-iliac articulation, but this did not prevent the child from walking freely, and had apparently caused no symptoms. The right pubic bone was more prominent than the other, and appeared on first inspection like a tumor projecting at what would ordinarily be the location of the external inguinal ring.

The only thing to in any way account for the condition was that when two and one-half years of age the child was run over and was lame for a short time, but ultimately improved so that he was considered well until six months ago when the trouble with the hip began.

The genital organs were in no way abnormal as might be expected if the pelvic condition were congenital in origin.

The x-ray taken at the time of entrance is shown in the illustration.

J. E. G.

## Reports of Societies.

### AMERICAN MEDICAL ASSOCIATION.

FIFTY-THIRD ANNUAL SESSION, HELD AT SARATOGA, N. Y., JUNE 10-13, 1902.

SECTION ON PRACTICE OF MEDICINE.

(Continued from No. 1, p. 24.)

SECOND DAY.

ETIOLOGY OF CHRONIC NEPHRITIS.

DR. ARTHUR R. ELLIOTT of Chicago read this paper. He said that under the name "chronic nephritis" are described slow inflammatory processes affecting both kidneys, due to a pathologic condition of the blood and leading to destruction of the parenchyma, with eventual shrinking of the organ. The most characteristic phenomenon of this affection is not its terminations in atrophy, but its casual relationship with hematic dyscrasia. As the purification of the blood devolves principally upon the kidney, an abnormal condition of that fluid is liable to cause renal affections. It is plain that the morbid agents or combination of agents is not always the same. In rare instances, where chronic nephritis develops as a result of acute nephritis, the chronic lesion must be due to the same common cause as its acute precursor. This is the case in chronic nephritis consequent to scarlatinal puerperal nephritis. It seems probable that the remaining amount of healthy parenchyma is not sufficient to cleanse the blood, and the products of this integration may be in such excess as to exert a deleterious effect upon the remaining structure. The issue of acute nephritis of infectious origin into chronic nephritis is comparatively rare. The form thus originated is usually tubal nephritis. Interstitial nephritis is essentially a chronic malady from the start. In the majority of the cases no signs of dropsy are present in interstitial nephritis, or indeed is there any other grave disturbance of health until the development of retention symptoms or evidence of cardiovascular embarrassment. It is possible that if acute nephritis lasted long enough, it might lead secondarily to a form of interstitial nephritis, but whether the disease known as chronic nephritis could result is another question. Even if acute nephritis can be established as an event in the early clinical history of the case, it does not necessarily follow that prior to the attack the kidneys were sound. Simple acute nephritis occurs so rarely in adults that it may be regarded as presumptive evidence that the kidney has been diseased beforehand. In cases of renal cirrhosis apparently related to scarlatina or pregnancy it is possible that these factors determine the renal lesion only in conjunction with accessory causes of toxic character. Renal sclerosis subsequent to arterial sclerosis is exceptional in comparison to the cases in which the vascular changes are secondary to genuine chronic nephritis as their origin. It is probable that only in rare cases of chronic indurative nephritis associated with advanced senile arteriosclerosis are we warranted in attributing a purely etiological influence to the arterial changes, the association of arteriofibrosis with renal atrophy in other cases being incidental. The gland is primarily affected in any true nephritis. Toxic irritation of the kidney is the common cause of all nephritis, but in chronic form it acts more slowly, or by successive attacks. Examined in the light of our present knowledge in regard to the action of organic poisons, the mode of action of various determining causes of nephritis seems to be satisfactorily defined. Among these causes are the disturbances of nutrition, such as gout, chlorosis, diabetes, syphilis, the various cachexiæ, overwork, and diseases involving certain excretory organs, such as chronic skin diseases, hepatic and intestinal affections. The uniformity of the action of these factors may be recognized at a glance. The abnormalities of the urine under such circumstances are but symptoms of an underlying toxemia produced by an antecedent malady. Primary interstitial nephritis is of extremely insidious development, as well as glandular atrophy of the kidney; they seem to depend upon the operation of some cause which is very gradual and persistent in character. Certain alterations in the vascular system are almost a constant feature of

the syndrome of this disease, and seem to be produced by the action of the same irritant.

The speaker thought no cause so frequent and important as autotoxemia of digestive origin. Many authors have referred to other toxemias as a possible source of renal damage, but the full extent of the relationship has perhaps never been stated. The success of dietetic treatment of nephritis, the importance of Dickinson's "morning purge," the effect of colonic irrigation upon renal elimination, the influence of gastro-intestinal accident in aggravating renal symptoms, etc., speak for the importance of a clean digestive tract. Where there is chronic gastro-intestinal trouble an increased amount of work is imposed upon the liver, with the result that the liver cells become gradually and progressively affected and eventually yield to irritation and prolonged hyperfunction, permitting the poisons which reach it from the bowel, together with the products of disturbed hepatic function, to pass into the general circulation. The presence of these bodies in the blood disturbs vascular tension and a high degree of renal irritation results from their elimination.

He called especial attention to the insidious action of gastro-intestinal conditions resulting from chronic constipation, and the effects of the toxins thus produced upon the kidneys, the disease being often far advanced before it is even suspected. The main purpose of the speaker was to emphasize the overwhelming importance of the toxic element in the causation of all nephritis and the uniformity of action of the toxic factors, whatever special form they may assume.

### MALARIAL NEPHRITIS, WITH REPORT OF A CASE.

DR. W. BRITT BURNS of Memphis, Tenn., read this paper on some of the findings of urinalyses, and made special reference to nephritis occurring in malarial cases in which large doses of quinin cleared up the urinary symptoms. He reported a necropsy where the gross pathology showed a large and small white kidney, a beginning hypertrophic cirrhosis of the liver, splenitis, and fatty heart. The minute pathology revealed pigmentation of cells and the blocking of vessels by pigment in the liver and spleen. He agreed with Dr. Moore of Galveston, Texas, who stated that nephritis was not likely to occur in a single tertian infection for a short interval, say, of five days; but a doubtful tertian infection will produce a nephritis in a large proportion of cases if it runs only for a short time. The more chronic a case of any infection becomes the more likely it is to produce a nephritis. Malaria of long duration, or often repeated attacks, will produce chronic renal attacks, as shown by the continuous presence of albumin and casts. The greatest percentage of cases of nephritis result from estivo-autumnal malaria, 68.7. The age of the patient, height of the temperature, or specific gravity of the urine showed no relation to the presence of albumin and casts in the cases reported by Dr. Moore.

### CLASSIFICATION OF CHRONIC NEPHRITIS.

DR. JAMES B. HERRICK of Chicago read this paper. He said that anatomists and pathologists did not agree in their descriptions of the various types of this disease, and that thus far no successful attempt at classification had been made. Some classification was important, even though it was somewhat faulty or artificial. A search through medical literature furnished the writer with facts which permitted of an approach to orderly grouping. First, the kidney of congestion is, by common consent, ruled out of the category of the nephritides and of Bright's disease. Amyloid kidney is also excluded by Virchow and others. Two distinct groups remain, which present such striking contrasts that one felt warranted in making of the groups separate classes. While the names used to designate these two different kidneys should be as accurate as possible, in describing actual pathological conditions, it is more important that the fact of the existence of these two types should be clearly recognized. To the form characterized by edema and abundant albuminuria and cylindruria, the name "chronic parenchymatous nephritis" had been most often applied; to the other form with marked cardiovascular changes, its relatively slight albuminuria and cylindruria, and with its abundant urine of low specific gravity, the term chronic interstitial nephritis is given. As synonyms for the first may be given large white kidney, large yellow kidney, chronic desquamative and chronic tubal nephritis; for the latter, contracted kidney, granular atrophy, gouty kidney, etc. The former is the large, rather soft kidney, pale or darker, depending on the amount of fatty degeneration, with easily stripping capsule, wide cortex, and with changes chiefly in the parenchyma, the tubular and granular cells. The kidney of the second class is the small, rough, firm kidney with adherent capsule, granular cut surface, thinned cortex, retention cysts, and with great increase in the connective tissue. Great variations of these types are frequently met with, which fact has led to the naming of subvarieties leading more to complication than to simplification. Parenchymatous and interstitial are also misnomers, for with every nephritis both the parenchyma and the interstitial tissue are involved. The process is in reality a chronic diffuse nephritis. In one case the parenchyma is chiefly involved and there is no induration, while in the other it is the interstitial structure that shows the primary change and there is contraction. Hence we have: (1) Chronic diffuse nephritis without induration; (2) chronic diffuse nephritis with induration. Clinically we find many mixed forms, and must often be content with the diagnosis of chronic or chronic diffuse nephritis. Both the student and the physician should realize that the disease often varies widely from the classical type, and the different forms may be combined with each in a variety of ways. As a subhead under chronic interstitial nephritis, arteriosclerotic kidney with

its striking local vascular changes should be placed. He considered Senator's classification the best, as it appealed to both the clinician and the morbid anatomist. The term parenchymatous can be used in place of diffuse without induration though not literally expressive of the true condition: however, it recognizes that parenchymal changes predominate. The classification would be: (1) Chronic parenchymatous nephritis (chronic diffuse nephritis without induration); (2) chronic interstitial nephritis (chronic diffuse nephritis with induration). (*a*) Primary chronic interstitial nephritis; (*b*) secondary chronic interstitial nephritis; (*c*) arteriosclerotic kidney (arteriosclerotic interstitial nephritis; (3) mixed type, that is, combination of 1 and 2.

THE DIAGNOSIS OF CHRONIC NEPHRITIS.

Dr. Aloysius O. J. Kelly read this paper. He said that he had nothing new to add, but would call attention to certain pathological and clinical features of the disease. There is little more known today than was known in the time of Bright.

In the differential diagnosis of albuminuria he distinguished the following forms: (1) Extrarenal, spurious, accidental or factitious albuminuria; (2) so-called functional, physiological or cyclic albuminuria; (3) albuminuria without noteworthy alterations in the kidney; (4) albuminuria with noteworthy alterations in the kidney.

Under the first class he placed those cases in which the albumin in the urine was but a subsidiary factor, usually not exceeding one-tenth by bulk, and proportionate to the amount of blood and pus. There should always be a suspicion of nephritis if there is a disproportionate amount of albumin in the urine. The presence of casts is of great importance, their presence being clear evidence of nephritis.

(2) So-called functional albuminura usually occurs in young persons, and is generally detected only by accident in examinations for life insurance, etc. Great circumspection must be exercised in diagnosing this variety of albuminuria. The albumin should never exceed more than .1%; the urine should contain no other abnormal constituents; every bodily organ should be examined and found to be in perfect health. A diagnosis should not be made until the patient has been long under observations and many examinations of the urine have been made. Albumin may be temporarily absent, for long periods, in certain cases and at certain stages of chronic interstitial nephritis.

(3) Albuminuria without noteworthy alterations in the kidney. To this class belong cases of active and passive congestion of the kidneys, cases of toxic degenerations of the kidney, kidney of pregnancy, amyloid degeneration of the kidney, acute and chronic suppurative and non-suppurative inflammations of the kidneys, and tumors of the kidneys. In these cases the albuminuria acquires its importance from the attendant phenomena. Hence we must make a diagnosis upon this basis and not upon the amount of albumin.

The cardiovascular changes in chronic nephritis are of extreme interest and importance; they dominate the clinical picture of the disease, and they assume a commanding position in the prognosis and in the treatment. The lesions are widespread, involving the heart, the large and small arteries, the capillaries, and sometimes even the veins. The left ventricle alone is affected in the majority of cases; in the remainder of cases both ventricles are affected; the right ventricle alone is never affected. Predominating dilatation of either or both ventricles is an unusual event until toward the termination of life. This hypertrophy of the heart occurs in all forms of nephritis, but not in all cases. It dominates the picture in insterstitial nephritis. The changes in the arteries are more complicated than those in the heart. In many cases the arteries show a loss of elasticity, while in other cases there is more or less arteriosclerosis atheroma, but neither is a constant feature. The medium-sized and smaller arteries almost invariably have thickened walls. In some cases both muscular hypertrophy and fibroid alteration may be observed side by side. The changes in the arteries are not distributed uniformly throughout the body. It seems that the cardiovascular alterations result from obstruction to the flow of blood in the arterioles and capillaries, and that this obstruction is provoked by the presence of some irritative metabolic products in the blood, which in health should be eliminated by the kidney. As chronic interstitial nephritis revealed itself in different ways the diagnosis depends upon the results of examination of the urine and of the cardiovascular apparatus. The urine is increased in amount and specific gravity. The amount of albumin is usually slight; at the time none may be found. Great diagnostic value is placed upon changes in the pulse. During the early stages the arteries are contracted and the pulse is small; the internal pressure is increased and the pulse is hard and resisting, pulse waves are small, the artery remains persistently full between beats. Later there is added evidence of arterio-sclerosis and still later the changes of atheroma. A diagnosis based upon increased arterial tension, accentuated aortic second sound and the physical signs of hypertrophy of the left ventricle will rarely be wrong. They may be detected even in the absence of positive signs of kidney disease in the urine.

THE EARLY CIRCULATORY INDICATIONS OF CHRONIC BRIGHT'S DISEASE.

Dr. Louis Faugeres Bishop of New York read this paper, in which he stated that chronic Bright's disease still remains a good clinical term for a condition involving many organs. It is no longer to be regarded as a disease essentially pertaining to the kidneys. In fact, the fatal factor is often found in the brain or the general nutrition. The kidneys and the brain act as end organs with relation to the circulation, and earliest symptoms

of disorder in the small blood vessels. The earliest circulatory disturbances find their indication in the brain, which is highly sensitive to every irregularity in its blood supply.

The most characteristic early circulatory symptom of chronic Bright's disease is the development of arterial tension and the first indication of the development of arterial irregularities in the circulation. Temporary unconsciousness, slight paralysis, or even evanescent aphasia, may indicate the development of disease of blood vessels, that in its full development will be typical Bright's disease.

The early recognition of these signs is important, because a proper hygiene and a proper therapy will longer delay the development of the disease.

URÆMIC APHASIA.

DR. DAVID RIESMAN of Philadelphia read this paper. He said that there could be no doubt but that this condition was a form of auto-intoxication. Like the majority of poisons originating in the body, that of uremia acts chiefly upon the nervous system, although it is possible that no organ or tissue escapes its influence. The nervous manifestations of uremia are comparable to those of hysteria, and often resemble the latter in that they are focal and suggest the existence of a gross organic legion. Among these focal symptoms the most interesting are hemiplegia, monoplegia, monospasm and aphasia. As the sole expression of uremia aphasia is rare.

He reported a number of cases and drew the following conclusions: (1) That aphasia may occur in uremia, and is at times the sole expression of that state. (2) It is frequently associated with right-sided motor paralysis, hemiplegic or monoplegic in character. (3) It may be the precursor of uremic convulsions or coma. (4) The aphasia is usually of the motor type, but may be sensory. There may be word blindness and word deafness. (5) It may be associated with agraphia, even when there is no paralysis of the limbs. (6) It is comparatively frequent in children, particularly in cases of post scarlatinal nephritis. In adults it may occur in any form of Bright's disease. (7) It is generally transient, disappearing completely. At times it is intermittent and has a marked tendency to recur. (8) When paralysis is present the two may disappear simultaneously, usually the aphasia first. (9) The features of uremic aphasia are, *per se*, not characteristic of the causal condition. (10) The most important diagnostic features are the transitoriness of the aphasia and the presence of other signs and symptoms of nephritis. (11) In every case of sudden aphasia the possibility of its being renal in origin should be considered and careful studies of the urine and of the system at large should be made with this thought in mind.

ENDOCARDITIS AS A COMPLICATION OF PNEUMONIA.

DR. E. F. WELLS of Chicago read this paper and offered the following conclusions: (1) Endocarditis is an infrequent occurrence in pneumonia and ulcerative endocarditis is a rare event. (1) When endocarditis occurs it does so comparatively early in the pneumonic attack and ulceration may occur any time within the period of, probably, several weeks, the time being possibly coincident with some unusual valvular strain. (3) The symptoms and signs, previous to ulceration, or in the cases in which this does not occur, are equivocal. (4) Any of the valves may be affected, but the preference is for the aortic. The vegetations are quickly formed and massive and they have a marked tendency to ulcerate. Pneumococci are present early, and should ulceration occur the blood becomes infected. Later, the pneumococci die. (5) In simple endocarditis the diagnosis is always difficult and often impossible. The murmurs and embolic conditions of ulcerative endocarditis render the diagnosis of this condition easy. (6) The prognosis of simple endocarditis is not well established, but that of the ulcerative form is extremely grave, although not absolutely hopeless. (7) The treatment of pneumococcal endocarditis, both simple and ulcerative, should embrace, as a cardinal and the most important principle, absolute rest in the recumbent posture and throwing the least possible strain on the heart. (8) There is but little tendency toward cicatricial contraction, and when recovery ensues, even in cases with ulceration, the integrity of the valve may be unimpaired and health completely restored.

VENESECTION.

DR. H. B. FAVILL of Chicago read this paper. He said that during the last few years there was a tendency to place greater value on bleeding than formerly. The indications for its employment, as now defined by literature, are vague and indefinite. It is important that this procedure of recognized value be not indiscriminately used and thus fall into disfavor again. Venesection may be of great value in certain well-chosen cases, when the heart, for various reasons, seems incapable of disposing of the blood which it is called upon to circulate. The important point is: What conditions are in any way amenable to correction by the withdrawal of blood? It seems, from the mechanical side, that the condition of the heart muscle, rather than the intensity of the provoking cause, will determine the issue. He postulated that whenever we find great pulmonary embarrassment, due to vascular engorgement, bleeding is indicated. There is a symptomatic relief in a variety of conditions, a radical relief in a very limited group. Venesection has a distinctly life-saving power in a small per cent. of appropriate cases. It may be indicated in plethora. There is small damage, even, in abstracting considerable blood.

THE EMPLOYMENT OF DIGITALIS AND ACONITE IN THE TREATMENT OF CARDIAC DISEASES.

DR. H. A. HARE of Philadelphia read this paper. He considered the importance of studying

the state of the cardiac muscle in the various conditions in which evidences of circulatory failure were manifest. He emphasized the fact that, while physicians very frequently regarded the valvular lesion as the important factor in the case, the condition of the heart muscle was really the most important matter to be studied, since valvular lesions in themselves were of little importance if compensatory hypertrophy existed. After many acute diseases the physician was wont to neglect the heart as the most important factor in the recovery of the patient. While an examination of this organ might fail to reveal signs of valvular difficulty, yet the action of the heart might be so feeble as to be incapable of supplying all portions of the body. An impoverished condition of the blood might also enfeeble the heart, for a heart could not be strong when poor blood was circulating through the coronary arteries. He advocated the administration of small rather than large doses of digitalis in the treatment of most cases in which this drug was indicated. He was very certain that the best results were usually obtained by the continued administration of these small doses. He mentioned the conditions in which aconite could be employed, alone or in conjunction with digitalis, with very excellent results. He said that in some cases of valvular heart disease the patient did not require digitalis or any other cardiac stimulant. In addition to rest the patient will often be benefited by the use of aconite, which has a steadying effect on the heart through its influence on the vagi, as has digitalis, while, by its sedative influence upon the heart muscle in cases of excessive compensation, and by its relaxing effect on the blood vessels, it diminished the overaction of hypertrophy, which is sometimes confused with the tumultuous overaction of ruptured compensation.

### TUBERCULOUS MYOCARDITIS.

Dr. J. M. Anders of Philadelphia read this paper. He gave a very exhaustive review of the literature on this subject and reported a number of cases, from which he drew the following conclusions: (1) Tuberculosis of the myocardium is more common than has been supposed. (2) At present writing not more than three varieties are justifiable. (3) It is practically always secondary to a lesion in some other situation, most commonly in the bronchial or mediastinal glands. (4) Transmission through the heart occurs most frequently through the lymph stream, less often through the blood current, and more rarely still as the result of extension by continuity. (5) Myocardial tuberculosis in a considerable proportion of cases is secondary to pericardial tuberculosis and the latter to disease of the bronchial glands. (6) The symptomatology is extremely variable and indefinite. (7) Diagnosis is excessively difficult but is possible with great care and under favorable circumstances. In addition to other suspicious features that may be present the existence of generalized tuberculosis and pericardial tuberculosis one or both, are essential.

### THE AUTOGENOUS DISEASES.

Dr. V. C. Vaughan of Ann Arbor, Mich., read this paper. He said that the literature on this subject did not furnish sufficient data for the making of even a provisional classification of autogenous diseases. He called special attention to the following facts connected with this subject: (1) The products of the incomplete action of the digestive organs may be absorbed and may cause more or less disturbance in certain organs of the body. Every part of the body will suffer from insufficient nutrition due to the fact properly prepared pabulum is not brought within the reach of the cellular element. Peptones and albuminoses injected directly into the blood act as powerful causes. (2) Certain secretions and excretions of the human body are poisonous when brought in contact with tissues with which normally they have no relation. (3) It is the function of certain organs of the body to prevent the passage of certain substances into the circulation. (4) The undue retention of excrementitious substances frequently lead to the disturbances of health. (5) Certain cells in the body fail to adjust themselves to general alterations taking place in other organs at certain periods of life. (6) Under conditions but little understood at present certain cells of the body fail to use certain foodstuffs. This is true of certain forms of diabetes. The cells which are accustomed to absorb and utilize the sugars find themselves unable to accomplish this duty and the unused sugar acts as a poison to other tissues. (7) Active poisons are sometimes formed by certain cells in the body. We account for the presence of certain of the more highly toxic leucomaines and some of the more poisonous acids, and some of the poisonous gases, and alkaloidal bodies in this way.

### APPENDICITIS FROM A PHYSICIAN'S STANDPOINT.

Dr. James Tyson of Philadelphia read this paper. He believed that the physician was too conservative in the treatment of this disease. After a thoroughly established diagnosis operation should be recommended, even though deferred, if it can be done without danger to the patient, until acute symptoms have subsided, if they show a disposition to subside. The diagnosis is most important, because operations, which have brought reproach upon the procedure, have been made upon insufficient foundation for the diagnosis. Every case of appendicitis whose diagnosis is thoroughly established should be operated upon, if possible, between the interval of attacks. On account of the occasional difficulty of diagnosis it may happen now and then that a normal appendix is removed, but he had come to the conclusion that it was better to have a few normal appendices removed than that one which ought to have come out should remain and cause the death of its owner. The appendix was not an organ of which we need be especially proud. It is useless and exceedingly vulnerable and without power of resistance when attacked.

A CASE OF SCURVY WITH UNUSUAL POVERTY OF THE BLOOD.

DR. JAMES E. TALLEY of Philadelphia read this paper and concluded as follows: (1) There is no condition of the blood characteristic of scurvy. (2) Gingivitis is not a constant symptom of scurvy. (3) In certain scurvy cases there is a condition of the blood similar to that existing in pernicious anemia, though any definite connection between the two diseases is not demonstrable. (4) The most important element in the causation of scurvy appears to be the lack of vegetable diet. Tainted foods may produce it, and an exclusive diet of perfectly fresh meat and blood may prevent it. (5) The infectious theory is gaining a strong foothold among authorities, although no definite micro-organism is acknowledged.

*(To be continued.)*

## Recent Literature.

*The Practice of Obstetrics.* By American authors. Edited by CHARLES JEWETT, M.D., Professor of Obstetrics and Gynecology in Long Island College Hospital, Brooklyn, N. Y. New (2d) edition, revised and enlarged. In one octavo volume of 775 pp., with 445 engravings in colors and black, and 35 full-page colored plates. Philadelphia and New York: Lea Brothers & Co. 1902.

This book was first published in 1899, and the publication of the second edition within two years shows the kind of appreciation which it has met with in the medical profession in this short time. This book, like its predecessor, is the work of nineteen physicians, who are more or less prominent at the present time as teachers and writers in obstetrics and its allied branches, and while it has seemed as if the medical public must have become saturated with medical works written on the system plan, yet the issuing of new editions of such works would seem to controvert this opinion. Theoretically it is reasonable to suppose that reference books written in collaboration should be superior in many respects to the "one-man" book, but in actual practice, the individual articles varying so much in importance, in merit and in the amount of work exhibited in each, the results are often quite disappointing. This is a natural outcome, since different writers approach their work with such varying degrees of fitness, enthusiasm and energy. In this book, however, there is less to criticise than usual in this respect, and the contributions are in general equal in merit.

Apparently much good work has been performed by the editor in the revision of the volume; many new and good illustrations have been introduced and some of the old ones have been eliminated with good effect. Others might have been omitted without loss and with good advantage to the general appearance of the book.

The part devoted to the anatomy of the female generative organs is unusually complete and contains much new matter.

In part two the development of the ovum is described at great length, yet many of the more important points which are of greater interest to the student are omitted; the knowledge gained from the latest researches of Peters and Webster on the formation of the placenta is also not included.

Only about sixteen pages are devoted to the chapter on the mechanism and the clinical course of normal labor, an inadequate treatment of this important subject. The importance of medical supervision during pregnancy, of antepartal examination of the patient and of her pelvis, and the value of external palpation is duly insisted upon. In connection with the latter subject, we believe the illustrations would lose none of their value and the general appearance of the work would be enhanced, by the elimination of the portrait of the examiner, which is shown no less than seven times in one chapter, and even this is an improvement over the first edition.

The use of antiseptics is well described, and we are pleased to see that the author commends the use of rubber gloves, and says "there is no kind of surgical work in which the routine use of rubber gloves finds a more appropriate application than in obstetrics." We regret that in the preparation of the patient for labor he does not insist upon shaving the genitalia, as an additional precaution against infection.

It is unnecessary here to criticize in detail the different sections of the book. Most of the material which it contains gives evidence of care and good judgment in its preparation. The work is a valuable one and should be a source of pride to its editor and the other contributors.

*Selected Essays and Addresses.* By SIR JAMES PAGET. Edited by STEPHEN PAGET, F.R.C.S. Pp. 445. New York and Bombay: Longmans, Green & Co., London. 1902.

This is a volume of lectures, essays and addresses of Sir James Paget published for the special use of the medical profession. The lectures connected with his clinical studies and with his later work in surgical pathology are included in the list of subjects discussed, whereas all reference to his early lectures in pathology are excluded. The subjects are varied, ranging from "senile scrofula" to "theology and science" and from "dissection wounds" to "uses of the will for health." Representing as they do the products of the wide experiences of an exceptionally gifted man, these essays and addresses will prove profitable reading for many years to come whatever the advances in knowledge may be. The book should prove of exceptional interest to those who have read the memoirs and letters of their author, published a short time before.

*Manual of Physical Diagnosis.* For the use of Students and Physicians. By James Tyson, M.D., Professor of Medicine in the University of Pennsylvania and Physician to the University Hospital, etc. Fourth edition, revised and enlarged. With colored and other illustrations. Philadelphia: P. Blakiston's Son & Co. 1901.

The appearance of the fourth edition of a book certifies to a continued demand for its existence and should carry with it the assurance that it is as good as the author can make it. The excellence of this manual lies in the simplicity with which the subjects are treated and the book represents a fairly successful attempt to create a primer of physical diagnosis, answering the call which always exists for an elementary treatise in any subject presenting essentially new problems to the student. Its greatest fault is that common to most primers, a failure to produce a symmetrical whole, too much attention being paid to some questions and too little to others. The sections in particular on the blood and the x-ray are entirely inadequate, and if space to make them more complete could not be spared they would much better have been omitted. Fourteen pages at the end of the book are devoted to directions for making an autopsy, and immediately following comes an outline for the verbal examination of the patient, a sequence which may be fairly called *non sequitur*.

*The Practical Medicine Series of Year Books. Obstetrics.* Edited by Reuben Peterson, A.B., M.D., Professor of Obstetrics and Gynecology in the University of Michigan, and Henry F. Lewis, A.B., M.D., Instructor in Obstetrics and Gynecology in Rush Medical College. Chicago: The Year Book Publishers. 1902.

This small volume of 225 pages is one of a series of ten issued at monthly intervals and intended to cover the entire field of medicine and surgery. The book on obstetrics is mainly a review of the literature of the subject of the preceding year with abstracts of the more important articles, giving references.

The editors disclaim any attempt to cover completely the subject of obstetrics, and have aimed only to offer the digested views of the best writers, and not necessarily the articles written by the best known men, but those which in their opinion best exemplify the thought of the period. Only a very few personal remarks or opinions have been introduced by the editors.

The work of the editors has been done well, and the book is therefore of value for reading and reference. It covers much the same ground, however, as several of the annuals and year books; from the fact, however, that it is published as a separate volume and at a low price its availability and usefulness are greatly increased.

The degree of Doctor of Civil Law was conferred upon Dr. William Osler at the June Convocation of Trinity University, Toronto. Dr. Osler was at one time an undergraduate there.

THE BOSTON

# Medical and Surgical Journal.

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## THE REPAIR OF NERVES.

The problem of the repair of peripheral nerves after injury or experimental resection has long been one of very great interest, not only to the experimentalist, but also to the surgeon. Surgical operations upon the nervous system are acknowledged to be the most difficult, in many respects, that the surgeon is called upon to perform. However discouraging, from certain points of view, operative treatment of the brain and spinal cord may be, it has long been evident that most brilliant results may be expected from operations upon the peripheral nerves, owing to their extraordinary and as yet not fully explained powers of regeneration. A point of extreme importance to determine, and one which has been the subject of a vast number of experimental researches, is whether the regeneration of peripheral nerves after injury, takes place wholly from the proximal end, or whether the peripheral end, although separated from its cells of origin, also may take an active part in the process. The weight of opinion of those who have investigated the subject has been almost wholly in favor of the theory that the proximal end of the divided nerve alone takes an active part in its restitution. The minority have, however, maintained that the peripheral stump also regenerated *per se*, and later, if union were effected with the upper segment, a quick restitution of function might take place. With the advent of the neurone doctrine, an added weight has been lent to the hypothesis of the insignificant part played by the peripheral end in the process of regeneration. It is, therefore, with very great interest that we call attention to the valuable experimental research recently undertaken by Ballance and Stewart of London, on the subject of the healing of nerves, and particularly in view of the fact that their conclusions are subversive of the generally accepted hypothe

sis, and also seem to throw doubt on the validity of the generally accepted neurone theory.

The problems which these investigators have taken up are as follows: First, the process of degeneration in a peripheral nerve after injury, first without, and, secondly, with immediate suturing of the proximal to the distal segment; the process of regeneration in a nerve trunk and later reunion by suture; the process of regeneration in a distal segment of the nerve trunk which has been divided but in which the proximal and distal segments have not been brought into apposition; and finally, the changes which occur in nerve grafts, that is, where a portion of nerve is interposed between the proximal and distal segments of the divided nerve to replace a portion which had previously been removed.

Various animals, including monkeys, were used for the experimental work, and recent methods of staining applied to the study of the nerves after appropriate hardening. Much ingenuity was shown in planning the experiments, in order to make them completely cover the various questions at issue. The book is beautifully printed in large type and gains much in value from numerous illustrations, many of them photographs. The authors detail their experiments at length, and describe minutely the histological appearances in degenerating and regenerating nerves.

The general conclusions reached from this most careful study are, as we have before implied, somewhat contrary to the generally accepted views on the subject. The theory, which has had relatively few adherents, is unhesitatingly accepted that after division of a nerve new axones and medullary sheaths are formed in the distal segment, later becoming attached to the central segment, thereby restoring conductivity. In other words, an active and useful regenerative process takes place after a time in the peripheral portion of a divided nerve, which explains, according to these writers, the occasional cases reported of rapid restoration of function after suture of nerves which have long been functionless from injury.

On the basis of the observations made in this remarkable series of experiments, the authors feel themselves justified in discarding the neurone theory as applied to the peripheral nervous system, asserting, as they do, that the peripheral nervous system is to be considered as made up of chains of cells set end to end, whose axis cylinder processes fuse to form the continuous axones. If the observations recorded have been correctly interpreted, we have in this work a reversion to doctrines held many years ago, before the revolutionary theories of His came to be generally accepted, and a severe blow to the neurone doctrine as generally held today. Much stress is laid upon the significance of the neurilemma sheath in the peripheral nerve in processes of regeneration, and herein no doubt lies the explanation of the very great difference between the central and peripheral nervous system in reparative processes.

If it be true that regeneration of the peripheral segment of injured nerves takes place without reference to the central stump, the possibilities of operation must be very greatly enhanced. The time, for example, before operation is undertaken should be regarded as of far less significance than it has ordinarily been considered.

This work should command wide attention; it is not to be supposed that it will be generally accepted, so firmly fixed is the idea that nerve fibres are essentially dependent upon cell bodies for their vitality; nevertheless the question evidently must be still further studied by all the methods at our disposal if a final unanimity of opinion is to be reached.

## SUMMER WORK OF THE NEW YORK HEALTH DEPARTMENT.

THE work of the summer corps of physicians of the Health Department of New York is to be carried on this season upon a larger scale than has previously been attempted. The number of the corps has been increased from forty-two to seventy-two and the service began the middle of June, instead of July 1, as heretofore, as it was believed that by beginning operations at this earlier date a material saving of infant mortality might be accomplished. In order to cover the increased expenditure the Board of Estimate and Apportionment has been asked for a special appropriation of $10,000, in addition to the $15,000 provided annually by the legislature. At the request of the president of the Health Department, Medical Director Biggs has prepared a report on the work of the summer corps. In it he states that it is proposed to extend this so as to include vaccination in the tenement houses. It has been the custom in the past when the number of cases of smallpox began to decrease with the advent of warm weather to discontinue the services of the special corps of vaccinators. This, he says, is manifestly unwise, as the time when most can be done in the way of eradication of the disease is when but few cases are to be dealt with. In addition to their other work, it is also proposed that the members of the corps shall undertake thorough and extensive work of inspection in connection with malarial fever and its prevention — the oiling and draining of stagnant pools, the examination of the blood of per-

sons thought to be suffering from this disease, for diagnosis, the supplying of quinin for the treatment of cases among the poor, and the instruction of people in the districts in which malarial fever is prevalent as to the means to be adopted for its prevention.

It is gratifying to learn from Dr. Biggs' report that the investigations of the Health Department, in connection with the Rockefeller Institute for Medical Research, have resulted in a very marked improvement in the milk supply of New York City in many respects, and have afforded much valuable information as to the relation of the diarrheal diseases of children to the milk supply. While it is proposed to continue this work, he believes it to be of the greatest possible importance that the Health Department should make every effort, through the services of the summer corps, to put to practical use the results of the investigations already completed. As in previous seasons, the members of the corps will be provided with free tickets for the St. John's Guild floating hospitals and also with free tickets for sterilized and modified milk from the Strauss depots, for mothers who are unable to procure proper milk for their infants. On June 2, Mr. Strauss opened his fourteen depots in the parks and tenement districts. Last summer he distributed 533,507 bottles of milk among the poor, and, in addition, millions of bottles and single glasses were sold at the booths at a nominal price.

## THE PHYSICIAN OF TODAY.

Medicine, as a profession, has been notoriously slow in gaining the social recognition which is its just due. Up to a very recent time there still lingered in England and on the continent of Europe, the remembrance of the association of barber and surgeon, and it was rare for physicians to be entertained at the tables of persons who were their patients. That a change has come is sufficiently evident from various indications, but from none more strikingly than the attitude of royalty toward physicians within the past few years. The Emperor of Germany has recently conferred patents of nobility upon von Leyden, Koch and other distinguished physicians. In Bavaria, Rœntgen, the discoverer of the x-rays, has been made a baron. France has likewise honored her physicians in various ways, and an occasional physician is also to be found among the various royal families of Europe. England, has, however, gone further than other foreign countries in recognizing the worth of the medical profession. It is said that there are forty baronets and knights in medicine in Great Britain, and Lord Lister is a peer. Sir Francis Laking and Sir Frederick Treves have been made baronets, and it is rumored that peerages may follow in the event of the King's complete recovery. It is even said that a recent suggestion of the *London Lancet*, that one of the boys of the Prince of Wales should be reared as a physician, has met with widespread and general approval. Not many years ago it required a certain sort of moral courage to study medicine; now it offers to a man of ambition not only a varied and honorable scientific career, but also the possibility of recognition wholly outside the professional ranks. This is as it should be.

## MEDICAL NOTES.

The Denver and Gross College of Medicine.— It is announced that the Denver College of Medicine and the Gross Medical College have united, under the title, The Denver and Gross College of Medicine, Medical Department of the University of Denver. The teaching force will embrace the faculty and instructors of each school, under the management of a board of trustees selected from each of the schools.

Officers of Surgical Section of American Medical Association.— The following officers of this section have been elected for the ensuing year: Chairman, Dr. James E. Moore, Minneapolis; Secretary, Dr. John C. Munro, Boston; Member of House of Delegates, Dr. William L. Rodman, Philadelphia; Alternate, Dr. Robert F. Weir, New York.

### BOSTON AND NEW ENGLAND.

Acute Infectious Diseases in Boston.— For the week ending at noon, July 9, 1902, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: Diphtheria 25, scarlatina 17, measles 39, typhoid fever 8, smallpox 4.

Boston Mortality Statistics.— The death-rate for June in Boston was the lowest yet recorded by the Board of Health. The number of deaths reported for the week ending July 5 was 152, as against 247 the corresponding week last year, showing a decrease of 95 deaths, and making the death-rate for the week 13.52. Of this number 82 were males and 70 were females; 146 were white and 6 colored; 97 were born in the United States, 51 in foreign countries and 4 unknown; 39 were of American parentage, 93 of foreign parentage and 20 unknown. The number of cases and deaths from infectious diseases is as follows: Diphtheria, 22 cases, 1 death; scarlatina, 23 cases, no deaths; typhoid fever, 4 cases, no deaths; measles, 30 cases, no deaths; tuberculosis, 16 cases, 11 deaths; smallpox, 6 cases, no deaths. The deaths from pneumonia were 8, whooping

cough, 1; heart disease, 12; bronchitis, 3; marasmus, 3. There were 13 deaths from violent causes. The number of children who died under 1 year was 29, under 5 years, 40; persons more than 60 years, 34; deaths in public institutions, 57.

THE BOSTON FLOATING HOSPITAL.— The board of managers of the Boston Floating Hospital announced the opening of the season on July 8. Trips will be made daily, weather permitting, except Sundays. The age limit for patients is six years, and it is this year required that all patients and their attendants must show evidence of recent successful vaccination or submit to vaccination on the boat unless they are pronounced too ill. It is furthermore particularly requested that children be not recommended who are even suspected of suffering from any contagious disease.

FAILURE TO REPORT CONTAGIOUS DISEASES.— A case of interest has recently been decided in Greenfield, Mass., relative to the alleged failure on the part of a French physician of a neighboring town to report cases of contagious diseases. The evidence went to show that, in spite of ample opportunity and a general knowledge of the fact on the part of the community, cases of scarlet fever had gone for a considerable length of time unreported to the board of health. The presiding judge, in rendering his decision, said that, as an intelligent physician, the defendant must have known, after attending a case for nearly a week, that the disease was contagious and that he was, therefore, culpable. The physician in question was fined $50. The case was appealed.

A HARVARD A.M. CONFERRED UPON SURGEON WALTER REED, U. S. ARMY.— Harvard University conferred the A.M. degree upon Surgeon Walter Reed, U. S. Army, at the last commencement. In conferring the degree President Eliot used the following words: "Walter Reed, graduate in medicine of the University of Virginia, the army surgeon who planned and directed in Cuba the experiments which have given man control over that fearful scourge, yellow fever."

### NEW YORK.

MORTALITY STATISTICS.— Notwithstanding the fact that the weather was decidedly cooler during the month of June than in the same month last year, the mortality of New York City was slightly larger this year. The reports of the Health Department show that the number of deaths represent an annual death-rate of 17.99, against 18.91 in May and 17.44 in June, 1901. The corrected death-rate for the month (excluding non-residents and infants under one week old) is 16.97. Among the diseases which showed a decline in mortality were the following: The weekly average of deaths from pneumonia decreased from 148.5 in May to 80 in June; from bronchitis, 38.25 to 20; from phthisis, 149.25 to 145.5; from cancer, 57 to 45.25; from diseases of the urinary system, 110.25 to 109; from diphtheria and croup, 43.25 to 40.75; and from scarlet fever, 33.25 to 21.75. The weekly average of deaths from smallpox, which had declined to 7.25 in May, the lowest figure for many months, increased in June to 12.5. Other diseases which showed an increased mortality were as follows: The weekly average of deaths from diarrheal diseases increased from 44.5 to 116.75; from diarrheal diseases in children under five years, 37 to 106.5; from measles, 15.75 to 18; and from typhoid fever, 8.25 to 11. During the month there were reported one death from influenza and one from caisson disease.

A MUNIFICENT BEQUEST TO CHARITY.— A munificent gift of $4,000,000 for charitable purposes, constituting the bulk of his fortune, has just been made by Mr. John M. Burke, a retired merchant. The fund is to be managed by four trustees, one of whom is ex-Mayor Abram S. Hewitt, and it is the design of the donor that it should be devoted to "the relief of worthy men and women, who, notwithstanding their willingness to work have become partly or wholly unable to do so by reason of sickness or misfortune, or who have been discharged from hospitals before regaining sufficient strength to assume their regular employments." The plans for the carrying out of the benefaction have not, as yet, been matured, but it is probable that a principal feature will be the establishment of a convalescents' home on the real estate conveyed in the vicinity of New York. The self-respect of the applicants will be maintained as far as possible, so that in cases where a patient does not wish to be an object of charity altogether, there will be a moderate charge, and in case the applicant so desires, the cost of maintenance and attendance will be regarded as a loan to be repaid without interest and without security.

DEDICATION OF "SEASIDE PARK."— The new Seaside Park, at Coney Island, was dedicated with simple ceremonies by the city authorities on July 1. The land, situated at the southern terminus of the Ocean Parkway, and comprising seventy acres in all has belonged to the city for a considerable time, but has only recently been improved. This is the only public park in New York which abuts directly on the ocean, although the Pelham Bay Park, in the Bronx, has an extensive frontage on Long Island Sound.

CONTAGIOUS OPHTHALMIA.— The Health Department, in view of the prevalence of contagious ophthalmia among school children, has appointed eleven specialists in diseases of the eye, at a salary of $100 per month, to visit the various public

schools, examine the children and report each case to the Bureau of Contagious Diseases. Among those appointed is Dr. C. Gale Bradley, one of the ophthalmologists who recently inspected some of the schools under the direction of Dr. Derby.

A CHRISTENING AT BELLEVUE HOSPITAL.—The first christening that has taken place in the Roman Catholic chapel at Bellevue Hospital during the present year occurred on June 29, when the infant was named William Studdiford, in honor of Dr. Studdiford, who delivered it by Cæsarean section five days before. He is said to be a sturdy youngster, weighing eight pounds at birth, and the mother is reported as doing well.

## FOURTEENTH INTERNATIONAL MEDICAL CONGRESS.

THE secretary of the American Committee of the Fourteenth International Medical Congress, Dr. J. H. Huddleston of New York, makes the following announcement:

The Fourteenth International Congress of Medicine will be held in Madrid, Spain, from April 23 to 30, 1903, under the patronage of their majesties, the King of Spain and the Queen-Mother. The president of the congress is Prof. Julian Calleja y Sanchez, the general secretary is Dr. Angel Fernández-Caro, and the general treasurer is Prof. José Gómez Ocaña. The preliminary statement of regulations and program has just been issued, and it announces that members of the congress will be physicians, pharmacists, dentists, veterinary surgeons, and other persons working at branches of medical science, both Spaniards and foreigners, who have entered their names and paid their subscriptions. Other persons who possess scientific or professional titles and who wish to take part in the work of the congress, may share in it under the above conditions. The subscription is thirty pesetas, and this sum must be paid before the opening of the congress to the general secretary, Faculty of Medicine, Madrid. A card of membership will be sent to the subscriber. Until March 20, 1903, subscriptions may be paid to the secretary of the national committee of the subscriber, but after that date subscriptions must be paid directly to the general secretary at Madrid. Members will receive a summary of the proceedings of the congress and a full report of the work of the particular section which they join. The official languages of the congress will be Spanish, French, English, German and Italian. Papers must be sent to the general secretary before Jan. 1, 1903, to be certain of a place in the order of business. Papers presented later will be considered after the discussion of those regularly announced. Communications should be accompanied by a short abstract, which will be printed and distributed among the members of the congress.

## METEOROLOGICAL RECORD

For the week ending June 28, in Boston, according to observations furnished by Sergeant J. W. Smith of the United States Signal Corps:

| Date | Barometer | Thermometer. | | | Relative humidity. | | | Direction of wind. | | Velocity of wind. | | Weth'r * | | Rainfall in inches. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Daily mean. | Daily mean. | Maximum. | Minimum. | 8.00 A.M. | 8.00 P.M. | Daily mean. | 8.00 A.M. | 8.00 P.M. | 8.00 A.M. | 8.00 P.M. | 8.00 A.M. | 8.00 P.M. | |
| S...22 | 29.92 | 65 | 73 | 57 | 73 | 44 | 58 | N | W | 7 | 14 | C. | F. | .15 |
| M..23 | 29.96 | 60 | 69 | 52 | 57 | 50 | 54 | W | W | 12 | 10 | C. | C. | |
| T..24 | 29.96 | 62 | 71 | 52 | 58 | 49 | 54 | W | W | 14 | 8 | C. | C. | |
| W..25 | 29.88 | 65 | 76 | 54 | 63 | 66 | 64 | W | S | 12 | 10 | C. | O. | |
| T..26 | 29.40 | 68 | 76 | 60 | 97 | 42 | 64 | S E | W | 8 | 24 | R. | F. | .36 |
| F..27 | 29.62 | 62 | 69 | 55 | 52 | 56 | 54 | W | W | 27 | 12 | C. | C. | |
| S...28 | 29.88 | 68 | 78 | 58 | 56 | 50 | 53 | N W | W | 22 | 8 | C. | F. | |
| ☞ | 29.80 | | 73 | 55 | | | 57 | | | | | | | .51 |

*O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow. †Indicates trace of rainfall. ☞ Mean for week.

## RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, JUNE 28, 1902.

| CITIES. | Population Estimated, 1902. | Reported deaths in each. | Deaths under five years. | Percentage of deaths from | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | Infectious diseases. | Acute lung diseases. | Diphtheria and croup. | Scarlet fever. | Diarrheal diseases. |
| New York . . | 3,665,352 | 1,295 | 542 | 36.75 | 6.18 | 3.09 | 1.39 | 17.29 |
| Chicago . . | 1,852,828 | 397 | 111 | 29.98 | 9.32 | 3.02 | 1.76 | 6.80 |
| Philadelphia. | 1,349,624 | 443 | 184 | 20.53 | 5.41 | 1.80 | .90 | .67 |
| St. Louis . . | 603,717 | — | — | — | — | — | — | — |
| Baltimore . . | 525,330 | 236 | 95 | 36.11 | 6.77 | — | .84 | 2.03 |
| Cleveland . . | 411,826 | — | — | — | — | — | — | — |
| Buffalo . . . | 375,742 | — | — | — | — | — | — | — |
| Pittsburg . . | 341,401 | 150 | 61 | 40.00 | 10.67 | 1.33 | 1.33 | 11.33 |
| Cincinnati . | 332,032 | — | — | — | — | — | — | — |
| Milwaukee . | 304.975 | — | — | — | — | — | — | — |
| Washington . | 289,537 | — | — | — | — | — | — | — |
| Providence . | 185,870 | 62 | 17 | 28.20 | 7.42 | 1.48 | 1.48 | 13.35 |
| Boston . . . | 588,736 | 204 | 44 | 22.52 | 8.33 | .98 | .98 | 1.47 |
| Worcester. . | 127.337 | 33 | 8 | 12.12 | 3.03 | — | — | — |
| Fall River. . | 111.872 | 40 | 22 | 37.50 | 15.00 | — | — | 2.50 |
| Lowell . . . | 99,574 | — | — | — | — | — | — | — |
| Cambridge . | 96,334 | 26 | 3 | 11.55 | 3.85 | — | — | — |
| Lynn. . . . | 71,144 | 10 | — | 20.00 | — | — | — | — |
| Lawrence . . | 67,275 | 26 | 10 | 26.95 | 3.85 | 3.85 | — | 7.70 |
| Springfield . | 66,854 | — | — | — | — | — | — | — |
| Somerville . | 65,882 | 13 | 1 | 38.50 | — | — | — | 7.70 |
| New Bedford. | 65,574 | 18 | 8 | 16.67 | 27.77 | 5.55 | — | — |
| Holyoke . . | 48,065 | 11 | 3 | — | — | — | — | — |
| Brockton . . | 43,208 | 6 | — | 50.00 | — | — | — | — |
| Haverhill . . | 40,392 | 8 | 3 | 37.50 | 12.50 | 12.50 | — | — |
| Salem . . . | 36,567 | 11 | 5 | 9.09 | 18.18 | — | — | — |
| Newton. . . | 36,336 | 8 | — | 12.50 | — | — | — | — |
| Malden . . . | 35,390 | 5 | 1 | 40.00 | 20.00 | — | — | — |
| Chelsea. . . | 35,264 | 8 | 2 | 37.50 | 12.50 | — | — | — |
| Fitchburg. . | 33,848 | — | — | — | — | — | — | — |
| Taunton . . | 32,759 | 12 | 1 | 16.67 | 8.33 | — | — | 8.33 |
| Everett. . . | 27,114 | 7 | 1 | 14.30 | 14.30 | — | — | — |
| North Adams | 26,583 | 5 | 1 | 20.00 | 40.00 | — | — | — |
| Gloucester . | 26,121 | 10 | 1 | 20.00 | — | 10.00 | — | — |
| Quincy . . . | 25,307 | 4 | 1 | — | — | — | — | — |
| Waltham . . | 24,612 | 1 | — | — | — | — | — | — |
| Pittsfield . . | 22,311 | 5 | 1 | — | — | — | — | — |
| Brookline. . | 21,679 | — | — | — | — | — | — | — |
| Chicopee . . | 20,390 | 8 | 4 | 12.50 | — | — | — | 12.50 |
| Medford . . | 20,014 | 5 | 2 | — | — | — | — | — |
| Newburyport | 14,478 | 6 | — | 16.67 | — | — | — | — |
| Melrose . . | 13,384 | 4 | — | — | — | — | — | — |
| Westfield . . | 13,038 | 2 | — | 50.00 | — | — | — | — |
| Attleboro . . | 12,846 | — | — | — | — | — | — | — |
| Adams . . . | 12,813 | — | — | — | — | — | — | — |
| Milford . . | 12,516 | — | — | — | — | — | — | — |
| Framingham | 12,109 | 4 | 1 | — | — | — | — | — |
| Peabody . . | 11,957 | — | — | — | — | — | — | — |
| Revere . . . | 11,894 | 2 | 1 | — | — | — | — | — |
| Gardner . . | 11,544 | 4 | 1 | 50.00 | — | — | — | 25.00 |
| Weymouth . | 11,337 | 1 | — | — | — | — | — | — |
| Southbridge . | 10,838 | 6 | 2 | 16.67 | 16.67 | — | — | — |
| Watertown . | 10,600 | 2 | 1 | — | — | — | — | — |
| Plymouth . . | 10,336 | — | — | — | — | — | — | — |

Deaths reported 3,116; under five years of age, 1,145; principal infectious diseases (smallpox, measles, scarlet fever, cerebrospinal meningitis, diphtheria and croup, diarrheal diseases, whooping cough, erysipelas, fevers and consumption) 969, acute lung diseases 220, consumption 358, scarlet fever 38, whooping cough 37, cerebrospinal meningitis 12, smallpox 26, measles 33, diarrheal diseases 345.

From whooping cough, New York 12, Chicago 7, Philadelphia 4, Baltimore 5, Pittsburg 4, Boston 4, Fall River 1. From erysipelas, New York 3, Chicago 3. From measles, New York 17, Chicago 2, Philadelphia 3, Baltimore 1, Pittsburg 6, Boston 2, Haverhill 1, Southbridge 1. From smallpox New York 10, Chicago 1, Philadelphia 1, Pittsburg 4, Boston 2. Cambridge 7, Somerville 1.

In the seventy-six great towns of England and Wales, with an estimated population of 14,862,909, for the week ending June 14, the death-rate was 15.0. Deaths reported 4,271; acute diseases of the respiratory organs (London) 166, whooping cough 116, diphtheria 63, measles 127, smallpox 45, scarlet fever 55.

The death-rate ranged from 6.6 in Coventry to 25.4 in Wigan; London 14.1, West Ham 11.9, Croydon 14.0, Brighton 17.6, Portsmouth 15.5, Southampton 16.9, Bristol 12.2, Birmingham 16.8, Leicester 10.8, Nottingham 12.2, Birkenhead 16.7, Liverpool 18.4, Manchester 19.7, Salford 20.3, Bradford 16.3, Leeds 14.4, Sheffield 14.3, Hull 13.1, Newcastle-on-Tyne 16.9, Cardiff 11.4.

## OFFICIAL LIST OF THE CHANGES OF STATION AND DUTIES OF COMMISSIONED AND NON-COMMISSIONED OFFICERS OF THE U. S. MARINE HOSPITAL SERVICE FOR THE SEVEN DAYS ENDING JUNE 26, 1902.

MEAD, F. W., surgeon. Granted leave of absence for two months from July 1. June 25, 1902.

COBB, J. O., surgeon. To proceed to Missoula, Montana, for special temporary duty. June 23, 1902.

GARDNER, C. H., passed assistant surgeon. Two days' leave of absence from June 9, under paragraph 179 of the regulations.

THOMAS, A. R., passed assistant surgeon. One month's leave of absence, on account of sickness, granted Passed Assistant Surgeon Thomas, by Bureau letter of June 10, 1902, revoked; and directed to proceed to Naples, Italy, and report to Passed Assistant Surgeon J. M. Eager for duty. June 26, 1902.

HOBDY, W. C., assistant surgeon. Granted leave of absence for fourteen days upon being relieved from temporary duty at Brunswick quarantine station. June 20, 1902.

MARTIN, H. McD., acting assistant surgeon. Granted leave of absence for thirty days from June 16. June 25, 1902.

ROSS, M. H., acting assistant surgeon. Granted leave of absence for fourteen days from June 13. June 13, 1902.

SAFFORD, M. V., acting assistant surgeon. Granted leave of absence for fifteen days from July 1. June 25, 1902.

RYDER, L. W., senior pharmacist. Granted leave of absence for eleven days from June 23. June 25, 1902.

TROXLER, R. F., senior pharmacist. Granted leave of absence for seven days from June 20, 1902, under paragraph 201 of the regulations.

SOUTHARD, F. A., junior pharmacist. Granted leave of absence for fifteen days from July 8. June 25, 1902.

STIER, CARL, junior pharmacist. Relieved from duty at Memphis, Tenn., and directed to proceed to Mullet Key Quarantine Station and report to medical officer in command for duty and assignment to quarters. June 25, 1902.

BOARDS CONVENED.

Board convened to meet at Washington, D. C., June 23, 1902, for the physical examination of George W. David, Revenue Cutter Service. Detail for the Board: Surgeon R. M. Woodward, chairman; Assistant Surgeon B. S. Warren, recorder.

Board convened to meet at Washington, D. C., June 26, 1902, for the physical examination of 3d Lieutenant F. W. Smith, Revenue Cutter Service. Detail for the Board: Surgeon J. H. White, chairman; Surgeon L. L. Williams, Surgeon R. M. Woodward, recorder.

APPOINTMENT.

Sanitary Inspector Lea Hume appointed acting assistant surgeon for duty at Eagle Pass, Texas, to date from June 1, 1902. June 26, 1902.

## CHANGES IN THE MEDICAL CORPS OF THE NAVY FOR THE WEEK ENDING JUNE 28, 1902.

E. P. STONE, surgeon. Detached from the "Dolphin" and ordered to the "Mayflower."

J. W. ROSS, surgeon, retired. Ordered to the Pensacola Navy Yard.

C. T. HIBBETT, surgeon. Detached from the "Brooklyn" and ordered home to wait orders.

C. E. RIGGS, passed assistant surgeon. Detached from the Naval Station, Port Royal, and ordered to the "Brooklyn."

S. G. EVANS, passed assistant surgeon. Detached from the Pensacola Navy Yard, and ordered to the Naval Station, Port Royal, S. C.

R. C. HOLCOMB, assistant surgeon. Detached from the "Manila" when put out of commission, and ordered home to wait orders.

L. G. HENEBERGER, medical inspector. Detached from duty as a member of the Medical Examining Board, Naval Laboratory, New York, and ordered to the "Brooklyn."

C. E. RIGGS, passed assistant surgeon. Orders of June 21 modified, and ordered to the "Dolphin" instead of the "Brooklyn."

A. M. FAUNTLEROY, assistant surgeon. Detached from the Naval Hospital, Newport, R. I., and ordered to the "Scorpion."

W. M. GARTON, passed assistant surgeon. Detached from the Naval Hospital, New York, and ordered to the "Columbia."

B. L. WRIGHT, assistant surgeon. Ordered to Fort Bayard, N. M., for treatment at the United States General Hospital at that place.

FOR THE WEEK ENDING JULY 5, 1902.

B. R. WARD, passed assistant surgeon. Resignation accepted to take effect June 28, 1902.

C. U. GRAVATT, medical director. Detached from duty as President of the Medical Examining Board, Naval Laboratory, New York, and ordered to duty at the Naval Museum of Hygiene, Washington, D. C.

W. A. McCLURG, medical inspector. Detached from the "Olympia" and ordered to the "Kearsarge" as fleet surgeon, North Atlantic Station.

H. E. AMES, surgeon. Detached from the "Kearsarge" and ordered to the "Olympia."

F. L. PLEADWELL, passed assistant surgeon. Detached from the "Olympia" and ordered to the "Kearsarge."

G. L. ANGENY, passed assistant surgeon. Detached from the Naval Laboratory, New York, and ordered to the "Lancaster."

E. THOMPSON, passed assistant surgeon. Detached from duty with the Marine Detachment at Charleston, S. C., and ordered to the Naval Laboratory, New York.

## RECENT DEATHS.

EDWIN DANA BOYNTON, M.D., M.M.S.S., formerly of Worcester, died in Harrington, Me., April 26, 1902, age twenty-nine years.

DR. ROBERT BELL, M.M.S.S., late of Medway, Mass., died in Roxbury, July 4, after a long illness. He was born at Alnwick, Eng., July 4, 1845. He came to this country early in life and was educated at Phillips Andover Academy and the Harvard Medical School. He practised in Roxbury for two years and subsequently went to Medway, where he became the leading practitioner of the town. He was chairman of the school committee for a time and medical examiner of the Medway district.

## BOOKS AND PAMPHLETS RECEIVED.

Zur Tuberkuloseprophylaxe. von Dr. B. Rohden-Lippspringe. Sonder-Abdruck. 1902.

Two New Instruments. By Samuel Theobald, M.D., Baltimore, Md. Illustrated. Reprint. 1902.

The Roller Bandage. By William Barton Hopkins, M.D. Illustrated. Fifth edition revised. Philadelphia: J. B. Lippincott Co. 1902.

Conservatism in the Treatment of Inflammatory Affections of the Uterine Adnexa. By Hugo Ehrenfest, M.D., Consulting Gynecologist to the St. Louis City and Female Hospitals, St. Louis, Mo. Reprint. 1902.

A Manual of Otology. By Gorham Bacon, A.B., M.D., with an introductory chapter by Clarence John Blake, M.D. Third edition, revised and enlarged. Illustrated. New York and Philadelphia: Lea Brothers & Co. 1902.

Observations upon Recent Methods of Treating Corneal Ulcers, with Especial Reference to the Use of Carbolic Acid as a not Infrequent Substitute for the Actual Cautery. By Samuel Theobald, M.D., Clinical Professor of Ophthalmology and Otology, Johns Hopkins University; Ophthalmic and Aural Surgeon to the Johns Hopkins Hospital. Extract. 1902.

# Original Articles.

## A REPORT OF TWO CASES OF "TYPHOID SPINE."[1]

BY GEORGE WILTON MOOREHOUSE, M.D., CLEVELAND, OHIO,
*Visiting Physician to the Dispensary of the Lakeside Hospital and Western Reserve Hospital.*

Since 1889 several examples of a rare sequel or complication of typhoid fever have been reported under different names. That of "typhoid spine" is the one first used and possesses the advantage of not binding one to a definite theory of the underlying pathological cause. I have succeeded in finding references in the literature to twenty-one cases having some resemblance or relation to the condition first reported under this name, and to these I take pleasure in adding the histories of two others which came under my care at the Lakeside Hospital during my service as resident physician.

Case I. J. F. C., male, age twenty-eight years, agent structural steel work; entered the Lakeside Hospital on the eighth day of his illness with typhoid fever. The attack, while not marked by extremely high temperature, was a severe one complicated by intestinal hemorrhage, relapse and furunculosis. The Widal and diazo reactions were obtained. Although there were no symptoms referable to the back during his stay in bed, it was noticed later that it was exceptionally weak and ached after the patient was allowed to sit up or walk about. There was no actual pain. The back was examined several times with entirely negative results.

The patient left on the 6th of June, 1899, after a stay of seventy days in the hospital. On the 23d of August he re-entered the hospital, complaining of pain and weakness in the lower lumbar region, and gave us the following account of his illness: For ten days after his discharge his back was weak and ached a little; then without assignable cause he began to have pain which was slight at first but increased rapidly in severity. At the beginning it was throbbing in character but later became dull. This dull pain began to be punctuated by sudden short attacks of severe pain; the sharp pains were associated with a great tendency to twitch, and any movement intensified and prolonged the attacks. The pains were somewhat more severe when the patient drew up his legs, and were a little relieved if the legs were in a horizontal position or nearly so. The duration of these attacks was usually an hour or two, with intervals of from three to four hours of comparative relief. Movement caused pain, and was very apt to bring on an attack of this kind, which, however, often began without assignable cause. The attacks were more frequent at night than in the day time, and disturbed his sleep. The localization of the pain was in the lower lumbar and sacral region or buttock; most commonly on the right side, sometimes on the left, never on both. Previous to his admission to the hospital the patient states that opiates were discontinued, because on trial they were found to have so deleterious an effect on the action of the kidneys and bowels. During the severest part of the illness the patient had periods of a few days each with normal temperature, alternating with febrile periods of similar duration in which the temperature sometimes rose to 103° F. At this time he became much emaciated and nervous, "going all to pieces" if he lost control of himself. His bowels were constipated. About four weeks before his readmission to the hospital he began to improve. The attacks of pain became less frequent and severe, the appetite improved and he gained in weight.

At entrance the appetite was good, the bowels were regular, and the pain was confined to the lower lumbar region, was dull in character, with an occasional sharp twinge. The physical examination was largely negative. The patient was somewhat emaciated; the pulse 80, regular and rhythmic; the patellar reflexes were very weak, the plantar reflex was not obtained. There was no evidence of destructive disease of the spinal column; no deformity; no tenderness over the spine or elsewhere; no indication of involvement of the sciatic or other great nerve trunk; no evidence of psoas abscess. The urine is reported not to have contained albumin; there was no diazo reaction; the sediment showed a few hyaline and fine granular casts and leucocytes. Examination of the blood revealed the presence of 5,280 leucocytes to the cubic millimetre. The Widal reaction was reported negative.

During the first month of his second stay in the hospital the patient was not kept continuously in bed, and was at times almost free from discomfort, and again suffered considerable pain in his back or in his buttock. At the end of his first month in the hospital the temperature, which had varied between 98° F. and 99° or 99.5° F., began to go up gradually, reaching its highest point, 103.6° F., on the 25th of September. The febrile period extended over two weeks. Shortly after this rise in temperature began, an examination of the blood showed 8,800 leucocytes to the cubic millimetre. On the 2d of October the spleen, which is said to have been normal in size at entrance, was felt below the costal margin, and a Widal reaction was obtained. There was no rose-rash, the abdomen was neither distended nor tympanitic. In spite of the enlargement of the spleen and the apparent recurrence of the Widal reaction, it is hard to see how this could be either a reinfection with typhoid or a relapse of that disease. At first it was not thought necessary to confine the patient strictly to his bed. The Paquelin cautery was used on several occasions, the back was strapped, and tonic remedies were employed. When the more severe pain began, antirheumatic, antineuralgic, sedative and hypnotic remedies were employed, with opiates when necessary. The case progressed without the aid of any mechanical contrivances aside from the

[1] Read before the Academy of Medicine of Cleveland, June 20, 1902.

very inadequate one of adhesive straps. When the patient was in bed with severe pain, with a view to determine whether relief would be afforded by the use of extension by weight and pulley, manual extension was tried without any apparent benefit. Until perhaps the last of October there was very little change in the condition of the patient as to pain, but from that time on there seemed to be a steady, but very slow improvement in this respect. On the 2d of November he began to have a bed-rest very cautiously, and this was gradually increased, as the procedure seemed to be tolerated and the patient's strength bore it. He was discharged from the hospital on the 13th of December, 1899, the note stating that he had still some trouble with his back.

The patient was seen in July, 1901, and said that, except for two to three days about three weeks after leaving the hospital, he had no pain or ache in the back after his discharge, but that he had so much weakness in the back that he greatly feared a return of the trouble on several occasions. He did not attempt to go to work in the office until May, 1900, thirteen months from the onset of the typhoid, and, for some time after returning to the office, did very little. During all the next summer had a good deal of soreness in the back for a day or two after any misstep or overexertion, and experienced considerable difficulty in getting about on this account. At the present time he does about the same as he did before his sickness, but still has a little soreness in the back after a misstep or overexertion. He is quite certain, however, that this last is decreasing and will entirely disappear.

CASE II. J. M. H., male, age forty-two years, a salesman in a large hardware store, entered the Lakeside Hospital July 17, 1899, in the service of Dr. J. E. Cook, by whose kind permission I am permitted to report the case. Unfortunately the records of the case were not preserved, but the following history has recently been secured from the patient, a very intelligent man, and I think that the general features of the attack have not been in any way misrepresented by the loss of the original records. To Dr. Cook I am indebted for certain facts about the case not remembered by the patient or myself. He was taken ill with typhoid on the 7th of April, 1899. About seven weeks later the fever left, the course being one of only moderate severity and entirely without complications in the preliminary attack. At about the usual time after the disappearance of the fever, the patient was propped up in bed, and felt a little stitch or catch in his back such as one has at times on twisting it. This trouble increased continuously, and within twenty-four hours he was unable to turn in bed, and suffered from deep, cramp-like pain in the lower lumbar region, a little more to the right than to the left. This pain was not absolutely continuous, but came in paroxysms, which seemed to be relieved, or at least to be made more bearable, if the patient grasped the bed or some other object tightly while it persisted. After this first bed-rest and its very unpleasant sequel, he was kept flat upon his back fully ten days, and at the end of that time was so much relieved that he was again propped up in bed. The time of the bed-rest was very gradually increased, and he was allowed to put on his clothes at the end of another ten days. He was not, however, free from pain or soreness when sitting up, but when lying down he had no discomfort. There was no elevation of temperature. At the end of about two weeks the pains again began to increase, and one day when on his feet he had so severe a "cramp" that he would have fallen if it had not been for support. He thereupon took to his bed and for three or four days had some elevation of temperature.

On the 17th of July he entered the hospital. The patient was anemic, emaciated and nervous, being almost hysterical at times. There was no evidence on physical examination of a neuritis; no deformity of the spine was detected; no tenderness to deep pressure was found in either iliac region or over the painful area in the back. Tenderness over the spine developed later and was for a time very marked. There were no rectal or vesical symptoms. Fortunately I have been able to find the original record of his temperature for the first thirty-eight days of his stay in the hospital. He entered with a normal temperature, but during the first month he had febrile periods of from twelve hours to four days in duration, in which the temperature rose to 102.5° F., 103.5° F., and once to 104.7° F. They alternated with rather longer periods of normal temperature. After the first month in the hospital his temperature is supposed to have remained normal. The patient was never free from discomfort at entrance, and at relatively short intervals would have a succession of spasms of pain lasting at intervals for a day and a night, or even two days, after which he would be relatively free from them for a short time. Absolutely no cause could be assigned for the onset of these attacks, although any movement except one executed with the greatest circumspection increased his discomfort, whether he was in pain or relatively free from it at the time. For about one week from the time of entrance heat was applied to his back. During the second week cold was applied by means of an ice bag. Morphia was used throughout when it was considered necessary. Dr. J. H. Lowman saw the case in consultation during one of the attacks of pain, and suggested the use of extension by means of a weight and pulley, on finding that manual extension afforded relief. Extension was applied, and was continued intermittently for about four weeks. In spite of the fact that it afforded an appreciable amount of relief, it was not continued more than a few hours each day, since its application disturbed the patient, and it was thought desirable to allow him to turn on his side with the hope of thus avoiding bed sores. In addition to tonic remedies, potassium iodode was administered in moderate doses, and opiates were used as needed for the relief of pain. For a considerable time after entrance the prognosis was con-

sidered very grave. He was thought to have a tuberculous spondylitis. From the time of the first bed-rest till the patient was discharged from the hospital, "improved," advances were made very gradually. He had his clothes on for the first time about three weeks before he went home.

The patient was seen in July, 1901, and stated that he returned to the store in January, 1900, but did very little work for eight or nine months, and had an aching, weak back all the time. Any jar or misstep or stubbing the toe would hurt his back. It was well on in the spring of 1901 before he could lift anything at all heavy, and when seen was unable to scuffle, and felt a hurt in the back at times when "doubling up," especially before a storm. He would hesitate to lift weights greater than one hundred pounds, which was the most he was called upon to attempt, but within these limits he did anything that came his way in the hardware business. He had considered himself well for the few months preceding the time he was seen in 1901.

The case reported by Eskridge [4] is quite inaccessible, and the history is of such interest that it seems desirable to give an extended abstract in this place. E. S., male, Germany, hostler. Mother died of brain fever in the thirty-fifth year. Maternal grandfather died of hemiplegia. Family history otherwise unimportant. The patient had been a hostler for the preceding six years. For the preceding eight or nine years he had joint pains in damp weather. Five years ago he contracted syphilis. Four years ago he was lame for two months from pain in the sacral region, and the pain extended to the left side of the pelvis. Two years before the present attack he moved from his former home in Illinois to Denver. Since his stay in Colorado his joint pains seem largely to have disappeared. In July, 1892, he was admitted to the Arapahoe County Hospital suffering from an attack of typhoid fever. During his convalescence he began to complain of pain in the sacral region. At first it was simply stiffness after sitting, with some pain when he attempted to get up. This passed off after he walked about for a short time. About the middle of September he left the hospital and returned to work, but the pain in the back and the parts around the left hip became so great that he was compelled to give up work and return to the hospital. After his return to the hospital he was confined to bed on account of pain. When the patient stood both legs were straight and the gluteal folds were normal. The legs could both be abducted and adducted without pain. Extremes of flexion and extension of the left thigh caused great pain. The back was painful on pressure over the first sacral spine, and the tenderness was limited to one spinous process. Pressure here caused pain to shoot down the posterior portion of the left thigh, and in the region of the small sciatic nerve on the same side. When the left leg was straightened and brought forward, it gave rise to pain in the sacral region of the spine, in the left hip, and in the posterior portion of the left thigh. When the leg was brought backward, the pain complained of was chiefly in the sacral region of the spine. There was no paralysis or paresis of any of the muscles, the limitation of the movements of the left leg was due simply to pain. Reflexes: Knee jerks, both greatly increased; ankle clonus, absent; plantar reflexes, right fair, left more marked than right; cremaster reflex, right normal, left absent; lower abdominal reflex, absent; epigastric reflex, right present, left absent. Temperature, localization and muscular senses were all normal. A condition of slight hyperesthesia was found over the left leg, and over the space one-half the size of a quarter on the front of the right thigh there was found the condition of anesthesia. There were no other disturbances of sensation found. Pressure over both ilia at the same time, so as to press the ilia upon the sacrum at the sacro-iliac synchrondrosis, caused considerable pain in the left sacro-iliac joint, and the pain extended from one side of the pelvis to the other. The hip-joint seemed entirely free from pain. There was no tenderness over any of the nerves of the legs.

In the differential diagnosis myelitis, sciatica, hip-joint disease, tumors of the bones of the pelvis, malingering, localized pachymeningitis, and some form of bone disease were discussed. After consideration, all of the above were ruled out except the localized meningitis or the bone lesion. The meningitis if present was considered to be an affection of the external surfaces of the dura, involving the sheaths of the nerves leaving the cord, on only one side, but not involving the cord itself. Now as an external pachymeningitis so rarely occurs in the absence of bone disease, it is fair to presume that we have bone disease and pachymeningitis associated, although it is possible to explain all the symptoms without the presence of a meningitis. Meningitis, however, would not account for all the symptoms in the absence of bone disease. The pain in the left sacro-iliac synchrondrosis and the tenderness over the first sacral vertebra are due to an affection of the bone or its periosteum.

There is no statement as to the final outcome of the case, although it seems to have been well on the way to recovery when reported.

An accurate pathological diagnosis of the cases here reported is very difficult, and the same difficulty has been met by other reporters of similar conditions. This difficulty is reflected in the titles under which they have reported their cases. Although Gibney had formed a theory that the underlying pathological condition was a perispondylitis, he reported his cases, the first, so far as I know in the literature, under the title, "The Typhoid Spine." Osler, writing later, reports three cases as a neurosis. In the last three years histories of cases presenting certain points of similarity to those reported by American observers have been published in Germany as examples of typhoid spondylitis. While an exact determination of the pathological condition in a disease in which

the outcome has been uniformly favorable is practically impossible, the writer wishes to review some of the facts upon which his conclusion is based, that in a certain number of the cases reported the symptoms have been due to an inflammatory process involving one or more of the vertebræ, or their periosteum or cartilages. In so far as I have been able to collect it the literature of the subject consists at present of fifteen articles reporting twenty-one cases, the majority of which I have been able to consult at first hand. I have had access to seventeen or eighteen of the histories of these cases in the report of the observer or in a few instances in a satisfactory abstract. From the standpoint of diagnosis I wish to call attention particularly to the occurrence of deformity, and to the frequent association of fever with the affection.

As to the occurrence of deformity in eighteen cases, the records are silent on this point in six, deformity is definitely stated not to have occurred in six, but in six others there is fair evidence that a deformity was present at some time in the course. In three cases, 12, 13 and 14, a kyphosis is definitely stated to have been observed by the reporter. Könitzer,[10] in the introduction to a case he reports, remarks that a new symptom complex has been made by Quincke[9] which appears as a disease of the lumbar and sacral region after typhoid fever, causing very severe pain and swelling in these parts. This statement leads me to believe that Quincke's cases, two in number, had some deformity. I have not been able to consult his original article, and the abstract of the histories of his cases given by another writer makes no mention of deformity. In another case[11] the patient claims to have noticed a prominence in the lower lumbar region which had disappeared, however, before she was seen by the reporter. It is well known that inflammatory processes secondary to typhoid fever are usually, or at least often destructive, and it is a rather remarkable fact about these cases, if they are due to an inflammatory process, that they have in no case gone on to suppuration, nor does the deformity usually persist. In five of the cases in which a deformity was noted it disappeared in a short time, in one only being present at the time of the report. Gibney[3] has reported a case of torticollis in which there was a well-marked deformity of a number of the cervical vertebræ with an enlargement of their lateral masses in a man of forty-five who at the age of twenty-two had a febrile disease of several weeks' duration, pronounced by his physician typhoid fever, and followed by a painful affection of the cervical spine. Gibney reports, also, that a painful affection of the hip which he observed following an attack of "typho-malarial" fever left some limitation of motion. He mentions these cases as items which strengthen his belief in the correctness of his opinion that the condition is due to a low grade of inflammation. The presence of a febrile reaction associated with the condition under consideration, and not to be explained by any coexisting condition, might, doubtless, be considered, next to the appearance of a kyphosis, the most cogent reason for thinking that the underlying pathological condition was inflammatory. In a total of seventeen cases no statement is made by the reporter in this point in five, in two cases it is stated that no febrile reaction was observed. In the remaining cases, ten in number, the temperature was elevated during some portion of the affection. In two cases slight febrile reaction is reported. In the remaining eight it seems to have reached at least 103° F. at some time in its course. For these and other reasons the writer feels that the true type of the "typhoid spine" is a symptom complex due to an inflammatory process, and that pain in the back following typhoid fever but due to other conditions should not be confused with it. At least one case has been reported[12] in which there was a painful condition of the muscles of the spine, associated with degeneration, leaving behind a contraction of the muscle affected. There have also been observed cases of neurosis apparently not unlike that known as the railroad spine, although in some of these cases it is open to question whether this neurosis was the original condition or a later complication.

The prognosis of painful affections of the spine subsequent to typhoid fever, in so far as recovery is concerned, is excellent. No deaths are recorded in the literature. Even allowing the two cases reported by Gibney, one a painful affection of the cervical spine with permanent deformity, the other a similar painful affection of the hip with limitation of motion, to influence our prognosis as to deformity this is also excellent, for in no other cases in which the course has been adequately followed to determine the final outcome has any permanent deformity or limitation of motion been observed. From another standpoint the prognosis is very different. In very few cases has the trouble been of short duration. It has caused a very marked disability for weeks and more often for months, and in many cases has been characterized by a series of exacerbation arising spontaneously or brought on apparently by the most trivial causes.

In view of the probable duration of a well-developed case of typhoid spine it seems desirable to emphasize the necessity for the greatest circumspection in the management of any case which during the febrile period or during convalescence, suggests the development of the typhoid spine by the existence of a weak, aching, painful back. For a well-developed attack, relief from pain is the first requirement. This end may be attained very largely in some cases by rest in a recumbent position. Additional relief may be given by various mechanical devices affording additional support to the spinal column, as by a jacket or brace. In a similar fashion, extension may be serviceable. Later a jacket may be of further assistance in supporting the back, in reassuring the patient and in permitting him to get about at an earlier date than would otherwise be possible. For the relief of pain also antirheumatic, sedative and hypnotic remedies may be

employed, but unless the suffering is mild, opiates will be found necessary, from time to time, to make the patient's condition bearable. The use of nourishing food and of tonics will be indicated at appropriate times. Other medication seems not to be of any great value, although potassium iodine has been used in a number of cases with apparent benefit.

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## EMPYEMA IN CHILDREN.


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This paper is based on a series of cases of empyema in children. Its deductions apply to children only.

Through the courtesy of Dr. Bradford, Dr. Burrell and others of the Children's Hospital staff, the writer has had an exceptional opportunity in the last two years for the study of the treatment of empyema in children. The work was begun with the idea of studying the somewhat neglected "siphon" or negative pressure treatment. To this end special apparatus was devised: (1) A hydrostatic apparatus in which the negative pressure exerted could be accurately estimated and regulated by means of a water column, the chest cavity being connected by an air-tight joint with the air reservoir of the apparatus; (2) a form of valve dressing (of sheet gutta-percha) was contrived which rendered better service mechanically than the valves previously described by various writers.

This treatment by negative pressure, carried out on a number of patients, proved of definite value in the more chronic cases, where failure to heal was really due to non-expansion of the lung; these results will be reported elsewhere. In the acute cases the results were not especially brilliant, though better rather than worse than the average.

In the course of this work the writer became interested in studying the general course of the disease, its treatment and results, and it is from this point of view that this paper has been written.

This study has been greatly helped by the permission of Dr. Bradford and Dr. Burrell to make use of the Children's Hospital records since 1885. Many of these older cases were sent out for and twenty-nine reported in person or by letter. A series of cases published by Dr. Burrell in the Children's Hospital Reports, and an unpublished series by Dr. Goldthwait, kindly placed at the writer's disposal, gave data as to end results in a number of other cases of this series. Four cases at the Infants' Hospital are also reckoned in — cases treated by the writer through the courtesy of the staff. The total is 180 cases, 45 treated by the writer and 86 verified as to end result.

There are fairly satisfactory data of 146 cases. The time elapsed in some of the later cases has been too short for final data, and to this extent the figures are subject to revision. The data have been tabulated and considered statistically, but the very varying character of the cases renders statistics rather unsatisfactory, and part of the conclusions are frankly deductions from a detailed study of individual cases which cannot be gone into here.

*Age.*—All cases were under twelve years. The youngest was seven months; 16 were under two; 67 between two and five years; 79 over five; that is, 51% were under and 49% over five years of age. The average age is 4.9 years.

*Etiology.*—The great majority of cases evidently follow lobar pneumonia. In many cases the history is incomplete, but of 119 cases there was an antecedent pneumonia in 104; a probable pneumonia in nine. In only four was the affection definitely primary. One case followed scarlatina and one diphtheria; in five cases measles, in one case typhoid, in one case pertussis preceded the pneumonia. In all cases so far as can be judged from the records the pneumonia was of the acute lobar type. Tuberculosis seems, in this community at least, to play a very slight rôle in causation. One case showed localized tuberculosis of the lung at autopsy. In three cases the diagnosis of tuberculosis was made clinically; in two others probable tuberculosis developed after some years, but in no case with demonstration of bacilli. There is no case in which the records definitely support a diagnosis of tubercular empyema.

[1] Read before The Massachusetts Medical Society, June 11, 1902.

Cultures are recorded in forty-eight cases; in all, thirty-three showed pure pneumococcus cultures; one (a double empyema) showed pneumococcus on one, streptococcus on the other side; one showed pneumococci and staphylococci; one, pneumococcus and saprophytes; seven, pure streptococcus; two, staphylococci; one, saprophytes only; two, sterile. This preponderance of pneumococcus infection (different though it is from the conditions in adults) is in conformity with other statistics for children published by Netter and others.

*Date.*— As to the date of occurrence there is a wide variation in the interval between the pneumonia and the empyema — from an imperceptible interval to many months. One case occurred a year after pneumonia; several at three to six months. The average is not quite seven weeks; the mean about five weeks.

*Physical signs.*— As to the physical signs little need be said. Even after short duration large effusions are usually found. Encapsulated or sacculated effusions are the exception; only six are noted as such in the records. The usual type is that of a "total" empyema flat to percussion from the third rib in front, from the scapular spine behind, with the heart considerably displaced. The amount of effusion tolerated by children without cyanosis, dyspnea, or obvious discomfort is relatively much more than is usual with adults. Double empyema is recorded in but two cases, in both the second effusion was small, and was not operated on; both were autopsy cases.

Fifteen cases came in as empyema necessitatis or with a fistula from spontaneous opening. The point of rupture was posterior or axillary in four; in the classical position (second to fifth space in front) in eight; unrecorded in two.

Spontaneous opening through the scar was not unusual in the recurrent cases.

*Operation.*— All cases were tapped as a preliminary. In some cases operation was deferred until it was evident that the effusion was not absorbing, then performed. In seven cases the effusion, usually small, subsided after tapping, and no further operation was done. In two cases operation showed little or no pus, and drainage was not used or needed. In two cases where pus was present, the attempt was made to let them close without drainage; these had to be drained later. The operations done were: Incision in the seventh or eighth space in the axilla, or subperiosteal resection of the seventh, eighth, or ninth rib, about one inch of the rib being removed in the mid or posterior axillary line. The choice of incision or excision was largely personal, save when in desperate cases incision gave the simpler operation. In either case, except as noted, tube drainage was used. All operations were under ether or chloroform.

The writer prefers, and has consistently used the excision operation mainly because it gives room for digital exploration and for the shelling off and delivering of the massive fibrin clots, which usually line the pleura. These, if left, disintegrate, and about the fourth to the tenth day, greatly hamper proper drainage.

In two cases an opening was made into a presenting abscess and a counter opening elsewhere for better drainage. In two other cases two openings were deliberately made. The cases showed no advantage in this procedure. In no case was a double operation done for double empyema.

In two late chronic cases Estlander's operation was done. One died at two and one-half, and one at four weeks after this secondary operation.

Delorme's operation — decortication, so-called — was not tried.

As to operative complications, temporary collapse is frequently recorded. Hemorrhage on the table occurred in several cases, not from the intercostal artery but from the pleural surface; it always yielded to hot irrigation. This complication seems to the writer the only occasion for irrigation at the time of operation. Irrigation *per se* is probably dangerous and hardly useful. It was, however, practised in about half of the cases in our series, though relatively seldom since 1898, before which time it was the usual routine.

*After-treatment.*— As to after-treatment, a number of methods have been tried.

In a large proportion of cases the simple drainage tube (with antiseptic dressings) was used.

Irrigation after the operation was more or less regularly used in sixty-nine cases. Chlorinated soda and boric acid, weak corrosive salt solution, water, in one case enzymol, were used. In a few cases irrigation by immersion (dependent on respiration for the washing) was used. Of late years irrigation has been largely abandoned except in very foul cases.

The Cabot valve was used in many of the earlier cases. A similar valve of gutta-percha gummed on three edges by pasting it to the skin with chloroform was devised and used by the writer. It is mechanically more efficient than the original form.

A suction apparatus, shown in the diagram, devised by the writer, was used in a number of cases to apply a steady suction force, a partial vacuum regulated accurately to aid in lung expansion.

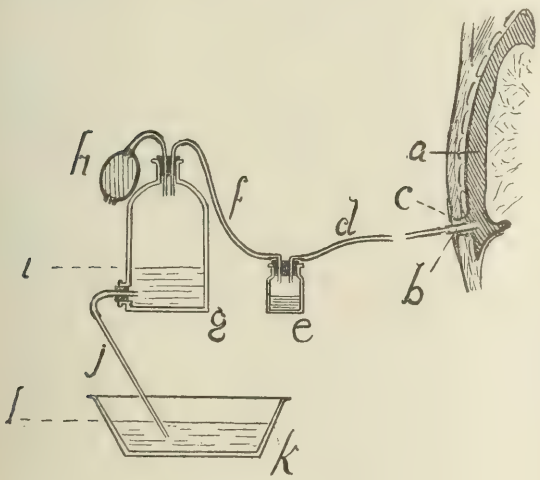
The Wolff bottles were used in a few convalescent cases to promote expansion by expiration.

Respiratory and other exercises were used freely for convalescents.

*Mortality.*— As to mortality there were in the whole series twenty-six deaths, 14.4%. Of the patients under two the mortality was 37%; between two and five, 20%; over five, only 7.5%,— a striking difference. The mortality according to the infection gives (in cases where the infection was determined) six in 33 pneumococcus infections, 18%; three in eight streptococcus infections, 37% — twice as high for streptococcus, a contrast the more striking, as the above list of deaths in pneumococcus infection includes one death from scarlatinal nephritis and one from diphtheria.

*As to causes of death.*— Exhaustion, malnutrition and slow septic absorption account for twelve; early collapse for four (there were no deaths on the table); persistence of pneumonia or fresh pneumonia for three; probable brain or other embolism, four; convulsions, one; diphtheria, one; scarlatinal nephritis, one.

It is to be noted that the most frequent cause of death is infection or exhaustion; on the basis of records it is impossible to separate the two. In the cases personally observed there was undoubtedly infection, but the grade of infection of the discharging cavity seems to the writer of secondary importance. The cause of death in many, at least, of these cases is the profound disturbance of nutrition, due primarily to pneumonia; secondarily in some cases to delay in operating. In the writer's cases forced feeding, concentrated foods, rectal feeding, stimulants, tonics, etc., were used, usually without success. Some patients, especially the older children, show rallying power; the others, especially the little ones under two, grow gradually weaker and die. Earlier operation may save some of them, but the problem is essentially a medical one, and I can offer no helpful suggestions.




SUCTION APPARATUS.

(*a*) Chest cavity.
(*b*) Tube in opening.
(*c*) Sheet-rubber and gutta-percha gummed down with chloroform to make air-tight joint.
(*d*) Tube connecting chest with
(*e*) The catch-bottle into which the discharge is drawn; it is connected by the tube *f* with
(*g*) The air-reservoir bottle.
(*h*) Suction syringe used to exhaust air from bottle *g*.
(*j*) Tube connecting the water in *g* with that in basin *k*. The column sustained is represented by the difference in height of the water-levels *i* and *l*. It can be increased at will by pumping the bulb *h*.

The other causes of death — embolism, recurring pneumonia, exanthemata, etc.— are so entirely accidental that there seems no way of guarding against them.

*Re-expansion and healing.*— Prompt and full re-expansion of the lung was frequently noted before the patient left the table; this proves that the lung was not tied down in these cases, but was found to have no definite relation to prognosis of life or healing.

Save that irrigation after operation seems to retard closure, the study of results in relation to methods is not very instructive.

The writer had hoped to achieve definite results with the use of suction apparatus and valves. This has not been the case. It is possible to produce expansion of the lung in this way, and to get more than usually good drainage, but expansion does not, in itself, mean healing — that depends also upon the nutritive condition, and in the cases with profoundly disturbed nutrition, which are common, this suction method yields only moderately good results. Its proper field is in the later cases where failure to re-expand is the prime factor in failure to heal. In five such cases it yielded most satisfactory results.

The statistical figures will then be given without reference to the special method used.

There are a number of cases in regard to which we have no data; others doing well in which too little time has elapsed for final records. Out of 105 cases with complete data, 19 were closed at six weeks; 42 were closed at three months; 27 closed later without operation; 14 closed only after secondary operation; five were not closed after years. Undoubtedly there may be other chronic empyemas among those not traced but probably the figures are near the facts.

It is noteworthy that empyemas apparently soundly healed may later break down and recur, either as localized or extensive empyemata. There were ten cases in our series where this happened, and in two of them the recurrence was two years after healing.

No essential difference is to be made out as to time of closure, according as the effusion is sterile or contains pneumococci, streptococci or staphylococci.

The most important item in the prognosis of healing seems to be that of nutrition, an item which unfortunately cannot well be tabulated. After a pretty careful observation of a good many cases, and after much study of records, the writer is of the opinion that varying nutrition is the essential reason for the widely differing course of the disease after operation in apparently similar cases. Here and there cases heal within three or four weeks without trouble; they will be found to be children on whom the preceding pneumonia has made but little impression. Other patients (in some of whom prompt re-expansion of the lung at the time of operation showed no "tying-down" of the lung) hang at about the same point for week after week. Some of them finally die, most of them eventually heal, but only after months. The infection is the same in these as in the other cases, the surgical condition the same, with no hindrance to lung-expansion, and yet they do not heal. If we apply suction and expand the lung, as we can do — still they do not heal. On careful inspection of these cases we often find that even the external wound shows no formation of granulations; evidently there is a failure to form plastic material. It does not much matter in these cases what we do surgically,

beyond providing proper drainage. So soon as the general condition so far improves as to provide for healing they will, with favoring conditions, heal up; until this occurs they will not heal, whatever the treatment. This is the explanation of the uselessness of artificial expansion in so many of the fresh cases, and in the writer's opinion it is the question of nutrition that dominates the whole question of prognosis.

In regard to deformity following healing it may be said that temporary deformity, a slight flattening with some spinal curve, is the rule. In the cases seen at this stage the deformity has always promptly yielded to proper exercises.

In regard to later results, especially in cases where exercises have not been carried out, the following figures are submitted: Total, fifty-five, giving definite data; thirty-one without deformity enough to note; nine with slight difference in chest girth or with flattening without lateral curve; six showed slight lateral curvature; in two the curve is noted without note of degree; ten showed severe curvature; one of these was healed at three and one-half months; one never operated beyond tapping; one without data as to length of time the sinus was open. Of the others, four closed only after "over a year," twenty-one months, eleven months, and four and one-half years respectively, and three are still open.

The records show that it is possible for cases to have a long continuing sinus — in one case nine months — and yet heal without deformity, but it is equally clear that the long continuance of a sinus predisposes to collapse of the chest-wall and to consequent scoliosis, and that most of the cases not closed at one to one and one-half years will show permanent deformity.

The general conclusions drawn by the writer from the data are:

(1) Empyema in children usually follows lobar pneumonia — after a varying interval.

(2) The infection is usually with the pneumococcus.

(3) Spontaneous cure, even when aided by tapping, is rare.

(4) Operation should not be delayed, as time lost is strength lost, and the issue is largely one of nutrition.

(5) The best form of operation is in general the subperiosteal resection of an inch of the eighth or ninth rib in the posterior axillary line, the evacuation of pus and fibrin masses, and tube drainage.

(6) Irrigation at or after operation is not usually advisable.

(7) The routine after-treatment in fresh cases should be tube-drainage, the tube being progressively shortened, and removed when the cavity is nearly healed.

(8) Where failure to heal seems to depend on failure of the lung to re-expand, treatment by valve or suction apparatus is indicated. This is especially of value in the more chronic cases.

(9) The mortality is about one in seven; in small children it is much greater than in those over five years. The causes of mortality are, in the main, beyond our control.

(10) The great majority of cases heal even when the healing is delayed for many months. Chronic empyema, in the strict sense, is rare in children.

(11) The closure of the cavity depends mainly on nutrition and on adequate drainage.

(12) Recurrences may occur from faulty drainage at any time, and they may occur years after apparently sound healing, without obvious cause.

(13) Deformity of the chest is usually temporary and yields to treatment.

(14) Long continued discharge from the cavity is not infrequently followed by chest deformity and scoliosis of a severer type, permanent and sometimes extremely severe.

## THE INFLUENCE OF ALCOHOL UPON INFECTION AND ITS USE IN THE TREATMENT OF ACUTE INFECTIOUS DISEASES.*

BY S. J. MELTZER, M.D., NEW YORK CITY.

[Concluded from No. 2, p. 42.]

FINALLY, I would call attention to one fundamental difference between the experimental infections of animals and infectious diseases in man,— a difference which might have an important bearing upon the different results. In the experiments the infection or intoxication is brought on at once by a single injection of a nearly fatal dose of bacteria or toxins. The organism is taken by surprise before it could bring its defensive forces into action against the enemy. On the other hand, a disease is rather similar to a break within an immunization experiment. That main stage which we term disease is preceded by a slow invasion of bacteria or their products before and during the long incubation time. When the patient and his doctor recognize the existence of an infectious disease, the struggle between the human organism and its virulent enemy is already well on the way for some time, and there are already at the disposal of the attacked body — besides the well-organized multitude of normal defensive forces — a good many newly formed immunization products, capable of taking care of a good many of the battle-worn invaders. Alcohol, therefore, might prove more harmful to the already greatly exhausted enemy in diseases than to the fresh, unrestricted virulent intruders in experimental infections.

However all this may be, we are bound to state that the large number of experiments on animals at present on record can at the utmost serve only as a warning to the practitioner to keep away from too large doses of alcohol in infectious diseases. They do not throw any light upon the question whether conservative doses of alcohol properly given to a patient sick with an infectious disease, and under proper management and care,

* Read before The Massachusetts Medical Society June 11, 1902.

are harmful, indifferent or useful. New experiments are required, with a proper consideration for the actual conditions existing in the infectious diseases of man.

I come now to the second thesis assigned to me for discussion. It reads as follows:

THE USE OF ALCOHOL IN THE TREATMENT OF THE ACUTE INFECTIOUS DISEASES, ESPECIALLY IN TYPHOID FEVER AND PNEUMONIA.

(An explanation of the results obtained by its use in the light of our pharmacological knowledge of the drug.)

Gentlemen, the use of alcohol in medicine is now on the defensive; it is again apparently passing through one of its historic crises. There are many causes for the present decline. Alcohol as a drug shares partly the fate of drugs in general, which are less prescribed at the present time in infectious diseases than in previous years. The advent of serums also contributed to the decline in the use of alcohol. In diphtheria, for instance, antitoxin has greatly reduced the former extensive use of alcohol in this disease. Then the national and international movements against the abuse, as well as the general use, of alcohol in health has, no doubt, a good deal to do with much of the activity displayed against its employment in sickness. The most spirited attacks, however, which the use of alcohol as a medicine had to face have been made within the last year or two, and are based apparently on purely scientific grounds. The conclusions to which these writers arrive are simply sweeping, and read as follows:[19]

The bacteriological experiments, say the scientific opponents of alcohol, have demonstrated that alcohol favors infection. Alcohol is a proteid poison and not a food, proclaims Kassowitz, and some others agree with him. The newer school of pharmacology has proven, they say, that alcohol is not a stimulant but a depressant. Furthermore, alcohol is not a stomachic, is of no use as an antipyretic, and is a poor narcotic. In short, there is no earthly reason for its use in disease, and there are weighty reasons against its use there.

Permit me to discuss the validity of some of these arguments. Beginning with the question of the influence of alcohol upon infection, and the evidence to be derived from the existing bacteriological experiments, I shall refer to what I have already stated above, namely, these experiments as they stand now cannot be used as an argument against the employment of alcohol in infectious diseases in man, and we need not discuss this point over again.

The next important point in the discussion on the value of alcohol as a medicine is its supposed stimulating quality. It is chiefly for this effect that many physicians prescribe alcohol for their patients. The opponents of alcohol refer us, however, to Schmiedeberg and his school, who hold that alcohol does not stimulate anything, but, on the contrary, exercises exclusively a depressing, paralyzing effect upon the functions of the body. It depresses the higher nerve centres, by which a degree of narcosis and a lack of concern is produced, and it causes paralysis of the vasomotor centres; in short, alcohol does not increase, but lowers, the vitality throughout the animal body. The so-called stimulating effect is simply a misinterpretation of the phenomena alcohol produces.

Gentlemen, in full appreciation of the high merits of Schmiedeberg and his learned followers, I venture to state that their theory suffers from some incompleteness in their analysis of the phenomena of stimulation and paralysis. We can all agree upon the proposition that stimulation has always the effect of increasing the display of a normal function, whatever this function may be; and that depression or paralysis invariably lowers or abolishes the normal display of a function. However, if the term "stimulation" has in pharmacology and medicine the same meaning which is attached to it in physiology, I cannot see why alcohol should not act as a stimulus. Any kind of a solution which is not isotonic with the body fluids will act as a stimulus on irritable tissue. Even cocain or other local anesthetic will cause at first a stimulation of the tissues with which it comes in contact. The kind of an effect which such a stimulus might produce depends, of course, upon the nature of the tissue which it irritates. Application of alcohol to a motor nerve will cause contraction of a muscle; application to the peripheral end of the vagus will cause slowing of the heart beat; application to the chorda tympani will cause dilatation of the blood vessels of the submaxillary gland. Now, the slowing of the heart by stimulation of the vagus appears as a reduction of activity, the effect of the alcohol here is nevertheless not a depression, but a stimulation of a function, because it sets to work the inhibitory mechanism of the heart.

Now it is with regard to just this point that Schmiedeberg's theory shows a deficiency. This theory has in view only either an increase of motor or sensory activity, or a decrease of vitality, but it offers no room for stimulation of an inhibitory mechanism by which a certain activity might appear diminished and the vitality at the same time being actually increased. Let us take, for instance, the flushing and turgescence of the skin after the use of some dose of alcohol. Schmiedeberg considers it due to a paralysis of the vasomotor centre. I believe I will not meet with any contradiction from physiologists when I say that the flushing of the skin is due to either a stimulation of the vasodilators, or an inhibition of the tonus of the vasomotor centre; in either case it is the effect of stimulation of a normal function, and not a paralysis of a function.

It must be mentioned that Binz, too, who believes in the stimulating effect of alcohol, has in mind apparently only the motor phenomenon. He therefore insists that alcohol increases the number of heart beats under the supposition that

a slowing of the heart beat would not be the effect of a stimulation. A practitioner would hardly appreciate the advantage of a stimulation which would increase the heart beats of a typhoid patient from 120 to 140 per minute. The observations of Von Jaksch,[20] according to which alcohol reduces the pulse in a fever patient, are surely more to the point: alcohol stimulates the inhibitory mechanism of the heart, and thereby reduces the number of its beats.

Before continuing the discussion on the relation of alcohol to inhibition, I wish to make a few remarks on the relations of alcohol to vasoconstriction and vasodilatation. The opponents of alcohol deny its stimulating effect upon the circulation, among others on the grounds that alcohol either causes a lowering of the blood pressure, or has no effect upon it; it surely does not increase the blood pressure. Permit me to say that actually there are very few reliable investigations on the influence of alcohol upon the conditions of the blood vessels. The statement which is now frequently made without qualification, that the blood pressure is lowered by alcohol, actually refers only to antemortem conditions in fatal doses. The writings of the opponents of alcohol are full of peculiar quotations. Paessler, for instance, is often quoted as saying that alcohol does not influence the blood pressure; what, however, he actually said, is that his method does not permit the drawing of any conclusion regarding the effect of alcohol upon blood pressure.[21] Kobert[22] worked with isolated organs, that is, with organs removed from all vasomotor influences; he is nevertheless quoted in support of the assertion that alcohol does not influence normal blood pressure. Although a further analysis of some of the writings might prove indeed interesting reading, I shall not indulge in it, but shall confine myself to the simple remark that to my knowledge there is nothing in the literature on the subject which can seriously disqualify the following considerations:

It is an established fact that after taking a moderate dose of alcohol the skin becomes turgescent and flushed. We have seen above that this is due to a vasodilatation in the skin. This vasodilatation could be either local, confined to the skin only, or it could be a part of the general dilatation of all the blood vessels in the body. In this latter case there would be a lowering of the general blood pressure. For a decision of this alternative I would like to call attention to the following facts: The area which is controlled by the splanchnic nerves contains the largest part of the body's blood. When this area is dilated it withdraws a good deal of blood from all the peripheral organs. When this occurs the skin is cool, pale, cyanotic and sallow. When the skin is red and turgescent we can with safety assume that there is no general vasodilatation, no "bleeding into the vessels of the splanchnic area"; the vasodilatation in the skin is therefore only local. But as the quantity of the body's blood remains constant, each local vasodilatation has to be compensated by a constriction of the blood vessels in another region. We know that there is a mutual nervous arrangement between the peripheral organs and the splanchnic area to such an effect that each vasodilatation of the peripheral organs is accompanied by a proportionate vasoconstriction in the splanchnic area. The administration of a dose of alcohol, which has the visible effect of causing redness and turgescence of the skin, has the actual effect of distributing the blood in such a manner as to cause vasodilatation in the peripheral organs, including the brain, and vasoconstriction in the splanchnic area. It is obvious that under these circumstances the blood pressure measured in the carotid artery, or in any other manner, will not be changed and will not indicate that a change in the distribution of the blood has taken place.

I maintain, therefore, that alcohol in not too large doses does not affect the general blood pressure, but effects some change in the distribution of the blood, which may be indifferent, or even harmful to a normal person, but which can prove to be of great importance to a patient with an infectious disease. We know through the investigations of Romberg and Paessler[23] that infections, with the pneumococcus, for instance, cause a general vasodilatation of central origin. The patient has then a "bleeding in the splanchnic area" and blood is withdrawn from all the peripheral organs: the skin, the extremities, the central nervous system, the heart, the kidneys, etc. Such a patient might have a high rectal temperature, but has cold extremities, livid skin, small pulse, mental depression (from cerebral anemia), and voids very little concentrated urine. We give him alcohol and cause a degree of vasoconstriction in the splanchnic area and a vasodilatation in all the peripheral organs, with the result that the heart receives more blood and the pulse gets fuller, the extremities warmer, the skin gets red, becomes turgescent, dissipates more heat, thereby reducing the temperature; the patient's mind becomes brighter, and his urine is increased and less concentrated. In short, the patient is stimulated and feels better. This effect is surely a stimulation even in the restricted sense of the term in which it is used in the schools of Binz and Schmiedeberg. In other words, alcohol does not affect the circulation by increasing or decreasing the general blood pressure, but by instituting such a distribution of the blood which is especially favorable to patients sick with infectious diseases.

We return now to our discussion of the relations of alcohol to inhibitory mechanisms. The contention of Schmiedeberg and his school, that a great many of the symptoms caused by alcohol appear to be of a paralytic nature, is perfectly correct. The climax of them is the deep narcosis in acute alcoholism, which looks indeed like paralysis. There is, however, a cardinal difference between the temporary states of narcosis and states of paralysis which usually involve a perma-

nent loss of some degree of vitality. And it seems proper to avoid the confusion of the two thoroughly different states. Whether narcosis could be looked upon as a state of inhibition is a suggestion I do not care to discuss here. However this may be, it seems to me to be quite certain that some of the lesser effects of alcohol upon the nervous system can be interpreted as inhibitory phenomena. We know that certain conditions of temperature or of electricity, or certain degrees of stimulation, or certain substances favor either excitation or inhibition. I should not attempt to discuss here this intricate subject, but shall state my hypothesis in a few words; it is this: Alcohol favors the irritability of the inhibitory mechanisms. I do not doubt in the least that alcohol stimulates also motor or sensory nerves, or the organs of activity in general. I only suggest that in a certain dilution and at a certain stage, alcohol, when in contact with the nerve cells, either directly stimulates preferably some of the normal inhibitory mechanisms of the body or increases their irritability. As a consequence of this stimulation the perception for finer differences becomes decreased, the reaction time is prolonged, the formation of associations and the irradiation of stimuli within the central nervous system become restricted. Also the tonicity of all the muscles is reduced and the execution of motion is rendered difficult. While such changes are surely undesirable in health, they are very beneficial and desirable in sickness. The fever-burned, infected, septic patient with his restlessness, hypersensitiveness, turning and twisting in bed, soreness over all his body, subsultus, etc., is surely greatly benefited when by the administration of alcohol his muscles become relaxed, his sensitiveness diminished and his useless mental activity is restricted. Alcohol enlists the aid of the inhibitory mechanism to procure rest for the toxin-hunted patient.

Strychnin is a stimulant, and alcohol is a stimulant; but strychnin stimulates preferably the motor or active mechanisms, while alcohol stimulates preferably the inhibitory mechanisms. Too large a dose of strychnin causes convulsions, but too large a dose of alcohol causes what looks like paralysis. It is obvious that strychnin, camphor or caffein cannot supplant alcohol; but they might profitably supplement one another.

My defense for the use of alcohol in infectious disease consists in that (1) alcohol stimulates the patient by effecting a favorable distribution of the blood within his sick body; (2) alcohol protects the patient against harmful excitations by stimulating some of the normal inhibitory mechanism of the body.

As to the claim of the opponents of alcohol that it is a poison and not a food, I need not discuss it, as this point has been already well taken care of by an authority more competent to speak on that subject than I. All workers in that line of investigation seem to agree now more and more that alcohol, when taken for a longer period, proves to be in the end as good a proteid saver, as fat and carbohydrates are. Ott[24] reported very recently that this proposition holds good also for the administration of alcohol during a febrile disease. Believing as we do that alcohol is a very useful drug we should accept its additional quality as a food with special appreciation. Even if we restrict the administration of alcohol to such small doses as one cc. per kilo in twenty-four hours, it would present the value of 500 calories for an individual of average weight, which is about one-sixth of his daily need. Surely an addition not to be despised.

Alcohol as an antipyretic or as a stomachic we need not discuss here. They are at all events minor qualities, and will not, I believe, materially influence our decision one way or another regarding the use of alcohol.

Some of the radical opponents of alcohol admit its usefulness in states of collapse, but ascribe it to its narcotic effect. In collapse, they say, the patient is greatly alarmed by his condition, and the narcotic effect of the alcohol relieves him of his anxiety. But such effect could be better and more quickly accomplished by a whiff of chloroform, would the advocates of this theory risk such a procedure? Patients in profound collapse have a vacant look in their eyes and hardly know what is going on around them. After being revived by some alcohol a look of recognition returns into their eyes, and they wish to know what happened to them. Can this be interpreted by assuming that the narcosis brought consciousness to the patient? Gruber's[25] guinea-pigs rallied from their profound collapse, brought on by the injection of prodigiosus cultures, by the administration of alcohol. Did the low temperature of the animals rise again because the narcotic effect relieved them of their anxiety?

But admitting even that the entire usefulness of alcohol rests upon its narcotic quality, as long as it is useful, why not use it? Here is the difference between opinions based upon "the light of pharmacological knowledge" and convictions based chiefly upon personal observation at the bedside. The attitude of Sir Samuel Wilkes[26] is an instructive instance. He professes his belief that alcohol is not a stimulant but a sedative, but advocates nevertheless its use in typhoid fever with arguments of the following character: He tells of a girl who was in the hospital suffering from a most severe attack of typhoid; she grew worse until her end seemed approaching. When apparently dying, brandy was administered, and this was continued for two days and nights until an enormous amount had been given. She then began to rally and shortly recovered. Now as regards the effects of this brandy upon her, "I can see," says Wilkes, "only three modes of reasoning: It did her good, it did her harm, it was valueless. Now I think few persons would say that giving two bottles of brandy in a few hours was of no importance, that its action on the system was *nil* and might be disregarded. It might then be said that it did harm, but in such a case as this there was only one step more to death, and this must

have inevitably ensued had the patient got harm. The only alternative left is that it did good."

It is a noteworthy fact that among the opponents of alcohol there is not a single clinical man of note who came out unqualifiedly against the use of alcohol based simply upon unfavorable clinical results gathered at the bedside. On the contrary, clinicians ranking high in the profession and thoroughly familiar with the pharmacology of the drug are unwilling to be deprived of its aid in dealing with diseases like typhoid or pneumonia. Curschman,[27] writing on typhoid in Nothnagel's "Handbook," says that in spite of all theoretical objections alcohol is indispensable for the patient, and certain stages of the disease can not be successfully treated without it. He says further that the stimulating effect of alcohol upon circulation and respiration is a fact established beyond all doubt, though it may be difficult to find its theoretical explanation. Pel,[28] in his well-known careful address on the treatment of pneumonia, says he is well aware that the theoretical explanation of the effects of alcohol is insufficient, but the experience at the bedside has the last word in this matter, and here we gain the conviction that alcohol stimulates and strengthens the patient. Juergensen, von Jaksch and many other celebrated clinicians express similar views.

Personally I am willing to be responsible for the following two statements: Alcohol in health is often a curse; alcohol in disease is mostly a blessing.

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## Clinical Department.

### A CASE OF SUBPHRENIC ABSCESS ON THE LEFT SIDE FOLLOWING APPENDECTOMY.[1]

BY EUGENE A. DARLING, M.D., CAMBRIDGE, MASS.

THE patient was a young woman, twenty-one years old, a student and unmarried. Her family history was good, except that her mother, at the age of twenty, had what was believed to be pulmonary tuberculosis, from which, however, she recovered perfectly. The patient's health had always been good, though never robust. Her weight was about 105 pounds. She was fond of out-of-door life, horseback riding, tennis, etc. She had no menstrual disturbance except moderate dysmenorrhea. The present illness began Sept. 4, 1901, but the patient was not seen until two days later. She then gave a history of general abdominal pain of moderate severity, with vomiting, constipation and some fever. At the time of the first visit the patient did not appear to be suffering much. Examination of the abdomen showed no distention. Palpation revealed well-marked tenderness in the right iliac region. There was no dulness, no tumor and no marked muscular rigidity. Temperature 100°, pulse 90.

The diagnosis of acute appendicitis of mild type was made, but operation was not advised as the symptoms were apparently subsiding. During the next two days the pain disappeared and the tenderness diminished. The bowels moved and the temperature became normal. After several days of comparative comfort the pain recurred on Sept. 11, and this time was definitely localized in the right iliac region. Tenderness again became marked in the same region, and on deep palpation a rounded tumor about the size of a hen's egg could be felt. There was some muscular rigidity, the temperature was 100°, the pulse 90.

After consultation with Dr. J. T. G. Nichols, operation was advised and was done the next day. The appendix was found deeply imbedded in a mass composed of omentum, small intestine and cecum, all bound together by recent adhesions. The appendix was separated and removed with some difficulty, the adhesions bleeding freely. Contrary to expectation, no pus was found, though the appendix was gangrenous and perforated. The upper half of the wound was closed with silkworm gut and a gauze wick was inserted, leading down to the stump of the appendix.

The patient stood the operation well, but had considerable pain and distention for several days. The discharge from the wound had a slight fecal odor, but was not profuse. Ten days after the operation the patient began to complain of pain in the lower part of the abdomen, of difficulty in micturition and of chilly sensations. The temperature, which had been normal for several days, became again somewhat elevated, and pressure below the operation wound caused considerable pain.

On Sept. 26 the patient was etherized, the old incision, which had nearly healed, was reopened, the cecum pushed aside, and on separating the adhesion a large pocket of offensive pus was found, extending well down into the iliac fossa. This was irrigated and drained and convalescence was uninterrupted so far as concerned the appendicitis.

Late in October the patient left the hospital apparently well. At about this time she began

[1] Read before the Cambridge Medical Improvement Society, April 28, 1902.

to feel some discomfort, not amounting to pain, in the left side, high up under the ribs. She described the sensation as that of a "hole," and attributed it to gastric indigestion and flatulence. Physical examination was negative and pulse and temperature were normal. During the following three weeks the discomfort in the side gradually increased, and a generalized tenderness developed over the region of the spleen, occasionally extending downwards as far as the crest of the ilium. The temperature gradually rose to 102° and the pulse to 110. There was no cough but deep inspiration was painful.

Physical examination on Nov. 19 revealed nothing definite beyond the local tenderness in the splenic region. The urine was normal and the leucocyte count 16,500. Dr. Nichols saw the patient in consultation and agreed that pus was probably forming somewhere, but advised waiting for more definite localizing symptoms.

On Nov. 24 the pain and tenderness were both increased. With the patient sitting with shoulders bent forward, a well-marked bulging of the lower ribs on the left side could be seen, the bulging becoming more pronounced on deep inspiration. On palpation there was a resistance on the left side over the lower ribs and upper lumbar region, which was absent on the right. There was dulness on percussion over the four lower ribs on the left side. The respiratory murmur was absent over the same area, but no abnormal sounds were heard. The temperature was 102.5°, pulse 115, leucocytes 14,200. The urine was still normal. The physical signs were those of an abscess, but there was reasonable ground for doubt as to its location, whether above or below the diaphragm. The dulness, pain and tenderness extending as high as the ninth rib, and the comparative frequency of thoracic suppuration after abdominal operation suggested a localized empyema. On the other hand, it was thought that the thoracic signs were those of compression and interference with the movement of the diaphragm, rather than of fluid in the pleural cavity. Moreover, the tenderness in the splenic region and the extension of the pain and bulging into the lumbar region were more suggestive of subphrenic than of supraphrenic disease.

Early operation was advised and was performed the following day, Nov. 25. The lumbar incision for nephrotomy was made, that is, along the outer border of the quadratus lumborum, and the dissection carried down through the space between the kidney and the twelfth rib. The abscess cavity was found without difficulty. It was retroperitoneal and occupied the space bounded above and behind by the diaphragm, in front by the peritoneum lying behind the spleen, and below by the kidney. The extent of the cavity was not accurately determined, since the proximity of so many important structures forbade any extensive exploration. The upper surface of the kidney could be plainly felt, but the abscess apparently did not surround that organ.

Recovery from the acute symptoms was rapid after the operation. Pain, tenderness and swelling disappeared and the temperature dropped to normal in three days. A sinus leading upwards and inwards toward the spleen for a distance of four inches persisted for several months and was so slow in closing that it gave rise to the fear that there might be necrosis of a rib or a tuberculous process at the bottom of it. On Feb. 9, ten weeks after the operation, the patient was etherized for the fourth time, and the sinus was dilated and explored with the finger as far as possible. The abscess cavity was found as before and a large amount of soft granulation tissue was removed with the dull curette and finger. No dead bone was discovered. The whole cavity was then firmly packed with iodoform gauze. Under daily irrigation with $H_2O_2$ and firm packing the cavity slowly filled up and the sinus closed. The patient was discharged well on April 9.

This case is interesting because of the obscurity of the diagnosis while the abscess was developing and because of the rarity of suppuration in this region as a sequel to appendicitis. I have been unable to find any similar case in the literature. Retroperitoneal abscess on the left side is due usually to disease of the kidney or to trauma. It may follow suppurations in the left side of the abdomen or pelvis. Intraperitoneal abscesses occupying the lesser peritoneal cavity — the space between the stomach, spleen, left lobe of liver and diaphragm — occasionally result from perforation of the posterior wall of the stomach. This condition is known as pyopneumothorax subphrenicus, and the physical signs are not unlike those observed in this case, but are much more acute in onset. Cases of this type are invariably fatal unless operated upon at an early stage.

On the right side both intra- and retroperitoneal subphrenic abscesses are much commoner than on the left. They may follow any suppurative process on the right side of the abdomen or pelvis, — the former by direct infection through the greater peritoneal cavity, the latter by extension along the lymphatics. The greater frequency of their occurrence on the right side is of course due to the frequency of suppuration about the appendix.

In this case the infection apparently crossed the median line, the primary infection being in the right iliac region, the secondary in the left subphrenic region. How this could occur is difficult to explain. Dr. M. H. Richardson, who saw the patient during convalescence, said that he had never seen a similar case, and was not aware that any such had been reported. He was inclined to regard the sequence as a coincidence, the two suppurations being of independent origin. This may have been true, nevertheless, no other cause for the subphrenic abscess was to be made out than the appendicular abscess which it followed so closely. The remote possibility of a tuberculous origin may be excluded for want of evidence, and there were no symptoms nor signs of disease in any other part of the body. The abscess may

have started in the suprarenal body or more probably in the retroperitoneal lymph glands. The suppurative cocci must have traveled thence by a circuitous route, but whether by vascular or lymph channels is speculative.

## Medical Progress.

### RECENT PROGRESS IN GENITO-URINARY SURGERY.

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#### MOVABLE KIDNEY.

E. CHEVALIER[1] presented this report at the last meeting of the Société Française d'Urologie. His conclusions are of interest from their conservatism. They are as follows:

Not one of the causes put forward to explain the pathogenesis of movable kidney suffices unless we count that of congenital predisposition and heredity. Operative indications, exceptional in the dyspeptic and neurasthenic forms, give greater promise of success in the painful form, which should be operated upon after orthopedic treatment has proved unsuccessful. Early operation should be performed in the cases accompanied by intermittent hydronephrosis in order to avoid ultimately the necessity of a long autoplastic operation.

#### RENAL HEMATURIA.

In the report on recent progress in "Genito-Urinary Surgery," made in this Journal Oct. 25, 1900, mention was made of two cases of renal hematuria which were reported by Mr. Hurry Fenwick as due to the varicose condition of a renal papilla in each instance. Now comes the report of a case by F. Suter[2] in which the renal hemorrhage of over a year's duration, and supposed to be due to tumor or tuberculosis of the left kidney, proved, after a successful lumbar nephrectomy had made a careful examination possible, to be due to the condition of disseminated miliary telangiectasis in the pelvis of the kidney and the adjacent portions of the ureter.

#### PATHOLOGY OF THE LYMPHATICS INVOLVED IN GONORRHEAL AND OTHER VENEREAL INFLAMMATIONS.

In a little book[3] G. Nobl, the author, describes his methods of study of the lymphangitis accompanying this inflammatory process. His presentation of the lymphangitis of acute gonorrhea with a demonstration of the gonococcus in the vessels is of value.

#### TECHNIQUE OF PROSTATECTOMY.

Since the report six months ago of Syms' perineal method for enucleation of the prostate, Ferguson[4] of Chicago recommends the removal of the prostate by *morcellement* through a median perineal incision. He describes special instruments and drainage tubes for the procedure, reports six cases of his own, and claims that "all forms of prostatic enlargement are successfully treated" by the method described.

Murphy[5] reviews briefly the present day condition of prostatic surgery, reports eight cases of perineal enucleation of his own, and in concluding his article says, with reference to prostatectomy, that it "gives the best permanent result and is fraught with very little more danger than prostatotomy." He advocates the perineal operation, and says the suprapubic prostatectomy should be reserved for "exceptional cases of enormous intravesical enlargements."

#### ANATOMY OF THE PROSTATE.

C. S. Wallace[6] reports a study of the large number of specimens in the Museum of the Royal College of Surgeons with a view to finding out whether enucleation of the prostate so commonly advocated is an anatomical possibility. He concludes that the capsule of the normal prostate is really a portion of the normal prostatic tissue itself, and that the normal organ has no separable capsule. When, however, "adenomatous hypertrophy" exists, certain forms are enucleable with a readiness which depends upon the situation of the adenoid masses and their isolation from the surrounding tissues. The writer evidently uses the word enucleation in a thoroughly literal sense, and does not mean to deny the possibility of a complete removal of obstructing masses, but rather denies that such removals are always, literally speaking, enucleations, for he says that often "some tearing may be required."

#### STERILIZATION OF CATHETERS.

F. J. Cotton[7] comments on the ammonic sulphate method of Herman and the salt solution method of Claudius, and as a result of his experiments says: "I am ready to claim that all gum-elastic catheters, bougies, and filiform bougies ordinarily sold may be boiled repeatedly and for long periods in saturated (or something less than saturated) solutions of ammonic sulphate or sodic chloride without essential damage." Of the two methods he prefers the ammonic sulphate because it is a little surer and is easier to handle, spattering less than salt solution when it boils down.

#### AN OPERATION FOR AZOOSPERMIA.

In a paper read before the genito-urinary section of the New York Academy of Medicine, Jan. 15, 1902, Edward Martin of Philadelphia describes an operation for the relief of azoöspermia incidental to bilateral obliterating epididymitis. He first operated upon three dogs by dividing the vas and attaching its upper end to an opening

[1] Resumé au Rapport sur la Pathogenie et les Indications Operatories du Rein Mobile. Ann. des mal des Organes Genito Urinaires, 1901, p. 1333.
[2] Centrbl. f. die Krankh. der Harn und Sexual Organe, Bd. xiii, H. 1, p. 26.
[3] "Pathologie dem Blenorrhorischen und Venerischen Lymphgefasse Erkrankungen," Vienna, 1901.
[4] Journal of the American Medical Association, Feb. 22, 1902.
[5] Journal American Medical Association, March 22, 1902.
[6] British Medical Journal, March 29, 1902.
[7] Boston Medical and Surgical Journal, March 27, 1902.

made in the head of the epididymis. The emissions of these three dogs which occurred days or weeks afterwards contained motile spermatozoa. Then a man who had azoöspermia following double epididymitis was operated upon. The vas was split and one side of the cut was sutured to the edge of a wound made in the head of the epididymis. An emission two weeks later contained many spermatozoa.

SKIAGRAPHIC DIAGNOSIS IN RENAL AND URETHRAL CASES.

Kolischer and Schmidt[8] detail their experiments upon the cadaver, and display a series of photographs in which the ureters are identified by means of a polished flexible wire made of lead and antimony which had been previously passed up into the ureters through a cystoscope.

BACTERIOLOGY OF INFECTIONS OF THE BLADDER.

R. Faltin[9] states that the urethra is the usual route of infection. He says that the colon bacillus is found more frequently in chronic than in acute infections, and that it seems to be antagonistic to certain staphylococci only while the pyocyaneus when present drives out practically all other forms of bacteria.

ABSORBING POWER OF THE BLADDER WALL.

Barbarroux[10] says that when the epithelium of the bladder membrane is altered in structure, absorption proceeds more rapidly, but that this does not hold true of the alterations which result from simple inflammation, because these are associated with increased secretion of mucus and so diminish rather than increase the absorbing power of the bladder wall. Any irrigation, or other measure which removes mucus, favors absorption, while one which favors the precipitation of mucin retards absorption.

INFLUENCE OF FORMALDEHYD ON THE URINE.

M. Jaffe[11] claims that formaldehyd should not be added to urine which is to be analyzed, because it prevents certain reactions of the indican, uric acid, etc.

A NEW COMBINED ELECTRO-CAUTERY INCISOR FOR THE BOTTINI OPERATION FOR PROSTATIC OBSTRUCTION.

H. H. Young[12] found in his study of results that there seemed to be several avoidable reasons for death in some of the cases, that is, from improperly placed and too lengthy incisions. He describes his own instruments, which are so made with several interchangeable blades as to minimize these dangers. He then fully details eight of his cases and reports in his summary forty-one cases with three deaths. All but one were cured of the obstruction. Young believes that prostatectomy should be reserved for men forty-five to sixty years of age and in good condition, as then it "is a very safe operation and certain as to lasting results." He thinks the Bottini operation has a wider range of applicability, and that it, too, has not only good but permanently good results.

ANOMALIES OF THE URETER.

Munro[13] reports a case of double ureter, one member of which was distended with pus. Operation resulted in a cure. Scudder[14] reports a similar case, where one member of the ureter was a blind pouch, and where the operation could not be completed, owing to the patient's condition, but where the autopsy revealed the true condition of affairs.

HERNIA OF THE URINARY BLADDER.

Cheesman[15] describes a case of his own, reviews the literature of the subject carefully, and among his conclusions are the following:

That the principal cause of bladder hernia is direct traction exercised through the peritoneal coat by the weight of the hernial mass, or by the pull on the sac during ligation in operations for radical cure.

That urinary fistulæ, resulting from wounds of the bladder, not immediately closed at the time of the operation, nearly always close spontaneously.

That such bladder injuries have been responsible for death in only 10% of the hernia cases in which they occurred.

A STATISTICAL DIGEST OF EPITHELIOMA OF THE PENIS.

F. D. Patterson[16] in this paper presents little that is new, but it is just what its title implies. It is of value as a carefully prepared and exhaustive study of the literature of the subject.

THE BOTTINI OPERATION.

The present status of the Bottini operation as a method of treatment in obstructive hypertrophy of the prostate gland, derived from the summary of 888 operations by 48 operators.

From a study of this very large number of cases and from his own experience, O. Horwitz[17] thinks that the Bottini operation is the safest and most satisfactory, and at the same time is more generally applicable to the different forms of prostatic enlargement than any other one method of treatment. He enumerates at length its many advantages, and speaks of it as contra-indicated in cases where a valve-like formation exists or where there is a large overgrowth of all three lobes associated with tumor formation. In early operations, before the gland is greatly enlarged, he speaks with appreciation of Chetwood's perineal-galvino cautery as a safe and wise instrument to use.

Bequest to St. Thomas Hospital.— It is reported that Charles Gassiol of London left at his death £250,000 to St. Thomas Hospital.

[8] Journal American Medical Association, Nov. 9, 1901.
[9] Ann. des mal. des Organes Genito-Urinaires, March, 1902.
[10] Ann. des mal. des Organes Genito-Urinaires, March, 1902.
[11] Therapie der Gegenwart, Berlin, April, 1902.
[12] Journal American Medical Association, Jan. 11, 1902.
[13] Annals of Surgery, May, 1902.
[14] American Journal of Medical Sciences, July, 1901.
[15] New York Medical Record, June 22, 1901.
[16] University of Pennsylvania Medical Bulletin, July, 1901.
[17] Philadelphia Medical Journal, Nov. 16, 1901.

# Reports of Societies.

## AMERICAN MEDICAL ASSOCIATION.

FIFTY-THIRD ANNUAL SESSION, HELD AT SARATOGA, N. Y., JUNE 10-13, 1902.

### SECTION ON PRACTICE OF MEDICINE.

(Continued from No. 2, p. 52.)

THIRD DAY.

#### THE OCCURRENCE OF GOUT IN THE UNITED STATES WITH AN ANALYSIS OF THIRTY-SIX CASES.

DR. THOMAS B. FUTCHER of Baltimore read this paper, and summarized as follows: (1) Gout in the United States is undoubtedly more common than is generally supposed. (2) Out of 13,400 medical cases admitted to Dr. Osler's medical wards in the Johns Hopkins Hospital during a period of thirteen years there were 35 gout cases, or .24% of the total number of cases. For the same number of years at St. Bartholomew's Hospital there were 116 gout cases out of a total of 31,100 medical admissions, or .37% of the cases. Thus among hospital patients gout is only about one-third more frequent in London than in Baltimore. (3) All the thirty-six cases were in white males. The largest number of cases occurred in the fifth decade. Twenty-seven of the patients were native born Americans. (4) The majority of the cases appeared to have earned rather than have inherited their gout. Alcohol and lead seem to be the most potent predisposing etiological factors. (5) Thirty-three of the thirty-six cases had reached the chronic stage before they came under observation. In seventeen of the cases tophi were present. (6) Among the more interesting complications may be mentioned three cases of gouty bursitis; one case of parotitis; one of pericarditis; one of retrocedent gout with symptoms simulating intestinal obstruction. (7) There was evidence of disease of the kidneys in the majority of the cases. Albuminuria occurred in twenty-seven and hyaline and granular casts in twenty-three instances. (8) Arteriosclerosis was present in twenty-three cases and a mitral systolic murmur in five cases. (9) Many gout cases are mistaken for rheumatism. Four of the cases were repeatedly diagnosed as such on early admissions. The appearance of tophi revealed their nature. (10) The series illustrates the great importance of examining the ears and the vicinity of the joints for the presence of tophi in all cases of multiple arthritis.

#### SYPHILIS OF THE LIVER.

DR. CHARLES G. STOCKTON of Buffalo read this paper. He said that although the chief pathological changes induced by syphilis of the liver appeared to have been clearly studied and classified, the clinician occasionally meets with instances of undoubted syphilis in which there develop hepatic manifestations that so puzzle him as to the precise character of the morbid change that classification has to be abandoned. There is no fundamental difference between the pathology of congenital syphilis and that of the acquired disease. In either one we may have (1): The diffuse hepatitis or parenchymatous degeneration, to be succeeded by the ingrowth of fibroid tissues; these changes are probably due to the local effect of the specific toxin rather than to local infection. (2) We have gummata occurring in large tumors, in scattered masses, in miliary granulomata, or in the budding stage, as mere aggregations of lymphoid cells; these lesions appear to be the outcome of stimulation of tissue from the local action of micro-organisms. In some cases the liver is apparently invaded through the lymphatic system, sometimes by the route of the peritoneal cavity; in other cases the disease manifests itself in the blood vessels, or by obliteration of some of the portal branches, or distributions of the hepatic artery. He then cited illustrative cases showing the conditions under which hypertrophy or deformity of the liver may occur, besides pain, ascites, jaundice and other symptoms commonly associated with affection of the liver other than syphilitic. It is generally conceded that serious syphilitic lesions of the liver occur only in the last stages of the disease. With the exception of perihepatitis and lymphatic involvement, he was sure that this was true. The last named lesion he had seen at a comparatively early period. Besides this he was satisfied that in the early stages of the affection we find the liver congested, moderately enlarged, somewhat tender and functioning poorly. Very likely this is the immediate result of a constitutional disturbance, that is, the systemic intoxication. In conclusion he expressed the opinion that lymphatic complications are more common in syphilis than one is likely to infer from the literature on the subject. The subject has not received the fulness of consideration that its importance seems to warrant.

#### THE TREATMENT OF CROUPOUS PNEUMONIA.

DR. E. FLETCHER INGALS of Chicago read this paper, in which he gave an analysis of the cases treated in Cook County Hospital for the fifteen months preceding April 1, 1902. He reviewed the literature on the subject extensively, but presented no new ideas. He said in substance that the frightful mortality in this disease had led our best pathologists to become therapeutic nihilists. Few physicians will admit that their efforts to mitigate the severity of pneumonia are of no avail. However, there are some remedial agents which deserve consideration. The patient should have abundant nourishment, but the stomach should not be overloaded. The oil-silk jacket may be applied. Pain may be relieved by hot or cold applications, by cupping or by drugs. He recommended bromide of ammonium or hyoscyamus for cough. The temperature could be controlled by various means. He spoke of the action of various stimulants and antipneumococcus serum. In those cases in which the consolidation did not speedily resolve, he thought that the

process could be stimulated by the administration of the chloride of calcium, the iodide of ammonium and possibly by alkaline diuretics, such as acetate of potassium.

AN ANALYSIS OF SIXTY-FIVE CASES OF GASTROPTOSIS.

Dr. J. Dutton Steele and Dr. Albert P. Francine of Philadelphia presented this interesting paper. The conclusions reached were as follows: (1) Gastroptosis is much more common than might be inferred from the meagre reference made to it in a majority of the textbooks upon general medicine. In women showing symptoms of gastric motor insufficiency its presence is almost constant, and it is probably the most important factor in the causation of such symptoms. It is much less frequent in men. (2) The occurrence of gastroptosis is not confined to any particular age or class of individuals. There are no causative factors common to all cases, and no explanation of its etiology heretofore given is broad enough to call it satisfactory, if we accept the theory of congenital predisposition, which is entirely hypothetical. (3) The position assumed by the stomach in all of their cases was vertical or subvertical. Total descent was not observed and probably is extremely rare. Some dilatation of the pyloric extremity was always present. When this dilatation affects the pyloric end alone, it may, perhaps, safely be assumed that the dilatation is secondary to the descent of the pyloris. In general dilatation and gastroptosis it is probable that the displacement is secondary to the dilatation. The data in regard to the position of the stomach were obtained in every case by inflation with air through the stomach tube. The colon was inflated through the rectum. (4) The transverse colon invariably shared in the displacement, assumed the "M" or "V" shape, and when inflated by air was in close contact with the greater curvature of the stomach. The hepatic flexure may not be displaced or may sink to the level of the umbilicus. The splenic flexure lies behind the stomach and eludes demonstration. (5) The right kidney was movable in 60.9 of the cases. The left kidney rarely showed abnormal movability and the spleen in but one case. The fact that the liver was observed to be unduly movable and sagging downward in three of the six cases operated upon suggests that ptosis of this organ may elude methods of physical examination, and be more frequent than is usually supposed. (6) There is no condition of the gastric contents peculiar to gastroptosis. Absence or diminution of the free hydrochloric acid is the rule. In a few cases the amount was normal. Hyperacidity was rare and usually occurred in cases where general dilatation existed, and when there was a strong neurotic taint. (7) There were no characteristic changes in the blood or urine. (8) The subjective symptoms were those of gastric motor insufficiency, and were of a mild grade in cases of primary ptosis, but more severe where general dilatation existed. Pain was present in the upper abdominal region in about half and in the lumbar region in a quarter of the cases. (9) The same causes that produced neurasthenia appeared to favor the development of ptosis of the abdominal viscera. When the two conditions are established they probably react upon each other deleteriously, but clinical evidence tends to contradict the theory, previously widespread, that they have a direct causative relation.

THE ETIOLOGY OF ACUTE ARTICULAR RHEUMATISM.

Dr. Geo. W. Webster of Chicago presented a paper on this subject and offered the following conclusions: (1) Many organisms produce arthritis. (2) Probably all cases of acute articular rheumatism are due to infection. (3) Probably all organisms known to cause either acute articular rheumatism or other forms of arthritis also give rise to other pathological conditions as well. (4) It would thus seem to be not merely a local infection or inflammation, but a general infection, the commonest seat of the principle lesion being the joints, but also involving the heart, both endocardium, pericardium and muscle, occasionally the meninges and other structures, and caused by a diplococcus circulating freely in the blood. The diplococcus seems to be merely a germ capable of causing a widespread inflammation, and the joints are included in its sphere of action. Just as in pneumonia, we may have a general infection with local manifestations or inflammatory reaction in the meninges, the pleura, the endocardium, pericardium, post-nasal space, peritoneum, lymphatics and lungs, the latter being probably the usual site of the localizing inflammation. (5) It is quite possible that there is some hereditary diathetic or constitutional peculiarity the nature of which is completely unknown to us, which may favor infections in general, and possibly that of rheumatic infection in particular. (6) That there may be varying degrees of susceptibility depending upon exhaustion, depressing influences, as cold and the like, seems reasonable. These are the occasions and not causes. They favor but do not cause. (7) That susceptibility varies greatly there can be no doubt. Whether this depends upon alkali tension has not yet been demonstrated, but seems plausible on the ground of variation in the bactericidal action of the blood. This may explain the value of alkalies in the treatment of rheumatic affections.

ETIOLOGY AND PROPHYLAXIS OF CARDIAC MANIFESTATIONS OF ARTICULAR RHEUMATISM.

Dr. Joseph M. Patton of Chicago read this paper. He said that it had been admitted that many of the so-called hereditary diseases of the heart were probably of rheumatic origin, while it was generally conceded that those cardiopathies of early life which obtain with the entire absence of clinical history, or, at least, an indefinite mention of "growing pains," were of rheumatic origin. In several hundred ambulatory cases of acute

and chronic disease of the heart observed during the last ten years fully 30% failed absolutely to give any history of rheumatic manifestations, though usually some such history could be traced in the parents or other members of the family. Sansom believed that all cases practically of heart disease in individuals under thirty-five years of age were rheumatic, and that practically all fetal endocarditis was rheumatic. In a certain proportion of cases there appears a degree of myocarditis which cannot be explained by extension of inflammation or by embolic or other direct infective processes, and we must assume with Hanot that toxins are capable of producing acute inflammation of the heart. Pericarditis, according to Baumgarten, occurs in about one-third of the cases of acute rheumatism. Of 150 cases of rheumatic heart disease reported by Lees, the pericardium was uninvolved in only nine instances. In Sibson's cases of acute rheumatism 20% were complicated by pericarditis. Latham gave 7.5% and Chambers and Ormorod 13% and 71.7% respectively. Acute rheumatism is generally conceded to be the most frequent cause of endocarditis. Of Sibson's cases, 325 in number, 107 had endocarditis alone, and 54 had endopericarditis. The occurrence of acute myocarditis in connection with rheumatism is generally admitted. With the treatment of acute rheumatism he emphasized his belief in the importance, so far as avoiding heart complications was concerned, of early control of the condition as shown by mitigation of the joint symptoms and subsidence of the fever, and he expressed his conviction that this was best obtained by the temporary employment of pure salicylic acid in sufficient dosage to produce relief of pain and fever, with sweating and more or less depression, to be followed by sodium salicylate combined with the alkaline diuretics. He believed the most effectual measure locally was the application of cold to the pericardium. It should be applied continuously. Hot applications have an analgesic effect and are more readily employed in children. Their effect on the inflammatory condition was decidedly less than cold. Aconite had a distinctly beneficial effect in quieting the heart and slowing its action. In the earlier excitable stages aconite combined with sodium bromide would act to advantage.

REVIEW OF THE CASES OF ACUTE ARTICULAR RHEUMATISM IN THE MEDICAL CLINIC OF THE JOHNS HOPKINS HOSPITAL.

DR. THOMAS MCCRAE of Baltimore said that, in a period of thirteen years, there were 270 cases of acute articular rheumatism. This represented an admission of 294 cases which gave a percentage of two of all medical admissions. Of these, 198 were males and 72 females; 223 were whites and 47 were colored. The largest increase was in the mid-decade with the second decade coming next. The oldest patient was aged sixty-six years. The largest number occurred in the first half of the year and 55% in the months of February, March, April and May. September was the month with the fewest cases. There was a family history of rheumatism in 25% and of tuberculosis in 14%. There was a previous history of rheumatism in 45%, of tonsillitis, however, only in 4% and of chorea in 3%. Nearly 40% gave a history of the more or less constant use of alcohol. In about 75% the age of the first attack was below thirty, the largest number, 36%, being in the second and only 8% in the first decade. There was a history of exposure to cold, wet, etc., in 12% of all the cases. Arthritis was the most predominant symptom of onset in over 80%, but in seventeen cases a chill occurred at the onset, in ten tonsillitis, and in single cases various conditions, among others trauma. The arthritis was, of course, an inevitable feature, more often in the legs than in the arms, the knee-joint being involved in over 50%. In all the joints of the lower extremities both joints, for example, both knees, were affected more frequently than one only, while the contrary was true in all the joints of the upper extremity. The average duration of fever was twelve days. There were not any cases of hyperpyrexia. About 30% of the cases had fever above 103.

The heart sounds were clear throughout in 38%; definite organic lesions were present in 32% and the remaining cases were more or less doubtful. Of these 78 doubtful cases, in 18 there were murmurs present during the attack which disappeared. In the remaining 60 there was in all a systolic murmur of varying distribution, in large number at the apex only, of soft quality and not transmitted. The heart condition in other ways normal. In nine cases the murmur disappeared under observation, all at the apex. In five of these the murmur was apparently due to an organic lesion, the other four being doubtful. The age at the first attack in reference to the cardiac condition showed that, of the patients who had the first attack below the age of twenty years, 45% had a definite lesion, while of those over the age of twenty at the first attack only 21% had a lesion. This pericarditis occurred in 6% and with the first attack in only three of the sixteen patients. The time varied from the fifth to the sixty-first day. The rub persisted for a period of from five to eighteen days. There was associated delirium in one instance only. The fever in the majority of the cases was not high, only three being above 103°. There was a leucocytosis of 15,000 to 25,000 in all of the seven cases in which counts were made. There was associated endocarditis in eight cases, doubtful in four cases and no evidence of it in four. Effusion occurred in two cases, adherent pericardium in three and death in three. The pulse rate of the series showed that only in 41% was the pulse raised over 100, only in 13 cases, or 6%, was it over 120. The urine was clear throughout in 48%. Albumin was found on admission only, or once in 34%, occasionally in 5% and throughout in 11%. A positive diazo reaction was given in three out of 91 cases. The average percentage of hemoglobin in 77 cases was 66, the red cells in 69 were 4,532,000 and the

leucocytes in 83 were 11,700. In 35 cases the leucocytes were 10,000; the highest leucocyte count was 26,000. The average differential count showed nothing unusual. The average stay in the hospital was twenty-six days, and the average duration thirty-eight days. Cultures throughout from the blood, joints and urine were negative. Death occurred in three of the series, all having pericarditis.

THE SALICYLATES IN ACUTE RHEUMATISM.

Dr. James J. Walsh of New York read this paper. He said that it was generally conceded that the salicylates constitute the most satisfactory remedy for acute rheumatism, though they are no longer considered a specific for rheumatism in the sense that quinin is a specific for malaria. The salicylates do not effect secondary infectious complications of joint structures due to pus cocci, influenza bacilli, or other infections, nor to the arthritis due to the gonococci. Rheumatic cases that are uninfluenced by the salicylates should be suspected to be dependent on some other etiology than that of simple acute rheumatism. In regard to the dosage of the salicylates he said that they were ineffective unless employed in large doses, from 90 to 120 gr. per day. Many patients cannot stand this amount of the drug. Certain nervous individuals develop neurotic symptoms that may proceed to delirium. Again some stomachs will not tolerate salicylates; a disturbance of the digestion further adds to the impoverished condition of the system. The salicylates are distinctly irritants to the kidneys and should not be given in cases of nephritis. It will react to increase the anemia and make heart complications more serious. In certain cases there is a development of salicylic dyspnea, and if breathing becomes very rapid it must lead to the substitution of some other remedy. The form of salicylates that are used is a matter of clinical observation that each physician must decide for himself; but the criticisms are sufficiently numerous and authoritative to make it clear beyond a doubt that the subject is well worthy of consideration. He said with regard to the time at which the salicylates should be administered that there is some variance of opinion, but as the temperature of rheumatic patients is higher in the afternoon and evening, and they are almost sure to be more uncomfortable and to present more symptoms of the affection at this time, it may be better to administer them so that the daily dose is given before four o'clock in the afternoon. In heart complications it seems advisable that alkalies should always be employed in conjunction with the salicylates. Sufficient of the alkalies must be employed to render the urine alkaline. They are not employed with any thought of the presence in the blood either of uric acid or lactic acid, but entirely on clinical grounds. There is no doubt that the salicylates relieve the pain, lessen the fever, diminish the restlessness, and so make the patient very comfortable. There is considerable doubt, however, as to whether the remedy affects the rheumatic process itself. Hyperpyrexia is one of the complications that is undoubtedly much less frequent in acute rheumatism than before the introduction of the salicylates. As the salicylates are not specific for rheumatism, and the beneficial effects obtained from them may also be derived from cognate coal-tar products, antipyrin has been very extensively used in Germany as a substitute. Like the salicylates antipyrin must be used in large doses. From 60 to 90 gr. per day are employed for three, four or more days until the painful symptoms of the rheumatic condition have subsided. No bad results have been noticed from these large doses unless there be an idiosyncrasy in the patient. Phenacetin in similar doses as those mentioned for antipyrin has also been employed with good results. Either of these drugs may prove effective when the salicylates fail.

THE INFLUENCE OF OZONATION UPON THE BLOOD.

Dr. G. Lenox Curtis of New York read this paper, and said that the profession at large has been slow to appreciate the importance of a thorough knowledge of the blood as an aid in diagnosis. He stated that unmistakable indications of disease are often recognized in specimens of fresh blood, of which photographs can be made. These should be attempted only within a few seconds after the fluid has been drawn, as even a brief exposure of the specimen to the air promotes failure. The American method affords knowledge of obscure cases and enabled the physician to institute treatment before ordinary symptoms are clearly established.

Individuals who possess pure blood are immune to disease. Examinations of the blood of immune nurses showed that in all cases the fluid was practically normal. The cells of pure blood are robust, noticeably free, and vigorous in appearance. In a diseased state the individual cells cease to be independent, and adhere to one another. Degeneration occurs with the formation of new products; changes pathognomonic of certain diseases appear in the blood. A knowledge of these facilitates early and accurate diagnosis of obscure conditions.

The author submitted the proposition that good health is perpetual when normal conditions of blood, drink and air-supply are conserved. When the microscope reveals the presence of morbid detritus, that is, an abnormal state of the blood, the fluid must be restored by oxidation. Ozone, the "life-giving" principle of oxygen, can be produced by means of a high-tension electric machine, and forced into and through the body to such an extent as to destroy the *materia morbi* in the blood and other tissues.

The machine for generating the current was fully described in a former paper.[1] It is essentially a system of coils which multiply the voltage, the current being taken directly from the street main, to which the machine is connected by an ordinary plug. The capacity of the apparatus is from 500,000 to 1,000,000 volts, at from one-sixth

[1] New York Medical Journal, Jan. 18 and Feb. 1, 1902.

of an ampere to one ampere, according to the intensity desired. A Geissler vacuum tube and an ozone generator are attached to the machine. A fine spray of electric fluid passes off from the generator, producing ozone, colored light and heat. No shock is experienced by the patient. The machine is used in connection with a cabinet fitted with a glass-reclining slab, above and below which are clusters of incandescent lights. Reflectors are so arranged as to subject every portion of the patient's body to the effects of light-rays. The treatment consisted of a twenty to thirty minutes period in the cabinet, during which the patient inhaled nascent ozone, while his body was exposed to the heat and light rays. At the same time the extremely high-tension current was passed through the body. This procedure brought on profuse perspiration, after which a shower and massage of the diseased area with the electrode completed the séance.

In the author's opinion this was essentially a process of oxygenating the blood, destroying the pathogenic organisms and eliminating the products of retrograde metabolism through the combined influences of electricity, heat, light and ozone. His conclusions were that resolution was thereby hastened, the number of red blood-cells and the percentage of hemoglobin were increased, the leucocytes were diminished in number, and pathogenic bacteria were destroyed. In a large percentage of cases, most of which were of long standing, by the way, satisfactory results were obtained in a month. Histories of a number of cases were appended. These apparently bore out the writer's claims.

OFFICERS ELECTED FOR THE ENSUING YEAR.

Chairman, Dr. W. S. Thayer of Baltimore; Secretary, Dr. J. B. McIlroy of Mississippi; Delegate for one year, Dr. J. M. Anders of Philadelphia, and Dr. C. G. Stockton of Buffalo for two years.

## AMERICAN SURGICAL ASSOCIATION.

ABSTRACT OF PAPERS AND DISCUSSIONS AT THE TWENTY-THIRD ANNUAL MEETING, HELD IN ALBANY, N. Y., JUNE 3, 4 AND 5, 1902, THE PRESIDENT, DR. DE FOREST WILLARD OF PHILADELPHIA, IN THE CHAIR.

FIRST DAY.

THE president read his

ANNUAL ADDRESS.

He first thanked the association for the high honor that had been conferred upon him, the highest gift in the control of the surgical profession of the United States. He then sketched the condition of surgery at the time of the founding of the American Surgical Association twenty-one years ago, when celiotomy was young and antisepsis almost in its infancy. His quotations from the first issued volume showed that many surgeons at that time were exceedingly skeptical in regard to the assertions of Lister concerning micro-organisms. During the period since that time surgery has been practically revolutionized, but Dr. Willard expressed the belief that the next quarter of a century would see even greater advances, and that many diseases now considered incurable would be controlled by the surgeon and the physician. He urged that the attainment of well-acknowledged surgical pre-eminence be insisted upon as the qualification for membership in the association, in order that the fellowship should be valuable both to those who are already members and to those who desire to enter. Fellowship in the association should be recognized as an index not only of broad surgical knowledge but also of high individual character.

The association has lost during the year, Sir William MacCormac and Drs. E. M. Moore, Christian Fenger, Levi C. Lane and Clayton Parkhill.

DR. ROSWELL PARK of Buffalo read a paper entitled

REPORT OF A SUCCESSFUL CASE OF GUNSHOT WOUND OF THE STOMACH AND LIVER, WITH POSTERIOR THOROUGH DRAINAGE AND RECOVERY.

This occurred in a woman twenty-six years of age, who had fired the shot in a suicidal attempt. Upon admission to the hospital her general condition was good, her only complaint being considerable pain and the vomiting of more or less fluid and bloody material. She was immediately operated upon but the bullet was not found. A good-sized drainage tube was inserted, and the patient developed no unpleasant symptoms after the operation, except that on the following day her temperature rose to 102.5°, but never went above 100° after the second day. The posterior drainage seemed to play a very important part in this case, and in addition it was considered to be a good example of the lack of necessity of searching for the bullet in these cases.

DR. L. M. TIFFANY of Baltimore read a paper entitled

THE GREAT IMPORTANCE OF DRAINAGE IN BULLET WOUNDS OF INTRAPERITONEAL VISCERA.

He reported two cases in detail. La Garde's experiments were referred to, and the statement was made that "infection is something beyond microscopic examination." Methods of dealing with infected areas were given, of which drainage was considered by far the best. Both of the cases referred to recovered, although treated in different ways, and attention was called to the change in the methods of treatment between 1895 and 1902.

DR. C. B. NANCREDE of Ann Arbor read a paper entitled

RESULTS OF WOUNDS OF THE LARGE JOINTS BY MODERN MILITARY PROJECTILES.

He dealt with the subject largely in a statistical way. Data collected from a number of wars, not only in this country but in Europe, was used

in the preparation of the paper, and quite a lengthy description was given of the different kinds of military projectiles, old and new, as well as an explanation of the different effects of each when fired into the human body. Particular reference was made in detail to the different joints usually affected and the varying influences on each, as well as the causes for the great difference in the effects on different people. The question of infection was dealt with at considerable length, both as to the ways in which it was caused and the results.

Dr. R. H. Harte of Philadelphia read a paper entitled

A CASE OF SEVERED SPINAL CORD IN WHICH MYELORRHAPHY WAS FOLLOWED BY PARTIAL RETURN OF FUNCTION.

He referred to a number of experiments on the lower animals to prove that such a result is not uncommon in them, although so rare in human beings. The case reported is believed to be the first myelorrhaphy performed in man as evidence of the power of the spinal axones to regenerate. The operation was performed with a sincere belief that all cases of fractured spine should be treated as are cases of fractured skull, that is to say, if there be symptoms, immediate operation is imperative. The operation of myelorrhaphy, the author considered to be especially indicated in cases where the cord had been cut by a sharp instrument or severed by a projectile, and he believed that in cases in which the cord was crushed there was no infallible method of determining whether or not all the tracts had been destroyed.

Dr. William L. Rodman stated that he believed all gunshot wounds of this character should be drained, as the ball was in practically all the cases either primarily septic or became so by carrying foreign substances, such as pieces of the clothing, with it into the wound. In wounds of the stomach it was recommended that posterior drainage be made in the lesser peritoneal cavity, which it was thought should be by means of gauze, and in most of the cases of this character the speaker employs tube drainage as well. The importance of completing the operation in as short a time as possible was commented upon, and, while the bullet should be removed, if it is present, time should not be spent in searching for it.

Dr. N. B. Carson stated that in his experience flushing had been followed by very deleterious results, and recommended the simple wiping out of the abdominal cavity. Posterior drainage should be employed in all cases of gunshot wound of the abdomen.

Dr. Charles B. Nancrede called attention to the fact that the military bullet wounds differed from those encountered in civil practice, in the fact that the former were practically aseptic unless infection was carried to the wound by the operator. He referred to the current trend of teaching, which would seem to indicate that bullet wounds of the knee-joint terminate fatally in the majority of cases, and cited in contradiction of this statement thirty or forty cases of this character which had come under his observation, with but one death.

Dr. Bell of Montreal referred to a case of fracture of the cervical vertebra, in which he had attempted to approximate the ends of the injured cord, but without success. He had also made a number of experiments upon dogs, and, while he had been able in some instances to fairly approximate the ends of the cord he had never succeeded in securing a union, due probably to the impossibility of keeping the animal quiet.

Dr. Bentacue stated that in his experience in the Civil War the mortality from intestinal gunshot wounds had been about 80%, and in those cases in which the stomach alone was injured it had been about 75%. He reported the case of a bullet entering the left sternoclavicular articulation and going through to the back and out between the second and third ribs, causing complete paralysis, in which the patient recovered after a severe attack of spinal meningitis.

Dr. W. G. Macdonald stated there was so much difference in gunshot wounds in civil and military practice, not only regarding the character of the wound, but the circumstances surrounding the operation as well, that he felt it was impossible to consider them from a common point of view. Posterior drainage was thought to be valuable in injuries to the posterior wall of the stomach, but for wounds involving the liver in the neighborhood of the gall bladder, drainage at the costal angle was believed to be preferable.

Dr. W. M. Estes stated that he believed posterior drainage should be employed in all cases of abdominal gunshot wounds. He reported a case in which the ninth and tenth dorsal vertebræ had been fractured and the cord entirely severed, in which he approximated the ends of the cord and united with catgut. The man made an uninterrupted recovery and improved sufficiently to be able to stand on his feet with assistance.

Dr. Theodore A. McGraw stated that one of the most important factors in the treatment of military wounds was the decreased resisting power of the patient, which, in his opinion, accounts in a great degree for the heavy mortality statistics in these cases.

Dr. S. H. Weeks stated that while he felt that drainage was necessary in the majority of cases, but that there were some in which it could be dispensed with, the only way to determine which was by individual study of the patient. If the lesser peritoneal cavity is full and there is a wound of the liver, posterior drainage was recommended. To search for the bullet was considered useless and harmful.

Dr. A. Vander Veer stated that the only cases which he had operated during his service in the Civil War were those in which the wound was of such a character as to permit of the protrusion of the intestines, and then it was only to make the opening larger, replace the intestines and put a bandage on to keep them in place. Drainage

was thought to be indicated in practically all cases and the probable advantage of the posterior method commented on.

DR. OWENS stated that he believed posterior drainage would be of great value in abdominal wounds, and that he felt the question as to whether or not the wound should be drained at all must be governed entirely by the individual case.

DR. EMMET RIXFORD reported two cases of bullet wounds of large joints which had not received primary surgical treatment, the first producing a large arteriovenous aneurism, which was operated on some time after the injury.

DR. ROBERT ABBE stated that he believed in order to restore the function of the spinal cord in cases in which it has been severed, it would be necessary to make an exact approximation of the ends of the nerve fibres.

DR. ELLIOTT felt that drainage should be made directly to the nearest point from the suspected cavity, whether posteriorly or anteriorly. Gauze drainage was preferred to the glass tube.

DR. MCARTHUR reported a case of suppurative infective process of the knee-joint, in which he had saved the motion of the limb by placing a cast around the joint, free drainage, of course, being established.

DR. J. M. T. FINNEY reported two cases of infected knee-joints due to bullet wounds, in which he had secured good results, and considered that free drainage was an important factor.

DR. ROSWELL PARK, in closing the discussion, referred to the fact that this was the first time posterior drainage had come before the association for discussion. He reported the case of a man who had been shot through the chest, in which the bullet entered the spinal canal, completely crushing the cord and establishing a current of air through the spine. The case was, of course, hopeless.

DR. TIFFANY, in closing the discussion on his paper, stated that he believed the proper method in cases of severance of the spinal cord would be to remove the vertebræ and wire the ends together, if necessary, in order to approximate the ends of the cord. Regarding posterior drainage, it was felt that the individual case must govern the question as to what method should be used.

DR. NANCREDE, in closing the discussion on his paper, stated that he did not consider all pistol wounds of the knee were infected, which view was borne out by statistics from the war in the Philippines. While he did not believe that statistics should govern the surgeon's action, he felt they should be given some credence.

In closing the discussion on his paper, DR. HARTE directed particular attention to the necessity for prompt operation, occupying as little time as possible, the futility of searching for the bullet and the value of posterior drainage.

DR. M. L. HARRIS of Chicago read a paper entitled

REMOVAL OF THE BLADDER AND PROSTATE FOR CARCINOMA, THROUGH A SUPRAPUBIC OPENING.

He reported one case in considerable detail. In summing up the deductions to be drawn from the case reported, the author stated that the points to which he desired to direct particular attention were: (1) The suprapubic route for the removal of the bladder and prostate for malignant growths. (2) The method of operating, which consists in dividing the urethra at the triangular ligament, and working from before backward in separating the prostate and bladder from the rectum, aided by an assistant's fingers introduced into the bowels. (3) The use of constant traction on the bladder toward the suprapubic opening, as fast as liberated from below, as a means of materially reducing the amount of hemorrhage. (4) The retention of a portion of the bladder wall, however small, into which the ureters are to be stitched, and the whole to be fixed as near the posterior end of the urethra as possible, with a view to its ultimate regeneration into a serviceable bladder.

DR. JAMES E. MOORE of Minneapolis read a paper entitled

ANATOMICAL AND TECHNICAL REASONS WHY THE PERINEAL IS PREFERABLE TO THE SUPRAPUBIC ROUTE IN PROSTATIC SURGERY.

He called attention to the present marked interest in this subject as compared with former years. He referred briefly to the literature on "surgery of the prostate," and stated that he became a believer in the feasibility of the perineal route for prostatectomy through his experience with massage of the prostate through the rectum. He believed that while prostatectomy by either route was not ordinarily alarmingly bloody, yet, when hemorrhage did occur, it was much easier to control in the perineal operation.

Specimens were shown demonstrating the following points: (1) The feasibility of shelling out either the lateral or third lobe from below; (2) the relations of the prostate to the bladder; (3) the relations of the prostate to the urethra; (4) the relations of the prostate to the rectum.

DR. F. S. WATSON of Boston, in discussing Dr. Moore's paper, stated that in the main he agreed with what Dr. Moore had said, and called attention to some of the points in the technique which he had found particularly useful. As a result of increasing experience, he was becoming more and more convinced of the importance of doing the perineal operation, and insisted that all operations should be done before the patient had come to a complete breakdown of catheter life. In his opinion, the key-note of successful results and lessened mortality was the sufficiency of the renal function when the operations were performed.

DR. CHARLES A. POWERS of Denver presented a communication on

PERMANENT SUPRAPUBIC DRAINAGE IN ADVANCED TUBERCULOSIS OF THE BLADDER.

The patient on whom he reported was a man of fifty years, who for something like a year be-

fore operation had suffered from marked cystalgia and incessant urination. Cystoscopic examination of the bladder revealed a fair-sized ulcer at the neck. Tubercle bacilli were found in the urine. Suprapubic cystostomy was done in February, 1897. The bladder had a capacity of less than an ounce. Its mucous membrane was studded with miliary tubercles. The ulcer at the neck was scraped and cauterized. The bladder when drawn up resembled the finger of a glove. A carefully adjusted tube drained the organ well. Three months after operation the tubercular ulcer was healed, the tube fitted well, and there was no leakage.

Since operation the man has attended to business constantly. He has gained materially in weight, strength and health, and except for the nuisance of the urinary fistula has been quite comfortable. Report on the case is made at the end of five years.

Dr. Jos. Ransohoff of Cincinnati read a paper entitled

CURVILINEAR PRERECTAL OPERATION FOR ABSCESS OF THE PROSTATE GLAND.

He stated that twenty-one out of sixty-seven cases of untreated prostatic abscess opened into both the rectum and urethra, and that such cases are either rapidly fatal, or, if recovery ensues, they leave urethrarectal fistulæ that are often beyond relief. He reported in detail three cases of prostatic abscess in which very gratifying results were recently obtained with the curvilinear prerectal incision without opening the urethra, one of the cases being of especial interest from the view-point of diagnosis.

Dr. Dandridge expressed the opinion that the best method to reach the prostate was through the perineum, although he felt that the existing condition in each individual case should determine whether or not radical measures should be employed. Drainage should always follow the operation. The suprapubic route was felt to be the most rational way to approach the bladder.

Dr. Elliott expressed the opinion that the perineal prostatectomy was the preferable form of operation, particularly where the prostate is low down, very obscure, and cannot be readily gotten at.

Dr. Owens reported a case of stricture of the urethra in which he had employed drainage by means of one tube fitting inside of the other, thus enabling the inner tube to be taken out and cleaned without removing the outer one, the pain having been so severe upon the removal of the tube when a Sim's sigmoid drainage tube was employed that it was necessary to chloroform the patient at each removal.

Dr. Weir remarked upon the value of the suprapubic route for the removal of malignant growths from the bladder and ureters, as well as the importance of saving as much of these organs as possible. The speaker also referred to a case of bleeding from the bladder, which was cured by a suprapubic operation and packing with iodoform gauze. The perineal route was thought to be the most available for prostatectomy.

Dr. Ochsner emphasized the value of perineal route in prostatectomy, and felt that the only difficulty — hemorrhage — could be easily overcome.

Dr. Meyer stated that he believed drainage for tuberculosis of the bladder was rarely followed by good results, owing to the fact that the kidneys are usually involved. In prostatic abscesses the suprapubic incision has been found to give the best results.

Dr. J. M. T. Finney commented on the value of the Bottini operation, and also mentioned a method which he had employed with very satisfactory results, in which the incision was made parallel with Poupart's ligament.

Dr. Rixford referred to the perineal prostatectomy as employed by Dr. George Goodfellow in 1886, in which the patient was placed on his back with the thighs thoroughly flexed on the abdomen, and by pressing sufficiently hard over the pubic bone he was able to drive the prostate down within easy reach. The speaker had performed this operation in two cases with satisfactory results. Good results had also been obtained by the Bottini operation in the removal of the seminal vessels for tuberculosis.

Dr. Abbe stated that he believed suprapubic drainage to be indicated in cases where patient was too weak from age or other causes to stand the more radical operation; another advantage claimed for it was that it could be performed under cocain.

Dr. Harris in closing stated that he believed the objections to be perineal route in prostatectomy were all purely theoretical, and felt that the operation would rapidly increase in favor.

Dr. John B. Deaver of Philadelphia read a paper entitled

ABDOMINAL HYSTERECTOMY.

He first reviewed at considerable length the history of the operation. The methods of abdominal hysterectomy in their essential principles he divided into: (1) Supravaginal amputation. (*a*) With extra peritoneal treatment of the stump; (*b*) with intrapelvic extraperitoneal treatment of the stump. (2) Extirpation.

After describing in detail various methods of performing the operation of abdominal hysterectomy, the author described the one preferred by himself in the following manner: The abdominal cavity is exposed by incision through either rectus muscle, the patient being placed in the Trendelenburg position, and the intestines walled back with gauze pads from the field of operation. A continuous incision, semilunar in shape, with the convexity directed downwards and corresponding to the line of reflection of the peritoneun from the uterus onto the summit of the bladder, is carried through the peritoneum of the anterior face of the broad ligament and uterus. The peritoneal flap is displaced downwards, using pressure through the medium of a piece of gauze to make

the dissection. A single ligature is applied upon either side to control the vessels. Within the grasp of the ligature are the ovarian and uterine arteries and veins and a round ligament. If an ovary is left behind, the ligature is applied to the uterine side, and if not, to the pelvic side. The broad ligament is divided close to the body of the uterus which, in turn, is amputated by a V-shaped incision through the cervix. The cut edges of the cervix are approximated by a continuous suture from side to side, the peritoneal flap is sutured over the cervical stump and to the broad ligament. This makes the operation completely extraperitoneal.

DR. GEO. E. BREWER of New York read a paper entitled

A CASE OF FATAL ACETONEMIA FOLLOWING AN OPERATION FOR ACUTE APPENDICITIS.

He dwelt at great length on the symptoms of the case, giving in detail the results of the blood examinations and the urinalyses, concluding his paper with tests for acetone, diacetic acid and B. oxybutyric acid. The subject of acetone was fully discussed in all its phases, and results were given of various observations undertaken at the Roosevelt Hospital, the presence of acetone in the urine in a pathological amount being demonstrated in seven out of thirty-three cases following anesthesia.

DR. JOHN B. DEAVER stated that he believed this was a case of sepsis in which the operation was delayed too long. In the majority of these cases albumin and casts are present in the urine and a leucocyte count is of great value.

In closing the discussion DR. BREWER stated that he fully agreed with Dr. Deaver as to the advantages of an early operation. The case, he considered, was one of differential diagnosis between sepsis and auto-intoxication. At the time of the operation a count of the leucocytes showed 17,000. A previous count showed 11,000.

DR. W. G. MACDONALD of Albany, N. Y., read a paper entitled

SUPRAVAGINAL HYSTERECTOMY FROM A TECHNICAL STANDPOINT.

DR. A. J. MCCOSH read a paper entitled

MYOMECTOMY VERSUS HYSTERECTOMY.

During the past few years the surgical treatment of the pelvic organs of the female has become more preservative, or, perhaps we might say, less destructive. While it is still the practice of a few surgeons to ruthlessly sacrifice these organs, yet the general tendency of operators is towards the preservation of sufficient of them to at least prevent a sudden and premature menopause. In cases of uterine fibroids less progress seems to have been made in the direction of preservation than, perhaps, in any other branch of surgery. It is true, I think, that the majority of operators still regard a uterus which happens to be the seat of injurious fibroid tumors as one demanding removal. It may be said, I think, that myomectomy is an uncommon operation, its proportion to hysterectomy being not more than 1 to 10 or even 20. In my own practice myomectomy is becoming more and more frequent and hysterectomy correspondingly less frequent. During the year 1896 the proportion was 1 to 23, in 1900, 5 to 27, and in the past year 22 to 17.

The patient being in the Trendelenburg posture, the uterine mass is delivered through an abdominal incision. In younger women a careful examination is then made to determine whether it is possible to remove all the tumors and yet leave sufficient of the uterine tissue out of which a useful organ can be formed. I am not much influenced by the location of the tumors with reference to the uterine canal, whether they be subserous, interstitial or submucous, neither by their size or number. In some of my cases, tumors weighing six and eight pounds have been removed, and frequently their number has exceeded twenty. If the number of tumors be small and if they be well isolated from each other, a separate incision is made through the uterine tissue either directly down upon or around the tumor. It matters not whether it be subserous, interstitial or submucous. If the tumor be small, it is grasped by volsellum forceps and forcibly torn out of its bed. If it be large, it is rapidly enucleated by the fingers, considerable force being employed in order to accomplish its rapid removal. If this has been rapidly and forcibly done the hemorrhage is very slight and in a few seconds the vessels generally contract and all bleeding ceases. If the tumors are multiple and widely distributed the uterus must be more or less split open from the fundus downward, on either its anterior or posterior surface, or it may be necessary to divide it into two halves as far downward as the inner os, each half remaining attached to its broad ligament. In either case the interior of the uterus is freely exposed to view, any portion of the organ can be palpated and tumors, no matter how minute, easily recognized and removed.

The question of hemorrhage practically never troubled me. At the beginning of my experience with these operations I often passed an elastic ligature, to be tied in case of need, around the lower part of the uterus. I soon found, however, that it was not needed. At first, also, my assistants were inclined to grasp the broad ligaments, but I long since learned that this, also, was entirely unnecessary. Usually, the uterus can be freely cut or split, with but little loss of blood, and in a few seconds practically all bleeding ceases. Freedom from hemorrhage depends more or less upon rapidity of enucleation of the tumors. If care be taken to secure every bleeding vessel much blood will be lost, and the corresponding shock will be considerable. The method of closure of cavities from which tumors have been enucleated will, of course, depend upon their size and depth. One, two or three rows of

sutures may be required, each being continuous, of medium-sized catgut. Very often it will be found that the uterine canal has been more or less freely opened, and under such conditions the endometrium is thoroughly curetted before the sutures are applied.

There are three sources of danger; hemorrhage, shock and sepsis. As regards the first, I have never in forty-seven cases seen a loss of blood which could be considered even as severe and certainly never serious. Shock is generally very moderate, though in perhaps 10% of my cases it has been severe, but has never ended fatally. No cases have died of sepsis. As to the ultimate results, I have been able, out of forty-seven cases, to follow thirty-two patients. The results are as follows:

(1) Menstruation: Without exception has appeared with regularity. In twenty-seven cases it may be termed normal.

(2) Pain: With one exception, all cases are practically free from pain.

(3) Pregnancy: Of the thirty-two patients twenty-one are married women; three of these have for the first time become pregnant, two having been delivered of live children at term, the other being five months' pregnant.

*Conclusions.*— (1) In young women with uterine fibroids demanding removal, myomectomy should always be the operation of choice.

(2) Myomectomy is possible and advisable in the great majority of cases of fibroid tumors in young women.

(3) For the safe performance of myomectomy the strictest asepsis is needed, otherwise it becomes a most dangerous operation.

(4) In the operation of myomectomy fear of hemorrhage should be cast aside, and bold and rapid methods should be adopted.

(5) The operation is attended by the same danger to life as is hysterectomy.

(6) The ultimate results as regards menstruation, pain and pregnancy are satisfactory.

*(To be continued.)*

## Recent Literature.

*Morphinism and Narcomanias from other Drugs.* Their Etiology, Treatment and Medico-Legal Relations. By T. D. Crothers, M.D. Small 8vo.; pp. 351. Philadelphia: W. B. Saunders & Co. 1902.

The present volume gives an account of the various forms of drug addiction, with frequent citations from literature and a number of illustrative cases. The book would have been greatly improved by condensation and it tends unduly to emphasize the frequency and importance of the various drug habits. The writer advocates the gradual withdrawal of the drug in the treatment of morphinism and is emphatic in urging hospital treatment. Those interested in the subject may find the work of some assistance.

*Alcoholism.* A study in Heredity. By G. Archdall Reid, M.B., C.M., F.R.S.E. Small 8vo; pp. xvi, 293. New York: Wm. Wood & Co. 1902.

The first sixty pages of this volume are devoted to a not very satisfactory presentation of the modern doctrines of heredity. The writer then argues forcibly that the drunkard is a drunkard not primarily from a lack of self-control in the use of alcohol, but on account of an inborn and inherited predisposition to drunkenness—a capacity for enjoying deep indulgence. In process of time, by the influence of natural selection, these members of the race become gradually eliminated by reason of their excessive indulgence, and the race, like the Jews, Greeks and Italians, becomes much less addicted to drunkenness. A review of so-called temperance legislation shows that the elimination of drink is impossible. The only remedy is in the elimination of the drunkard. This is accomplished slowly and at the expense of great misery by natural selection. The author's remedy is more impracticable than the prohibition of alcohol, namely, legislation forbidding the drunkard to beget offspring. The book closes with a chapter on the procreation fetish, in which he urges the need of more effective protection against venereal diseases. The book is interesting and suggestive, and with the author's main argument we agree, but his views are too limited, he fails to note the importance of disease, suffering and starvation as causes of alcoholic addiction, and, while recognizing the hopelessness of prohibiting indulgence in alcohol, he hopes to prohibit sexual indulgence.

*A Manual of Practical Anatomy.* By the late Prof. Alfred W. Hughes, M.B., M.C. (Edin.), F.R.C.S. (Edin.), F.R.C.S. (Eng.), Professor of Anatomy at King's College, London, etc. Edited and completed by Arthur Keith, M.D. (Aberd.), F.R.C.S. (Eng.). In three parts. Part II: The Abdomen and Thorax. Philadelphia: P. Blakiston's Son & Co. 1902.

We have previously noticed in detail the appearance of the first part of this work on practical anatomy. This second part on the abdomen and thorax follows the general plan outlined in the first volume, being a general topographical sketch of the viscera of the parts of the body discussed. The illustrations are numerous, and for the most part satisfactory, though not wholly original. The book, like its predecessor, is of convenient size, containing three hundred and eight pages. It is provided with an index.

Care of the Insane in Egypt.— According to *American Medicine* there is still in Egypt but one asylum for the insane of 500 beds for a population of more than 10,000,000. Many needed improvements have recently been completed. The ignorance of the native attendants, only one in ten of whom can read and write, is now the worst evil of the institution.

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## THE WORK OF THE BOARD OF HEALTH FOR THE PHILIPPINE ISLANDS.

THE health report of the Board of Health for the Philippine Islands is a document of more than usual interest, on account of the diverse and threatening epidemic diseases which must be met and combated. As we have previously had occasion to remark, the acquisition of new territory in tropical regions offers very great responsibilities as well as opportunities in the line of medical work and investigation. Diseases which hitherto have been, as it were, distantly familiar to us, such as cholera and beri-beri, are coming to be recognized as problems, the solution of which it behooves us to attempt far more than was the case when such diseases had no definite personal relationships with this country. A perusal of this monthly bulletin of the Philippine Board of Health gives one an admirable idea, in the first place, of the problems to be met, and, in the second place, of the means which are being taken to meet them.

In the report for March a certain protest is offered against the popularly received idea that the death-rate in the Philippines is very much greater than in other countries, and that the climate, particularly at certain seasons of the year, is naturally deleterious to health. According to this statement, it appears that after examination of the death-rates among Americans, Chinese and other foreigners, the mortality among these classes is not higher than that of any city in the United States. It is admitted that among the native Filipinos, who naturally constitute the mass of the city populations, the death-rate is high, due in great measure to their ignorance and to the absolutely primitive conceptions of hygiene prevailing among them. Usually, these people live in damp apartments on the ground floor or in miserable, crowded interior courts, and often located in highly unsanitary localities. This fact, together with lack of nutritious food, the use of polluted well water and a marked disinclination to call a physician, necessitates a large number of deaths which might easily, among enlightened people, be prevented. It is easy, therefore, to see that false impressions may get abroad regarding the health conditions of the islands, and it is also apparent that the work of the Board of Health under such circumstances is one fraught with very particular difficulties.

Other false impressions are apparently abroad regarding the climate. It is stated that from the middle of November to the middle of March the temperature of Manila is delightful, that from that time on until the latter part of June the middle of the day is hot, but not excessively so. During the rainy season, from July to November, the temperature is little higher during the winter months, due to the frequent rains, but it is not necessarily an unhealthful season. It is natural, during the early period of American occupancy, before the American soldiers and others had learned to adapt themselves to the changed conditions of climate, that there was a considerable amount of illness, particularly from intestinal difficulties. Much of this was unnecessary and may now be obviated, and it is claimed that persons who understand how to live in the Philippines will suffer no ill health on account of the climate.

There has of late been a considerable fear of the spread of cholera throughout the islands. The disease has been diagnosticated frequently during the last months and verified by bacteriological examinations. To meet this situation the Board of Health has divided the city of Manila into twelve districts for purposes of inspection, over each of which has been placed a medical officer with a large corps of sanitary inspectors. House-to-house inspection was insisted upon owing to the invariable habit of the natives of concealing the existence of the disease. Various other measures were taken, among which was a strict regulation of the water to be used for drinking purposes, the prohibition of various articles of food, a rigorous quarantine about the city of Manila, and the requirement that all boats should be moored in the bay during the night where they were thoroughly inspected before being allowed to return to their wharves. A detention camp and cholera hospital have been provided, and those dying of this disease have in general been cremated. By this means, and by more or less similar precautions which are being taken in the provinces, it is to be hoped that an absolute control of the disease may be attained and the mortality thereby very markedly diminished.

At the present time bubonic plague is in no way threatening. It is felt that with the extermination of rats, which has been vigorously carried on, it is probable that the disease has been eradicated from the city.

In general, this active Board of Health is to be congratulated upon the clear reports of its work which are forwarded to this country, and especially upon the vigorous stand it is making against those conditions which more than any others render life in tropical countries undesirable. Could the fear of epidemic disease in such countries be wholly allayed, undoubtedly colonization would progress in a very much more rapid and satisfactory manner. Toward this end the Philippine Board of Health is certainly working.

## A NOTABLE ADDRESS ON CONSCIOUSNESS.

The annual address of the president of the American Association for the Advancement of Science, recently delivered at the Pittsburg meeting, is a paper of far more than usual interest. It was delivered by the retiring president, Prof. C. S. Minot of the Harvard Medical School, on the subject "The Problem of Consciousness in its Biological Aspects." The professed aim of the address was to convince the audience that the time has come to take up consciousness as a strictly biological problem, and also to indicate the character of that problem and some of the opportunities for investigating it. In carrying out this conception Dr. Minot discussed in a general way certain modern philosophical and scientific theories regarding the relationships of consciousness to the external world. The details of this discussion are of very great interest, but need not be reproduced here. The general conclusion reached was that consciousness ought to be regarded as a biological phenomenon rather than to be made the subject alone of speculative thought, as has heretofore been done. He recognized with gratification that biologists are finally beginning to regard consciousness as a fit problem for their efforts, thereby rendering it, as the speaker said, the newest problem of science. The point was impressed that the biologist must become more and more the ultimate arbiter of science and philosophy, and that we must look to biologists for future generalizations rather than to speculative philosophers.

In discussing the general question of consciousness Dr. Minot insisted that the proof was conclusive, certainly as regards mammals and vertebrates, that animals have consciousness homologous with the human consciousness. This being accepted as a fact, a broad field for investigation on psychological lines is at once opened to the biologist and to the experimental psychologist. Arguing from the various data heretofore at our disposal, the speaker went on to maintain that consciousness is really the dominant feature in the evolution of the animal series, and that conscious actions are primary and instinctive actions secondary. This somewhat radical point of view to the ordinary scientific mind was developed with much acumen and with a wealth of illustration. Many of the most fundamental problems regarding the ultimate relationships of mind and matter were considered briefly, all bearing upon the practical application of biological investigation to the phenomena of consciousness. At one point it was stated that to the reader it was inconceivable that the evolution of animals should have taken place, as it has taken place, unless consciousness was a real factor and dominant. Accordingly he held that consciousness actually affected the vital processes, that there was no possibility of avoiding the conclusion that consciousness stands in immediate causal relations with physiological processes. The final hypothesis which was offered for the consideration of the association was that consciousness has the power to change the form of energy, and is neither a form of energy nor a state of protoplasm. Matter as ordinarily conceived by the scientist is relegated to a wholly minor position strongly suggestive of the attitude of the philosophical idealist. In spite of certain theoretical considerations Dr. Minot's idea in bringing this subject before the association was evidently a purely practical one, namely, to investigate consciousness by comparative observations.

It is not possible for us in the space at our disposal to do more than suggest some of the points in this really remarkable address. Our purpose in taking up the subject at all is to draw attention to the fact that a scientific man, standing high in his chosen line of work, has deliberately offered a theory which does much to reconcile the claims of opposed schools of thought. To recognize consciousness as a fact which is capable of being investigated by the same methods of observation as other facts is a step in advance, which must, if generally adopted, have a wide bearing not only upon contemporary scientific thought, but also upon many of the most subtle problems of medicine. One of the greatest needs in medicine at the present time is the recognition that mental processes should be studied as facts in themselves, and should not necessarily be regarded in all instances as reactions secondary to certain protoplasmic changes in cells. We need this broad biological view in medicine perhaps more than ever before, now that the problems of

mental phenomena are coming so much into the foreground of discussion. Whether Dr. Minot's hypothesis will be generally accepted is very much open to doubt, but that it is a highly suggestive and useful expression of opinion from a man whose opinion must carry weight there can be absolutely no question. We commend the address to those of our readers who are attempting to look at medical problems as a part of the general realm of science, in a broad-minded and liberal way.

## "A VACCINATION NUMBER" OF THE BRITISH MEDICAL JOURNAL.

THE *British Medical Journal* for July 5 appears as a special vaccination number. The first article is an admirable sketch of the life of Edward Jenner, illustrated in an interesting fashion by various portraits and engravings. Such a paper as this is certainly timely when we consider how easily the work of pioneers in various lines of medical research is forgotten by the present generation. Following this paper is a discussion of the general subject of smallpox and vaccination, beginning with the epidemiology of smallpox in the nineteenth century. This, illustrated as it is by graphic representations of the extent of smallpox in various years, should prove of great value to the statistician as well as to the general reader. A paper entitled "A Century of Vaccination," giving in detail the various epidemics which have occurred and the influence of vaccination, is also worthy of being read with care. Further articles, considering the administration of the laws for the prevention of epidemic smallpox and vaccination problems for parliament, together with a series of minor articles on the general subject, practically fill this number of the journal. The bacteriology of vaccinia and variola come in also for a lengthy discussion.

This effort on the part of the *British Medical Journal* to bring together in one number the essential features of our knowledge of a disease so prominently before the public mind as smallpox is very much to be commended. It means unquestionably a large amount of editorial work, but the result is one which may well be emulated in medical journalism.

## FRANKLIN DISTRICT MEDICAL SOCIETY.

THE Franklin District Branch of The Massachusetts Medical Society, which appears to be prospering, has sent out a circular urging still greater interest in the meetings of the society and marking out certain lines in which progress may be expected and realized. The circular urges upon the profession the desirability of supporting the professionally owned medical journals, and the regular attendance upon the meetings of local, state and national associations.

Regarding the professional ownership of medical journals, it has recently become a fashion on the part of certain medical publications to advertise and parade this fact before the public eye. We beg leave to take this opportunity to say that, so far as we are aware, although little has been said of it in the past, this journal was a pioneer in this laudable departure. For nearly thirty years the BOSTON MEDICAL AND SURGICAL JOURNAL has been owned and controlled by a board of management composed entirely of members of the medical profession and has been conducted with a primary view to the highest interests of medical practice and medical teaching. We are, therefore, entirely in accord with the sentiments expressed by the Franklin District Medical Society when it urges upon the profession the importance of supporting professionally owned journals.

We are glad also to note that this society has made a definite effort toward stimulating a greater interest in the meetings. This means a benefit to The Massachusetts Medical Society at large.

## MEDICAL NOTES.

STATUS OF THE JEW IN EUROPE AND AMERICA. — At the annual meeting of the Association of Jewish Immigrants held June 26, according to the *Medical News*, President Levy read a report showing the present condition of Jews throughout the world. The report dealt largely with the present deplorable condition of the Jew in Roumania. It was shown that while the general immigration to this country has been increasing during the past eighteen months, the Jewish contingent has greatly decreased, not only proportionately, but absolutely as well. Locally the same condition is traceable. For the year ending Oct. 1, 1901, the number of Jewish immigrants at this port was 2,253 as against 3,870 for the preceding year.

### BOSTON AND NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON. — For the week ending at noon, July 16, 1902, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: Diphtheria 16, scarlatina 26, measles 17, typhoid fever 10, smallpox 8.

BOSTON MORTALITY STATISTICS. — The number of deaths reported to the Board of Health for the week ending July 12 was 190, as against 187 the

corresponding week last year, showing an increase of 3 deaths, and making the death-rate for the week 16.9. The number of cases and deaths from infectious diseases is as follows: Diphtheria, 20 cases, 1 death; scarlatina, 21 cases, 1 death; typhoid fever, 10 cases, 3 deaths; measles, 39 cases, no deaths; tuberculosis, 21 cases, 17 deaths; smallpox, 7 cases, 1 death. The deaths from pneumonia were 11; whooping cough, 4; heart disease, 18; bronchitis, 8; marasmus, 6. There were 14 deaths from violent causes. The number of children who died under 1 year was 42; under 5 years, 63; of persons more than 60 years, 34; deaths in public institutions, 59.

SMALLPOX IN MASSACHUSETTS.— Smallpox cases are still appearing throughout the State, though in general in somewhat decreasing numbers. Several new cases have recently been reported in Cambridge and Somerville. For the week ending June 9, 60 cases in the State were reported; June 16, 14; June 23, 69; June 30, 32; July 7, 5; July 14, 46. Of the last number 5 were in Boston, 15 in Cambridge and most of the rest in the Boston suburbs. There is one case in Fall River, the only one now known in Southern Massachusetts.

OPENING OF BURRAGE HOSPITAL.— This hospital for children in Boston Harbor was opened for the reception of patients July 14. It is expected to accommodate upwards of two hundred children.

INCREASE OF DANVERS INSANE HOSPITAL.— Nearly one hundred acres of land have been acquired by the trustees of the Danvers Insane Hospital as a site for new buildings.

### NEW YORK.

BEQUESTS TO CHARITIES.— The late Mrs. Mary J. Walker, who died on July 2, left charitable bequests which aggregate $500,000. Among the institutions benefited are the following: St. Luke's Hospital; the New York Association for Improving the Condition of the Poor, $150,000, $50,000 of which is to be devoted to the purposes of the Fresh Air Fund; The Home for Incurables at Fordham, Borough of the Bronx, $25,000; the Colored Home and Hospital, $25,000; the New York Institution for the Blind, $25,000; the New York Society for the Relief of the Ruptured and Crippled, $15,000.

LECTURES ON FEEDING OF INFANTS.— The Board of Health has secured the services of Dr. Rowland Freeman, attending physician to the New York Foundling Hospital and to the Seaside Hospital of St. John's Guild, for a series of lectures on the feeding and care of infants before the members of its summer corps of physicians.

## METEOROLOGICAL RECORD

For the week ending July 5, in Boston, according to observations furnished by Sergeant J. W. Smith of the United States Signal Corps:

| Date | Barometer | Thermometer. | | | Relative humidity. | | | Direction of wind. | | Velocity of wind. | | Weth'r * | | Rainfall in inches. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Daily mean. | Daily mean. | Maximum. | Minimum. | 8.00 A.M. | 8.00 P.M. | Daily mean. | 8.00 A.M. | 8.00 P.M. | 8.00 A.M. | 8.00 P.M. | 8.00 A.M. | 8.00 P.M. | |
| S...29 | 29.87 | 62 | 68 | 55 | 44 | 91 | 68 | N W | N E | 6 | 6 | F. | O. | .07 |
| M..30 | 29.96 | 62 | 68 | 56 | 72 | 54 | 63 | N W | S | 3 | 11 | O. | O. | |
| T...1 | 29.90 | 58 | 61 | 55 | 86 | 88 | 87 | S E | S E | 9 | 6 | O. | C. | .08 |
| W..2 | 30.16 | 67 | 79 | 55 | 60 | 47 | 54 | N W | N E | 12 | 3 | C. | C. | |
| T...3 | 29.90 | 65 | 69 | 61 | 78 | 92 | 85 | S W | N W | 15 | 9 | O. | F. | .29 |
| F...4 | 29.96 | 72 | 83 | 60 | 76 | 64 | 70 | N W | S W | 9 | 11 | C. | C. | |
| S....5 | 29.89 | 70 | 76 | 65 | 53 | 66 | 60 | N E | E | 12 | 3 | O. | O. | |
| ☞ | 29.95 | | 72 | 58 | | | 70 | | | | | | | .44 |

* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow. † Indicates trace of rainfall.
☞ Mean for week.

## RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, JULY 5, 1902.

| CITIES. | Population Estimated, 1902. | Reported deaths in each. | Deaths under five years. | Percentage of deaths from | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | Infectious diseases. | Acute lung diseases. | Diphtheria and croup. | Scarlet fever. | Diarrhœal diseases. |
| New York | 3,665,352 | 1,321 | 592 | 38.91 | 6.96 | 3.26 | 1.35 | 19.07 |
| Chicago | 1,852,828 | 454 | 141 | 22.78 | 10.39 | 1.54 | 1.54 | 6.63 |
| Philadelphia | 1,349,624 | 402 | 172 | 28.11 | 7.71 | 2.73 | .75 | 10.94 |
| St. Louis | 603,717 | — | — | — | — | — | — | — |
| Baltimore | 525,330 | 215 | 109 | 35.35 | 3.25 | — | .46 | 23.25 |
| Cleveland | 411,826 | — | — | — | — | — | — | — |
| Buffalo | 375,742 | — | — | — | — | — | — | — |
| Pittsburg | 341,401 | 162 | — | 35.80 | 8.02 | .61 | .61 | 14.81 |
| Cincinnati | 332,032 | — | — | — | — | — | — | — |
| Milwaukee | 304.975 | — | — | — | — | — | — | — |
| Washington | 289,537 | — | — | — | — | — | — | — |
| Providence | 185,870 | 71 | 30 | 35.20 | 4.22 | — | — | 23.93 |
| Boston | 588,736 | 152 | 40 | 23.03 | 7.24 | .66 | — | 8.55 |
| Worcester | 127,337 | 33 | 13 | 12.12 | 3.03 | — | — | 6.06 |
| Fall River | 111,872 | 46 | 28 | 28.26 | 26.08 | — | — | 26.08 |
| Lowell | 99,574 | 34 | 15 | 26.50 | 5.88 | 2.94 | — | 17.65 |
| Cambridge | 96,334 | 20 | 4 | 40.00 | 10.00 | 20.00 | 5.00 | — |
| Lynn | 71,144 | 10 | 3 | — | 20.00 | — | — | — |
| Lawrence | 67,275 | 15 | 5 | 13.33 | 13.33 | — | — | 10.00 |
| Springfield | 66,854 | 11 | 4 | 18.18 | 9.09 | 9.09 | — | 9.09 |
| Somerville | 65,882 | 24 | 6 | 33.33 | 25.00 | — | — | 12.50 |
| New Bedford | 65,574 | 14 | 4 | 21.42 | 14.28 | — | — | 7.14 |
| Holyoke | 48,065 | 21 | 9 | — | — | — | — | — |
| Brockton | 43,208 | 10 | 4 | 20.00 | — | — | — | — |
| Haverhill | 40,392 | 8 | — | — | — | — | — | — |
| Salem | 36,567 | 9 | 1 | — | — | — | — | — |
| Newton | 36,336 | 7 | 1 | — | — | — | — | — |
| Malden | 35,390 | 7 | 1 | 28.60 | — | — | — | — |
| Chelsea | 35,264 | 14 | 1 | — | 7.14 | — | — | — |
| Fitchburg | 33,848 | 6 | 2 | — | — | — | — | — |
| Taunton | 32,759 | — | — | — | — | — | — | — |
| Everett | 27,114 | 6 | 1 | 33.33 | — | — | — | — |
| North Adams | 26,583 | 8 | 5 | — | 12.50 | — | — | — |
| Gloucester | 26,121 | 9 | 2 | 33.33 | — | 11.11 | — | — |
| Quincy | 25,307 | 4 | 1 | 50.00 | — | — | — | — |
| Waltham | 24,612 | 1 | — | — | — | — | — | — |
| Pittsfield | 22,311 | 3 | — | — | 33.33 | — | — | — |
| Brookline | 21,679 | — | — | — | — | — | — | — |
| Chicopee | 20,390 | 11 | 7 | 27.27 | 9.09 | — | 9.09 | 18.18 |
| Medford | 20,014 | 3 | 1 | 33.33 | — | — | — | 33.33 |
| Newburyport | 14,478 | 2 | 1 | — | — | — | — | — |
| Melrose | 13,384 | 4 | — | 25.00 | — | — | — | — |
| Westfield | 13,038 | 2 | — | — | — | — | — | — |
| Attleboro | 12,846 | — | — | — | — | — | — | — |
| Adams | 12,813 | — | — | — | — | — | — | — |
| Milford | 12,516 | — | — | — | — | — | — | — |
| Framingham | 12,109 | — | — | — | — | — | — | — |
| Peabody | 11,957 | — | — | — | — | — | — | — |
| Revere | 11,894 | 1 | — | 100. | — | — | — | — |
| Gardner | 11,544 | — | — | — | — | — | — | — |
| Weymouth | 11,337 | 5 | 1 | — | — | — | — | — |
| Southbridge | 10,838 | 6 | 2 | 16.67 | — | — | — | — |
| Watertown | 10,660 | 2 | 1 | — | 50.00 | — | — | — |
| Plymouth | 10,336 | — | — | — | — | — | — | — |

Deaths reported 3,1 9; under five years of age,1,211; principal infectious diseases (smallpox, measles, scarlet fever, cerebrospinal meningitis, diphtheria and croup, diarrheal diseases, whooping cough, erysipelas, fevers and consumption) 994, acute lung diseases 240, consumption 290, scarlet fever 32, whooping cough 32, cerebrospinal meningitis 5, smallpox 18, measles 40, diarrheal diseases 460.

From whooping cough, New York 14, Chicago 8, Philadelphia 2, Baltimore 5, Pittsburg 2, Boston 1. From measles New York 18, Chicago 4, Philadelphia 4, Baltimore 1, Pittsburg 11, Lawrence 1, Brockton 1. From erysipelas, New York 3, Chicago 3, Philadelphia 1, Boston 1. From smallpox New York 11, Philadelphia 2, Pittsburg 2, Cambridge 2, Melrose 1.

In the seventy-six great towns of England and Wales, with an estimated population of 14,862,909, for the week ending June 21, the death-rate was 14.9. Deaths reported 4,258; acute diseases of the respiratory organs (London) 173, whooping cough 103, diphtheria 53, measles 156, smallpox 31, scarlet fever 52.

The death-rate ranged from 4.1 in Hornsey to 24.6 in Wigan; London 14.4, West Ham 12.7, Croydon 14.4, Brighton 15.9, Portsmouth 15.2, Southampton 13.5, Bristol 12.3, Birmingham 15.8, Leicester 14.5, Nottingham 11.8, Birkenhead 17.2, Liverpool 19.8, Manchester 19.3, Salford 17.9, Bradford 15.4, Leeds 16.1, Sheffield 13.6, Hull 12.7, Newcastle-on-Tyne 17.6, Cardiff 17.3.

## OFFICIAL LIST OF THE CHANGES OF STATION AND DUTIES OF COMMISSIONED AND NON-COMMISSIONED OFFICERS OF THE PUBLIC HEALTH AND MARINE HOSPITAL SERVICE FOR THE FOURTEEN DAYS ENDING JULY 10, 1902.

WHITE, J. H., surgeon. To proceed to Baltimore, Md., to inspect the quarantine steamer "Neptune." July 3, 1902.

WILLIAMS, L. L., surgeon. Detailed as a member of a Revenue Cutter Service Retiring Board. July 10, 1902.

WOODWARD, R. M., surgeon. Detailed as a member of a Revenue Cutter Service Retiring Roard. July 10, 1902.

STONER, J. B., passed assistant surgeon. To proceed to Berlin, Md., as inspector. June 28, 1902.

NYDEGGER, J. A., passed assistant surgeon. Granted leave of absence for three days from July 7. July 3, 1902.

LUMSDEN, L. L., assistant surgeon. Granted five days extension of leave of absence from July 12. July 8, 1902.

BERRY, T. D., assistant surgeon. Granted leave of absence for one month from July 17, 1902, on account of sickness. July 3, 1902.

FOSTER, A. D., acting assistant surgeon. Granted extension of leave of absence for seven days from May 31. June 30, 1902.

RANSOM, S. A., acting assistant surgeon. Granted leave of absence for seven days under paragraph 181 of the regulations.

SWEETING, C. B., acting assistant surgeon. Granted leave of absence for one month from July 1, 1902, on account of sickness. June 28, 1902.

RICHARDSON, S. W., senior pharmacist. Detailed for special temporary duty at Washington, D. C. July 5, 1902.

CARLTON, C. G., senior pharmacist. Upon being relieved by Junior Pharmacist F. Siedenburg, to proceed to Chicago, Ill., and report to medical officer in command for duty and assignment to quarters. July 9, 1902.

TROXLER, F. R., senior pharmacist. Seven days' leave of absence granted Pharmacist Troxler, under paragraph 201 of the regulations, amended so that said leave shall be for six days only.

PHILLIPS, W. C., junior pharmacist. Granted leave of absence for twenty-five days from July 1. June 30, 1902.

SIEDENBURG, FRANK, junior pharmacist. Relieved from duty at Chicago, Ill., and directed to proceed to New Orleans, La., and report to medical officer in command for duty and assignment to quarters, relieving Senior Pharmacist C. G. Carlton. July 9, 1902.

### BOARDS CONVENED.

Board convened to meet at Washington, D. C., June 30, 1902, for the physical examination of an officer of the Revenue Cutter Service. Detail for the Board: Surgeon L. L. Williams, chairman; Surgeon R. M. Woodward, recorder.

Board convened to meet at Washington, D. C., for the physical examination of applicants for position in the Coast and Geodetic Survey. Detail for the Board: Surgeon L. L. Williams, chairman: Surgeon R. M. Woodward, recorder.

Board convened to meet at New York, July 10, 1902, for the physical examination of an officer of the Revenue Cutter Service. Detail for the Board: Surgeon G. W. Stoner, chairman; Passed Assistant Surgeon T. Clark, recorder.

Board convened to meet at San Francisco, Cal., July 14, 1902, for the physical examination of applicants for position of Second Assistant Engineer, Revenue Cutter Service. Detail for the Board: Passed Assistant Surgeon W. G. Stimpson, chairman; Passed Assistant Surgeon H. S. Cumming, recorder.

### PROMOTION.

Junior Pharmacist F. A. Southard promoted to be senior pharmacist from July 1, 1902.

### APPOINTMENT.

J. C. Elfers of Wisconsin, appointed to be acting assistant surgeon for duty at Sheboygan, Wis., June 30, 1902.

## CHANGES IN THE MEDICAL CORPS OF THE NAVY FOR THE WEEK ENDING JULY 12, 1902.

W. SEAMAN, assistant surgeon. Ordered to the Naval Hospital, Yokohama, for temporary duty, from Naval Station Guam.

N. H. DRAKE, surgeon. Detached from the "Philadelphia" and ordered to the Mare Island Navy Yard.

P. A. LOVERING, surgeon. Detached from the Mare Island Navy Yard and ordered to the Naval Hospital, Cavite, P. I., Aug. 9.

J. E. GARDNER, surgeon. Detached from the Naval Hospital, Cavite, and ordered to report to the commander-in-chief, Asiatic Station, for duty.

J. E. PAGE, passed assistant surgeon. Ordered to report at the New York Navy Yard for duty with a recruiting party to leave that yard, July 15.

C. A. CRAWFORD, passed assistant surgeon. Detached from the Naval Hospital, Chelsea, Mass., and ordered to report at the New York Navy Yard for duty with a recruiting party leaving that yard July 12.

F. M. FURLONG, passed assistant surgeon. Detached from the Naval Hospital, Norfolk, Va., and ordered to report at the New York Yard for duty with a recruiting party leaving that yard July 12.

R. W. PLUMMER, assistant surgeon. Ordered to the Naval Hospital, Chelsea, Mass.

W. F. ARNOLD, surgeon. Detached from the Naval Hospital, Yokohama, Japan, and ordered to the Marine Brigade.

## RECENT DEATHS.

DR. JOHN NEWELL TILDEN, retired, of Peekskill, N. Y., died on July 10. He was born in Onondaga, N. Y., on June 10, 1842, and was a graduate of Hamilton College (from which he also received the degree of A.M.), and of the Long Island College Hospital, Brooklyn. He practised in Peekskill for many years, but more recently was president of the Peekskill Military Academy. He was an educational writer of some note.

WYATT GALT JOHNSTON, M.D., died in Montreal, June 19, from septic infection and phlebitis. He was graduated in medicine at McGill University in 1885, and was for a time demonstrator in pathology. In 1894 he was appointed lecturer in bacteriology; in 1895 lecturer in medico-legal pathology; in 1902 professor of hygiene. Dr. Johnston was especially versed in hygiene and public health.

DR. DAVID P. FLEMING of New York died on July 9, of acute Bright's disease. He was a native of New York and thirty-six years of age. He was admitted to the bar in 1892, but shortly afterwards began the study of medicine, and was graduated from Bellevue Hospital Medical College in 1896.

DR. ARTHUR WARD, the oldest medical practitioner in Newark, N. J., died on July 6. He was a son of the late Dr. Samuel L. Ward, and was born in Belleville, N. J., in 1823. He was graduated from Yale College in 1844, and from the College of Physicians and Surgeons, New York, in 1847. He had practised in Newark for fifty-five years.

## BOOKS AND PAMPHLETS RECEIVED.

Mother and Child. By Edward P. Davis, A.M., M.D. Second edition. Illustrated. Philadelphia: J. B. Lippincott Co. 1902.

Cellular Toxins or the Chemical Factors in the Causation of Disease. By Victor C. Vaughan, M.D., LL.D., and Frederick G. Novy, M.D., Sc.D. Fourth edition, revised and enlarged. Illustrated. Philadelphia and New York: Lea Brothers & Co. 1902.

# Original Articles.

## CANCER OF THE UTERUS.

### REMARKS ON CANCER OF THE UTERUS.[1]

BY MAURICE H. RICHARDSON, M.D., BOSTON.

I. *Under what conditions may we expect permanent relief from the removal of a malignant growth?*

Permanent relief by extirpation of the uterus may reasonably be expected when the disease is confined to the uterus. When the disease has invaded extra-uterine tissues, or even when it has appeared at the surface of the uterus, whether cervix or fundus, a permanent cure cannot reasonably be expected, even after the most radical operation. Even when the disease is confined to the uterus and the operation is a radical one, there is always danger of recurrence from infection of the freshly dissected tissues by the cells of the disease. Unfortunately, in a given case it is impossible to predict whether there will be a permanent cure or not, because it will be impossible to tell whether the disease is strictly confined to the uterus. Furthermore, it is impossible in any case to tell whether by dissection healthy tissues have not become infected. When in cancer of the cervix the disease presents in the os, when it has not reached the vaginal mucous membrane, when it has not reached the layers of the broad ligament; when in cancer of the fundus it has not reached the peritoneal surfaces and when there is no involvement of the lymph nodes of the pelvis, thorough extirpation justifies the hope that in a considerable percentage of cases permanent cure will be attained. (See also No. VI.)

II. *Is the removal of a malignant growth advisable, even though a cure is not reasonably to be expected and the general condition of the patient may even be aggravated?*

No; the removal of a malignant growth of the uterus under these conditions is not only not advisable, but it is not justifiable. Unless the attempted extirpation of the growth itself, or of the whole uterus, promises at least amelioration of symptoms, no such operation is justifiable. If such operation, however, promises relief from pain, from hemorrhage, from foul-smelling discharge, the operation is more than advisable, it is demanded.

This question (II) assumes that there are conditions under which the removal of a malignant growth will cause an aggravation of the symptoms. Such a condition of things is, in my experience, not to be expected. The only aggravation of symptoms probable is that following errors in technique: wounding of the bladder, and a vesicovaginal fistula; wounding of the ureter, and a ureterovaginal fistula; wounding of the rectum or intestine, and a recto- or enterovaginal fistula. The operation may be followed by chronic intestinal obstruction from adhesions; acute intestinal obstruction from adhesions. These are the only aggravations of symptoms likely to follow the palliative operations upon malignant growths; but such aggravations of symptoms are to be expected in only a small percentage of cases. The benefits of palliative operations are so great that the chances of increasing the patient's suffering may well be risked.

III. *Is the extirpation of the carcinomatous non-prolapsed uterus to be considered as one of the duties of the surgeon?*

Yes; the extirpation of the carcinomatous non-prolapsed uterus should always be considered as one of the duties of the surgeon. The conditions under which such a uterus should be extirpated will be considered under other questions. (See No. I.) Even in apparently hopeless cases the surgeon will be surprised at times to find a permanent cure. In other cases, in which the outlook is apparently more encouraging, he must not be surprised to find an early recurrence. The only contra-indication to the removal of a carcinomatous non-prolapsed uterus is to be found either in local hopelessness of the disease, in abnormal conditions of other viscera, or in the patient's bad general condition. A patient who is tolerably comfortable, and who has perhaps several years of life before her, should not be subjected to a hysterectomy if her general condition is such that she is not likely to recover from the operation itself, or if the condition of special viscera (heart, kidneys, lungs, liver) is such as to make the prognosis distinctly unfavorable.

IV. *If so, (a) what is the best method; (b) how is it to be done; (c) what special precautions are necessary; (d) what are the dangers, and how are they to be guarded against?*

(*a*) *What is the best method?*— If extirpation is the duty of the surgeon, the best method will depend upon many circumstances. I am in favor of vaginal hysterectomy when the uterus is movable, when the disease is distinctly confined to the cervix, and when the vagina is capacious. The objections to this method are the impossibilities of determining the exact condition of the pelvic viscera, of the broad ligament, of the lymph nodes, and of remote organs of the abdomen; the danger of adhesions between the raw surfaces of the broad ligament and the intestine, with resulting intestinal obstruction; the somewhat greater danger of wounding the ureters; the slightly increased dangers of hemorrhage; the impossibility of intelligent dissection of the ureters, bladder, broad ligaments and intestine.

When the disease is confined to the fundus I prefer abdominal hysterectomy. When the vagina is small, the uterus fixed, the fundus large, I prefer the abdominal route.

When it is necessary to dissect carefully the cervix and the vaginal mucous membrane, and to excise with the cervix a broad margin of vagina, and when the uterus is more or less fixed and

[1] Read before the Obstetrical Society of Boston, March 18, 1902.

the vagina small, I perform the combined vaginal and abdominal operation. The cervix is first thoroughly freed from below as far as the peritoneum, and the operation is completed from above.

(*b*) *How is it to be done?*— The methods of performing the vaginal operation, the abdominal, and the combined vaginal and abdominal, are beyond the scope of the present communication. I have already described in detail in this journal my methods of operating.

(*c*) *What special precautions are necessary?* — The special precautions in hysterectomy, by whatever route, are the avoidance of injury to bladder, rectum, and, more particularly, the ureters. In broad dissections about the cervix in cancer, full demonstration of the ureter is, in my opinion, essential, in order, first, that it may be avoided; and secondly, that the dissection may be as thorough as the ureteral contiguity can possibly permit. It is essential in every case that the ureter be uncovered far above the disease, and that it be followed through the pericervical tissues to the bladder. Avoidance of injury can be insured only by this method. Wounds of the bladder and rectum are likely to occur only in rapid and careless dissections.

Another essential precaution in cancer of the uterus, is the avoidance as far as possible of contaminating the field with the foul discharges of the disease. This is always accomplished best in vaginal hysterectomy, for the surgeon is all the time working away from the abdominal cavity. It is more likely to occur in abdominal hysterectomy, for in that operation the surgeon is always working toward the abdominal cavity. As a rule, however, infections are very rare, even in the foulest cases.

A final precaution is absolute hemostasis. Time spent in complete control of the blood is time well spent. Complete hemostasis should always be insisted upon unless the patient's condition is too bad to justify spending the time to establish it.

(*d*) *What are the dangers? and how are they to be guarded against?*— The dangers of hysterectomy have already been suggested in the special precautions just mentioned. In my experience the cause of death has almost always been uremia. Occasionally patients have died of exhaustion without any evidence at autopsy of local or general peritonitis. In two instances death from pulmonary embolism has followed hysterectomy for fibroids. The dangers of embolism can not be guarded against. There is, in my opinion, no known method by which phlebitis can be anticipated or avoided. The other dangers — those of dissection, of hemorrhage, of infection — may be avoided by extreme care.

V. *What cases, considering location and extent of the disease, are to be operated upon?*

For radical cure only those cases should be operated upon in which the disease is confined to the uterus, if in the uterine body; to the cervix, if in the cervix, though cure may be attempted if a very limited area only of the vaginal membrane is involved. Thickened masses in the broad ligament, remote metastases, infiltrations about the ureters, infiltrations of the vagina, the rectum, and the bladder — all are distinct contra-indications to hysterectomy. The number of cases suitable for this operation are therefore extremely small. Not one case in ten — I have sometimes thought not one case in fifty — justifies the radical operation. No case should be operated upon in which there are contra-indications in the patient's general condition or in other viscera.

VI. *Can a satisfactory diagnosis be made in the individual case as to the feasibility and successful issue of the operation?*

In the majority of cases — in at least 90% — a satisfactory diagnosis can be made that the operation is not feasible, and that the issue will not be successful. Of the remaining 10% which seem favorable, dissection will show that in a considerable number extirpation is not feasible, and a successful issue is not to be expected. In others everything will favor both feasibility and successful issue. In some, however, in which success and feasibility seem unquestionable, failure and disaster will follow. In still others in which the outlook is not so favorable, unexpected success will result. A satisfactory diagnosis as to feasibility and successful issue can always be made by the abdominal route. Exploration in many doubtful cases will show that the prognosis is more favorable than was anticipated; in others less favorable.

VII. *Is the cure complete with the successful issue of the operation and healing of the incision, or are further therapeutic measures indicated?*

This question seems a little too absurd for answer. No operator of experience would look upon convalescence from the operation and healing of the incision as a successful issue of the case. So far as I am aware, however, no further therapeutic measures are indicated, there being, in my judgment, no possible prophylaxis by medication or by medical treatment. The patient should be frequently observed. If there is the least recurrence it should be at once dissected out, when dissection is possible. Unfortunately, in the great majority of cases recurrence of the disease is imperceptible, the inflammatory exudations of the healing process being indistinguishable from the infiltrations of a recurrence. If after the inflammation has thoroughly subsided and everything is soft and lax, small nodules can be felt, these may be removed, though, as a rule, operations for recurrences are difficult and unsatisfactory. If at the end of three years there is no evidence of recurrence, a permanent cure seems probable. If at the end of five years there is no recurrence, the disease may be looked upon as permanently cured.

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A CHILD is born every three minutes and a death is recorded every five minutes in London. — *Philadelphia Medical Journal.*

## THE PRESENT STATUS OF THE OPERATIVE TREATMENT OF CANCER OF THE UTERUS.*

BY W. L. BURRAGE, M.D., BOSTON.

At the outset of a discussion on the operative treatment of cancer of the uterus it is fair to state that at the present time our knowledge of the etiology of cancer is practically nothing.

From the annual report of the cancer commission of the Harvard Medical School recently read before the Boston Society of the Medical Sciences we are justified in the conclusion that we know certain things which are not the cause of cancer, but we are as far from knowing the cause as we ever were.

In default of this knowledge the problem which confronts the medical profession today is, having made a diagnosis, what can be done to eradicate the disease or to render the unfortunate patient as comfortable as possible, for it is the duty of the profession to constantly keep two ends in view, not only to save life but to relieve suffering. Experience has proved that surgery holds out the best hope in both respects.

Authorities are agreed that carcinoma of the cervix is the most common form of uterine cancer; that this form is most often met with in multiparous women between the ages of forty and fifty; that cancer of the body on the other hand is commonest among mulliparæ between the ages of fifty and sixty.

Most authorities lay little stress on the influence of heredity. Schrœder gives the proportion of the cases in which heredity played a part as 8.2%; Gusserow as 7.4%, and Winckel as 6.3%.

The younger the patient the more unfavorable is the prognosis. After the menopause the disease grows more slowly than during the time of menstrual activity.

To start with we must be prepared to revise our former views of the pathology. We no longer speak of epithelial, medullary, scirrhus, and alveolar cancer but adopt the classification and description as given by Cullen in his magnificent work on cancer of the uterus. According to Cullen[1] there are three chief sorts of cancer: (1) Squamous-cell carcinoma of the cervix, originating in the epithelium of the vaginal portion of the cervix, (2) adenocarcinoma of the cervix, originating in the endometrium of the cervical canal, and (3) adenocarcinoma of the body and fundus of the uterus, originating in the endometrium of the body and fundus.

Besides these three he describes certain rare forms, all of which generally originate in the body and fundus, namely, malignant adenoma, deciduoma malignum, and sarcoma.

In the past we have been accustomed to distinguish only cervical cancer from cancer of the body. Now it would appear to be important to differentiate between the two sorts of cervical cancer because of the different modes of growth and invasion of the two.

* Read before the Obstetrical Society of Boston, March 18, 1902.

Squamous-cell carcinoma of the cervix is by far the most common form of uterine cancer. It is comparatively easy of diagnosis upon examination of the patient because the tissues affected can be seen and they are friable and bleed easily. Adenocarcinoma of the cervix, on the contrary, starts in the cervical canal, cannot be seen, the tissues do not break down easily, and the disease progresses rapidly into the broad ligaments and probably to the lymph glands. The squamous-cell growth, on the other hand, grows upward into the uterine tissues and out onto the vagina, involving the broad ligaments and lymph glands much later than does the cancer which starts in the glandular tissue of the cervical canal.

The lymphatics of the uterus are of the greatest importance. I quote Cullen's description of them:

"The lymphatics of the cervix originate in the mucous membrane and muscular coats and pass to the periphery of the cervix where they become convoluted and then follow a transverse direction, the various branches anastomosing or uniting to form larger trunks. These, usually two or three in number, pass outward along the course of the uterine arteries and may even equal them in size. Their valves are so arranged that the concave surfaces look away from the uterus. After reaching the pelvis they skirt its side to reach the iliac glands situated at the bifurcation of the common iliac artery. The iliac glands are usually three in number. . . . A lymph gland on either side of the cervix, described by Henle, is frequently though not always present.

"The lymphatics of the body and fundus of the uterus approach the surface of the organ through the tissue in which they lie, gradually converge, and unite to form two large trunks on each side. These pass outward along the upper surface of the broad ligaments by the side of the utero-ovarian ligament and then upward to the lumbar glands. The lumbar glands are situated on a level with the lower extremity of the kidney and envelop the vena cava and aorta.

"The lymph vessels of the uterine cornu pass down the round ligament to the inguinal glands. On either side of the uterus is a large lymph vessel providing free anastomosis between the flow of the body and that from the cervix."

In speaking of squamous-cell carcinoma of the cervix Cullen says: "From the description of the normal distribution of the lymphatics of the uterus we should expect to find the gland on each side of the cervix involved, should it be present, after which we should look for secondary growths in the iliac glands. As a matter of fact the glands are not often involved, at any rate only very rarely before the disease has advanced so far that the case has become inoperable. Winter, who has paid much attention to the recurrence of carcinoma of the cervix, says that the lymph glands are involved very late. Thus, in 44 autopsies on patients where the disease was still confined to the uterus, the glands were involved only in two cases. According to Winter, the carcinoma be-

gins to invade the lymph glands only when it has extended into the broad ligaments."

And again with reference to cancer of the body of the uterus Cullen says: "It may be safely said that in nearly all the operable cases of adenocarcinoma of the body no glandular involvement has taken place." He found the glands involved in only one of his thirty operable cases.

As to the involvement of the lymph glands in adenocarcinoma of the cervix, observations are yet lacking, but from the rapid progress of the disease into the broad ligaments it is probable that the glands are affected early. In fact, this particular form of cancer is most to be dreaded because of its insidious growth, and the difficulties in the way of making a diagnosis before the patient is beyond all help.

The last word has not yet been said on the question of the involvement of the pelvic lymph glands. Dr. Emil Ries of Chicago, one of the originators of the Rumpf-Ries-Clark radical abdominal operation for the removal of all of the cancerous tissue and lymph glands of the pelvis (1895), states [2] that the detection of carcinoma in lymph glands is attended with great difficulty. It is necessary to make serial sections of the glands and examine all of the sections with the microscope. He examined 700 glands before he found one with cancer. A normal sized gland may be full of cancer nests and a large gland may have no cancer in it. The size of the cancer in the cervix is no criterion as to the infection of the glands, either as to number or to amount of infection. The infiltration of the broad ligament may be simply a large gland. Out of seven of his cases of radical abdominal operation where the uterus was movable, in four the examination of the glands had been finished and he had found them involved. He claims that the microscopic examinations given in Clark's paper and in Cullen's book are absolutely insufficient, because no statement is made as to serial sections having been examined and there was no statement as to the complete removal of the glands, a very necessary proceeding.

Wertheim [3] has removed all of the glands in fifty-seven cases operated upon by the radical abdominal operation and has made serial sections of them all, both large and small, and has found cancer in the glands in eighteen cases, or 31.5%. Funke [4] found that in Freund's clinic, among sixteen cases operated on by the radical method, there was involvement of the lymph glands in eight, or half of the cases. It is interesting to note that in only two of the cases did the macroscopic diagnosis agree with the microscopic findings. In six of the cases enlarged glands were found not to be cancerous on microscopic examination.

From the results of autopsies performed on the bodies of women who had died of cancer of the uterus, not operated on, Wertheim found the lymphatic glands involved in 50%; Roger Williams, in similar cases, in 71%, and Blau and Dybowski in 33⅓%.[5] As the last observers reported their cases as long ago as 1870 it is likely that their methods of research were not as thorough as the more modern ones.

In cancer of the breast a similar observation by Arthur E. Barker [6] found the axillary glands involved microscopically in 78.6% of his cases.

Looked at from another point of view, Winter found that after vaginal hysterectomies, where, of course, the glands were not removed, recurrence, when it occurred, was in the cicatrix in three-fourths of the cases and not in the glands; in this respect resembling cancer of the breast, in which, according to Gæbele,[7] the return was in the scar in 87 out of 119 cases, or 68%.

Roger Williams [8] found few metastatic growths outside of the pelvis, in his autopsies. The vagina was involved in 92% — arguments going to prove that cancer is a local disease.

The extensive radical abdominal operation, called in this country the Rumpf-Ries-Clark operation, has taken firm hold in Austria and Germany. There the operation is known as the Freund operation, after W. A. Freund, who first described a similar procedure in 1878. Our German brethren seldom do things by halves, and on account of the very large number of cases in their clinics, and the great care and thoroughness which are given to the treatment, their statistics are entitled to the most careful consideration. The advocates of vaginal hysterectomy are contending in the German medical societies and medical press with the champions of the Freund operation.

As regards the vaginal operation the combined statistics of five of the chief clinics are the most authoritative as covering the largest number of cases in the hands of reliable men. They are as follows: [9]

| | Operable cases. | Discharged with wounds healed | No recurrence five years after. |
|---|---|---|---|
| Berlin (1892) | 28.7% | 33. % | 9.4 % |
| Leopold | 20.4% | 50. % | 10.2 % |
| Thorn | 35. % | 25. % | 8.7 % |
| Kaltenbach | 40. % | 21. % | 8.4 % |
| Chrobak | 29.2% | 34.6% | 5.39% |
| Average for five | 30.6% | 32.7% | 8.6 % |

From these figures we see that something less than a third of the cases were considered operable, about a third went home with their operation wounds healed, and only 8.6% remained free from recurrence after a period of five years. The primary mortality for the entire series is not given. Olshausen, at the meeting of the German Gynecological Society at Giessen last May,[10] reported a first series of vaginal hysterectomies of 671 cases with a mortality of 6% and a second series of 291 cases with a mortality of 5%. These cases are for the most part included in the foregoing tables. The primary mortality by all operators by the vaginal route is generally spoken of as 10%.

It is too soon as yet to estimate end results from the radical abdominal operation, as the op-

eration is only five years old, but we can form some opinion as to the primary mortality, and in a few cases as to early recurrence from the cases already published, although we must keep in mind that the early cases are necessarily less successful than later ones.

I have collected from the literature the following cases of radical abdominal operations for cancer of the uterus:

| | No. of Cases. | Died. | Percentage of Mortality. |
|---|---|---|---|
| Rosthorn ..... | 33 | 2 | 6.6 |
| Wertheim ..... | 30<br>27 | 10<br>5 | 33.<br>18.5 |
| Küstner ..... | 17 | 5 | 29.8 |
| Mackenrodt .... | 38 | 7 | 17.4 |
| Pfannenstiel ... | 9 | 2 | 22. |
| Amann . ..... | 5 | 1 | 20. |
| Funke ..... | 19 | 3 | 15.7 |
| Total ... ..... | 178 | 35 | 19.6 |

From the list we see that out of 178 cases there was a mortality of 19.6%. The cases from Rosthorn's clinic at Gratz gave by all odds the best showing, a percentage of 6.6% among thirty-three cases, comparing favorably with the best primary mortality for the vaginal hysterectomies. In Rosthorn's cases diseased iliac glands were found in 57.5%, diseased lumbar glands in 9%, and cancer in the cellular tissue of the parametrium in 72%.[11] All of the operations were too recent to estimate whether there would be a return. Mackenrodt reported return in fourteen out of thirty-one cases; Pfannenstiel in two out of seven, and Wertheim had had no returns in two years.

In this country the radical abdominal operation has been practised with modifications by Pryor, Polk, Werder, Russell, Ries and others. Pryor[12] collected ninety-eight cases by different American operators, operated on previous to the fall of 1900, with a combined mortality of 11.2%. He contrasts this showing with a mortality of 10% for vaginal hysterectomy, as made up of the statistics of 1,087 cases by operators in Germany, France, England and America.

The statistics of the radical operation have suffered, not only because it is a new operation and a difficult and prolonged one, but also because an erroneous impression prevailed at first that it was especially adapted to advanced cases — patients whose vital powers were already undermined by the cancer.

It is interesting to compare the statistics of the radical operation for cancer of the breast with those for operation for cancer of the uterus. Arthur E. Barker[6] had a primary mortality of 6% in his breast operations, 33.7% of the patients were living after three years and 16% were living after five years. Halstead stated, at the meeting of the American Surgical Association last May, that out of 129 cases of cancer of the breast operated on in the Johns Hopkins Hospital fifty-one were cured, or 29%. Hochenegg[13] gives 21 out of 121 cases as free from return in three years, or 14%. It is to be hoped that the radical operation for cancer of the uterus will make a better showing than this when the figures are published. Certainly the vaginal hysterectomies in the hands of Olshausen, 63% living after three years out of 169 cases, and Pfannenstiel, 53% living after three years out of 105 cases, are much more favorable.

Kelly and Cullen have given up the radical operation, because of their belief that the glands are not involved in the operable cases. Cullen gives the results in sixty-one cases of squamous-cell carcinoma of the cervix as follows: Primary mortality, 14%; alive and well at the time of his report, 21%. In twelve cases of adenocarcinoma of the cervix the primary mortality was 16%; two were living after five years, 16%. In thirty cases of adenocarcinoma of the body, operated on from December, 1893, to January, 1899, the primary mortality was 10%, and up to January, 1900, the disease had not returned in 66%. Part of the cases were done by vaginal, part by abdominal and part by combined operations.

Baldy reported last year[14] 75% of cures following hysterectomy, mostly abdominal, for cancer of the body of the uterus in twenty-one patients. He takes the ground that cancer of the cervix is incurable. It is to be borne in mind that his percentage of cures in cancer of the body did not give any definite time for freedom from recurrence, simply that the cases were free from return at the time when he reported his cases.

There can be no question but that cancer of the body is more curable than cancer of the cervix, and in turn that cancer of the cervix, meaning squamous-cell carcinoma, is more curable than adenocarcinoma of the cervix. There is also no doubt but that vaginal hysterectomy has given the highest percentages of freedom from recurrence after operation in all forms of cancer of the uterus. All authorities are agreed that the outlook of permanent cure in advanced cases is absolutely hopeless and all urge the importance of early diagnosis. We have seen that the operable cases in the large number in the German clinics were something less than a third of all cases. It is patent that there are peculiarities of cancer of the canal of the cervix and cancer of the body of the uterus that stand in the way of early diagnosis, even when a local examination has been made. Before an examination is made there is little in the symptomatology to help in making a diagnosis. Pain is distinctly a late symptom, and many operators have refused to operate if the patient has had pain, as pain almost invariably means extension of the disease outside the limits of the uterus.

A purulent or bloody vaginal discharge occurring in a woman who is near the menopause, or who has passed the menopause, should lead the general practitioner to insist on a local examination. Induration of the tissues of the uterus, whether of the cervix or the body, or a large

uterus occurring in a patient who has passed the menopause, should make the practitioner suspicious, and he should not lose track of the patient until he has cleared up all doubt. Bimanual rectal examination is of great service in palpating the bases of the broad ligaments. Lack of mobility of the uterus and thickening of the bases of the broad ligaments does not necessarily mean cancer, as old inflammatory processes will produce the same effects.

A piece of tissue should be removed from the cervix, or curettings made from the cavity in all suspicious cases, and the microscope should be the judge. I have several times operated in cases giving a clinical picture of cancer, where I knew it would be impossible to keep the patients under observation, and I have not regretted it, although the pathologist said the specimens showed no evidences of cancer.

My personal experience in operating for uterine cancer consists in having operated on twenty-eight cases, seven of cancer of the body, including two cases of malignant adenoma, and twenty-one of cancer of the cervix. Primary mortality, three cases, or 10.7%. Hysterectomy, generally abdominal, was performed on eighteen, and high amputation and curetting and cautery on ten. I have not been able to trace more than a majority of the cases. I know that seven of the curetting and cautery cases are dead, and it is fair to assume that they are all dead, and eleven of the hysterectomy cases are dead. Three of the last died as the result of the operation. One case of combined hysterectomy for squamous-cell carcinoma of the cervix was well for five and one-half years, and during this time she was married. Then the disease recurred in the cicatrix and she died in six months. One case of malignant adenoma of the body was free from recurrence for one and one-half years, when she died of cerebral hemorrhage. One case of the Rumpf-Ries-Clark operation had a return in the scar in two years, had two secondary operations, and finally died, four and one-half years after the original operation. The cause of death I was unable to learn, but one and one-half years before her death she was comfortable and doing a large amount of work. One case of adenocarcinoma of the body is well, three and one-half years after operation, and two cases, one of squamous-cell carcinoma of the cervix and the other of adenocarcinoma of the body, are free from recurrence, eight and six months respectively after operation. Of my three Rumpf-Reis-Clark operations one has just been referred to, one died of sepsis, and the third I have been unable to trace, but as it was an advanced case it is fair to assume that she is dead. I have done a modified Werder operation once, and was much pleased with it.

It is my experience that all cases of uterine cancer, excepting only those advanced cases in which a vesicovaginal or rectovaginal fistula has developed, are benefited by operation. The relief from the foul discharge afforded by the curette and cautery to say nothing of the doing away with septicemia and pain are not to be lightly estimated. The cautery relieves pain and checks the growth of cancer to a marked degree, and I am inclined to think that if we used the cautery more and the knife less our results would be better.

Let us glance at the results obtained with the electro-cautery knife by Dr. John Byrne of Brooklyn.[15] In a total of 367 cases of vaginal hysterectomy for cancer he did not have a single death. In thirty-six cases in which the disease was limited to the portio vaginalis the average period of exemption was eight years and seven months. In thirty-five cases in which the entire cervix was involved the average period of exemption was five years, six months. In four cases, in which the disease was confined to the corpus, the average period of relief from hemorrhage, pain and offensive discharge was two years, and in seventy-eight cases in which both cervix and corpus were involved, the average period of relief from hemorrhage, pain and offensive discharge was a fraction over three years.

As to operative details there are at present two chief abdominal operations before the profession, that of Werder of Pittsburg, advocated by Cullen, and the operation of Wertheim of Vienna. Both have for their object the avoidance of carrying sepsis into the abdominal cavity and also doing away with the danger of inoculating healthy tissues with cancer. The steps of the Werder operation as given by Cullen are as follows: (1) Removal of broken-down carcinomatous cervical tissue, preferably a few days before; (2) insertion of ureteral bougies, if desired; (3) ligation of the ovarian vessels and round ligaments; (4) freeing of the bladder from the uterus and broad ligaments; (5) opening of the broad ligaments, location and freeing of the ureters to the points at which they enter the bladder; (6) ligation of the uterine vessels near their points of origin; (7) dissection of the bladder free from the vaginal vault; (8) dissection of the rectum from the vaginal vault; (9) removal of the pelvic lymph glands; (10) freeing of the vaginal fornices; (11) closure of the pelvic cavity by uniting the vesical peritoneum with that of the rectum, an assistant meanwhile making strong traction on the cervix from below; (12) closure of the abdomen; (13) ringing of the vaginal vault with a thermocautery or knife, thus freeing the uterus and its surrounding vaginal mucosa; (14) application of a light gauze pack to the space left in the vaginal vault.

Wertheim[3] does not do a preliminary curetting, neither does he put bougies in the ureters. After opening the abdomen he lays open the bases of the broad ligaments, thus uncovering the ureters; ligates the ovarian and uterine vessels; separates bladder and rectum from vagina and isolates the vagina low down in its course. He then places a clamp, having its jaws at right angles to its handles, on each side of the vagina so that the entire calibre of the vagina is cut off below all of the cancerous tissue. The vagina is then cut off

under the clamps, and uterus and vagina removed from above. The lymph glands are next sought for and removed, and the slits in the peritoneum closed. The operation is completed by stitching the cut edge of the vagina, pushing a piece of iodoform gauze down into its lumen, closing the peritoneum over it, and closing the abdomen.

CONCLUSIONS.

(1) Absolute cure of cancer of the uterus by operation is rare. By the best methods of operating thus far produced a small proportion (5% to 10%) of cases are well five years after operation, and a smaller proportion ten years after.

(2) The results of operations for cancer of the body are much more favorable than those for cancer of the cervix.

(3) All cases of uterine cancer, except those advanced cases which have developed vesicovaginal or rectovaginal fistula, should be operated on, if not with the prospect of effecting absolute cure, to prolong life and relieve suffering.

(4) In the early cases of cancer where the disease, as far as can be determined, has not gone outside the uterus and the patient is in good condition the best operation is the abdominal operation of Werder, because operating in this way the operator is able to form a judgment as to the condition of the broad ligaments, ovaries and tubes and pelvic lymph glands by sight and touch, and the danger of implanting carcinomatous tissue is reduced to a minimum.

(5) In the advanced cases where the disease has gone outside the uterus, in those patients who are in too poor condition to withstand an abdominal operation, and in very stout patients, vaginal hysterectomy or curetting and cautery are to be chosen.

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## OPERATION FOR CANCER OF THE UTERUS.[1]

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In view of the great activity recently developed in the pathological laboratories in the study of cancer, we can hardly approach this subject without reference to this pathological work, and especially to the monumental book recently published by Cullen, but although no one can be more profoundly impressed that I by the belief that all our advances of the future are to be made by basing our clinical study on the work of the pathologist, I cannot help thinking that the recent advances in this direction are still too new to form a sound basis for clinical judgment, and in a meeting of clinicians I therefore believe that we must still limit our discussion largely to the clinical standpoint.

From this point of view, the first, and perhaps most important, question is: What results can be expected to follow from operation? But from a clinical standpoint we must precede the answer to this question by a subdivision of the cases into classes, and the best rough classification is perhaps into (1) cancer of the body, and (2) cancer of the cervix, with due regard to the differing prognosis between squamous cell and adenocarcinoma of the latter portion of the organ.

In cancer of the body detected early we may fairly expect a percentage, though not a large one, of permanent cure. In early squamous-cell cancer of the cervix the percentage of permanent cure is exceedingly small, and in adenocarcinoma in this situation it is even smaller, while in moderately advanced cases in either location the percentage of permanent cure may probably be left out of view in considering the indications for the operation.

If, then, we were to operate upon cancer of the uterus only in cases in which we have a fair right to hope for radical cure, or marked prolongation of life, the indications for the operation would be limited to a very small class of cases; but few surgeons of today will contend that this is the only reason which justifies an operation. There is the further question of whether or not we can lessen suffering in cases in which the ultimate end is inevitable.

The suffering which precedes death from cancer may be divided into (1) The discomfort incident to prolonged and its increasing exhaustion; (2) pain; (3) the presence of disgusting and irritating discharges.

The first form of suffering is incident to death from cancer in any situation, whether external or concealed. It is as bad from recurrence as from the original uterine seat of the disease. It therefore plays no part in the indication.

The second — pain — is in my experience not essentially less in recurrences after operation than when the disease is allowed to progress without removal, and is, therefore, also unimportant to the question.

The relief of the third form of suffering should be considered with regard to cancer of the body and cervix separately. In my experience, the recurrence is in almost all operable cases of cancer of the body, and in early cases of cancer of the cervix, especially of the squamous-cell variety, usually internal and removed from the surface. In these cases this third form of suffering is therefore commonly relieved by operation. This advantage is a sufficient justification for the operation in cases in which we can confidently expect to obtain a macroscopically complete re-

[1] Read before the Obstetrical Society of Boston, March 18, 1902.

moval of the disease, and a consequent union of the external wound. In a majority of the cases which obtain such union the recurrence is within the peritoneal cavity, and the vaginal discharges consequently do not recur with the recurrence of the disease. In the majority of such cases there is, moreover, a period of several, and often many, months without recurrence, during which the patient is comfortable and cheerful; and while I do not consider the mental relief in itself sufficient indication for a capital operation, I think it is an incidental advantage which should not be lost sight of.

I think, then, that the advantage obtained by the conversion of an external carcinoma into a concealed one, not productive of ichorous discharges, is sufficient to justify the risk of an earlier death as the result of operation, in a class of cases in which I should feel myself, were I the patient, that a painless death from operation a comparatively short time before the probable and painful death from disease, was by no means an unmixed evil, in the absence at all events of family or other considerations, which would make even a short life of decided value. I think, though, that before deciding upon operation, in any but the most extremely favorable cases we should be careful to ascertain whether or not such circumstances exist, and to put this particular question, if not to the patient, at least to her nearest representative.

The situation summing itself up in this manner in my mind, the next questions for me to consider are those of diagnosis, that is, by what means can we diagnose the disease in its earlier stages? and, when the form of the disease present is undoubted, with how much certainty can we determine whether or not it is so far limited as to make its macroscopically complete removal feasible?

With regard to the first of these questions, there can be no doubt of our obligation to impress upon the laity, and upon general practitioners, the necessity for suspicion of carcinomatous disease and for the most exhaustive examination possible, in every case of metrorrhagia or the presence of offensive or irritating discharges at the time of life when malignant disease is most likely. There can be no doubt of our obligation to submit a slice of every doubtful looking cervix, and the scrapings from every doubtful uterine cavity, to thorough microscopical examination by a competent pathologist; but even when this has been said the subject is not ended.

A positive opinion from the pathologist, in the absence of other evidences of malignant disease, is in my opinion the most positive possible indication for an operation, which should, in my opinion, be an immediate and complete hysterectomy. I think it our most positive indication for the operation, because such a set of circumstances presents to us the most favorable class of cases, those in which the disease has been positively diagnosed, but in which there is no evidence of extension beyond its original seat.

A negative opinion from the pathologist presents, however, a most difficult problem, because it is admitted that the negative diagnosis from scrapings is far from a conclusive one, both on account of the uncertainty which necessarily exists as to whether the curette has covered the whole surface of the uterus, and of the pathologist's technical difficulties in covering comprehensively all the small fragments which are submitted to him. With regard to the second difficulty, I am not competent to form an opinion, and quote only from those of practical experience, but with regard to the first, I can certainly testify, for after a perhaps somewhat unusually extended experience in the use of the curette, I have twice had occasion to remove a uterus which I had just previously curetted with the greatest effort for thoroughness, only to have the annoyance of finding that considerable areas had been missed by the curette — these being especially prominent in each case at the fundus. In the face of this difficulty we must be guided by clinical probabilities. For myself I have come to the conclusion that when careful and repeated curettings at the hands of an expert have failed to arrest the hemorrhage and other uterine discharges from an enlarged, but perfectly movable uterus, it is for the patient's interests that it should be removed, in women approaching the menopause at all events. I have been guided in this opinion (1) by the exceedingly small mortality which now attends the removal of a but slightly enlarged and movable uterus; (2) by the fact that the organ is at that time of life of but small functional value, and (3) by the fact that in my experience its removal at that time is succeeded by comparatively small subsequent nervous disorders, which fact seems to warrant the performance of a hysterectomy for the relief of otherwise intractible hemorrhage, at least when taken in connection with the possibilities of the development of hopeless malignant disease if the operation is deferred until a positive diagnosis is possible. In now a considerable series of such cases I have never had occasion to regret the operation and have repeatedly had good cause for self-congratulation, but in making such a statement, I feel bound to add my belief that such a principle of action is not a fit guide for the inexpert diagnostician or occasional operator.

With regard to the second diagnostic question, With how much certainty can we determine whether or not the disease is so far limited as to make its macroscopically complete removal feasible? It has been my experience with cancer of the fundus that many cases, in which the finger has been unable to detect disease outside the broad ligaments, show at the time of operation considerable extension, and are really unfit cases for operation. I have never seen one in which disease in the broad ligament was considered probable before operation in which it was not found to be exceedingly extensive on incision. I have never seen a case of cancer of the cervix in which the disease had spread well out on the

vaginal vault in which the perivaginal tissues were not more or less extensively infiltrated. I now believe that we should never attempt a hysterectomy for malignant disease when we are able to detect any evidence of its existence outside the uterus, or when the uterus is not thoroughly movable, with the possible exclusion from this latter class of cases of early carcinoma in which fixation is believed to be definitely due to pre-existent inflammatory adhesions. In any case in which the broad ligaments are stiffened or palpably thickened in the presence of malignant disease of the uterus, and in all cases in which a cancer of the cervix has extended to the vaginal wall, I believe that we should limit ourselves to the lesser palliative operations of curettage and the amputation of any accessible invaded tissue. These, when succeeded by occasional applications of chloride of zinc or deep injections of formalin into the malignant tissue, often yield considerable relief, for considerable periods of time.

With regard to the method of attack, the first choice lies, of course, between abdominal and vaginal hysterectomy, but if the abdominal route is selected we must decide further between the ordinary abdominal hysterectomy, Werner's operation, and the so-called panhysterectomy, which aims at the extirpation not only of the uterus, but of all the pelvic portion of the uterine lymphatics.

To take up the latter question first, the immediate mortality of the panhysterectomy has been far larger than that of the other operations, and it has not yet been shown that its remote results are enough better to justify its performance. With due regard for the possible developments of the future, I believe that, from our present knowledge, it is unjustifiable and inadvisable. It is probable that the choice between Werner's operation and the removal of the uterus and its surrounding tissues by the abdominal route should depend upon the form of disease with which we are dealing. In the few cases in which a radical cure is likely to follow, these two operations are equally efficient, and the choice between them is one which must be made purely by the technical preferences of the operator.

In either operation we should certainly separate the uterus and vaginal vault from the bladder and posterior peritoneum and divide the broad ligaments as wide of the uterus as possible, exposing the ureter, and tying off the uterine artery in its continuity. In cancer of the fundus I fail to see the advantage of Werner's vaginal extraction of the uterus. In cancer of the cervix we should certainly separate all the upper part of the vagina from its attachments, and it may then be well in some cases to adopt Werner's method of vaginal removal, but in the majority of cases it has seemed to me that its advantages were largely theoretical and that the time gained by compressing the vagina from above with a provisional ligature or right-angled forceps, and separating it below this compression by scissors, probably makes this the preferable operation.

With regard to the choice between the abdominal and vaginal route, I believe that the abdominal method is the easier, neater, more complete and more satisfactory procedure. It affords us the opportunity of making an exact diagnosis of the extent of the disease at the beginning of the operation, and so enables us to stop the operation in its early stages in unsuitable cases. The dangers of subsequent hemorrhage and infection seems to me less than in the vaginal operation. It is, in my experience, not likely to be followed by painful adhesions, which I have, however, seen, in one or two instances, after the vaginal operation. For all these reasons, it is to me the preferable method of attack for patients in good condition. The subjects of malignant disease, even in its early stages, stand operation badly, however, and the majority of deaths from extirpation of the uterus for cancer result from shock. Vaginal hysterectamy is attended by almost no shock, even though the time of the operation may be longer. In enfeebled women I believe that this advantage outweighs the other disadvantages of the vaginal operation, and that it should, therefore, be the operation of choice in such cases, for the removal of the malignant uterus, in spite of its otherwise unattractive features.

## CANCER OF THE UTERUS.[1]

BY W. M. CONANT, M.D., BOSTON.

Dr. Cullen, in the preface to his book on "Cancer of the Uterus," has the following: "The number of cases of cancer of the genital tract coming too late for operation is so appalling that the surgeon is ever driven to devise ways and means by which the dread malady may be more generally detected at the earliest possible moment at the time when complete removal of the malignant tissue is still possible. But since it is the general practitioner who as a rule is first consulted, upon him largely falls the responsibility of arriving at a timely diagnosis."

This is so true at the present time and is so within the experience of every operator on cancer, not only of the genital tract, but of cancer elsewhere, that it would seem wise to have it impressed upon every general practitioner. In many cases that are sent to us there has been a typical history covering a period oftentimes of months, and in many cases there has not even been an examination by the speculum. A removal of a small piece of the cervix and the sending of it to the pathologist for examination, would oftentimes lead to the detection of the disease while it is in its early stage. It is a very common occurrence to see cases of very suspicious character which have been curetted, and the scrapings have never been examined to see whether it was a case of malignant disease or not.

[1] Read before the Obstetrical Society of Boston, March 18, 1902.

At the present time there are two forms of cancer which are most commonly met with, the squamous-cell carcinoma, which is most commonly found in the cervix, but can also be found in the body, and the adenocarcinoma, which is most commonly seen in the body but can also be found in the cervix. I have no wish nor do I intend, in this short paper, to discuss the subject of malignant adenoma as distinct from cancer. I leave it to the pathologist to decide whether what some people call malignant adenoma of the body is the same as some others call adenoma carcinoma. They are both malignant and both were covered in the question asked in 1810, because at that time the word malignant was used without distinction.

Let me say at the outset that the prognosis is most favorable in adenocarcinoma of the body, and least promising in the adenocarcinoma of the cervix. The squamous-cell variety of the cervix and of the body is between these two extremes. It will therefore be seen at the outset that it is important to know the variety with which you are dealing and the position, because all of us have seen cases both of the squamous-cell and the adenoma carcinoma in which there was very little infiltration at the cervix and have found a much larger infiltration in the broad ligaments.

Winter, in a series of thirty-two local recurrences of carcinoma of the cervix, found twenty-four cases of adenoma carcinoma and eight of the squamous-cell variety. The majority, however, were removed by the vaginal route. In adenocarcinoma of the cervix a very guarded prognosis should be given, as much of the disease may have extended far latterly, even though the ligaments are only slightly, if at all, thickened.

Summary of cases of squamous-cell carcinoma of the cervix: Cases hysterectomy performed or attempted, 61; patients coming too late for operation, 62; total, 123; number of patients operated on now living, 13, or 21%.

Cases of adenocarcinoma of cervix, 12; only two now living, 16%; six came too late for operation.

Cases of adenocarcinoma of the body, 30. Three died as result of operation, six had recurrences, one not located, other 20 free from cancer, 66%; 12 over three years. Total number of cases, 176; operated on, 103; 35 recovered, or 33%.

Anyone who has seen one of these cases of inoperable carcinoma develop is impressed by the pitiful condition to which the patient finally arrives due to repeated hemorrhages, foul discharge from the vagina, a cachexia constantly increasing, loss of appetite, loss of sleep, pain and finally a condition in which it is necessary to resort to opiates in order to keep the patient in any way comfortable. It is to relieve two of these symptoms, namely, the hemorrhage and the foul discharge, that we resort to thorough curettage and to the use of the cautery in cases that are otherwise inoperable. Is it true, as some would have us believe, that this is the only operation that can be done at the present time for cases of cancer? The diagnosis having been made, must we fold our hands and allow the case to go on, and when it has gone to such an extent that the hemorrhage and the odor become a menace we then resort to repeated curettements with the use of the Paquelin?

If we accept this as a final decision, the patient has no more outlook for recovery than there would be for a person viewing a landscape to look at a blank wall. If, however, we take the other side and claim that an operation is justifiable — and by operation I mean a radical operation — four possible results may be obtained: (1) A cure; (2) a relief from present suffering, from hemorrhages, from foul vaginal discharge, and this discharge is so characteristic and nauseating that it is almost impossible to live in the same room or house with a patient; (3) a condition that in some respects is worse, because the disease seems to spread more rapidly after operation; but because it is removed from the vagina there is not the danger of hemorrhage or of foul discharge, so that although the disease may be more active, it is not, all things considered, as distressing; (4) death.

First, with regard to cure. In looking over a mass of statistics one is somewhat appalled by the fact that the percentage of permanent cures is so small. This, however, as in so many cases of statistics, is more apparent than real, because all classes of cases have been included and enough attention has not been paid to differentiating cases which can reasonably be operated on with success, both as regards the different forms of malignant disease as well as the location of the disease.

If one looks over a series of cases and picks out adenocarcinoma of the body or malignant adenoma, he will be surprised to see how large a percentage of cures there are after three years. It seems, therefore, that in a case of malignant disease where a diagnosis is made early in the most favorable form of disease, we may expect a very large percentage of cures. In another form, namely, the squamous-cell variety, where the diagnosis is made early, where the disease is confined to the cervix and no evidence is discovered of malignant disease in the broad ligaments at the time of operation, in this class of cases, also, we may expect and we find a large percentage of cures, providing the operation has been done according to the present method known as a panhysterectomy, as advocated by Clark, or, still better, the operation of Werder. The unfortunate part of our present statistics is, we are dealing, as did Winter in his case, either with operations which are vaginal or abdominal, and practically no more of the malignant disease, as far as the broad ligaments are concerned, is removed in one case than in the other. Even where the abdominal operation has been done, until within the past few years, there has not been the attempt at the removal of the broad ligaments as far out as the brim of the true pelvis together with the removal of the malignant growth.

It seems to me, therefore, that we can look in the future to a very much better set of statistics, provided the present improved methods of performing the operation are carried out in cases where an early diagnosis has been made. In such cases we are, therefore, justified in advising the patient to submit to a panhysterectomy.

Now let us take up the second class of cases; are we justified in advising a panhysterectomy for a relief of symptoms in which it is possible, or even probable, that we shall not get a permanent cure? Here comes in the equation largely of what the surgeon's personal experience has been, and whether he is an optimist or pessimist and, furthermore, how carefully he has followed the after-condition of his patients and has a fair working knowledge of how much relief they have obtained or in what cases the condition has been aggravated. It is in this class of cases that the likelihood of mortality will be great, because of the somewhat debilitated condition of the patient. Everyone recognizes that the extensive operation done in the pelvis when the broad ligaments are infiltrated with the tissue gives rise to a great deal of hemorrhage and a very considerable amount of shock, and in many cases the patient dies from shock within twenty-four to seventy-two hours after the operation.

It must, therefore, be a question whether the amount of comfort gained for a period extending not usually over from eighteen months to two years and the subsequent suffering during that time in many cases is more desirable than to let nature take its course.

It is customary to send out letters of inquiry regarding these operations and to get an expression of opinion from the family as to whether the patient suffered more after the operation than before. This is a perfectly legitimate method, but it seems to me too much stress should not be laid on the reports of an afflicted family, or, if such reports are sent, they should be compared with an equal number of reports of patients who have died comparatively untreated, and then a comparison of the two classes of cases would be interesting. This, in itself, might be a gruesome task and is not one which is usually performed. Often a paper is written by able medical men and surgeons decrying operative interference in cancer because no relief is obtained. Many of them seem to lose sight of the fact that unoperated on, the patient constantly and steadily grows worse until death gives relief.

This practically covers or takes into the discussion No. 3, in which the condition is made worse as far as extension of the growth is concerned, although the position is shifted from the external to the internal portion of the body, namely, the involvement of the liver, etc. Where the condition becomes one of internal cancer, I think there can be no question in the minds of any of us that it is to be preferred to the external, but in some cases we have both a recurrence in the vagina and an apparently increasing recurrence in the interior of the body, shutting off the ureter and causing distressing urinary symptoms, sometime uremia and, lastly, death.

It is fair to say with regard to the second and third forms that if the patient survives the operation she may expect from six months to three or four years of more or less comfort before death comes; eighteen months is a fair average. It is also recognized that in many of these cases death is hastened by the operation, even if the patient does not die at the time of operation. In other words, certain forms of the disease untreated, or treated only by palliative operation, would perhaps live longer than those where the complete operation has been attempted but without success. Let me state briefly that in all cases of cancer which are seen early, either of the cervix or of the fundus, where nothing can be felt outside the uterus, a radical operation should be performed.

## INTESTINAL INVAGINATION IN INFANTS AND CHILDREN WITH THE REPORT OF A CASE SUCCESSFULLY TREATED BY LAPAROTOMY.[1]

BY CHARLES GREENE CUMSTON, M.D., BOSTON.

Whenever a young subject presents symptoms of intestinal occlusion it becomes incumbent upon the practitioner to make, if possible, a diagnosis between intestinal occlusion, acute peritonitis from perforation, or a pseudo-occlusion produced by the presence of intestinal parasites. The latter, which is peculiar to infancy and childhood, will rarely take on an aspect serious enough to justify an erroneous diagnosis. In some cases, however, the symptoms may be sufficiently menacing for a few hours so as to render a diagnosis uncertain.

Acute peritonitis due to perforation may closely simulate intestinal occlusion, and in children particularly it is acute perforating appendicitis which is often confusing when making a diagnosis. In both instances, however, laparotomy is indicated, and if there is an appendicitis with an acute generalized peritonitis, the median incision is the one to be selected, and is also the proper one when intestinal occlusion is present.

After the child has been etherized it is well to carefully explore the right iliac fossa in order to ascertain if a tumor be present.

Conditions producing intestinal occlusion such as strangulated intra- or extra-abdominal hernia, compression of the intestine by neoplasms or fibrous bands, as well as an obstruction produced by an accumulation of feces or a foreign body in the gut, are of rare occurrence in young subjects. Volvulus is occasionally met with, however, but without any doubt invagination is, in children, by far the most frequent cause of intestinal occlusion. Children are more subject to invagination of the intestine than adults without a doubt, and this lesion is practically the only cause of intestinal obstruction in the young. Why this

[1] Read before the Surgical Section of the Suffolk District Medical Society, April 3, 1902.

should be so it is difficult to explain, excepting in those instances where a polypus of the intestine is the etiological factor in the process. D'Arcy Power says that ileocecal invagination is by far the most common variety in children. It usually occurs between the fourth and sixth months of life. He explains these facts for the reason that at birth the diameter of the colon is hardly larger than the ileum, but at about the fourth month the colon begins to increase in length and in circumference. Wiggin, out of 103 cases of intussusception in children, found that it took place during the fourth, fifth and sixth month in 50%.

In doing a laparotomy for obstruction of the intestine in children it is well, I think, to call to mind that if no invagination be found that there may be a stricture of the gut produced by a typhoid, disenteric or syphilitic ulceration. A congenital stricture situated at the lower part of the sigmoid flexure or rectum may also give rise to obstruction, although not suddenly, and I have reported such a case some time ago.

There is one other condition of congenital origin which may produce a stricture of the small intestine, and this is a fibrous contraction occurring in the lumen of the gut, most probably situated in the neighborhood of that part of the intestine which formed the entrance of the duct of the umbilical vesicle.

Philips found 37 cases of invagination out of 100 cases of intestinal occlusion. The lesion, according to Duchaussoy, is usually seated in the small intestine, but Rilliet, Bucquoy and Besnier uphold the contrary to be true. Bulteau found that invagination was either of the ileocecal or ileocolic variety in 392 cases out of 703 cases, while Leichtenstern found 44 ileocecal, 18 purely colic, 8 ileocolic, and 30 of the ileum out of 100 cases of invagination. Wiggin found out of 103 cases that 89% were of the ileocecal variety.

Intestinal invagination is easy to diagnosticate in most cases if seen early in the course of the disease. Its progress is apt to be less acute than that due to volvulus, and constipation is not absolute in the beginning. The little patient will often pass bloody stools which occasionally have a fetid odor. Palpation may reveal an oval and sometimes movable tumor in the right iliac region if the case is seen early before the abdomen has become distended. If at the onset of the affection pain is distinctly localized, it will be an excellent guide to the probable seat of the occlusion.

Rectal and vaginal examination should never be overlooked, because in children an invagination of the rectum may be felt, or a congenital stricture which is the cause of the symptoms of obstruction may be detected.

In most cases the innumerable medical treatments for intestinal occlusion are without avail, and all purgatives should be absolutely desisted from, as they only increase the gravity of the condition. Irrigation of the stomach, insufflation of the rectum, or rectal irrigation, electrization of the intestine, the inverted position, may all be tried, but on the condition that no precious time is lost. It is evident that by these medical means a few successful results have been obtained even after the condition has existed for several days, but the delay thus caused in doing a laparotomy is far more often the cause of an unsuccessful result. If the surgeon could always interfere within the first twenty-four hours, success, I believe, would usually result instead of being an exception, as it is unfortunately at the present time.

Laparotomy for intestinal occlusion is far from being a modern operation. Praxagoras of Cos undertook it, and three centuries later it was again performed for the same condition by Leonides of Alexandria. After this the operative treatment of intestinal obstruction appears to have been practically forgotten until the seventeenth century, when a well-known surgeon of Amsterdam, by name Paul Barbette, advised laparotomy in a case of ileus. At about the same time, two surgeons, whose names are not handed down to us, performed laparotomy for intestinal obstruction, but with what results I am unaware.

If operation is deemed advisable we have two methods of relieving the condition, one by an artificial anus or by laparotomy. If we could always operate early in the course of the affection on a child still in good condition, I believe all surgeons would refrain from advocating an artificial anus, but this operation, which is simply a palliative one, may be of value in little patients whose strength is greatly reduced by a long delay before surgical measures are attempted. In one case of cecal invagination in a child three months old, occurring on the Floating Hospital last summer, the symptoms of obstruction having been present for about fourteen hours, I made an artificial anus in the first loop of the small intestine which presented itself, hoping thereby to empty the gut and relieve the distention, but the child died a few hours later. Nothing but a very small amount of fluid feces was expelled at the time of the operation through the artificial opening, and no relief of the distention was obtained on account of the persisting paralysis of the gut. Autopsy revealed a severe grade of ileocecal invagination.

| Operation. | Total number. | Children. | Adults. | Recoveries. | Deaths. |
|---|---|---|---|---|---|
| I. Result of laparotomy attempt to reduce invagination. | 49 | 29 | 20 | 11 | 38 |
| (1) Invagination reduced | 27 | 18 | 9 | 7 | 2 |
| | | | | 4 | 14 |
| (2) Invagination irreducible | 22 | | | | 22 |
| (*a*) Abdominal incision closed | 5 | 3 | 2 | | 5 |
| (*b*) Resection of invagination | 9 | 5 | 4 | | 9 |
| (*c*) Enterotomy | 8 | 3 | 5 | | 8 |
| II. Enterotomy without attempting reduction of invagination | 10 | 3 | 7 | | 10 |

In principle, even under bad conditions, I am decidedly in favor of performing laparotomy and reduce the invagination, or relieve the cause of

the occlusion. Occasionally resection of the invaginated portion of the gut may be undertaken if the condition of the patient will permit. In 1885 H. Braun published an excellent article in the *Archiv. f. klinische Chirurgie*, from which I extract the foregoing table of fifty-nine cases of operation for invagination of the intestine.

From this list Braun sums up as follows: It is essential to reduce the invagination because according to our present experience it represents the only chance for a favorable outcome from the operation. Since the chance of reducing the invagination is all the greater the sooner it is undertaken after the symptoms of strangulation show themselves, it consequently results that the indication for laparotomy should be at an early period in the course of the affection, if possible during the first or second twenty-four hours of the affection. The lack of success resulting from other measures of treatment is an urgent indication for early laparotomy.

If after the abdomen is opened it is impossible to reduce the invagination, Braun believes that it is poor practice to make an artificial anus in children under two years of age, and probably not in children who have attained their fifth or sixth year, because in such young subjects it can scarcely be expected that the intussusception should slough off and be eliminated and the subject still live.

Under these circumstances, if there is any possibility of saving life, resection of the diseased portion of the intestine must be resorted to although the chance for a successful outcome is very slight. Resection of the gut should be performed in adults in cases of invagination of the small intestine and in cases of intussusception of the colon when not too extensive, while in those instances of very extensive invagination, especially when the gut cannot be reduced, an artificial anus should be resorted to.

The performance of enterotomy without making an attempt to reduce the invagination is only indicated in weakened elderly subjects who cannot stand the prolonged operation, or in those cases where violent inflammatory changes lead the surgeon to assume the impossibility of reducing the invagination.

In 1896 an excellent article by Alsberg on the operative treatment of intestinal invagination was published in the *Deutsche Medizinische Wochenschrift*, in which will be found the following table borrowed from Wichmann's work entitled "Om Tarminvagination." The latter author has collected 725 cases of intestinal invagination with the following results:

In the years 1870 to 1892 laparotomy was performed on

| | | |
|---|---|---|
| Children under one year of age . . . . | 51 cases. | 9 recoveries. |
| Children from one to ten years . . . . | 32 cases. | 9 recoveries. |
| Children over ten years . . . . . | 55 cases. | 23 recoveries. |

This table shows that there were 138 operations with 41 recoveries and 97 deaths. All the recoveries occurring in children under ten years of age were obtained where the invagination could be reduced. In the twenty-six cases where this could not be accomplished, all died. Of these seventeen were treated by resection and seven by enterotomy.

Of the operations performed on children ten years of age, 41 were done during the first month of the affection; consequently the operators were dealing with partial occlusion only. Of these cases the invagination was reduced in nineteen, and twelve of the patients recovered. Of the twenty-two patients where reduction of the invagination was not affected, that is to say, did not succeed, only three recovered. In fourteen cases resection was resorted to with but one successful result, in six enterotomy was done with one successful termination, while in two the gangrenous portion of the gut was sutured to the abdominal wound, one patient recovering. Of fourteen subjects operated upon after the first month had elapsed, eight recovered; six times the invagination was reduced and four of the patients recovered; in four instances resection of the gut was done and all patients recovered.

In 1895 Rydygier published a paper on the operative treatment of intestinal invagination based on seventy-five cases. Although he rejects as useless the operations of entero-anastomosis and artificial anus, he believes that the reduction of the invagination should be resorted to in all cases where it can be accomplished without too great difficulty, that is to say, in recent cases where the condition is not too pronounced. It is inadvisable to persist in the reduction if the latter is found difficult, because in such cases the walls of the gut have undergone so much change that it is difficult to say whether they will not allow pyogenic bacteria or other septic elements to pass through them, and whether or not gangrene may not arise later on. In such cases Rydygier recommends resection of the invaginated portion according to the method which he describes in detail.

In a recent paper Pitts has published seven cases of invagination of the intestine in children which were treated by laparotomy, with a most happy record of six recoveries. In four the invagination was reduced, while in two other cases the invaginated part was resected. In the fatal case, an artificial anus was made.

In Wiggin's 103 cases reduction occurred spontaneously in two, 39 were treated by inflation or high rectal irrigation, with 41% recoveries and a mortality of 59%. Sixty-four of the cases were treated by laparotomy with a successful result in 32.8%. Of the cases treated by laparotomy after 1889, there were in all eighteen, fourteen making a recovery and only four dying, thus resulting in a mortality of 22.2%.

From the statistical results to which I have referred, it would seem to show that at least for the time being neither medical nor operative treatment can boast of any particularly brilliant result. I believe, however, that the principal reason is that the large majority of patients are not placed under the surgeon's care early enough

when the condition is such that an operation will be successful, and that laparotomy with reduction of the invaginated gut, is liable to be followed by quite favorable results on condition that the operation is performed just as soon as it has been demonstrated that medical means are of no avail. To prove this I will briefly mention those cases that have been reported since 1897, and will conclude with a report of my own cases. It is evident that I am here only referring to cases of intussusception in children, as this paper is not intended to deal with this affection in adults, and I also would say that the following cases are far from being a complete list of all that have been published, because time has not permitted me to dip deeply into medical literature in the preparation of this paper.

Cases 1 and 2 (Herbert Lund). Intussusception in a child nine years old and in another child nine months old. The latter presented several invaginations. The first child recovered, while the second died from an invagination which was overlooked at the time of the operation and consequently remained unreduced.

Cases 3, 4 and 5 (Renton). All three were young children subjected to laparotomy and reduction of the invagination. All of them recovered.

Cases 6 and 7 (Broca). Children five and six months old respectively. In the first case operation was done sixty days after the commencement of symptoms of obstruction. Small intestine was found invaginated in the colon as far down as the rectum. Both cylinders of gut were gangrenous. Death from peritonitis.

In the second case operation was undertaken on the third day after the symptoms had commenced. Two invaginations were found, one in the sigmoid flexure, the other being of the ileocecal variety. Reduction. Recovery.

Case 8 (Legueu). Child six months old. Invagination of the cecum, ascending colon and half of the transverse colon into the colon. Operation performed six hours after the onset of the symptoms. Reduction; intestine intact. Death in two hours.

Case 9 (von der Hoeven). Child eight and a half months old. Invagination of the colon extending 16½ cm. outside of the anus. Resection. Recovery.

Case 10 (Kaarsberg). A boy three years and nine months old was taken thirty days previously with symptoms of intussusception, from which he recovered. Later, the symptoms recurred. Two unsuccessful attempts were then made to reduce the invagination under ether. Laparotomy; reduction. Recovery.

Case 11 (Morgan). Child nine months old presented symptoms of invagination for twenty-four hours, at the end of which time laparotomy was performed. Invagination of the colon. Reduction. Recovery.

Case 12 (Pollosson). Child seven years old. Laparotomy, after symptoms had been present for three days. Invagination of the small intestine; resection of 60 cm. of gut; circular enterorrhaphy. Recovery.

Case 13 (Weil and Frankel). Child four years old. Invagination of the small intestine. At the apex of the invagination was found a Meckel's diverticulum. Reduction and resection of the gangrenous gut. There was general peritonitis. Death.

Case 14 (McGraw). Boy six years old was sick with severe intestinal catarrh and colicky pains. Laparotomy. Cecum with a long mesentery and appendix were found invaginated in the ascending colon. Reduction. Recovery.

Case 15 (Barlow). Child five months old. Eighteen hours after the commencement of the symptoms of obstruction, massage and rectal inflation were unsuccessfully tried. Laparotomy and reduction of invagination. Recovery.

Case 16 (Clubb). Child less than one year old. Invagination, laparotomy and resection of four inches of the small intestine. Recovery.

Case 17 (Poppert). Boy, eight months old. Symptoms of invagination. Laparotomy on the next day. Ileocecal invagination found and reduced. Recovery.

Case 18 (Dartigues). Girl, fourteen years old. Obstruction of the bowels for three days. Laparotomy; 10 cm. of the small intestine, cecum and 20 cm. of the colon were found invaginated. Artificial anus. Death from perforation of the gut.

Case 19 (Knaggs). Eight-year-old girl had had pain at stool for seventeen days. Then vomiting set in and for two days obstruction was present. Enterostomy was performed for the tympanitis. Four weeks later laparotomy was done, and an ileocecal invagination was found. Resection of the gut. A fecal fistula remained, which closed seven weeks later. Recovery.

Case 20 (Knaggs). Boy eight years old had had obstruction of the bowels and vomiting for two weeks. Laparotomy. Invagination of the colon; reduction. Recovery.

Case 21 (Wright and Renshaw). Child, three years old. Colicky pains and obstruction of the bowels. Tumor in the cecal region. Laparotomy. Cecum with a long mesocolon. The base of the appendix and part of the cecum were invaginated in the colon, while the tip of the appendix was adherent to the ileum and cecum. Incision of the cecum and reduction; appendectomy. Recovery.

Case 22 (Ainsley). A boy, fifteen years old, after playing football, complained of severe abdominal pain and obstruction of the bowels. These symptoms continued for eight days and then bloody stools appeared. Laparotomy. Invagination of the small intestine, which was gangrenous; resection by Maunsell's method. Recovery.

Case 23 (Barrow). Boy, eleven years old, for two months had had colicky pains; tumor in right side of abdomen. Laparotomy. Ileocecal invagination. Resection and anastomosis with Murphy button. Recovery. In the resected por-

tion of the gut several tubercular ulcerations were found.

Case 24 (Farmer). Child, ten months old. Laparotomy thirty-six hours after the beginning of symptoms. Ileocecal invagination found and reduced. Recovery.

Case 25 (Grosz). Child, seven months old. Laparotomy performed five days after beginning of symptoms. Ileocecal invagination found and reduced. Recovery.

Case 26 (Monsarrat). Child, five months old. Laparotomy twenty-five hours after commencement of symptoms. Ileocecal invagination; resection. Death.

Case 27 (Monsarrat). Child, seven months old. Laparotomy. Reduction of invagination. Recovery.

Case 28 (Monsarrat). Child, seven months old. Laparotomy performed two days after beginning of symptoms. A large ileocecal invagination found and reduced. Death.

Case 29 (Monsarrat). Boy, four years old. Symptoms of intestinal obstruction for four weeks. Laparotomy. Invagination of the appendix; reduction. Recovery.

Cases 30 and 31 (Lediard). Two cases of intussusception operated on on the third and fourth day respectively after the commencement of the symptoms. Reduction and recovery in both instances.

Case 32 (von Hippel). Boy, one year and nine months old, presented symptoms of intestinal occlusion for four days. Laparotomy. Ileocecal invagination; reduction and resection of the small intestine, which was gangrenous. Death.

Case 33 (Meyer). Boy, nine and a half years old, presenting symptoms of intestinal occlusion for one week. Sausage-shaped tumor could be felt. General condition good. Laparotomy. Gangrenous invagination found. Artificial anus. Three days later the invaginated portion of the gut was voided per rectum. Recovery.

Case 34 (Rutherford). Child, eight months old, had been ill for forty hours. Invagination could be felt per rectum. Laparotomy. Reduction. Recovery.

Case 35 (Rutherford). Child six months old. Laparotomy performed after symptoms of invagination had been present for two days. An ileocecal invagination was found and reduced. Recovery.

Case 36 (Robinson). Boy, five years old. Laparotomy forty hours after the beginning of symptoms of acute obstruction. An invagination four inches in length was found which had been produced by a Meckel's diverticulum. Reduction. The diverticulum could not be reduced and was therefore resected. Death in two hours.

Case 37 (Barlow). Child, five months old. Laparotomy performed eighteen hours after the beginning of symptoms of obstruction. Ileocecal invagination; reduction. Recovery.

Case 38 (Barlow). Boy, seven months old. Laparotomy done nine hours after the beginning of the symptoms of obstruction. Ileocecal invagination eight inches long found and reduced. Recovery.

Case 39 (Lane). Child, six months old. Intussusception, laparotomy and reduction. Recovery.

Case 40 (Cumston). Female child, nine months old. Had always been well up to April, 1900, at which time she began to be constipated. The mother of the child applied to a druggist for the relief of the constipation and this gentleman very kindly prescribed some medicine which I take to be castor oil. The following morning the child had a copious movement, which was attended with considerable straining and pain. The child's condition remained pretty much the same for the next forty-eight hours, the bowels remaining absolutely constipated. At the end of this time the abdomen commenced to swell, according to the mother's statement, and shortly after this vomiting occurred and several muco-sanguineous discharges were passed by rectum. I saw the child late in the evening after the vomiting and bloody discharges had been present about ten hours, and noted the following condition: The child was drowsy and appeared to be semi-comatosed. Temperature, 40° C.; pulse, 140, of poor quality. A rapid examination of the thoracic viscera revealed nothing abnormal. The abdomen was greatly distended, and a tympanitic percussion sound was everywhere present. Palpation was unsatisfactory on account of the distention, and no tumor could be made out. A diagnosis of intestinal occlusion, probably of the ileocecal type, was thought probable after a careful rectal examination, which proved negative, had been made. The child was placed in Trendelenberg position and rectal irrigations were given hoping that the intussusception might be reduced, but after three-quarters of an hour of fruitless efforts in this direction, I decided to operate. A median incision was rapidly made and the distended small intestine immediately protruded from the abdominal cavity. The right iliac fossa was immediately explored and the invagination was at once discovered. The intussusception was carefully pulled upon but on account of firm adhesions between the gut, the attempt was stopped. The adhesions existed between the inner and middle intestinal tubes, and were broken down by inserting a finger into the middle tube and then breaking down all tissue that could be reached. By a careful and slow traction on the intussusception it was finally freed. The gut was carefully inspected, and although markedly congested, still no evidence of a commencing gangrenous process was to be found, the peritoneum still retaining its glossy aspect. The invagination consisted of about 8 cm. of the ileum and the cecum into the ascending colon. The mesocolon of the ascending colon and cecum appeared abnormally long. The abdomen was closed with some difficulty owing to the great distention of the intestine, but this was soon relieved by the happy occurrence of the passage of flatus per ani a few hours after the operation. The child made an uninterrupted recovery, and has so

far as my knowledge goes remained well ever since.

Case 41 (Cumston). A small ill-nourished infant, age three months, was taken with symptoms of intestinal occlusion early in the morning. The usual medical measures were instituted for the reduction of the intussusception, but proved fruitless. At eight in the evening, that is to say, about sixteen hours after the commencement of the symptoms, the child was prepared for operation, but owing to the great distention and the very weak condition of the child, I decided to do a right iliac colostomy, hoping that by this measure the gas and fluid feces above the site of the obstruction might be expelled and the critical condition of the child relieved, so that a few days later the obstruction might be sought for and dealt with according to the indications present. Upon opening the right iliac fossa a loop of distended small intestine presented, and was immediately sutured to the skin and was opened, but hardly any gas or feces were expelled, and the child died a few hours later. This case seems to show how rapidly intestinal paralysis may supervene after the commencement of symptoms of obstruction, and this, like several of the other examples mentioned in this paper, demonstrates beyond a doubt the uselessness of an artificial anus as a palliative operation for intussusception in infants and young children. Autopsy showed that the intussusception was of the ileocecal variety.

## Reports of Societies.

### SURGICAL SECTION OF THE SUFFOLK DISTRICT MEDICAL SOCIETY.

F. B. LUND, M.D., SECRETARY.

REGULAR meeting, April 2, 1902, DR. F. J. COTTON in the chair.

DR. THOMAS FILLEBROWN brought before the section some very interesting cases showing end results in cases of harelip and cleft palate operated upon by him. He made the following remarks.

Two or more years ago I described before this section my methods of operation for cleft palate, and discussed the probable results; therefore all I shall do tonight is to show some of my patients and the results of some of the operations.

I first show you the models of the mouth of a young man the cleft in which you will notice is very wide. He had called on several experts, and each one had told him that his palate could not be closed. He finally came to me, and I first thought I could not close it, but after further examination and some measuring I decided that I could close it and I did so. The operation was completed last autumn. His speech is now good. He still has some difficulty in managing his tongue as he needs to, but he makes himself perfectly understood and gets along perfectly well.

Here is a young girl ten years old who had a cleft of the soft palate. Her speech was very indistinct indeed, and a person could only understand her by knowing what she wanted to say. You can hear and see for yourself how perfectly she speaks now. The operation was done about two years ago.

The next is a young lady about nineteen years old, who had a wide cleft reaching forward to the region of the cuspids, and had quite a notch in her lip, and a very broad, flat nostril as a result of an operation for harelip. I closed the palate, corrected the notch in her lip, and rounded the nostril to about the normal size. Before the operation we could hardly understand what she meant, and you can hear yourselves how well she pronounces some of the most difficult words now.

The next patient is one toward the other extreme of life. This lady was forty years old when the operation was done. The cleft involved the soft palate and one-third or five-eighths inch of the hard palate. Before the operation her speech was absolutely unintelligible. She is a little hard of hearing, which has made it somewhat difficult for her to learn, but still she speaks very plainly. The operation was done two years ago last August.

The next patient presents, I think, quite a satisfactory result. She is about eighteen years old. The cleft in her palate was wide, her speech very imperfect. There was also a notch in the lip. I corrected the deformity of the lip and closed the cleft in her palate about a year ago. I think it now would be difficult to pick her out from others on account of any lack of definiteness in her speech.

I feel satisfied to let the estimate of the value of the physiological results of my operations be judged by the evidence produced here tonight. I wish also to show you the results after a long period has elapsed, and I show you a young lady who was operated upon about eighteen years ago when a child. She has kindly consented to read something to us and you can hear for yourselves how well she can do it. As evidence that there was not great fault, I found when I first saw her that she had changed her residence and had lived in the community where she was eight years, had attended the schools and had considerable reputation as an elocutionist, and no person ever mistrusted that she had ever had any defect in her palate.

DR. M. C. SMITH presented a series of casts showing well-marked classified types of defective dentition and deformity of the jaws, and discussed the association of these different types with the defects in mental or physical development with which they are associated.

DR. C. G. CUMSTON read a paper on

INTESTINAL INVAGINATION IN CHILDREN, WITH REPORT OF A CASE SUCCESSFULLY TREATED BY LAPAROTOMY.[1]

DR. EDWARD J. ILL, Newark, N. J.: Such a paper as has just been read will be of great value

[1] See page 99 of the Journal.

to the community at large. These cases are usually overlooked, and frequently these cases are not recognized soon enough. As an illustration of this I want to relate instances of five cases I have seen, all within a radius of five miles. I happened to be in a neighboring town when I was told there was a child with obstruction of the bowels, and I was asked to see him. I found there was intussusception. I operated and the child got well.

The doctors recognized that sort of case thereafter, and I saw five, out of the nine I have seen, in that neighborhood.

Now, what are the symptoms that would lead one to think of intussusception? They are extremely simple. A child, perfectly well before, is suddenly taken with very acute pain and prostration. The face is of ashy color and it shows symptoms of profound collapse. These symptoms should suggest an intussusception immediately. Let us add also the tumor and a bloody serous or bloody mucous discharge from the bowel, and the diagnosis is complete.

In 1899 I wrote up five cases occurring in children and published them. Very soon after the publication of this little paper I received a letter from a gentleman saying that I had performed malpractice on those children, and that all could be cured by rectal enema. I never saw an enema benefit these children.

The earlier we get at these cases the better. To show you how extreme such a case may be I would like to relate the following: A child, five months old, was taken suddenly sick at five o'clock in the morning. I saw it within ten hours and operated. Eleven hours had elapsed from the time of the beginning of the illness to the time of operation and the caput coli already was in the sigmoid flexure. The child recovered, but was saved by an early operation only. Of the nine cases that came under my observation one died, and that one was operated on the fifth day. I would never advise anybody to operate at so late a time. It gives surgery a black eye.

I think it is better to put the intussusception back from its deepest portion by a milking process. In this way we are much less liable to injure the bowel. In many cases you can not bring the bowel out of the body. In several of my cases all manipulation had to be carried on within the abdomen. The index fingers were used to push the bowel back, and usually succeeded.

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An Alaska Quarantine Station.— On account of the prevalence of smallpox at Nome, Alaska, and the danger of an epidemic under the rather crowded and unsanitary conditions prevailing in the mining camp, the Government proposes to establish a marine hospital and detention camp at some distance from the town. The Secretary of the Treasury has asked the Interior Department to transfer the jurisdiction of Sledge Island, an island near Nome, from the Interior to the Treasury Department, for use as a quarantine station for smallpox patients.— *Medical Record.*

## THE OBSTETRICAL SOCIETY OF BOSTON.

MALCOLM STORER, M.D., SECRETARY.

Meeting of March 18, 1902, the president, Dr. G. J. Engelmann in the chair.

Dr. M. H. Richardson made

REMARKS ON CANCER OF THE UTERUS.[1]

Dr. W. L. Burrage read a paper entitled

THE PRESENT STATUS OF THE OPERATIVE TREATMENT OF CANCER OF THE UTERUS.[2]

Dr. Edward Reynolds read a paper on

OPERATION FOR CANCER OF THE UTERUS.[3]

Dr. Wm. M. Conant, by invitation, read a paper on

CANCER OF THE UTERUS.[4]

It was voted to defer discussion of these papers until the April meeting.

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Meeting of April 15, 1902, the president, Dr. G. J. Engelmann in the chair.

Adjourned discussion on papers on "Cancer of the Uterus," read at the March meeting, is here given as follows:

Dr. Engelmann: I trust that the discussion of this important question will be a full one. A point that has been of especial interest to me is the infectious nature of the disease; as bearing on this, I will refer to the so-called "cancer-houses" reported in New York State. In one town, during a period of several years, over 12% of all deaths were from cancer, and a large proportion of these deaths occurred in a few houses.

Dr. G. H. Washburn: I have a case under my care at present which illustrates very well a point brought out by one of the readers, namely, that good results are sometimes obtained in apparently unpromising cases. On doing hysterectomy upon her, three years ago, I was in great doubt whether I had got beyond the cancerous area, yet for three years she has been absolutely well, till some three weeks ago she began to complain of an increase in leucorrhea, and I found a small ulcerated area in the vaginal scar. It seems to me that even with the chance of an early recurrence three years of comfort is worth while. When this disease is limited to the body of the uterus, and the broad ligaments are free, the chance of a permanent cure is well worth hoping for. Even when it has invaded the vaginal tissues to some extent a complete removal is worth while for the relief of symptoms, even when a permanent cure cannot be expected.

Dr. F. H. Davenport: I would like to bring up the question of choice of operation in early cases. I feel that much is to be said in favor of high amputation. I began operating by that method upon these cases before hysterectomies

[1] See page 89 of the Journal.
[2] See page 91 of the Journal.
[3] See page 95 of the Journal.
[4] See page 97 of the Journal.

were being done, and while I cannot quote any statistics, I am certain that the mortality was less in the cases in which I amputated the cervix, carrying the incision as high into the body of the uterus as seemed wise, and then using the cautery freely. Auto-infection is always an important danger. In the operation of high amputation the disease is removed thoroughly and the base seared and possibly treated with chloride of zinc. I remember four or five cases done in this way in which there was no recurrence. It has another advantage in that should recurrence take place it will be in a place easily reached by secondary operations.

As to early symptoms, many years ago I noted that many patients complained of a profuse vaginal discharge before there was any odor or any hemorrhage. This is especially important in elderly women who have been free from discharge for years. I was interested in hearing Dr. Pryor refer to this when he was here last December.

DR. G. W. KAAN: Some years ago I read of "cancer-houses" existing in England. I did not know that any had been noticed in this country until your president spoke of them. We should, I think, not say to patients with recurrent cancer that nothing more can be done for them, lest in their despair they resort to unprincipled quacks.

DR. J. B. SWIFT: Had this discussion taken place at the close of our last meeting I should have said that I had never seen a case of cancer of the uterus upon which I had operated early enough to get well. Since then I find that of twelve of my cases concerning whom I have been able to get information three are living after a lapse of three years after the operation, much to my surprise. In these three the disease was confined to the cervix and removed by vaginal hysterectomy, after which they went home, as I supposed, to die within a year. I think in no case should an operation of some kind be refused. The cases that I have seen die after operation have seemed to me to die easier than when nothing had been done. As regards auto-infection, in one of my cases the cancer reappeared in the abdominal incision before the patient left the hospital.

DR. F. B. HARRINGTON: May I ask where in this last case was the disease situated, and was there any infection of the peritoneal surfaces?

DR. J. B. SWIFT: It was on the body of the uterus. There was no infection of the peritoneal surfaces visible, although the bases of the broad ligaments were involved. I removed all the tissue that I thought it possible to remove.

Another case of mine shows the importance of early operation, and the difficulty of appreciating correctly how far the disease has extended. A woman came to me at the Boston Dispensary after operation had been refused in New York and at the City and Massachusetts General Hospitals, on the ground that the disease had extended too far. When I examined, all that was to be seen was confined to the cervix, with a little patch in the vaginal wall, together with masses in both broad ligaments, presumably extension of the disease. As she insisted on something being done, no matter how poor the chance of success, I opened her abdomen. The lateral masses proved to be a fibroid on one side and a hydrosalpinx on the other. I removed the uterus, and examination showed the growth confined to the cervix. Both ureters were unfortunately tied and she died of uremic poisoning. If that had been avoided, the chance of permanent cure was good, and had the operation been done earlier it would have been easier and the ureters probably would have escaped.

DR. J. G. BLAKE: If the disease be confined to the body of the uterus, hysterectomy seems the best operation. I have had a long experience in the non-surgical treatment of cancer of the cervix; I mean in the use of the cautery, curettage and escharotics. Such treatment tides the patient along in comparative comfort, with no risk to life. I have seen many unfortunate results of radical operation for cancer of the uterus, and many valuable lives sacrificed or materially shortened. Of course, with such palliative treatment, a constant supervision of the patient is imperative. I cannot see that very much more promise is offered by high amputation than by treatment in the lines I have outlined. As bearing upon the infectious nature of cancer I have seen interesting cases of cancer of the uterus in the wife and of the penis in the husband.

DR. J. C. MUNRO: I cannot reconcile Dr. Davenport's statement as to high amputation with our experience with operations for cancer in other parts of the body. The rule is that the farther from the tumor the cutting is done the better is the chance of success. In the abdominal operation all lymphatics are tied off before any cancerous tissue is cut. I am rather sceptical about auto-infection, and question whether in cases like those reported coincidence does not play the chief part.

DR. F. H. DAVENPORT: The operations I meant to compare were vaginal hysterectomy and high amputation. Abdominal hysterectomy would not be open to the objections I have to the vaginal operation.

DR. G. J. ENGELMANN: Byrn and Reamy have had better results with high amputation than with total extirpation.

DR. E. REYNOLDS: It should be remembered that other men following them have failed to get their results. Good results, however, in many apparently hopeless cases, encourage one to operate.

DR. G. J. ENGELMANN: I would like to call attention to Dr. Swift's remark that patients die more easily when operation is done. An exhaustive investigation of 226 cases by Beckman of St. Petersburg shows several interesting points. Of these cases 95% had given birth to children. The average of five births to each patient leads him to the suggestion that activity of the sexual organs and the injuries of labor may play an important rôle in the causation of cancer. In 70% of his cases

irregular hemorrhage was the earliest symptom; any bleeding after the menopause is most important. Leucorrhea was prominent in only 12%. Apparently, operation in his cases had little permanent effect on duration of life; those not operated lived two years; those undergoing operation lived only three. In over 70% the cause of death was kidney disease and not the cachexia generally supposed to be the cause. One of my most successful cases, by the way, was well ten years after a high amputation.

## AMERICAN SURGICAL ASSOCIATION.

Abstract of Papers and Discussions at the Twenty-third Annual Meeting, held in Albany, N. Y., June 3, 4 and 5, 1902, the President, Dr. De Forest Willard of Philadelphia, in the Chair.

(Continued from No. 3, p. 83.)

Dr. Maurice H. Richardson of Boston read a paper entitled

THE CHOICE BETWEEN THE SUPRAPUBIC AND THE INFRAPUBIC METHODS OF REACHING TUMORS AND OTHER SURGICAL LESIONS OF THE PELVIC ORGANS.

He stated that the subject could best be discussed from four points of view: (1) Pathology; (2) anatomy, (3) feasibility, and (4) experience; and discussed the subject fully under each of these heads.

Dr. Robert Abbe of New York read a paper entitled

ABDOMINAL ROUTE FOR APPROACHING RECTAL TUMORS.

He referred to some of the various methods employed, and gave in more or less detail the technique of a few of them. After giving a number of reasons why he considered the making of a lateral inguinal colostomy the best method of disposing of the upper stump in rectal operations rather than to put it on a severe stretch and attempt to bring it into a perineal or sacral wound, he concluded his paper by stating:

(1) Operative method for cancer in different parts of the rectum must still be elective, as there is no one method that applies to all. The perineal route is still the most available for very limited growths and growths very low down. The Kraske sacral method is available for a moderate number of growths which exhibit slight malignancy as to infiltration and are not more than a short finger-length within the anus. The abdominal method combined with those just mentioned more nearly meets the present attitude of surgery in seeking as wide and thorough extirpation as possible for malignant growths.

(2) The artificial inguinal anus had best always be made at the time of operation and need not be done beforehand.

(3) When the section of the rectum is made well up to the sigmoid, the ends of the severed gut should be inverted by a stout silk purse-string suture, for more perfect cleanliness and handling.

Dr. Homans stated that the possibility of being able to remove fibroid tumors of the uterus without the removal of the organ itself was an argument in favor of myomectomy. He referred to a case of uterine hemorrhage, the cause of which had been attributed by some very prominent surgeons to cancer, while others claimed that this condition was absent, in which the removal of the organ by the vaginal route showed a large fibroid tumor in one corner, which was undoubtedly the cause of the hemorrhage.

Dr. Elliott stated that during the past eight years he had performed seventy-four hysterectomies, twelve by the combined method and sixty-two by the abdominal method, with but two deaths. Regarding vaginal hysterectomy for salpingitis, the liability of leaving pieces of the tube and pockets of pus unopened was commented upon.

Dr. Dudley P. Allen of Boston believed that the great advantage in vaginal operations over the abdominal methods was that they required a shorter time, which is of especial value in many cases, one of the chief essentials to success with either method being the experience of the operator.

Dr. Vander Veer felt that the great advantage in myomectomy was the possibility of saving the uterus, which in turn would have a beneficial effect upon the mental condition of the patient. The splitting of the uterine cavity referred to by Dr. Macdonald was thought objectionable and it was considered that the uterus could be removed in practically all these cases in the Trendelenburg position.

Dr. William J. Mayo stated that in cancer of the ovaries, where the ovarian cysts have ruptured and there is free fluid in the abdomen, the most important thing is to ascertain the condition of the body of the uterus by an incision as low down as possible.

Dr. McGraw stated that he believed the preferable operation in rectal carcinoma was colotomy, as it did away with the likelihood of recurrence and lessened the liability of peritoneal infection.

Dr. Carson stated that he believed the vaginal route to be the preferable one for the removal of the uterus, the supravaginal route being ultimately resorted to if found necessary or desirable.

Dr. Bevan believed the Kraske operation to be far preferable to the high operation advocated by Dr. Abbe for carcinoma of the rectum, not only since the patient is better satisfied with the result, but the danger from immediate or later hemorrhage is much smaller.

Dr. Elliott stated that he believed the gloomy prognosis in many cases of uterine carcinoma was due to the late recognition of the disease.

Dr. M. L. Harris stated that in the cases of uterine carcinoma with a foul discharge he felt that the operation should be begun by the abdominal route, as the likelihood of septic infection

was in this way lessened. Preliminary colostomy was recommended in all cases of rectal carcinoma.

DR. RANSOHOFF recommended the performance of a preliminary colostomy in all cases of rectal carcinoma.

DR. ESTES thought that a preliminary colostomy should be done several weeks in anticipation of the operation in all cases of rectal carcinoma, and especially is this indicated where the diagnosis is doubtful and there may be a possibility of the safe removal of the growth, a case having been observed by the speaker where this occurred.

DR. MCARTHUR thinks that the vaginal artificial anus is preferable to the sacral in the female, and reported a case which was at first operated upon in the latter form, but owing to a return of the growth and the necessity of a resection, after which there was sufficient of rectum remaining to reach only to the vaginal incision, a vaginal anus was made, and the patient thought that the vaginal method was far superior.

DR. ALLIS noted the liability of hemorrhage from a slipping of the knot in the ligature, and spoke of a case where fatal results had occurred.

DR. MACDONALD stated that in bisection of the uterus in complicated hysterectomy he did not think it made any difference whether you divide the cervix laterally or longitudinally.

DR. MCCOSH stated in closing that he felt the vaginal operation for uterine cancer was not only safer, but afforded a better chance for radical cure than the abdominal method.

DR. RICHARDSON stated that, while he believed in certain operations the vaginal route was the preferable one, he was constantly diminishing the number done in this manner, since it was necessary in all cases of hemorrhage to open the abdomen in any event. In regard to cancer of the cervix and rectal carcinoma he felt that there were very few cases in which the operation gave any promise of success.

DR. ABBE stated that radical operation offered the only chance of recovery in cases of rectal carcinoma.

DR. OSCAR H. ALLIS of Philadelphia gave a demonstration of a

METHOD OF INTESTINAL ANASTOMOSIS.

DR. JOSEPH D. BRYANT of New York read a paper entitled

THE TEACHING OF SURGERY WITH SPECIAL REFERENCE TO THE DIDACTIC METHOD,

and gave the following classification which he has used for some years in teaching surgery:

1. The Definition.
2. The Anatomy { Embryological, Histological, General, Regional } Surgical.
3. The Pathology { Gross, Microscopical }
4. The Classification.
5. The Causation.
6. The Symptoms.
7. The Diagnosis.
8. The Complications.
9. The Treatment.
10. The Prognosis.
11. The Sequels.

He dwelt at considerable length on each of these eleven headings, and summed up his paper with the following conclusions:

(1) A thorough didactic foundation is absolutely necessary for the proper attainment of surgical knowledge.

(2) Clinical teaching fits the student for the intelligent use of didactic facts.

(3) Didactic teaching with limited clinical opportunity begets ponderous theorizing with a minimum of fertile practicability.

(4) Clinical teaching with limited didactic opportunity begets much of unreasoning imitation with limited logical deduction.

DR. HERBERT L. BURRELL of Boston read a paper entitled

THE TEACHING OF SURGERY,

considering the subject under eighteen different heads: 1. Didactic lectures. 2. Recitations. 3. Surgical anatomy. 4. Surgical physicology. 5. Surgical pathology. 6. Surgical technique. 7. Physical diagnosis. 8. Demonstration material to (*a*) large classes; (*b*) sections; (*c*) ward visits. 9. (*a*) Conferences; (*b*) reports of cases; (*c*) surgical tutors. 10. Diagnosis clinics. 11. Out patient and bedside work. 12. Case teaching. 13. Operative surgery (*a*) cadaver; (*b*) animals. 14. Original work. 15. Hospitals. 16. Dispensaries. 17. Organization. 18. Association and co-operation of departments.

In the author's opinion, the things which are required and which should be given to pupils in surgery are: (1) The minimum required fundamental knowledge; (2) the maximum opportunity to acquire knowledge by personal contact with cases; (3) atmosphere and enthusiasm — which means environment and men.

He reported having written in January, 1901, a circular letter in English, French and German, which was sent to the different medical schools in the world, asking for information in reference to the methods of teaching in use at these schools, and stated that he received approximately about 80% of replies. The information thus obtained was dealt with under the eighteen headings above mentioned, and he concluded his paper as follows: American surgery stands today sorely in need of men who are equipped and fitted by scientific methods to advance surgery. Students should be taught along scientific lines by instructors who are competently equipped. When this defect in the lack of scientific training is remedied, then American surgery can challenge the world, for today its care of the individual, its asepsis and operative technique are not excelled.

DR. MATAS stated that while the best methods for acquiring knowledge of surgery were by contact with the cases, the opportunity for which depended upon the resources of the institution, yet a certain number of didactic lectures cannot be dispensed with and, if properly illustrated with lantern slides, are very valuable as giving a panoramic view of the subject.

Dr. Elliott, in referring to the recitation portion of medical teaching, expressed the opinion that the instructor should gain the confidence of the student in order to induce him to consult him about such matters as he did not understand, without having a feeling that he was being criticized.

Dr. Richardson recommended that the course in surgical anatomy be made compulsory and believed that the instructor should be an experienced surgeon.

Dr. Allen stated that he believed to be of value the instruction in surgical pathology must be from a man thoroughly equipped in that department, while surgical pathology is best taught by bringing the student in contact with a specific case and letting him work it out for himself in the laboratory.

Dr. DaCosta felt that the best method of teaching bandaging was by having the student apply the bandage on the living subject under the direction of an instructor.

Dr. Moore remarked that the necessity of a thorough physical examination as a prerequisite to physical diagnosis should be urged upon the student.

Dr. Brewer felt that the best method of demonstration of clinical material was by allowing the students, under the supervision of an instructor, to take the history of the case, make the physical examination, and then by exclusion, the diagnosis, and finally the prognosis.

Dr. Weir stated that he believed the amount of clinical instruction should be increased, and the number of the didactic lectures reduced, to about one or two a week.

Dr. Bell commented upon the conference plan of having one of a group a students examine a patient under the direction of an instructor, and allowing the other students to criticize his work, and recommended as a requisite for graduation that each student should have reported a certain number of cases in this manner.

Dr. Munro remarked upon the value of having the students go over the results of the examination of the case and the history of the case and make up their diagnosis, treatment and prognosis and discuss the same under the supervision of the instructor.

Dr. Nancrede referred to the advantage of having the student go through with the technique of the various operations, suturing, etc., upon the dead body and upon animals.

Dr. Ochsner emphasized the value of having a hospital connected with the college, and recommended that the professor in each department have entire charge of that branch of the hospital.

There was an inspection of the Albany Hospital, at which a paper was read by Dr. A. Vander Veer of Albany on

THE ESSENTIALS OF MODERN HOSPITAL CONSTRUCTION,

which was followed by five-minute talks by Drs. Samuel D. Ward, W. G. McDonald, J. M. Mosher, Geo. Blumer, C. H. Richardson, Arthur W. Elting and Herbert D. Pease, on ward work, private room work, laboratory work, keeping of histories, technique of operations, preparation of antitoxins and other lines of laboratory work.

Dr. William J. Mayo read a paper on

COMPLICATIONS FOLLOWING GASTRO-ENTEROSTOMY.

In St. Mary's Hospital during the past ten years 107 gastro-enterostomies have been performed with ten deaths. Mortality, malignant cases, 20%. Benign series, 6%, average 9 plus. Cause of death, exhaustion, three cases; exhaustion in which pernicious vomiting was a feature, two cases; progressive pneumonia, three cases; separation of anastomosed intestine from stomach wall, two cases. To prevent pernicious vomiting the site of the anastomosis should be at the bottom of the stomach pouch, whether anterior or posterior makes little difference. Entero-anastomosis more often necessary with suture than button, but the latter has the disadvantage of sometimes dropping into the stomach. If the pylorus is permanently obstructed the anastomatic orifice does not contract. If the pylorus is not permanently obstructed it probably will contract.

For the anterior operation 14 to 16 inches of jejunum must be left above the anastomosis. For the posterior 10 inches. Five cases reoperated: one for secondary ulceration involving the anastomosis; three for secondary contraction of anastomosis in cases in which the pylorus was not obstructed. One of these cases of posterior operation died because the intestine left above was too short to permit of perfect drainage through a secondary entero-anastomosis. In one case of anterior operation the small bowel prolapsed through the loop, causing chronic obstruction.

Dr. Richardson stated that in his experience pylorectomy had been more successful than gastro-enterostomy, although in all the cases on which he had performed the latter operation, the patient was in a very critical condition at the time of the procedure.

Dr. J. M. T. Finney of Baltimore, read a paper entitled

PYLOROPLASTY, WITH REPORT OF A NEW METHOD,

in which he reported the various operations past and present which had been employed for similar purposes. He described, in detail, his own operation and also gave five special objections to the Heinicke-Mikulicz operation. After referring at some length to the preparation of the patient for pyloroplasty and reporting several cases operated upon with good results, he completed his paper with the following conclusions: (1) All the operations heretofore suggested for the relief of benign stricture of the pylorus, are open to serious individual objections; (2) the operative procedure made use of in the cases reported, combines more good points and less objectionable features than any other method that has been suggested up to the present time.

DR. BEVAN mentioned as complications of about twenty cases in which he had performed the operations of pylorectomy and gastro-enterostomy (1) drowning of the patient during the operation because the stomach was not properly washed out; (2) pneumonia twice; (3) return of the carcinoma on about the fourteenth day in a case of gastro-enterostomy, which had otherwise run a normal course; (4) death from exhaustion twice; and (5) resection on opening the abdominal wound on twelfth day after the tissues were removed. The Kocher pylorectomy was thought to be superior to the method advocated by Dr. Finney.

DR. WILLIAM MOYER recommended the posterior gastro-enterostomy as being more anatomical and more physiological.

DR. HARRIS believes that what little advantage there is by one method over the other is in favor of the posterior gastro-enterostomy, as the stomach dilates more at the expense of the posterior wall than of the anterior.

DR. VANDER VEER expressed the opinion that the best method when the carcinoma was located in the posterior wall of the stomach was to do a posterior gastro-enterostomy and employ the Murphy button.

DR. KAMMERER stated that since the adoption of the posterior operation according to the Italian method he had never had a case that gave him any trouble. The interrupted suture was thought to possess advantages over the continuous suture in abdominal work.

DR. WEIR stated that he had done about thirty or thirty-five gastro-enterostomies, five of which were associated with pylorectomy. The first seven or ten of these cases died, the operation in each of these having been the anterior one. The one case which was operated on by the Kocher method did not have a very successful termination, but since the adoption of the posterior operation he has not had a single case of vicious circle.

DR. MCGRAW favored the posterior gastro-enterostomy and the employment of the elastic suture.

DR. OCHSNER called attention to the fact that one of the most important factors in gastro-enterostomy was drainage.

DR. WILLIAM L. RODMAN remarked that while he preferred the posterior gastro-enterostomy, he felt that there were some cases in which the anterior method was indicated. Regarding pyloroplasty, the speaker believed that this operation would not continue in vogue long, although he thought gastro-enterostomy had come to stay.

DR. ALLIS stated that in his operations he was in the habit of removing the entire apron which is not attached to the transverse colon.

DR. RANSOHOFF stated that he had but once observed the vicious circle and that was when he made a spur in the small intestine.

DR. WEIR stated that in none of his cases during the last fifteen or twenty years had he taken the trouble to turn the stomach around.

DR. MOORE gave a blackboard demonstration of an operation which he contemplates trying on dogs.

DR. BEVAN stated that the best results had been obtained by the use of the continuous suture.

DR. MAYO stated that he considered pylorectomy preferable in malignant cases, and that only in certain cases could gastro-enterostomy be performed. The reason for the better success of the posterior operation than the anterior one was that one has more space to work in.

DR. FINNEY stated that pyloroplasty as recommended in his paper was not a difficult operation, and had many advantages over both gastro-enterostomy and a Kocher's pylorectomy.

DR. A. J. OCHSNER of Chicago, Ill., read a paper entitled

SURGICAL TREATMENT OF TUBERCULAR PERITONITIS,

which was discussed by Drs. Johnson of Richmond, Bevan of Chicago, Burrell of Boston, Rodman of Philadelphia, Mayo of Rochester, Richardson of Boston, Weir of New York, Allis of Philadelphia and Coley of New York and closed by Dr. Ochsner.

*(To be continued.)*

## Recent Literature.

*A Manual of Otology.* By GORHAM BACON, A.M., M.D., Professor of Otology in Cornell University Medical College, New York. With an introductory chapter by CLARENCE J. BLAKE, M.D., Professor of Otology in Harvard Medical School, Boston. New (3d) edition. In one handsome 12mo volume of 437 pages, with 120 engravings and 7 plates in colors and monochrome. Philadelphia and New York: Lea Brothers & Co. 1902.

This excellent work has been enlarged, and numerous plates added to complete the text. Its contents give one a very good idea of the science of otology, and yet the subject is so condensed as not to occupy an undue amount of space. Unquestionably this volume admirably achieves the purpose of the author — to furnish a suitable manual for the profession as a whole.

*First Aid to the Injured and Sick.* By F. J. WOWWICK, B.A., M.B. (Cantab.), etc., etc., and A. C. TURNSTALL, M.D., F.R.C.S., Ed., etc., etc. Philadelphia and London: W. B. Saunders & Co. 1901.

"First aid to the injured" is always a popular theme, and many books have been written about it. The one now under consideration is published because its authors, after lecturing on this subject, found they required a concisely and well illustrated textbook. They have tried to supply this want. It is a task that many have tried before them with varying results. In this book of 232 pages anatomy and physiology occupy 61;

the application of bandages, 40; hemorrhage, sprains, dislocations, fractures, asphyxia, poisons, burns, scalds, electric shock and foreign bodies, 78. The remainder of the volume is devoted to the transportation of the sick (30 pages, more particularly "military" than "civil" methods), the details of how to prepare for the reception of a case of accident or sudden illness, four pages, and an index, 16 pages. The book is abundantly illustrated.

For persons of medical training and experience the book is a brief review of emergency work. For those without such knowledge who wish to use it strictly at time of emergency it contains too much in addition to the actually necessary details of treatment. The final chapter on the preparation for the reception of a case of accident or sudden illness is a subject usually overlooked by writers of this class of work. It contains many valuable suggestions, but might be more fully written to advantage.

*Dynamic Aspects of Nutrition and Heredity.* By Frank Horridge. Pp. xvi-175, 12mo, with one illustration. New York: William Wood & Co. 1902.

Over one-half of this little volume is devoted to a review of the nature of the nervous impulse and the vital processes in general, dwelling especially upon the chemical nature of the vital processes. This serves as an introduction to the writer's main thesis that the cerebellum is a great reinforcing organ, originating the "increase of impulse" which is at the bottom of all strenuous voluntary effort. This argument is based, not upon any original investigations, but upon a review of the anatomical and physiological investigations upon the spinal cord and cerebellum. The book closes with a brief discussion of the nature of heredity, which seems based on very uncertain data.

*The Practitioner's Manual.* A Condensed System of General Medical Diagnosis and Treatment. By Charles Warrenne Allen, M.D., Consulting Genito-Urinary Surgeon to City (Charity) Hospital; Consulting Dermatologist to the Randall's Island Hospital; to the Hackensack Hospital; etc. Second edition, revised and enlarged. Illustrated. New York: William Wood & Co. 1902.

A second edition of this book, comprising 889 pages, has appeared. The volume is intended for practitioners of medicine, and many details usually included in the textbooks for students have, therefore, wisely or unwisely been omitted. In size this volume is slightly larger than its predecessors. New chapters have been added on several subjects, among them Gastroptosis, Meralgia Paræsthetica and Poliomyelitis in the Adult. The diseases considered are arranged alphabetically and a very brief description appended and methods of arriving at diagnosis given, together with a considerable degree of detail in treatment. The book should certainly prove of use in spite of the fact of its extreme condensation.

THE BOSTON

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## SUCCESSFUL BRAIN TUMOR OPERATIONS.

The results hitherto attending operations for tumor of the brain have not been so brilliant as to justify a neglect to notice certain apparently successful cases. There can be no question that, in spite of the frequent hopelessness of these cases, operation is usually justified if the tumor may be localized, both as a relief of suffering and also in the hope of a successful removal of the growth. The technique of the operation has certainly improved within the last ten years. The ability to accurately diagnosticate focal lesions of the brain has likewise been perfected, and the feeling has grown that early operations offer by all means the best chance for success. It has therefore come to be recognized that, given a tumor of the brain, in which the diagnosis may be accurately made, and in which its location permits at least the possibility of its removal, an early and sufficiently radical operation is indicated. If these general principles are followed, there can be but little doubt that the statistics of the future will offer more of encouragement than has been the case in the past.

Two apparently successful cases have recently been reported, one, by Drs. M. Allen Starr and A. J. McCosh of New York, in the "Medical and Surgical Report of the Presbyterian Hospital for 1902," and the other by Dr. Poirier. In Starr's and McCosh's case the tumor occurred in a woman of forty-five, which was diagnosticated by Dr. Starr from various focal symptoms as lying in the right posterior central convolution in its middle third. The symptoms had dated back approximately one year. At the operation, done by Dr. McCosh, after exposing the surface of the brain, a well-limited area was made out contrasting in color with the surrounding normal brain substance. Palpation of this area revealed a slight increased resistance. After a certain amount of

manipulation the tumor was freed from its surroundings and removed apparently entire. It measured one, by one and one-half, by one inch. Externally it was smooth, and it was non-vascular. Microscopic examination of the growth showed it to be a small, round-cell sarcoma. About a year after the operation, except for some slight changes in the reflexes and certain disorders of sensation and motion, the patient regards herself as essentially well. She has had no headache and the optic discs show no trace of neuritis. In commenting on this highly successful case the authors regret that the operation could not have been six months before, when the tumor was smaller and the resultant danger would have been less. The outcome, however, is a sufficient source of congratulation.

A second case, recently reported by Poirier in the *Berliner Klinische Wochenschrift*, and alluded to in a recent number of the *New York Medical Journal*, was said to be larger than one's fist, weighing approximately ten ounces. This tumor appears to have originated from the dura, thence growing deeply into the brain in the region of one of the temporal lobes. It also is said to have been successfully removed with a decided improvement in the general symptoms of the patient.

Unfortunately for the operative treatment of these cases of brain tumor it very frequently happens that the new growth is gliomatous and infiltrating in character. It is hardly conceivable that a tumor of this variety, which, except for its infiltrating character, may be regarded as benign, can be successfully and completely removed at operation. Sarcomata of the brain, on the other hand, starting as they do from the membranes or from the walls of vessels, are very much more apt to be circumscribed and more or less encapsulated. It is therefore in this type of growth that success may be looked for. Unfortunately it is quite impossible to tell from the symptoms or from the development of the disease with what variety of tumor in the brain we are dealing in any given case. Operation must therefore be attempted in the first instance as an exploration in the hope that the tumor, as in the cases above reported, may be enucleated without overmuch destruction of the brain tissue. The many disappointments which have come to surgeons in investigating tumors of the brain, the diagnosis of which has apparently been clear, lies undoubtedly in the fact that they are apt to be gliomata and hence present no very striking appearances at the time of operation. While this type of brain surgery will always remain discouraging, cases like the foregoing amply justify the hope of, at least, an occasional complete success.

## THE NEED OF A WIDER KNOWLEDGE OF LANGUAGE.

WITH the growth of international relations in medical as in other matters, the question of the language or languages to be used at congresses and similar gatherings is becoming one of increasing importance. French has long been recognized as an official language with which persons of other nationalities are expected to be conversant. German has been increasingly accepted by men of science everywhere, and English is certainly making good its claim to, at least, equal recognition. Spanish and Italian have not, as yet, been placed in the same category, and it appears rather doubtful whether the future will bring them into greater prominence. The next international medical congress, however, is to be held in Madrid under Spanish patronage, which will, no doubt, necessitate the use of the native language in many of the general addresses as well as in section meetings. The custom has grown rapidly within the past few years of permitting readers of papers to present their topics in their own languages. This has, no doubt, somewhat diminished the number of intelligent hearers when such papers have been read in foreign countries, but it has, on the whole, conduced to a broadening of the horizon, and to a certain stimulus towards an acquisition of various languages by men working in scientific lines. If the necessity were made greater, undoubtedly the sufficient knowledge of three or four languages could be attained by the average man, with a relatively small expenditure of time and energy. In this connection it is of interest to note that in Italy the Under Secretary of State for Foreign Affairs, fearing that Italian may not be included among the official languages of congresses and similar meetings, has issued instructions to consular and diplomatic agents forbidding the acceptance of invitations to take official part in congresses in which Italian is excluded and the use of other languages, excepting French, is permitted.

The same freedom in the use of language should apply to scientific publications. Certain German journals now permit an occasional article to appear in their columns in languages other than German, with no loss certainly of their scientific prestige. It is a perfectly fair demand to make of a scientific man at the present time, that he be able to read two or more languages not his own, and the growing custom of printing articles in various languages is in every way to be commended and encouraged. To translate a scientific paper into a foreign tongue is a laborious and thankless undertaking and should be quite unnecessary in view of the broadening

knowledge of language which is becoming more and more apparent. The reading of proof will always prove a certain drawback, but this is infinitely less than the labor and possibility of error involved in a translation.

If scientific medical journalism and medical congresses will unite in the good work of accepting various languages on a common basis of equality, there can be no doubt that a far greater co-operation among medical investigators than now exists will be aroused to the decided benefit of medical progress in general.

## THE STUDY OF ANIMAL DISEASES.

It is stated that a systematic attempt is to be made in Philadelphia to study the diseases of animals by physicians competent to undertake such work. The opportunity for this investigation is provided by the large zoölogical garden which the city has for many years most creditably maintained. It is a well-known fact that the mortality among animals kept in confinement, in more or less unnatural surroundings, is always large. In fact, one of the chief aims of the management of such zoölogical collections is to ward off from their charges as long as possible the inroads of disease. The most reasonable way to prolong the lives of such animals is unquestionably, as it would be among human beings, to study with all the resources at command their diseases as observed during life and especially as manifested after death. In this way much valuable information may be gained which should indirectly be of great service to man in the general warfare against disease.

The possible dangers to human beings and especially to children in the neighborhood of a cage of tuberculous monkeys have recently been suggested. When one considers how prone the monkey race in captivity is to tuberculosis, and how generally faulty their habits are, one is forced to acknowledge the justice of such a fear. Other more obscure diseases among animals also demand further study, and we certainly must commend the plan which has been suggested in Philadelphia. Our impression is that more or less systematic study of a similar sort has for some time been in progress at the new, enlarged zoölogical garden in New York, with results of much interest and importance. It is in general an opportunity which should not be missed.

## MEDICAL NOTES.

Herbert M. King, M.D., Appointed at Loomis Sanitarium.— Dr. Herbert M. King of Grand Rapids, Mich., has been appointed physician in charge of the Loomis Sanitarium at Liberty, N. Y. Dr. King's name is well known throughout the West for his writings and researches on pulmonary tuberculosis. He will bring to his appointment the skill and experience of an expert.

Infant Mortality in Chicago.— Very few physicians have responded to the commissioner's appeal in Chicago for midsummer work in the so-called "tenement-house" districts. The need for such work threatens to be more urgent this year than for many years previous on account of unusual weather conditions. A hundred deaths from the acute intestinal diseases alone — seventy-three of which were among those under one year of age — were reported last week, as compared with only fifty-nine during the previous week, and the total deaths under five years of age form nearly 38% of the 519 from all causes.

### BOSTON AND NEW ENGLAND.

Acute Infectious Diseases in Boston.— For the week ending at noon, July 23, 1902, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: Diphtheria 18, scarlatina 16, measles 21, typhoid fever 9, smallpox 6.

Smallpox in Cambridge, Mass.— On July 21, two new cases of smallpox were reported from Cambridge, Mass. The number of cases has rapidly diminished since the recent somewhat alarming outbreak of the disease several weeks ago.

Office of City Bacteriologist of Somerville, Mass., Abolished.— The Somerville Board of Health, it is reported, has voted to abolish the office of city bacteriologist, established about a year ago. The reason given is that the change is for the best interests of the city, inasmuch as cultures may be sent to the State Board of Health, as before the establishment of the office, at less expense and with equally satisfactory results.

Resignation of Dr. F. W. Draper from the Massachusetts State Board of Health. — Dr. F. W. Draper has resigned from the State Board of Health, after having served with the greatest fidelity for sixteen years. The demands made upon his time by his services on this board, together with the exacting duties connected with the office of Medical Examiner for Suffolk County, which he has long held, have led to his resignation.

### NEW YORK.

The Warfare Against Consumption.— In an address delivered July 14 on "The Warfare Against Consumption," before the Summer School of Phil-

anthropic Work, conducted by the Charity Organization Society, Dr. H. M. Biggs, medical officer of the Health Department, made the statement that thousands, tens of thousands of people die because their physicians have not the moral courage to say to them: "This is tuberculosis, and now is the time to take precautions." Where a cough continued for more than six or eight weeks, he said, in a vast majority of cases a tubercular focus was back of it. The tendency among many physicians and among the laity was to regard it as something else. Yet if the diagnosis was made at the beginning, at least 80% of the cases were curable if placed in a pure atmosphere. In the case of autopsies in New York hospitals which had come under his knowledge (a very extended one), fully 60% had had tuberculosis some time in their lives, and of these a little more than half had died of the disease. While, however, a third of those who died in our hospitals died of consumption, in some of the older cities of Europe the proportion was much greater. Already much had been accomplished in combating the disease, and the death-rate from it was now little more than half of what it was twenty years ago. He estimated that if the old rate had continued, 17,000 persons would die annually from tuberculosis, instead of 10,000, as at present.

MORTALITY AMONG CHILDREN.— In his first lecture before the Health Department's summer corps of physicians, on the care and feeding of infants, Dr. Roland Freeman said that while the mortality in New York in children under five years of age was still considerably higher than it ought to be, very gratifying results in reducing the death-rate had been accomplished during the past twenty years. Thus, in 1881, the mortality was 122 to 1,000 of the total deaths, while in 1901 the proportion was 62 to 1,000.

PENALTY FOR THE USE OF SOFT COAL.— During the past week the Board of Health, in the Court of Special Sessions, Borough of Queens, succeeded in getting a fine of $500 (the maximum penalty) imposed on a notable offender in the use of soft coal, a sugar refining company against which many complaints had been received. The decision is looked upon by the department as an encouraging precedent in the enforcement of the smoke ordinance in Manhattan and Brooklyn.

## Miscellany.

### THE LATE DR. WYATT JOHNSTON, OF MONTREAL.

THE following appreciation of the late Dr. Wyatt Johnston from a member of the medical faculty of McGill University has recently appeared in the *New York Medical Journal*: "I doubt whether we at McGill and Montreal appreciated him as we ought. Perhaps it was not altogether our fault; a genius with a head perpetually crowded with ideas, with a genius's impatience to see those ideas put into operation without a moment's delay, with his impatience also at the mere process of explaining those ideas and the train of thought that has led up to them, is not always a comfortable colleague. I am happy to think, however, that not only were we getting accustomed to him, but were yearly appreciating the good it did us to have in our midst so far-seeing and progressive a man. If there is one characteristic that I would single out, it was his combination of inventiveness with intuitive recognition of what was the simplest and most practical method of reaching a given end. His modification of the Widal test is but one of many similar sound and simple devices he elaborated; his method of employing an ordinary hard-boiled egg in its cup for the differential diagnosis of the diphtheria bacillus another. But it is the man himself we shall miss, with his delightful inconsequent humor, full as it was of rare surprises. A collection of Johnstoniana would afford some of the brightest and most amusing sayings and doings. It is pathetic to think that the full professorship at McGill, for which he had worked and which he had looked forward to for so many years, came to him but a few weeks before the end."

### THE BIBLIOGRAPHY OF APPENDICITIS.

AT a time when the calamitous malady of the King has drawn attention to that little appendage which Talamon has so fitly described as *un organe inutile et inusible*, it is interesting to note that it is chiefly through the researches of English and American doctors that the various morbid conditions connected with the vermiform appendix have been brought to light, and measures for effectual treatment rendered possible. Dr. R. H. Fitz in 1886 furnished the first of the modern series of monographs on the subject, and introduced the term "appendicitis." Sir Frederick Treves, as far back as 1888, published an important communication on relapsing typhlitis treated by operation; and, as all the world knows, his subsequent work has been one of the chief means of elucidating the perplexities connected with the vagaries of the long neglected cecal appendix. The first book to be published on this subject was that written by Dr. T. N. Kelynack on "The Pathology of the Vermiform Appendix," and issued in 1893. It gives a full bibliography of all affections connected with this intestinal appendage up to 1893. Dr. Hawkins' work on "Diseases of the Vermiform Appendix" followed in 1895. In 1900, Mr. A. H. Tubby issued his concise little essay on "Appendicitis" in the "Medical Monograph Series." In the following

year Mr. W. J. Walsham, of St. Bartholomew's Hospital, published some suggestive papers in *The Medical Press and Circular* on "The Treatment of Appendicitis," which were reprinted in book form, and Mr. C. B. Lockwood issued some recent studies on "Appendicitis: Its Pathology and Surgery." Among recent American works that of Dr. John B. Deaver might be referred to, as well as a "Review of the History and Literature of Appendicitis," by Dr. George M. Edebohls, which appeared in the *New York Medical Record* for Nov. 25, 1899. Of course this must not be taken as a complete bibliography of the subject, but it is sufficient to show that it has attracted considerable attention of late.—*Medical Press and Circular.*

## A MEDICAL RESEARCH INSTITUTE IN THE FAR EAST.

The following, quoted from *The Lancet*, is another instance of the spirit widely manifested to seriously investigate the diseases of tropical climates:

"We have received from the office of the Resident-General at Selangor an intimation to the effect that the Government of the Federated Malay States has established in Kuala Lumpur, the capital of the Federated Malay States, a research institute which is open to all workers irrespective of nationality. The medical department is fully equipped for special and general pathological work, for the scientific study of clinical medicine, and for experimental physiology and bacteriology. It includes a modern mortuary with a refrigerator chamber, a department for both organic and inorganic chemistry, a well-equipped photographic department, facilities for biological research, and a good working library. It is stated that to the members of scientific commissions who visit the Malay Peninsula and neighboring islands the institute affords an excellent opportunity for working up and preparing collected material. Students of tropical medicine will find there an ample field for work. Beri-beri is prevalent and malaria exists in at least four distinct types. The institute is at present under the direction of Mr. Hamilton Wright, M. D. McGill, to whom any communications in reference to the institute may be addressed."

## EXCAVATIONS IN THE ISLAND OF COS.

Dr. Rudolf Herzog, *privat docent* of Archeology in the University of Tübingen, and Professor Vosseler, Lecturer in the Technical High School of Stuttgart, intend to proceed to the island of Cos in July with the object of making excavations on a large scale. In 1898 and 1900 Dr. Herzog made a large collection of inscriptions there, and fixed on a number of sites for excavation. Funds have now been provided by the Imperial German Archeological Institute, the Order of the Knights of St. John, who held sway over the island for centuries in the Middle Ages, and the Royal Wurtemberg Government for an expedition of archeological and historical research throughout the island. One of the main objects of the excavations is to discover and lay bare the most famous shrine in the island, the Asclepeion. It is hoped that the labors of Dr. Herzog and his colleagues may result in the discovery of remains of the Cos medical school and of information relative to Hippocrates, who was born in that island and learned and taught his profession there. One thinks of him as a man of the type of Chaucer's physicians, of whom he says, "And gladly would he learn and gladly teach."—*British Medical Journal.*

## RECORD OF MORTALITY

For the Week ending Saturday, July 12, 1902.

| Cities. | Population Estimated, 1902. | Reported deaths in each. | Deaths under five years. | Percentage of deaths from | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | Infectious diseases. | Acute lung diseases. | Diphtheria and croup. | Whooping cough. | Diarrheal diseases. |
| New York | 3,665,352 | 1,569 | 717 | 41.48 | 5.60 | 2.29 | 1.40 | 23.51 |
| Chicago | 1,852,828 | 506 | 139 | 25.09 | 4.94 | 1.78 | .59 | 11.65 |
| Philadelphia | 1,349,624 | — | — | — | — | — | — | — |
| St. Louis | 603,717 | — | — | — | — | — | — | — |
| Baltimore | 525,330 | 283 | 133 | 45.93 | 4.59 | — | 1.41 | 31.09 |
| Cleveland | 411,826 | — | — | — | — | — | — | — |
| Buffalo | 375,742 | — | — | — | — | — | — | — |
| Pittsburg | 341,401 | 155 | — | 38.05 | 8.38 | .64 | 3.22 | 21.29 |
| Cincinnati | 332,032 | — | — | — | — | — | — | — |
| Milwaukee | 304,975 | — | — | — | — | — | — | — |
| Washington | 289,537 | — | — | — | — | — | — | — |
| Providence | 185,870 | 64 | 21 | 32.80 | 1.56 | 1.56 | — | 18.74 |
| Boston | 588,736 | 190 | 63 | 23.26 | 10.00 | .52 | 2.10 | 7.36 |
| Worcester | 127,337 | 37 | 15 | 27.02 | 2.70 | 2.70 | — | 18.90 |
| Fall River | 111,872 | 56 | 42 | 53.55 | — | — | — | 46.40 |
| Lowell | 99,574 | 49 | 22 | 26.52 | 4.08 | 2.04 | — | 14.28 |
| Cambridge | 96,334 | 30 | 6 | 53.33 | — | 3.33 | — | 10.00 |
| Lynn | 71,144 | 25 | 9 | 20.00 | 12.00 | — | — | 8.00 |
| Lawrence | 67,275 | 15 | 11 | 33.33 | 6.67 | — | — | 33.33 |
| Springfield | 66,854 | 17 | 4 | 29.40 | 5.88 | — | — | 11.76 |
| Somerville | 65,882 | 19 | 3 | 26.31 | 10.52 | — | — | 10.52 |
| New Bedford | 65,574 | 28 | 17 | 28.56 | 7.14 | — | 3.57 | 25.00 |
| Holyoke | 48,065 | 17 | 8 | — | — | — | — | — |
| Brockton | 43,208 | 8 | 1 | 37.50 | — | — | — | — |
| Haverhill | 40,392 | 12 | 4 | 8.33 | — | — | — | — |
| Salem | 36,567 | 15 | 5 | 26.66 | 20.00 | 6.67 | — | — |
| Newton | 36,336 | 7 | 2 | 14.30 | 28.60 | — | — | — |
| Malden | 35,390 | 13 | 2 | 23.10 | — | 15.40 | — | — |
| Chelsea | 35,264 | 9 | 2 | 11.11 | 11.11 | — | — | — |
| Fitchburg | 33,848 | 4 | 1 | — | 25.00 | — | — | — |
| Taunton | 32,759 | 7 | — | 57.20 | — | — | 14.30 | 14.30 |
| Everett | 27,114 | 6 | 1 | 33.33 | — | — | 16.67 | — |
| North Adams | 26,583 | 9 | 1 | 11.11 | — | — | — | — |
| Gloucester | 26,121 | 6 | 1 | — | — | — | — | — |
| Quincy | 25,307 | 8 | 4 | 12.50 | — | — | — | 12.50 |
| Waltham | 24,612 | 11 | 1 | 9.09 | — | — | — | — |
| Pittsfield | 22,311 | 7 | — | — | 14.30 | — | — | — |
| Brookline | 21,679 | — | — | — | — | — | — | — |
| Chicopee | 20,390 | 6 | 3 | 33.33 | — | — | — | 33.33 |
| Medford | 20,014 | 7 | 3 | 14.30 | — | — | — | — |
| Newburyport | 14,478 | 5 | 1 | — | — | — | — | — |
| Melrose | 13,384 | 2 | 1 | — | — | — | — | — |
| Westfield | 13,038 | 5 | 1 | — | — | — | — | — |
| Attleboro | 12,846 | — | — | — | — | — | — | — |
| Adams | 12,813 | — | — | — | — | — | — | — |
| Milford | 12,516 | — | — | — | — | — | — | — |
| Framingham | 12,109 | — | — | — | — | — | — | — |
| Peabody | 11,957 | — | — | — | — | — | — | — |
| Revere | 11,894 | 5 | 1 | 20.00 | — | — | — | — |
| Gardner | 11,544 | 2 | — | — | — | — | — | — |
| Weymouth | 11,337 | 3 | 1 | 33.33 | — | — | — | — |
| Southbridge | 10,838 | 3 | — | 33.33 | — | — | — | — |
| Watertown | 10,660 | — | — | — | — | — | — | — |
| Plymouth | 10,336 | — | — | — | — | — | — | — |

Deaths reported 3,814; under five years of age, 1,501; principal infectious diseases (smallpox, measles, scarlet fever, cerebrospinal meningitis, diphtheria and croup, diarrheal diseases, whooping cough, erysipelas, fevers and consumption) 1,165, acute lung diseases 212, consumption 322, scarlet fever 37, whooping cough 45, cerebrospinal meningitis 18, smallpox 17, measles 32, diarrheal diseases 723.

From whooping cough, New York 22, Chicago 3, Philadelphia 4, Baltimore 4, Pittsburg 5, Boston 4, New Bedford, Taunton and Everett 1 each. From measles New York 8, Chicago 4, Philadelphia 5, Baltimore 5, Pittsburg 5, Providence 1, Worcester 1, Salem 2, Clinton 1. From erysipelas, New York 7, Philadelphia 2, Baltimore 2, Boston 2, Lowell 1. From smallpox New York 9, Philadelphia 3, Pittsburg 1, Boston 1, Cambridge 2, Everett 1.

In the seventy-six great towns of England and Wales, with an estimated population of 14,862,909, for the week ending June 28, the death-rate was 15.1. Deaths reported 4,293; acute diseases of the respiratory organs (London) 194, whooping cough 117, diphtheria 54, measles 127, smallpox 26, scarlet fever 59.

The death-rate ranged from 6.5 in Wallasey to 30.5 in Wigan; London 14.2, West Ham 11.7, Croydon 9.5, Brighton 13.8, Portsmouth 14.1, Southampton 15.0, Bristol 13.4, Birmingham 15.9, Leicester 13.7, Nottingham 15.9, Birkenhead 13.9, Liverpool 21.9, Manchester 18.8, Salford 17.2, Bradford 16.7, Leeds 15.3, Sheffield 14.3, Hull 15.9, Newcastle-on-Tyne 14.3, Cardiff 15.1.

## METEOROLOGICAL RECORD

For the week ending July 12, in Boston, according to observations furnished by Sergeant J. W. Smith of the United States Signal Corps:

| Date | Barometer. | Thermometer. | | | Relative humidity. | | | Direction of wind. | | Velocity of wind. | | We'th'r * | | Rainfall in inches. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Daily mean. | Daily mean. | Maximum. | Minimum. | 8.00 A.M. | 8.00 P.M. | Daily mean. | 8.00 A.M. | 8.00 P.M. | 8.00 A.M. | 8.00 P.M. | 8.00 A.M. | 8.00 P.M. | |
| S....6 | 30.14 | 62 | 68 | 57 | 84 | 91 | 88 | S | E | 4 | 5 | O. | F. | T |
| M...7 | 30.26 | 64 | 77 | 52 | 94 | 65 | 80 | S W | S | 4 | 10 | O. | C. | |
| T...8 | 30.03 | 76 | 86 | 66 | 83 | 81 | 82 | W | S W | 12 | 13 | R. | C. | .10 |
| W..9 | 29.90 | 82 | 91 | 72 | 68 | 49 | 58 | N W | S W | 13 | 5 | C. | F. | |
| T..10 | 29.84 | 72 | 79 | 64 | 80 | 56 | 68 | N W | N W | 9 | 9 | R. | C. | .22 |
| F..11 | 30.07 | 68 | 78 | 58 | 53 | 39 | 46 | W | N W | 17 | 4 | C. | C. | |
| S...12 | 30.02 | 71 | 82 | 60 | 57 | 56 | 56 | W | S W | 10 | 12 | C. | C. | |
| ☞ | 30.04 | | 80 | 61 | | | 68 | | | | | | | .32 |

* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow. † Indicates trace of rainfall.
☞ Mean for week.

## CHANGES IN THE MEDICAL CORPS OF THE NAVY FOR THE WEEK ENDING JULY 19, 1902.

J. F. URIE, surgeon. Detached from the Naval Dispensary, Washington, D. C., and ordered to the Bureau of Medicine and Surgery, July 17, for duty as assistant to the chief of that bureau.

J. D. GATEWOOD, surgeon. Detached from duty as assistant to the chief of the Bureau of Medicine and Surgery, Navy Department, and ordered to the "Lancaster."

F. C. COOK, passed assistant surgeon. Detached from the Naval Hospital, Washington, D. C., July 19, and ordered to the "Supply."

E. THOMPSON, passed assistant surgeon. Detached from the Naval Laboratory, New York, and ordered to the "Montgomery."

F. M. MUNSON, assistant surgeon. Detached from the Naval Hospital, Norfolk, Va., and to duty with torpedo flotilla.

R. H. CREEL, doctor. Appointed assistant surgeon, July 2, 1902.

H. C. CURL, passed assistant surgeon. Detached from Naval Hospital, Mare Island, Cal., and ordered to Aspen, Col., for duty with recruiting party.

W. L. BELL, assistant surgeon. Detached from duty with recruiting party at Aspen, Col., and ordered to the Mare Island Hospital.

R. E. HOYT, assistant surgeon. Detached from the "Wabash" and ordered to the Naval Hospital, Newport, R. I.

## SOCIETY NOTICE.

THE AMERICAN ELECTRO-THERAPEUTIC ASSOCIATION.—This association will hold their annual meeting at the Hotel Kaaterskill, Catskill Mountains, New York, on the 2d, 3d and 4th of September, 1902.

## RECENT DEATHS.

JOHN HENRY RICHARDSON, M.D., M.M.S.S., of Medfield, died July 22, 1902, aged seventy-four years.

DR. CHARLES A. VON URFF of the East New York Section of Brooklyn, N. Y., died on July 16, in his thirty-sixth year. He was born in Hersen, Germany, and was a graduate of the Long Island College Hospital, Brooklyn.

## BOOKS AND PAMPHLETS RECEIVED.

Appendicitis. By B. Merrill Ricketts, Ph.B., M.D., Cincinnati. Reprint. 1902.

Treatment of Neurasthenia. By Wharton Sinkler, M.D., Philadelphia. Reprint. 1902.

Spasmodic Bronchostenosis. By Albert Abrams, M.D., San Francisco, Cal. Reprint. 1901.

Percussion of the Lower Border of the Liver. By Albert Abrams, A.M., M.D., of San Francisco. Reprint. 1902.

The Teaching of Clinical Surgery at Harvard University. By J. G. Mumford, M.D. Illustrated. Reprint. 1902.

Ligation of Arteries — Cocaine Anesthesia. By B. Merrill Ricketts, Ph.B., M.D., of Cincinnati, Ohio. Reprint. 1902.

Nutrition in Pulmonary Tuberculosis. By A. W. Perry, M.D., and Albert Abrams, M.D., San Francisco. Reprint. 1902.

Clinical Lectures on Neurasthenia. By Thomas D. Savill, M.D. Second edition. New York: Wm. Wood & Co. 1902.

Rœntgen Rays in Pulmonary Disease. By Albert Abrams, A.M., M.D., San Francisco, Cal. Illustrated. Reprint. 1902.

The Vermiform Appendix as a Cause of Intestinal Obstruction. By J. E. Summers, Jr., M.D., of Omaha, Neb. Reprint. 1902.

The Pleural Friction-Sound; Maneuvers for its Elicitation. By Albert Abrams, A.M., M.D., of San Francisco. Illustrated. Reprint. 1900.

Personal Experience with Contused, Gunshot and Stab Wounds of the Abdomen. By J. E. Summers, Jr., M.D., Omaha, Neb. Reprint. 1902.

The Treatment of the Heart in Typhoid Fever and Other Infectious Diseases. By Albert Abrams, A.M., M.D., of San Francisco. Reprint. 1901.

The Ultimate Results of Nephrorrhaphy. By Charles P. Noble, M.D., Surgeon-in-Chief, Kensington Hospital for Women, Philadelphia. Reprint. 1902.

Ueber Resorption von Kohlehydraten von der Schleimhaut des Rectums. von Dr. Felix Reach. Leipzig: Druck von J. B. Hirschfeld. Illustrated. 1902.

Respiratory Gymnastics: Pulmonary Atelectasis: Pulmonary Anemia. By Albert Abrams, A.M., M.D., of San Francisco, Cal. Illustrated. Reprint. 1902.

The Physician and his Patient or The Business and Social Relations which Should Exist Between Them. By A. E. Lawrence, M.D. Cincinnati: Press of Jennings & Pye. 1901.

Myasthenia Gravis (Asthenic Bulbar Paralysis). By Wharton Sinkler, M.D., of Philadelphia, Physician to the Orthopedic Hospital and Infirmary for Nervous Diseases. Reprint. 1902.

Puerperal Fevers — From a Surgeon's Standpoint. By Emory Lanphear, M.D., PhD., LL.D., St. Louis, Mo., Chief Surgeon of the Woman's Hospital of the State of Missouri. Reprint. 1902.

The Treatment of Suppuration in the Uterine Appendages. By Charles P. Noble, M.D., of Philadelphia, Surgeon-in-Chief Kensington Hospital for Women, Philadelphia. Reprint. 1902.

Medico-Chirurgical Transactions, published by the Royal Medical and Chirurgical Society of London. Vol. LXXXIV. (Second Series, volume LXVI). London: Longmans, Green & Co. 1901.

The Half-Hitch Suture: A New Suture for Use in Anterior Colporrhaphy. By Charles P. Noble, M.D., Surgeon-in-Chief, Kensington Hospital for Women, Philadelphia. Illustrated. Reprint. 1902.

Remarks on Cases of Lymphangiectasis. By Walter Whitehead, F.R.C.S. (Edin.), F.R.S. (Edin.), Consulting Surgeon to the Manchester Royal Infirmary, President-Elect of the British Medical Association, Late Professor of, and Examiner in, Clinical Surgery, Victoria University. Illustrated. Reprint. 1902.

# Original Articles.

## HEAD INJURIES.

### NON-OPERATIVE HEAD INJURIES; DIAGNOSIS AND TREATMENT.[1]

BY T. J. ROBINSON, M.D., TAUNTON, MASS.

First, just what is meant by non-operative? The term as used here simply means injuries in which no operation on the skull or its contents is advisable.

These cases include injuries to the scalp; certain injuries to the skull; certain injuries to the brain; very often a combination of all three.

Classified they come under the following heads: Injuries to the scalp; certain forms of vertex fractures; fractures of the base; cerebral concussion and contusion; certain cases of compression; certain cases of laceration.

#### INJURIES TO THE SCALP.

The only question of diagnosis in contusion of the scalp is in reference to fractures. Effusion of blood beneath the aponeurosis may often be extensive, and sometimes the margin of the effusion may have such a raised hard feel that it is difficult to rule out a depressed fracture. Here, when the diagnosis is doubtful, it is best to make an open incision.

These injuries are treated simply by cold applications and a suitable compression bandage. If there is a large hematoma which absorbs very slowly time will be saved by making an incision and turning out the clot.

The diagnosis of scalp wounds is of course obvious. Here in addition to the general canons of wound treatment there are certain special points to be observed, namely, careful hemostasis; the strictest antisepsis; removal of all bruised tissues or those whose vitality is at all questionable, and finally the use of drainage if there is any chance for retention of fluids.

#### NON-OPERATIVE FRACTURES.

Of vertex fractures simple linear fractures only can be considered in this class; all comminuted, depressed or compound fractures call for operation.

The diagnosis of simple linear fracture is not always easy, especially where there is no wound of the soft parts. Often the point of injury is covered by a thick hematoma through which very little can be felt. Here it is often well to incise the parts and feel the exact condition; this should always be done if there is reason to suspect a depression.

Where there is an open wound the parts can be inspected and the diagnosis is simple. With the eye and finger search carefully for fissures or depressions; do not mistake sutures or Wormian bones for fractures. The important thing is to allow no depressed fracture to pass for a linear fracture, as the whole treatment of the case depends on this point.

The treatment of these cases is simple and expectant: Due attention to any injuries of the soft parts; rest, cold applications to the head, laxatives and diuretics if necessary, and care in the general nursing. If subsequent to the injury signs of compression develop they are probably due to meningeal hemorrhage and call for immediate operation.

#### FRACTURES OF THE BASE.

The vast majority of fractures of the base of the skull come in the category of non-operative cases, this chiefly from anatomical reasons. The base of the skull except in certain special places is not accessible to operation. A class of cases to be excepted from this rule, however, are those of fracture of the anterior fossa; these cases, concerning chiefly the orbital plate, are treated on the same lines as vertex fractures and will not be considered here.

The diagnosis of basal fractures rests upon three cardinal signs:

(1) The appearance of ecchymoses beneath the skin or mucous membranes due to spread of blood from the seat of fracture.

(2) The escape of blood, serum or brain substance from the cavities of the skull.

(3) Disturbance of function along particular cranial nerves.

Regarding ecchymoses, these may be early or late, beneath the skin, the conjunctival or the covering of the pharynx. The location corresponds to the region of fracture; ecchymosis of the eye points to the anterior fossa, of the mastoid to the middle or posterior fossa, of the cervical region to the posterior fossa. This last appears only after a few days.

As regards the escape of blood from the skull bleeding from the ear is the most common; here be sure that the blood comes from the inner ear and not from some wound of the meatus or tympanus. Profuse hemorrhage comes only from fracture.

Escape of serum usually occurs after hemorrhage, though it may begin at once. A free and continuous discharge of serum from the ear beginning soon after injury is pathognomonic of basal fracture extending through the petrous bone into the subarachnoid spaces; sometimes when the tympanum is not ruptured the fluid, instead of escaping by the ear, runs down the Eustachian tube into the pharynx.

The escape of brain substance is rare and indicative of extensive and fatal injury.

In addition to these special symptoms there will be in almost all cases brain symptoms of contusion or compression in varying degree, all of which are to be considered in determining the diagnosis.

The treatment is expectant and symptomatic. As the cases are generally the result of extreme

[1] Read before The Massachusetts Medical Society, June 10 and 11, 1902.

violence and are complicated with serious brain lesions, treatment is often of no avail and all injured parts should be cleaned as thoroughly as possible; the ear if injured should be wiped out and kept plugged with sterile cotton; these means to prevent infection of the external parts and its subsequent spread into the brain: complete rest; cold to the head; extreme care in feeding and regarding bed sores; attention to bowels and bladder. If later in the case symptoms of compression from hemorrhage or pus appear, operation may be required provided it is likely that the cause of the compression can be located and removed.

### CEREBRAL CONCUSSION AND CONTUSION.

In considering the diagnosis of these conditions, the history of the case is important with reference to the question of injury. If, after an injury to the head, we have quickly loss of consciousness, partial or complete, pallor, disturbances of vision and hearing, loss of muscular power, weak pulse and respiration, perhaps vomiting, we have a typical picture of what is called concussion, a condition which is perhaps best regarded as one of brain shock. The mild cases of concussion differ from the severe simply in degree, the effects of the former being quickly over, those of the latter more lasting.

If the condition of cerebral shock just described is persistent, the coma profound and lasting, the pupils dilated and insensible to light, or, if, with reaction of the pulse and respiration, evidences of muscular paralysis or spasm appear, the case is not one of concussion but of contusion. Cases of concussion and contusion shade into each other and the only means of differentiation is the severity and persistence of the symptoms.

In cases without history the chief difficulty in diagnosis is in differentiating between head injuries and cases of coma due to other causes, namely, opium, alcohol, apoplexy, uremia and diabetes.

In opium poisoning the contracted pupils and very slow respiration will usually mark the case. More difficult is the separation from alcoholism, because head injuries occur so often when persons have been drinking. Absence of alcoholic smell is of positive value, its presence not. In alcoholism the coma is not quite so deep, and temperature is usually subnormal, whereas in severe central cases the coma is absolute, the temperature elevated.

In apoplexy there is as a rule evidence of paralysis either of face or extremities, also a normal or subnormal temperature.

In uremia there is usually edema of some part of the body and the urine shows characteristic changes.

In diabetic coma the urine will tell the tale. Therefore, examine the urine carefully in all these cases when it is possible. Consider all the symptoms carefully, and if in doubt wait; time will clear the matter up. Especially, beware of mistaking a cerebral lesion for alcoholism.

### TREATMENT OF CONCUSSION AND CONTUSION.

For concussion the treatment is simply that of shock. Rest in bed with the head low; absolute quiet; heat to the body and extremities; stimulants, best strychnin subcutaneously; attention to scalp wounds, if necessary.

For contusion the foregoing; also cold applications to the head. Particular attention should be paid to the excretions for the prevention of auto-intoxication. In cases where swallowing is difficult great care should be used in feeding, as then cases are very prone to pulmonary complications; also, the greatest pains should be taken to prevent bed sores. After the acute symptoms have subsided, if persistent mental and motor changes remain, iodide of potash is said to be of service.

### CEREBRAL COMPRESSION.

In many cases of cerebral compression it is very difficult to draw the line between the operative and the non-operative cases. The general rule, "Operate if it is probable that you can find and remove the compressing cause," is simple in theory but complicated in practice.

Traumatic compression may be produced in several ways: (1) By extravasation of blood; (2) by depressed fractures; (3) by edema from circulatory changes. The symptoms of general compression are the same whatever the cause. These are mental disturbances; headache; muscular disturbances; then stupor, deepening into profound coma, slow pulse and respiration, pupils dilated and sometimes unequal; elevation of temperature; choked disc; sometimes convulsions. The symptoms of local pressure are various paralyses, hemiplegia, monoplegia or paralyses of different muscle groups, according to the location of the compressing cause.

### CASES OF COMPRESSION FROM HEMORRHAGE.

The majority of these cases are due to rupture of the middle meningeal artery or its branches; these are operative and do not concern us here.

On the other hand, most cases of cortical or subdural hemorrhage are non-operative unless the clot is very large where the indications are the same as in meningeal hemorrhage. These cortical cases commonly show a mild grade of pressure symptoms; some mental uncertainty, sleepiness, and slowing of the pulse; often headache and loss of memory.

Compression from depressed fracture is operative. Pressure from edema of the brain is almost always non-operative. Here the diagnosis is generally conjectural and the symptoms those of general compression without localizing signs.

Aside from operation, treatment of these cases is general and on the lines already laid down.

In cerebral edema venesection may be of benefit by relieving the venous circulation; also cold to the head to contract the arteries; free purgation and diuresis to promote absorption and excretion.

CEREBRAL LACERATIONS.

Lacerations of the brain substance are usually the result of extreme violence and generally complicated by other factors, such as depressed fractures or hemorrhage. The symptoms are not characteristic, being practically those of contusion, or if the laceration is accompanied by hemorrhage we may have the symptoms of compression. It is often impossible at the time of injury to differentiate between cases of laceration and contusion. Fortunately, the diagnosis is of little practical importance. Later, the case may develop paralysis or contracture of various muscle groups; also albuminuria or glycosuria, bulbar paralysis or various disturbances of the special senses. Results such as these following brain injury would point to a laceration.

The only rule for separating the operative from the non-operative is here the same as in other cerebral injuries; if you can locate the lesion and help it, operate; otherwise, do not. In other words, without localizing symptoms, treat the case expectantly.

Treatment is the same as for contusion.

In conclusion, let me urge the importance of two things in the treatment of all non-operative head cases: Extreme and immediate care in the antiseptic treatment of all wounds and abrasions of the soft parts of whatever degree; (2) extreme care in the feeding and general nursing. By attention to these points can septic and pulmonary complications be best avoided, and the patient given his best chance.

## INDICATIONS FOR OPERATION IN HEAD INJURIES.[1]

BY EDWIN WELLES DWIGHT, M.D., BOSTON,
*Assistant Visiting Surgeon to The Boston City Hospital.*

For many reasons it is impossible to satisfactorily and thoroughly treat a subject of such magnitude within the limits that are of necessity set for the papers read at our annual meetings. It is particularly difficult in this case because we have to deal with a subject with which we are all more or less familiar, and as to the details of which probably no two of us entirely agree. The number of head injuries occurring in every practice is considerable; the number appearing at a large hospital is very great. The literature on the subject is extensive and unsatisfactory, and so much at variance that it will be impossible to cover the ground, and perhaps to arrive at any satisfactory conclusions, without spending much more time than is at our command.

I shall content myself with drawing certain conclusions from my own experience, and from a study of some 650 cases in which a fracture of the skull was demonstrated, either by autopsy or operation. It will be impossible to give you all the figures upon which these statements are based, and therefore I shall draw conclusions and state as facts matters which, although not generally accepted, are, I believe, proved to be facts by these figures. In approaching so indefinite a subject as head injuries, and one upon which opinions differ so widely, it is wise, I think, for us to consider for a moment (1) what they are, (2) what operations are available for their relief, and (3) what evidences may be discovered on external examination demonstrating a condition which would justify operation.

When we speak of head injuries it is generally understood that we mean injuries affecting the brain, or such injuries as may appear to affect the brain. The brain being protected from injury by a firm, elastic covering, is not affected by slight blows which might cause injuries to other tissues. The skull, however, is exposed to violence in many forms, and injuries to it are very common. Injuries to the brain itself must occur either after a fracture of the skull or as a result of sufficient force applied to it to thoroughly jar and lacerate its contents without injuring the skull itself. On account of the form of the skull fractures do not cause many symptoms and are not in themselves dangerous to life, the danger coming in all cases from injury to, or pressure upon, the brain.

The brain may be injured by tearing by foreign bodies, by detached or depressed portions of the skull or by hemorrhage into its substance; or it may be sufficiently compressed to cause death or serious symptoms by depressed fragments of bone, foreign bodies or hemorrhage into its substance or onto its surface. Operations in cases of injury to the brain are performed to remove foreign bodies or relieve pressure, and it is only when we have reason to believe that foreign bodies or pressure are present that an operation is justified.

Operations for the relief of intracranial pressure or injury are usually spoken of under the general head of trephining, but this term should be used in the same sense as "laparotomy" or "abdominal section." It should be clearly understood that trephining is simply making an incision which allows us to reach the tissues requiring relief or treatment. An opening through the skull may be made in several ways, most commonly by means of some form of circular trephine, by burr drills or by the use of mallet and chisel or gouge. In the last few years we have heard a great deal of the advantage of the latter methods, the necessity for some change being based on the idea that the use of the ordinary circular trephine requires great exertion and a long time, and on account of the possibility of injury being done to the brain. In the hands of aurists, or others specially trained in the use of the mallet and gouge, it is probably possible to make an opening through the skull with speed, comfort to the operator and safety to the patient, but in the hands of a general surgical practitioner the use of a trephine is much more rapid, surer and safer.

[1] Read before The Massachusetts Medical Society, June 10 and 11, 1902.

A trephine opening through the average skull should be made within two minutes from the beginning of the scalp incision. I have repeatedly made it in a minute and a quarter, and have on several occasions timed my assistants, they usually taking about two minutes, never over two and a half. Neither is there any serious danger of injuring the brain. The dura may be opened, but this, I believe, is of no serious importance. The opening, made by a one-inch trephine, is sufficiently large to determine the presence of blood clot, serum or pressure from other causes. It is also sufficient to allow the elevation of depressed fractures and the removal of considerable amounts of clotted blood. Such an opening will begin to decrease in size within a comparatively short time, and within a year the brain is fairly well protected. If, for any reason it is necessary to enlarge this opening, it can be rapidly and satisfactorily done with a properly formed and sufficiently powerful rongeur. The operation itself is not associated with any appreciable amount of shock, neither does it require much anesthetic, and consuming so little time does not in itself diminish the patient's chance of recovery. For this reason I consider it a perfectly justifiable exploratory operation in cases where the condition inside the skull is in doubt, and do not hesitate to use it as such with greater freedom than exploratory laparotomy.

The 650 cases which have been referred to, and a study of which has confirmed my opinion in regard to many points in connection with head injuries, are drawn from the following sources: Two hundred from the literature of the past five years; 300 taken from the records of the Boston City Hospital; and 150 autopsies occurring in the practice of Dr. F. W. Draper as medical examiner. These are all consecutive cases in which fractures of the skull were found at autopsy or operation.

The symptoms and external appearances found in cases of injury to the brain may be divided into two classes: (1) Those which show interference with the function of the brain, such as paralysis and condition of consciousness, and (2) those which are the result of injury to the skull, such as external hemorrhage and ecchymoses. As has already been said, injury to the brain not infrequently occurs without fracture of the skull. In such cases operation must depend on the signs presented of interference with the brain itself. In the much more common class, where a fracture of the skull also exists, both varieties of symptoms may be presented for consideration.

### FRACTURES OF THE SKULL.

Taking the whole number of fractures of the skull we find that 40% of them were depressed, this number being somewhat larger than probably occurs in fact. Localized, depressed fractures are extremely rare, but 3½% of the whole number were of this character. In every other case there was a fissure extending into the base. Localized fissures of the skull are still more rare, something over 1½% only being of this type. The base is involved in 95% of all fractures. As it is very generally accepted that depressed areas of bone should be elevated I shall not further consider depressed fractures.

Fissures extending from some portion of the vault into the base may involve one, two or all three fossæ. In 55% one fossa was affected, in 36% two, and in 6% all three. The anterior fossa was involved in 42%, the middle fossa in 82%, and the posterior fossa in 25%. By far the most common fracture is one beginning in some portion of the parietal bone, a fissure extending either along or across the middle meningeal grooves, and ending in one of the foramena. When the fracture is a depressed one its location may usually be recognized, but when, as is more commonly the case, there is only a fissure, we must depend upon less definite evidence, the most important being external hemorrhages from the ear, nose or mouth, or hemorrhage under the scalp or about the eyes. If in the form of a fissure, injury to the bone itself does little harm, and rarely gives rise to any symptoms, those we do find simply depending upon the external appearance of hemorrhage from within.

When a well-defined hemorrhage under the scalp or into the back of the orbit occurs after an accident where violence has not been directly applied to the point of hemorrhage, it may be accepted as positive evidence that a fracture exists near that point. When hemorrhage occurs from one or both ears the probabilities are in favor of a fracture on the side from which the hemorrhage comes. In 67% of these cases in which there was a hemorrhage from one ear a fracture of the middle fossa on that side was found. Hemorrhage from the nose is of much less importance. In only 22% with bleeding from the nose where violence had been applied elsewhere was there found a fracture of the anterior fossa. When such external hemorrhages are absent it must not be assumed that there was no fracture through the adjoining fossa, as in 31% of fractures of the middle fossa no hemorrhage from the ear was found, and in 30% of all fractures there was no hemorrhage of any kind. The diagnosis of a fracture in the skull depends upon its discovery by touch or the presence of one of the forms of external hemorrhage, and when so large a number is found in which a fracture exists without either of these manifestations it must frequently be impossible to be sure of their presence if they do exist.

The diagnosis of injury to the brain usually depends upon the condition of consciousness, condition of the pupils and pulse, and the presence or absence of some form of paralysis. In those cases in which there is a decided variation from the normal in one or more of these several conditions, it is usually safe to say that there is some form of interference with the function of the brain. Unfortunately, for the ease of diagnosis, in a very large proportion of cases there is no change from the normal, and when such a change

does exist, while it may show the presence of some intracranial disturbance, it does not help us materially in deciding just what has gone on within the skull.

The condition of consciousness is one upon which much stress is laid, and very false ideas seem to be common as to the importance of a condition of coma, either progressive or otherwise, in deciding the question of operation. Profound and absolute unconsciousness is extremely rare in cases of head injury, in but 5% of cases is it present, and then more commonly when the injury is in the ventricles or basal ganglia. The percentage of cases in which the individual is thoroughly conscious is also small,— about 11%. Most common are those which have varying degrees of consciousness and restlessness, and it is among these that the thoroughly operable cases are found and most mistakes are made. It is very common to have that condition described as alcoholic stupor or alcoholic delirium, and as many of our hospital cases that have received an injury to the head have an alcoholic breath, the diagnosis of alcohol is very frequently made.

The condition of the pupils may be of assistance in deciding the question of operation, but unfortunately the number is very large in which marked intracranial disturbance exists without any characteristic change in the pupils. The Hutchinsonian pupil, that is, dilated on the same side as the hemorrhage and contracted on the opposite side, is frequently spoken of as of importance in the diagnosis of extradural hemorrhage. I do not find that it is more common when the hemorrhage is extradural than when it is subdural or into the substance. When it does occur it is a fairly accurate test as to which side the hemorrhage is on, but it tells us nothing otherwise as to its location, and it is only found in 10% of all cases. I find, in a general way, that when a single pupil is dilated the hemorrhage is on the same side in 70%, on the opposite side in 30%; and when a single pupil is contracted the hemorrhage is on the same side in 30%, on the opposite side in 70%.

The character of the pulse has a certain value, but has not nearly that with which it is ordinarily credited. Normal and rapid pulses are not at all rare in cases of more or less extreme cerebral pressure, and when these conditions are present they tell us very little as to the character of the cerebral injury. The pulse was found to be slow in something over 40% of all cases and to have the bounding character in 27%. When it is slow, or slow and bounding, the chances are largely in favor of an extradural hemorrhage, 90% of all slow pulses in this list of cases being associated with extradural hemorrhage.

When a definite paralysis is present it must be accepted as one of the most valuable signs that we have as to the portion of the brain that is affected. It shows very little, however, as to the character of the hemorrhage or injury. If we can judge anything by the figures at our command, paralysis is much more common in the cases in which the brain is injured than in purely extradural or subdural hemorrhages, and it is most rare in the extradural. In the majority of cases of extradural hemorrhage of slow onset paralysis does not occur. Where it is found within a short time after the accident we may assume that there is either a hemorrhage into the substance or laceration in the region of the centre affected. Paralyses appearing later are more apt to be due to pressure alone.

The presence or absence of the various reflexes is supposed to be of some importance in deciding the question of cerebral injury. From a study of these cases it has been impossible to arrive at any definite conclusions. It has, however, been noticed that the diminution or absence of reflexes was almost, if not quite, constantly associated with profound degrees of unconsciousness, coming on promptly after the injury, and so would appear to have comparatively little value, unless it is to indicate a considerable degree of injury to the more important structures of the brain.

The decision as to operation in doubtful cases is not materially helped by the presence or absence of all or any set of symptoms. The presence of definite, localizing symptoms, especially those such as coma and paralysis, point toward hemorrhage into, or injury to, the brain substance, and are not usually found in those cases which will most probably be relieved by operation. Those cases that are most distinctly operable, that is, extradural or subdural hemorrhages limited to one side, are not usually associated with definite symptoms.

Personal experience, and a study of all the cases that are available, have apparently demonstrated that the symptoms presented in the majority of cases of injury to the brain are ill defined and not such as we might expect from a study of the literature; that they are best defined in those cases that are least apt to be benefited by operation; that in the vast majority of all cases of injury to the brain, and especially in those such as one-sided extradural or subdural hemorrhages, where an operation may be expected to give relief, the symptoms are indefinite and may be entirely wanting.

In distinctly operable cases, which include about 40% of all deaths associated with fracture of the skull, we usually find at autopsy a fissure beginning in the vault and running into or through the middle fossa, death being due to pressure from extradural or subdural clot. These cases may or may not be associated with varying degrees of cerebral laceration. A careful study of the symptoms in such cases will show that there probably was good reason to suspect some form of intracranial disturbance, but little, if any, definite proof.

Of the fracture itself we may have some definite sign, either of depression or that a crack exists from which a deep hemorrhage appears. If such a hemorrhage exists, either in the ear, nose, under the scalp or in the post-orbital space, it is safe to assume that a fracture will be found

in that region. In a very large number of cases we simply find indefinite signs of cerebral disturbance without any localizing symptoms, either of fracture or injury to the brain. In these cases it is my habit to do an exploratory trephining, and a very large proportion of them are found to be those which most definitely require operation.

In the dim light afforded by these facts I lay down the following rules: Given positive signs of intracranial disturbance following an accident which might well cause such a condition, but without definite signs of fracture, I should explore. Given a case in which there is probable evidence of fracture, and a probability of interference with the brain, I should operate.

I have never seen fatal or serious results follow trephining by skilful hands, even when two or three openings in the skull were made, and I have seen many lives saved by exploratory operations in this very large class of doubtful head injuries.

## INDICATIONS FOR OPERATION IN HEAD INJURIES.[1]

BY WILLIAM N. BULLARD, M.D., BOSTON.

PREVIOUS to the introduction of antiseptic surgery, and indeed until within the last twenty years, the only conditions which were generally believed to call for operative interference in head injuries were compound depressed or compound comminuted fractures of the cranium.

With the general use of antisepsis and, later, asepsis, the comparative safety of operations was immensely increased, and it became natural to inquire whether operations could not be undertaken with benefit in other forms of head injury.

The general interest taken in the later eighties and early nineties in brain surgery, and the greater frequency of operations on the brain, drew attention to the fact, which was contrary to the preconceived views of the time, that under aseptic conditions the meninges and the brain could be incised, punctured and manipulated with comparative impunity. I shall never forget how, in one of the earliest cerebral operations in which I was professionally interested, I saw one of our best-known surgeons plunge a bistoury into the optic thalamus, and the mental relief when no symptoms whatever followed.

The comparative safety of simple incisions of the brain being proved, there was still much discussion in regard to the dangers of interference with the meninges, and many physicians and surgeons were convinced of the serious results likely to follow upon an incision or a laceration of the meninges. In consequence of this opinion many operations were only partially performed, the meninges being left intact after the trephining, and the results being thus impaired. The question of the safety of incision of the meninges, and whether such procedure increases the severity of the operation and endangers the recovery of the patient, has now in my opinion been definitely settled. Aseptic incision of the meninges is not in itself dangerous or even very serious. It is imperative in many cases of brain injury if the full benefit of the operation is to be obtained.

What are, in the present state of our knowledge, the indications for operation in head injuries? Opinions differ somewhat in this matter. Some surgeons go so far as to advocate operation in all cases of fracture of the cranium, and in many cases of prolonged unconsciousness following injury to the head. Others are more conservative, and would advise operation only in those cases where it is obviously and imperatively demanded.

In answer to this question I shall consider the more common signs and symptoms of head injury in detail, and discuss the value of each by itself and in combination with others.

### FRACTURE OF THE CRANIUM.

I. How far is fracture of the cranium in itself an indication for operation? This depends on the character of the fracture, on its position and on the age of the patient. I will speak only of fractures of the *adult* cranium.

*Compound depressed and compound comminuted fractures* should be operated upon in practically all cases. (This, of course, presupposes, as we do throughout this paper, the presence of suitable conditions for operating and asepsis.) All punctured or perforating fractures come under this class. I believe that in all bullet wounds of the skull from the outside, that is, not through the mouth, nose or ears, or through the base of the skull, where there would be excessive difficulty in reaching the opening, the bone around the bullet wound should be trephined, not for the sake of finding the bullet, but simply for the purpose of cleansing the wound, as far as may be, and allowing no secretions to collect about the meninges or between them and the bone. In compound fractures of the cranium where there is no depression and where only a single fissure is found it is safer to operate (trephine) even though there be no other symptoms.

*Simple fractures.*— What shall we do in cases of simple fracture without symptoms? This is the class of cases about which opinions differ most strongly. I believe that on the whole it is wiser and better in these cases to be conservative and not to operate, but the patient should be kept under careful observation and operation be undertaken at once if any indication presents itself. Investigations on the results of simple fracture of the cranium show that only in rare cases are they serious, or such as could have been relieved by operation. I wish here to emphasize certain facts. Intracranial complications may arise with any severe head injury. Deep cerebral hemorrhages, single or multiple, may exist. We may have single hemorrhages situated in the basal ganglia or in other inaccessible parts of the brain,

[1] Read before The Massachusetts Medical Society June 10 and 11, 1902.

or we may have numerous minute or microscopic hemorrhages scattered throughout the brain substance. Neither of these conditions are operable, and their symptoms and results are not to be confused with those of simple fracture. Again, in all cases of severe blow upon the head, and probably in practically all cases of fracture of the skull, there is more or less contusion of the brain. This is apt to be on the opposite side from the direct blow. It is probably often the cause of certain disquieting symptoms, and its presence must not be forgotten.

The later conditions resultant from the fracture itself in cases of simple fracture of the cranium are not usually marked. If in any given case epilepsy should occur after an injury producing simple fracture of an ordinary character, an exploratory trephining should be resorted to at once after the first attack, but such condition is rare (or absent) in cases of simple fracture without concomitant symptoms of pain, unconsciousness or fever.

LOSS OF CONSCIOUSNESS.

II. The value of loss of consciousness as an indication for operation in head injuries varies somewhat in accordance with the degree to which it exists and, above all, with its duration. We find in these cases all shades, from that in which the patient is but momentarily dazed to deep stupor lasting for days or weeks. The severer grades are often accompanied by extreme restlessness and sometimes by delirium. These conditions will be considered later.

In the first place, the absence of any marked degree of unconsciousness does not contra-indicate operation. Such a condition may exist with very extensive cranial injury. I recall a laboring man who was struck in the head with a pickaxe, in a town about seventy miles away, early one morning. He had no loss of consciousness. He took the train to Boston that day, arriving here in the evening, waited and got his dinner and then walked to the hospital about half-past eight in the evening. On examination a most extensive comminuted fracture, involving about half of one side of the vertex, was found.

Secondly: The degree of unconsciousness does not in itself determine the necessity of operation. In many hospital cases the cause of the loss of consciousness is not uncomplicated. Alcohol plays an important part, and the influence of this factor must be eliminated. It is well known that a blow on the head of a person addicted to, or under the influence of alcohol, will induce symptoms due to the alcohol which would not have been apparent without such exciting cause. I need hardly mention the occurrence of delirium tremens after injury as an example of this. This affection is usually too apparent to be overlooked. An injury to the head in an alcoholic person, or one under the influence of alcohol, often produces a result which neither the alcohol nor the injury alone would produce. The effects of the alcohol, previously latent, suddenly reveal themselves, taking advantage of the lessened power of cerebral resistance, and the loss of consciousness is deepened — an alcoholic stupor is added to what might be called the simple or uncomplicated condition due to fracture. Such a patient shows a greater degree of unconsciousness than would naturally occur in a patient free from alcohol who had suffered a like injury, and the unconsciousness in alcoholic cases seems to last longer than in the average non-alcoholic patient. Whether this is a fact can only be determined by considering large numbers of cases, because, as before stated, the degree of unconsciousness is *not* proportionate to the severity of the cranial injury.

Alcohol taken in excess previous to the injury (and this excess need not be such as to be apparent) not only tends to increase the degree of unconsciousness, but may also produce delirium. The low, muttering delirium so often seen in older men after a head injury, is usually due to this and may last for days or weeks. To this also is due the temporary delirium and peculiar actions in certain cases which occur at various times in the day, the patient being quite natural in the intervals.

Though the degree of unconsciousness is not proportionate to the severity of the cranial injury, the duration of the unconsciousness is so to a certain degree. I am convinced that in all cases of uncomplicated head injury in adults, where alcohol and other brain lesions, such as paralytic dementia, can be excluded, in which the patient remains unconscious for over twenty-four hours, operation should on this ground alone be seriously considered. Such a condition points to serious intracranial injury — very possibly a large epidural clot.

Cases occasionally occur in which without intervention the patients remain unconscious for two weeks or more. Experience seems to show that the results would be better were these patients trephined early, and that even a late trephining is advisable. It is scarcely necessary to say that renal and all other complications must be excluded.

Delirium in these cases, if not accompanied by restlessness and fever, and if not due to alcoholism, is exceedingly suggestive of chronic renal disease. When accompanied by restlessness and a high temperature, exploratory operation may be considered. Under these conditions, however, we are rarely without more positive indications to guide us. If delirium, fever and restlessness without other symptoms are found after head injury, the indications for operation are not positive.

*Temperature.*— When there is a marked rise of temperature shortly after a head injury, and especially when the temperature continues to increase, the prognosis is more or less serious. If not due to complications of other organs it suggests serious injury to the brain and a grave prognosis. It is to be considered in this light rather than as an indication for operation. It is not a contra-indication except so far as it indicates that operation is not likely to remedy the

trouble completely, and that a condition not to be relieved by operation, exists. Subnormal temperature after head injury is frequently due to shock. When not due to shock a subnormal temperature is not in itself a contra-indication to operation. Subnormal temperature without unconsciousness or other symptoms is of no definite importance.

Shock being eliminated, a long-continued subnormal temperature in an unconscious patient suggests edema of the brain without severe injury or laceration of the brain tissue. If this edema is not due to alcoholism, paralytic dementia or renal disease, operation should be considered twenty-four hours after the accident.

*Pain.*— Acute, severe pain is always a symptom deserving serious consideration in head injuries. In connection with other symptoms it may serve as an indication for operation. In any case where there is severe pain in the head lasting over twenty-four hours, operation is to be considered and a most careful examination made for other symptoms. I can recall at the present moment a case in which a patient was brought to consultation solely on account of persistent severe headache following an accident in which he was thrown out of his wagon. There was no unconsciousness, no fever, no delirium. The patient was able to use his limbs, and except for his headache might have been considered to be in normal condition. The only definite sign found was a dilatation of one pupil. It was in this case determined to operate, and an extensive fracture of the cranium was found.

On the other hand, we must be on our guard against functional pain dependent on the general temperament of the patient, rather than on local conditions. A person of neurotic tendency may have severe pain in the head following head injury due in large part to his nervous condition, or aggravated in consequence thereof. In these cases operation is not indicated by the existence of pain. The diagnosis between the forms of pain must be made from the general condition of the patient.

We now come to the more striking symptoms of brain *irritation* and *inhibition*, which are often also of value as suggesting or determining the position of the injury.

### CONVULSIONS.

Convulsions may be tonic or clonic, and in either case general (diffuse) or localized. (In the adult, tonic convulsions unaccompanied by clonic are not common in the early periods after head injury.) General tonic convulsions are rare. They would suggest either some complicating affection or possibly an injury in the region of the posterior fossa or of the medulla. Localized tonic convulsions when they occur are apt to alternate with clonic convulsions of the same region, and suggest an irritation of the corresponding intracranial regions.

*General clonic convulsions.*— These are almost always due to some special condition of the patient or some complication. When they exist epilepsy is to be suspected. Epilepsy itself may be the determining cause of the injury, or the shock of the injury may bring on an epileptic seizure. The possibility of its existence can never be neglected in a case where the previous history is not fully known, and where convulsions of this character exist. In these cases the convulsions are accompanied by unconsciousness.

When general convulsions occur while the patient is conscious or semiconscious, especially if of the female sex, hysteria or functional trouble must be considered, and this must be eliminated. General clonic convulsions may possibly be caused by alcoholic conditions alone, but I consider this doubtful. They may be due to uremia, which must always be considered before operation is undertaken.

Clonic localized convulsions are important both as determining the advisability of operation in many cases and the place of the lesion. They are not, however, an absolutely certain sign, either of the position of the most serious intracranial injury or of the necessity of immediate operation, but are only suggestive. The most common form of localized convulsions is the hemiplegic when they involve the muscles of the limbs, and often those of the face on one side — the side opposite the brain lesion. When definitely localized in one limb, or in one portion of a limb, their significance as showing the exact localization in the brain is greater than when larger areas are involved. Thus, convulsions localized in a thumb, or in certain fingers, or the forearm, would have a great localizing value; but, unfortunately, these closely localized convulsions in the limbs rarely occur. I do not, on the other hand, attach much significance to the affection of certain muscles in the face. The facial muscles seem to be readily affected in many cases. The ocular muscles often show the first signs of the commencing convulsions, whether hemiplegic or general.

It is rare that a special small series of muscles is alone affected throughout a convulsive attack. Many attacks begin with convulsive movements of a few muscles, then of more, and finally nearly all the muscles are affected. Formerly, we attached considerable importance to the determination of the group or groups of muscles first affected in these cases, and this should always be noted, but experience has shown that the importance of this symptom has probably been overestimated. We find that in several successive attacks different groups may be involved first. We find that the gross lesions involve or affect many centres and apparently the most sensitive, and not necessarily those most affected are first involved.

Convulsions are of great diagnostic importance in determining the side of the lesion, that is, which half of the brain or its membranes is affected. For closer localization they are apt to be deceptive. This is the rule. There are, however, certain exceptions or limitations thereto;

(1) They may also be produced in edema of the brain in alcoholic patients in cases where at autopsy no gross lesion whatever (except edema) is found; (2) the side of the brain so affected as to cause convulsions may not be the side of the fracture or of the greatest apparent gross injury. They may be produced by the *contrecoup*.

Hence, when the other symptoms are sufficiently decisive, the evidence of the locality of the injury given by convulsions is to be neglected. For example, if the convulsions, as is sometimes the case, are on the same side as a compound depressed fracture, operate over the fracture. It may not be advisable to operate on the other side at all.

### PARALYSIS.

Under this heading we include not only all forms of total paralysis, but also the cases of partial paralysis or marked weakness of muscles.

Inequality of the pupils is always important. This may, of course, be natural to the individual; it may be due to local eye lesions, cataract, etc.; it may be due to syphilis or to other cause existing before the injury. These causes must receive due consideration. If, however, we decide that the evidence is in favor of the condition being due to the injury, we have a symptom of great value in the determination of the situation of the lesion. Unilateral dilatation shows injury on the side of the dilated pupil and often occurs with fracture of the base on that side. Taken in connection with unconsciousness, this sign, in my opinion, is sufficient to justify operation.

Unilateral myosis, or contraction of the pupil, is much rarer. It would suggest — if not due to some cause unconnected with the injury, as would be most probable — an irritation of the brain on the same side.

Paralysis of the external ocular muscles naturally points to fracture of the base on the same side as the muscles affected. Paralysis of the external rectus is due to injury of the sixth nerve. Paralysis of the internal rectus to that of the third. Paralysis of the fourth nerve is practically not distinguishable in the cases seen immediately after the injury. Paralysis of both sixth nerves suggests fracture of the base on both sides and very serious injury. I will merely mention that great care must be taken not to consider a previous strabismus as due to the injury.

Paralysis of the face alone may be due to injury of the seventh nerve when all three branches of the nerve are involved, or to a central lesion when only the lower branches are affected, and the wrinkling of the forehead continues essentially normal. When the lesion involves the nerve it is on the same side as the paralysis. When it involves the brain it is on the opposite side. Nuclear paralyses are so rare that they may be neglected. It is quite possible that the seventh nerve may be injured through the ear.

The most striking form of paralysis, undoubtedly, is hemiplegia. This term is here used to denote paralysis of both limbs on the same side of the body. This points to a lesion on the opposite side of the brain. It may be associated with paralysis of the face on the same side as the hemiplegia, which suggests a more extensive lesion than the affection of the limbs. It may be associated with paralysis of the face on the opposite side, but much more rarely. This is only mentioned to state that when it occurs it may be due to a lesion on the opposite side from the hemiplegia, involving the seventh nerve, and that this is more probable than a hemorrhage in the pons. A hemiplegia may be associated with paralysis of many other muscles, especially the external ocular muscles, but we cannot enter into consideration of these combinations here, as it would lengthen this paper unduly.

The significance of hemiplegia as an indication for operation is great. It might at once be said that when it occurs in adults as direct result of the cerebral injury operation should always be performed unless some special contra-indication exists. This is true whenever the hemiplegia results directly from the injury itself. But, unfortunately, we have a considerable number of cases in which the hemiplegia is not the immediate direct result of the injury, but is caused by the cerebral edema which follows, and this condition is specially common in the alcoholic. It is not always easy to distinguish in the unconscious patient the hemiplegia due to an alcoholic edema from that caused by a direct lesion. In my opinion one point is of special value in this connection. The paralysis in edema is rarely or never total; it is almost always a weakness or decided weakness, while some power of voluntary motion still remains. Operate, therefore, in all cases of hemiplegia in adults not due to alcoholic or uremic edema. Operate, as a rule, in doubtful cases, because even in edema the opening of the meninges undoubtedly tends to benefit the patient, but in such cases be prepared not to find a clot or a fracture, or other visible lesion.

Aphasia, when organic, suggests brain injury or pressure. It usually occurs in connection with unconsciousness or some form of paralysis, more especially hemiplegia.

I shall not consider now the question of operation in the head injuries of children, except to say that with them we should be much more conservative. Children recover without serious results from lesions which would produce much more severe after-effects in adults. The brain apparently adapts itself to a certain amount of localized pressure. Hemiplegias do not have the same serious significance.

### SUMMARY.

(1) Operate in all cases of compound depressed and compound comminuted fracture of the cranium. It is usually advisable to operate on any compound fracture.

(2) Simple fracture of the cranium without symptoms does not as a rule demand operation.

(3) Absence of unconsciousness does not contra-indicate operation. The degree of uncon-

sciousness is not in all cases proportionate to the severity of the injury.

(4) The duration of unconsciousness is important, and when it lasts more than twenty-four hours,— no other cause than the injury being present, — operation should be considered.

(5) Marked rise of temperature after uncomplicated head injury suggests serious injury to the brain. It is not necessarily an indication for operation. A subnormal temperature without other symptoms has no special significance. When accompanied by unconsciousness and lasting twenty-four hours or more it suggests edema of the brain or intracranial hemorrhage.

(6) Severe pain in the head continuing for some time after a head injury, if organic, indicates operation. Pain in the head following injury may, however, be functional and due to general nervous conditions.

(7) Convulsions, when clonic and diffuse, suggest epilepsy or other complication. When localized they are of value as indicating the side of the brain on which the lesion producing them is situated. Taken in connection with other symptoms their presence usually favors operation.

(8) The presence of paralysis of the limbs in adults, if marked, usually indicates immediate operation. Partial hemiplegias and paralysis of the limbs may occur in edema of the brain following injuries.

(9) The above statements refer to adults only. In children paralyses are more apt to pass away and the indication for operation is not so decided.

## GUNSHOT WOUNDS OF THE HEAD AND CRANIUM.[1]

BY LOUIS A. LA GARDE,
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THE introduction of steel-armored projectiles of reduced calibre for the military rifle of the civilized nations has modified the subject of gunshot wounds in nearly all the tissues, the head included. The experimenters, with this new high-velocity bullet that does not deform on impact, noticed in the beginning that the amount of destruction conferred by it at close range was very great, and that this destruction was generally proportional to the velocity and the resistance encountered on impact. When these conditions of velocity and resistance obtained, the destruction took the character of what is often designated as explosive effects. These so-called explosive effects were especially noted in fluid or semifluid tissues enclosed in rigid walls, of which the brain and skull are the most typical examples. Such a lesion is usually characterized by a wound of entrance corresponding in size to the calibre of the projectile inflicting it, and a wound of exit varying in diameter from one to several inches. The channel track between the exit and entrance wounds is much lacerated and marked by the presence of bony sand and spiculæ of bone varying in size from one-fourth to one-half inch. The latter are usually found to have been driven into the tissues not only in the line of flight of the projectile, but at right angles to it, as if an internal force had exerted itself in all directions. Many theories have been advanced to explain explosive effects, but it is now pretty generally attributed to the transmission of the energy of the projectile to the particles of bone and other tissues that become detached and then act as secondary projectiles.

In the middle and remote ranges where the remaining energy has become very much less, the destructive effects in wounds of the head by the new bullet are very much less than those inflicted by the old large leaden bullet that was so apt to deform on impact. The illustrations accompanying the paper afford typical examples in support of this statement.

Gunshot wounds of the head are usually divided into flesh wounds and fractures. The latter are necessarily very fatal. In the Civil War the fatality among all head wounds that reached the hospitals was 28.93%. The fatality of the same class under similar conditions in the Spanish-American War was about the same, 26.09%. The figures concerning the relative number of the two are shown in the following table.[2]

| | Seat and character of injury. | No. of cases. | Percentage. | Per cent. of all wounds. | Recoveries. | Deaths. | Undetermined results. | Per cent. of fatality. |
|---|---|---|---|---|---|---|---|---|
| | Head: | | | | | | | |
| Civil War..... | Flesh wounds. | 7,739 | 64 | 3.14 | 4.9 | 6,573 | 2,676 | 2,480 | 28.93 |
| | Fractures. | 4,350 | 36 | 1.76 | | | | |
| Spanish-American War..... | Flesh wounds. | 40 | 56 | 2.74 | 4.86 | 42 | 18 | 2 | 26.09 |
| | Fractures. | 31 | 44 | 2.12 | | | | |

The figures illustrate the frequency of glancing shots with the slow-velocity leaden bullet of the Civil War as compared to their infrequency with the high-velocity steel-jacketed bullet in use at present. The latter as a rule travels in a straight line from the point of impact, being seldom deflected from its course by resistant bone. The relative increase in the number of fractures from the use of the modern military rifle augments the fatality in head wounds, so that the humane features attributed to this weapon already referred to, do not apply to wounds of this region. These results were foretold by the experimenters before the opportunity to observe the effects of the new arm in the actual conditions in war had presented themselves. Stevenson,[3] writing in 1897 upon the proportion of flesh to fractured wounds of the skull, states as follows: "In future wars the proportion will be very different. Omitting indirect and grazing hits, almost every bullet which hits

[1] Read before The Massachusetts Medical Society, June 10, 1902.

[2] Extract from Borden's Military Surgery, Prize Essay, Proceedings Association Military Surgery, 1900.

[3] Wounds in War, W. F. Stevenson, Colonel Surgeon, British Army.

the skull, up to a range of 2,200 yards, will perforate it, and at about 2,900 yards they will penetrate and remain lodged. The destruction produced in the skull and brain by modern bullets is so extreme, even at long ranges, that comparatively few patients will survive long enough to reach the field hospital for treatment, and for the large majority of those who do, treatment will be unavailing."

Concerning the results in the Anglo-Boer War, Makin [4] states: "Injuries to the head formed one of the most fruitful sources of death both upon the battlefield and in field hospitals." He mentions some "sensational immediate recoveries" among head wounds, and they doubtless were of the character of those noted by us in the Santiago campaign, namely, oblique perforations of the skull cap involving the brain tissue to a limited depth. The gunshot fractures about the base and those running deeply through the brain from base to vertex or *vice versa* were uniformly fatal. Of sixty-eight cases of gunshot fracture which were reported in the Surgeon-General's Report for 1900, and which occurred during the two preceding years, 54.4% ended fatally as against 59.2% out of 2,514 cases noted in the Civil War. Unlike wounds of other regions those of the head, unless properly treated at once, undergo suppuration, a fact which is not surprising when the amount of dirt overlying the scalp is considered. The surgeons in the Cuban and South African campaigns are unanimous in recommending early and free exploration of all cases of fracture of the skull by gunshot. The aim should be to relieve pressure and to rid the wound of all dirt and loose pieces of bone as soon as possible.

## TECHNIQUE AND AFTER-CARE OF OPERATIONS UPON THE CRANIUM.[1]

BY CHARLES L. SCUDDER, M.D., AND HARRY H. HARTWELL, M.D., BOSTON.

Horsley, Wagner, Phelps, Von Bergmann, Keen, Von Frey, Lauenstein, Gigli, Codivilla, Braatz, Treves, Von Esmarch, Senn, Macewen and König—these are the men who have recently contributed valuably to the literature of cranial surgery. The work of these men, as well as that of others, has been reviewed in the preparation of this brief communication.

We have been asked to present for your consideration the present generally accepted technique of operations upon the cranium following injury, and to state the method of caring for these operated cases.

### OPERATION HAS BEEN DECIDED UPON.

*Preparation of the patient.*—The evening before the operation a laxative is given; the morning of the operation an evacuating enema is administered. One quarter of an hour previous to the operation ¼ gr. morphia is given subcutaneously. (We are of course supposing that the patient is an adult.) The whole head is shaved, including the eyebrows. It is washed with soap and warm water and scrubbed with a nail brush. The soap is rinsed off with clean water and then with alcohol. The head is then washed with permanganate of potash (a saturated solution) with a saturated solution of oxalic acid, with a solution (1 to 2000) of corrosive sublimate. Care is to be exercised that none of these strong solutions enters the eye or the external auditory meatus. The corrosive sublimate solution is washed off the scalp with boiled sterile water. The face, neck and ears are protected by a sterile towel fastened snugly about the head. The patient is in the recumbent posture. The head is placed upon a firm surface. It is often convenient to support the head upon sand bags. The parts about the patient are covered with sterile sheets and towels. All instruments, sponges of gauze, sutures and ligatures are properly sterilized. The anesthetizer prepares himself for the operation as the surgeon does. The proximity of the anesthetizer to the field of operation demands that every precaution should be taken against his infecting the wound. He should wear cap, face mask and gloves, and use clean cones for ether or chloroform. If the patient be unconscious no anesthetic will be required. Chloroform or ether will be the anesthetic employed. There is less excitement and cerebral congestion associated with chloroform anesthesia than with that of ether.

*When a wound of the scalp exists*, which possibly communicates with the brain, the same preparation of the head is made excepting that the scalp wound is carefully cleansed by means of small swabs of gauze wet with boiled sterile water, gently but firmly and searchingly introduced into all accessible parts of the wound. The wound is then thoroughly douched with boiled sterile water. It is unwise to use in the wound under consideration strong antiseptics. The bone is thoroughly exposed by enlarging the wound, as may be required.

*When there is no wound of the scalp* a semilunar flap is raised, the convexity of the flap being toward the median line. The knife cuts directly to bone. The periosteum is removed from the bone by means of a very broad elevator at the same time that the skin flap is retracted. The flap should be ample. A small flap is difficult to work under. Bleeding from the flap is instantly checked by artery pressure forceps. The whole thickness of the scalp is grasped by the pressure forceps. It is a waste of time to attempt to compress each vessel singly. The flap is well retracted by vulsellum forceps (double hooks) or in the absence of these by a suture passed through the free edge of the flap and tied long.

*There is a fracture of the cranium.*—It is a *fissure.* There is no depression about the fissure. The fissure is followed a distance to determine its direction, its involvement of important cavities—

[4] Experiences in South Africa, 1901.

[1] Read before The Massachusetts Medical Society, June 10, 1902.

the orbit, the nose, the frontal sinuses and the ear. Continuous oozing of blood from a fissure may mean a serious intracranial lesion. A fissure due to trauma must not be confused with one of the sutures of the cranium. Ordinarily blood can be wiped away from a suture, but it cannot be wiped away from a fissure. The situation of the supposed fissure is helpful in determining its identity. If it is at all likely that dirt has entered a fissure it can best be thoroughly removed by changing the fissure into a gutter by using a small bone gouge held at a great angle with the surface of the bone.

*The fracture of the cranium is depressed.*— In such fractures the inner table is usually more extensively broken than the outer. The problem presented therefore is not merely how to elevate the depressed fragment or fragments, but how can the depression be relieved without further damage to the underlying sinuses, dura and brain. Necrosis forceps may readily remove loose fragments. The bone may possibly be raised by the introduction of an elevator beneath it.

In a comparatively few cases it will be found necessary to use the trephine. A trephine one inch in diameter is the best for this purpose. The trephine is applied to the sound bone near to the fracture. Two-thirds of the circle of the trephine will be upon the sound skull and the remaining one-third will be over the fractured area. Moving any of the fragments of bone while trephining is to be carefully avoided for fear of injury to the parts beneath. Upon removal of the bit of bone access is had to the parts to be elevated; this is accomplished by the elevator introduced under the fragment to pry it into place. Hemorrhage from lacerated sinuses or other vessels, which perhaps shows itself first when the depressed fragment is ever so cautiously removed, is controlled ordinarily by gauze packing. It may be wise, in order to avoid damage to deeper parts when fragments of bone are much depressed and driven underneath the intact skull, to trephine over the deeply depressed end of the fragment and thus be enabled to remove such fragment more intelligently. The area from which hemorrhage occurs will then be opened to inspection. It is best to leave only those fragments of bone in the wound that are well attached to periosteum or dura. Completely detached fragments should be removed.

Suppose another case:

*There is no evident fracture, and no wound of the scalp.*— Intracranial hemorrhage is suspected. The previously mentioned systematic preparation is carried out so far as is possible. The scalp flap is reflected. The 1¼ inch or 2 inch trephine is placed 1½ inches behind the external angular process of the frontal bone and 1¼ inches above the zygoma in order to find the anterior branch of the middle meningeal artery from which hemorrhage is suspected. As soon as a groove has been cut throughout the whole circumference of the trephine, the trephine pin (if one has been used) is removed — it has served its duty of steadying the trephine. The bone dust is dry until the diploë is reached; it is then soft and bloody. It is a good plan while trephining any part of the skull to imagine that it is the thinnest skull in existence and that it is of variable thickness at different parts of the groove. This will tend to make one proceed cautiously. At frequent intervals the depth of the groove should be measured by inserting into it the eye end of a needle held by a pair of pressure forceps. A slight feeling of irregularity will be detected as the needle is carried around the groove; if the inner table has been perforated, the needle will catch slightly instead of moving smoothly. All bone dust is immediately wiped away. As one side of the groove reaches the inner table great caution is needed that in completing the section the dura is not injured. The trephine is tipped slightly towards the uncut portion; greater pressure is put upon this side as the cut is made. Then the button of bone is removed entire. If the button is not easily removed, no attempt to remove it should be made by tipping the trephine and prying it out. A narrow elevator will often remove it in whole or in part, and then the rongeur forceps will complete its removal and smooth the edge of the opening. If the opening made is insufficient it is enlarged by the rongeur forceps. If the hemorrhage is from the meningeal artery the clot is evacuated, the vessel secured by fine silk ligature or a suture of fine silk is passed with a small curved needle through the dura and around the vessel and tied. The bone removed is not to be replaced.

*Drainage of the wound* should be based upon the same principles as drainage elsewhere. Bleeding from the bone will often cease spontaneously after a few moments; if not, the bone may be crushed about the bleeding vessel or a plug of sterile wood or Horsley's wax plug may be used. If there is much oozing of blood or serum or cerebrospinal fluid, and if infection is suspected, drainage is to be employed. Under other conditions it is not to be used. The wound is best drained by a small, soft rubber tube. The wound in the scalp is closed in whole or in part by sutures of silkworm gut.

If the dura is to be opened it is incised by the knife and divided by a small pair of blunt-pointed scissors, avoiding so far as possible all vessels. The dura should be divided a quarter of an inch from the bony opening to permit of subsequent suturing, if that is deemed necessary.

*The after-care of the operation of trephining.* — In uncomplicated cases the patient is kept in a darkened room and as quiet as possible for three or four days. A cold water bag or coil is kept constantly on the head. Calomel in divided doses ($\frac{1}{10}$ gr. each hour for ten doses) is given by mouth. The diet is for the first few days a liquid one. After a week or a week and a half the patient is allowed to be up.

In cases complicated by probable intracranial lesions the patient must be kept quiet a longer

time. The wound is cared for according to ordinary surgical principles. If a drain has been used it must be proved to be efficient. If provisional sutures have been placed these are tied upon removal of the drain.

*Hernia cerebri* is the term applied to a protrusion of the brain through the opening left after trephining. This occurs when there is abnormal intracranial pressure. The whole mass of the hernia is not ordinarily brain tissue, but is largely made up of granulation tissue — fungous granulations. It is a most distressing condition which may complicate especially septic cases. Cleanliness, compresses of alcohol and support to the part are indicated.

Concerning the closure of bony defects of the skull, how harmful such defects are, whether pedunculated flaps of periosteum shall be used to close them or gold foil or rubber tissue or egg membrane or celluloid discs, these questions are still open for discussion.

The value of the Gigli saw is undoubted, and its use in forming osteoplastic flaps for exploratory purposes is of extreme interest, but this does not concern us in this discussion. The electric motors used to drive a saw or trephine are not likely to come into general use.

## Clinical Department.

### UNUSUAL COMPLICATIONS OF TABES.

I. Tabes with Progressive Muscular Atrophy.
II. Tabes with Multiple Sclerosis.

From the Long Island Hospital, Boston Harbor, and the Massachusetts General Hospital.

BY E. W. TAYLOR, M.D., BOSTON.

#### I. TABES AND PROGRESSIVE MUSCULAR ATROPHY.

This combination of diseases is sufficiently unusual, and in this case the diagnosis is sufficiently certain, to render publication desirable during the life of the patient.

C. B., then thirty-eight years old, was admitted to the Long Island Hospital, Boston Harbor, Jan. 18, 1898. He was unmarried and had been a hack driver, until forced to give up work through increasing disability. From that date, January, 1898, up to the present, he has been more or less constantly under observation in the hospital wards. The essential features of his history are as follows: There is nothing in his family bearing on the present illness. He has had measles and whooping cough and gonorrhea three times,— the last attack four years ago. Twelve years ago he had two sores on the penis. Six months after he noticed these, his hair fell out in patches. Did not have sore throat, headache, pain in bones, eruption or enlarged glands at this time or since, but says he had a bubo three years ago which was lanced by a doctor. Took one or two glasses of whiskey a day; also many glasses of beer; three cigars a day. He has been exposed to all kinds of weather, often out all night in a storm. Constantly used both hands in driving, but used the left hand more.

Three years ago last December he noticed that he was very unsteady when walking in the dark; when going up stairs his calf muscles easily became tired and gave out so that he would have to rest for a short while. Nov. 19, 1896, he slipped and broke his left leg; he was unable to work for seven weeks. March 1, 1897, he slipped on the sidewalk and fractured the same leg. After leaving the hospital he went to work and drove a hack off and on up to four weeks ago. July, 1897, he noticed a feeling of numbness in the left hand; then he noticed that certain muscles (the adductor longus pollicis and the thenar muscles) atrophied. Then the same muscles of the right



Fig. 1.

hand atrophied; next the interossei of the left and later of the right hand. He could not flex nor abduct the thumbs well. He observed that the reins slipped through his hands.

Physical examination showed an usually well-built and well-nourished man, of good color and general appearance of health. Both hands presented the characteristic appearance of atrophy of the interossei, a typical though not extreme "claw hand" (Fig. 1). There is naturally much diminution of muscular power in the hands, and the patient thinks that both arm and leg muscles have decreased in volume, a statement which the physical examination cannot fully substantiate. At the time of the first examination the pupils differed slightly in size, and were sluggish in reaction. The tongue was protruded in the median line; the heart and lungs showed no abnormality. There was a slight enlargement of the liver;

spleen and abdomen normal. The knee jerks were lost, as also the plantar, cremaster and abdominal reflexes. The Romberg sign was present. There was much difficulty in walking, typical of a considerable degree of ataxia; also ataxia of the arms, without loss of gross strength. No fibrillation of muscles was noted. Sensation to touch, pain and temperature showed no disturbance by the ordinary tests. Sense of position of the toes was impaired. Claims up to this time to have had no sharp pains in the legs. The urine was acid in reaction, pale, specific gravity 1,018, without albumin or sugar. The patient thinks the atrophy of the hands came on at about the same time as the weakness (ataxia) of the legs. He has not been troubled with sphincteric disturbances.

The following are some of the more important notes made during the succeeding four years: May 6, 1898: Increasing difficulty in walking; blunting of pain sense, especially in the legs; in certain areas touch not well appreciated. July 5, 1898: Slow progress of atrophy of arms; power greater in left arm and hand than in the right. In July, 1899, after about a year passed outside of the hospital, he returned, slightly improved in general health, but with special symptoms unchanged. March 8, 1900: About ward on crutches; complains of tremor of muscles; atrophy, extending to right shoulder; disordered sensation in legs. Aug. 9, 1900: Pain in right great toe. Jan. 18, 1901: Cough, loss of weight of about twenty-four pounds in a year; signs of consolidation in lungs, but no tubercle bacilli found in the sputum. During the following year the condition remained essentially the same. He had at times typical lancinating pains. Recent examination shows the following conditions: Marked atrophy of muscles of both hands, noticeably the interossei and thenar and hypothenar eminences; claw hands; considerable fine tremor of both hands; atrophy of forearm muscles more marked in lower portion; possible slight weakness of muscles of upper arms and shoulders; no visible atrophy of shoulder girdle muscles; doubtful fibrillation; arm reflexes lost. The feet also show atrophy of the interossei with resulting "claw foot" deformity, though much less marked than in the hands. Muscles of the legs are small and soft, but show no marked evidence of atrophy. Knee jerks are absent, no clonus or plantar reflex; very well-marked Romberg sign. Objectively sensation is somewhat diminished in the extremities. In the more atrophied muscles there is a quantitative diminution to faradic stimulation. The pupils are equal, respond very slightly to light, with retained accommodation. There is no diplopia nor limitation of the visual fields.

The clinical diagnosis in this case is not open to doubt; Argyll-Robertson pupils, lost knee jerks, lancinating pains, ataxia, are conclusive of tabes. Atrophy of the spinal type, gradually progressive, without signs of neuritis force one to the conclusion of a coincident degeneration of peripheral motor neurones — progressive muscular atrophy.

At the 1901 meeting of the American Neurological Association Collins[1] reported "A Case of Progressive Muscular Atrophy and Tabes with Autopsy," in which the post-mortem findings failed to confirm the condition as clinically observed. Very marked changes in peripheral nerves and muscles were found, which could not be accounted for by alterations in ventral horn cells which showed very slight deviations from normal. The discussion brought out the variety of the combination of tabes and progressive muscular atrophy in the experience of American neurologists. In concluding the discussion Collins stated that the microscopic examination of his case had not been finished and that he still thought it possible that changes might be found in the ventral horns. We are not aware that he has made any further publication in the case. In view of the uncertain pathological anatomy in these cases it may be well to withhold a dogmatic diagnosis, but the combination of signs described in the foregoing patient appear to leave small doubt of the combined character of the affection.

### II. TABES AND MULTIPLE SCLEROSIS.

Although the confirmatory evidence of an autopsy was not obtained in the following case, the symptoms, as observed over a period of many months, render inevitable the diagnosis of tabes associated with multiple sclerosis.[2] This combination of diseases has rarely been described, and the association in this instance must be regarded as a coincidence, rather than as a causal relationship. From the point of view of diagnosis the case is of interest

The patient was a man of forty-six, an intelligent carpenter, married. His father is said to have had tremor of the hands, and died of apoplexy at the age of seventy-two. His mother was living and well and his family history was otherwise negative, except in the fact that a brother had died of tuberculosis. About twenty years before first seen at the Massachusetts General Hospital, he had had gonorrhea and probably syphilis, although he was unaware of any secondary signs or symptoms. His wife had borne four healthy children, and had had one miscarriage, supposedly from undue exposure. No history of infectious disease other than these was obtainable. His personal habits had been on the whole good; he had been moderate in the use of alcohol, though he had at times smoked to excess.

For about twelve years the patient had noticed a tremor of the hands which had increased and involved legs and head. For a year and a half there had been marked involuntary lateral movements of the head. Following this tremor sharp leg pains developed and increasing general weakness, associated at times with girdle sensations, constipation, difficulty in micturition without loss of sexual power. He had had no headache, no gastric or laryngeal disorder, and his eyesight had

[1] Journal Nervous and Mental Disease, 1901, xxvii, 564.

[2] The patient was demonstrated several years ago at a meeting of the American Neurological Association, with a general agreement in the diagnosis offered.

remained unaffected. Subjective disorders of sensation had not occurred, beyond slight paresthesia of the legs in the earlier course of the disease.

Physical examination made during repeated visits of the patient to the hospital showed the following essential points: *Mind* perfectly clear; there is no evidence that there has at any time been any disturbance in mental processes. *Sensation:* Diminution of pain sense in both legs and to a less degree in the arms. Contact easily appreciated; no delayed sensation; muscle sense not disturbed. Appreciation of warm and cold imperfect in the lower extremities, particularly on the soles of the feet. Extending completely around the body there is an area of diminished sensibility, somewhat wider in front than behind, in which contact is appreciated. There is no hyperesthetic zone. Examinations of sensibility made at an interval of about eight months showed an apparent improvement in the lower extremities at the second examination. Slight ataxia of the legs was noted; that of the arms was difficult to determine owing to a very marked tremor of the intention type. There was a slight Romberg sign. Lancinating pain of typical character occurred at varying intervals. *Motion*: No paralyses; arms and legs passively and actively easily moved, except for the fact that a slight spasm of the muscles about the knees was aroused by passive movements of the legs; hand grasp somewhat weak. The knee jerks were lost; the plantar, cremaster and abdominal reflexes were active; reflexes of upper extremities slight or lacking. There was no increased mechanical irritability of the muscles and no atrophy. Electrical examination was negative. The gait was slightly unsteady, but otherwise normal. The head was in constant motion, and the tremor of the arms was distinctly increased on intended movement (Fig. 2). The patient thought that his speech had changed; that he could not speak so freely as formerly and that it had become hesitating. It was, however, not typically scanning in character. *Eyes:* Slight muscular inco-ordination on lateral fixation; Argyll-Robertson pupil; no diplopia nor color blindness. The optic disc (Dr. F. E. Cheney) showed no pathological alteration. The arteries, heart and lungs showed no abnormality.

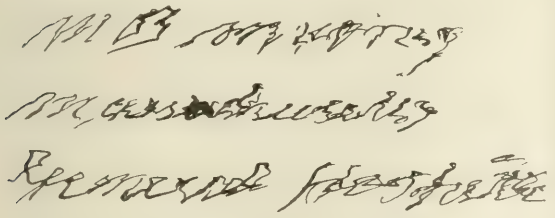


Fig. 2.

The most striking element in the clinical picture was the tremor, which was easily aroused and prevented the possibility of fine work. The tabes was unmistakable, and the multiple sclerosis hardly less so, although masked to a certain degree by the predominence of the tabetic process. So typical a tremor as this patient presented it is difficult to imagine as occurring from any other cause. There was no element whatever of hysteria in the case, nor had there been any trauma in the antecedent history to give rise to the tremor occasionally met with in the traumatic neuroses, which may in rare instances closely simulate that of a true multiple sclerosis. Although chief stress should be laid upon the tremor in this case in arriving at a diagnosis, the slight nystagmus and speech defect should be given weight as corroborative evidence.

It was not possible to follow in detail the subsequent course of the case owing to his residence in a distant town, until death occurred some years later. His death was no doubt hastened by the concurrence of diseases. It is a matter of much regret that a verification or a disproval of the clinical diagnosis was not possible.

## Reports of Societies.

### AMERICAN LARYNGOLOGICAL ASSOCIATION.

Twenty-fourth Annual Congress, Held in the Medical Library, Boston, Mass., May 26, 27 and 28, 1902, Dr. John W. Farlow of Boston, President.

#### FIRST DAY.

#### PRESIDENT'S ADDRESS.

Dr. Farlow in his address called attention to the needs for instruction in laryngology at the present time, and described the provisions made in the laryngological department of Harvard University. Speaking in general terms of the present practice in this specialty, he expressed the opinion that cocain had led to some unnecessary nasal surgery, and that the relation of the nose and throat to voice production had not received adequate consideration.

#### TUMOR OF THE PHARYNX; AN ACCESSORY THYROID GLAND; REMOVAL FOLLOWED BY MYXEDEMA.

Dr. E. L. Shurley of Detroit presented this paper. The patient was a girl of sixteen presenting a tumor, about the size of a hen's egg, attached at the base of the tongue. The diagnosis of adenoma was made, and the growth was removed by snare under chloroform. Some time after this operation she returned to him with well-marked signs of myxedema. She was put upon five grains of thyroid extract three times a day. Dr. Shurley said that in all of the cases of accessory thyroids of the tongue and pharynx reported in this country there had been an absence of serious symptoms, and myxedema had rarely occurred after their removal.

#### SUBGLOTTIC SARCOMA; REMOVAL ENDOLARYNGEALLY WITH GALVANOCAUTERY SNARE.

Dr. J. W. Gleitsmann of New York reported this case. The patient was a man of fifty-two,

who, four months before coming under observation, had suddenly become hoarse, and more recently had suffered from cough, dyspnea and bloody expectoration. Vocalization was interfered with by the tumor underneath the cords. He succeeded in removing the tumor with a snare, the tumor being drawn through the glottis while the patient was inhaling deeply. Difficult as this operation would seem to be, it was greatly simplified by the docility of the patient and by a short preliminary course of breathing exercises. The tumor was examined by Dr. Heitzmann and found to be a sarcoma. There had been no unpleasant sequelæ.

DR. JOHN N. MACKENZIE of Baltimore characterized this endolaryngeal method of removing laryngeal cancer as unworthy of serious consideration, for it was utterly impossible to map out and thoroughly remove the growth.

DR. D. BRYSON DELAVAN of New York remarked that the criticism of the last speaker was applicable to carcinoma, whereas the case under discussion was one of sarcoma, an entirely different matter. Dr. Gleitsmann's operative achievement in this case was certainly a very brilliant one, and he could not personally share Dr. Mackenzie's enthusiasm concerning the external operation in all cases.

DR. W. KELLY SIMPSON of New York said that the pedunculated character of the tumor rendered the case peculiarly favorable for an endolaryngeal operation. While he favored the external operation for extensive malignant disease, the operation of removal of the larynx was so fatal that it was certainly justifiable to try the endolaryngeal method under favorable conditions.

### A CASE OF EPITHELIOMA OF THE LARYNX; THYROTOMY; DEATH IN FOUR MONTHS.

DR. CHARLES H. KNIGHT of New York reported this case. There had been periods of remission and of growth extending over a period of three years, and the invasion of the lymphatics was tardy up to the time of surgical intervention. A rather interesting feature of the case was the conflict of testimony of microscopists regarding the nature of the growth, though specimens representing its whole thickness were submitted to them. He was of the opinion that where a cancer of the larynx was so extensive as to demand complete removal of the larynx, the case should be looked upon as inoperable, though various factors, such as age, environment and the character of the growth must be given due consideration.

DR. H. L. SWAIN of New Haven said that in cases in which there seemed to be a fair chance of a good result from the simpler measures, he would try these before resorting to some of the terrible surgical operations that had been advised. In the more extensive cases, if any operation were done it should be the removal of the larynx with all the neighboring glands.

DR. W. E. CASSELBERRY of Chicago took issue with the author on the statement that where carcinoma of the larynx was so extensive as to call for laryngectomy the case should be considered as inoperable. In support of this contention the speaker reported several cases that had seemingly done well after that operation.

DR. DELAVAN said that in a very recent monograph, written by Dr. Frank Hartley, would be found abundant proof of the great value of complete laryngectomy in certain cases.

DR. W. K. SIMPSON said that laryngectomy was an operation that should only be done by the experienced general surgeon.

DR. E. FLETCHER INGALS of Chicago concurred in this opinion, and added that he had been informed that of the many patients that had been operated on by Dr. N. Senn for carcinoma of the larynx none could be found alive after four years.

DR. J. PAYSON CLARK of Boston called attention to a case of carcinoma of the left vocal cord that had been operated upon by thyrotomy on Jan. 4, 1897, and stated that the patient had experienced no trouble since then and was in possession of a fairly strong voice.

DR. KNIGHT said that his patient had positively declined more radical measures. His own experience with the complete operation, it must be admitted, had been decidedly discouraging.

### THE X-RAY IN THE TREATMENT OF MALIGNANT DISEASE OF THE LARYNX.

DR. D. BRYSON DELAVAN of New York presented this paper. He said that from the improvement in cases of x-ray treatment of cancer of the tonsils and pharynx it seemed reasonable to expect some benefit from such treatment in advanced cancer of the neck. Such a trial was the more justifiable, as experience seemed to show that the effect of such treatment could be determined in about two weeks.

DR. H. L. SWAIN spoke of three cases of internal carcinoma in which relief had been afforded and the progress of the disease had been apparently checked by the x-ray treatment. In one case of inoperable carcinoma or adenosarcoma of the nose the growth had been greatly diminished in size and the pain relieved, so that he thought this method of treatment should prove of value in cases of laryngeal cancer.

DR. W. E. CASSELBERRY said that in a case of deeply situated carcinoma of the larynx treated with the x-ray by Dr. Pusey, there was so little improvement that the treatment was discontinued after four weeks, but to his surprise a remarkable improvement took place in the course of the next month. He mentioned this particularly to show that more than two weeks would be properly required to test the efficacy of the x-ray treatment in a given case.

DR. J. PAYSON CLARK spoke of a case of advanced carcinoma of the larynx in which marked relief followed three applications of the x-ray.

DR. GEORGE A. LELAND of Boston said that in a laryngeal case that had been under x-ray treatment by Dr. Francis H. Williams, the results had

been quite satisfactory for three or four months, but ultimately an increase of the subglottic infiltration had made a tracheotomy necessary.

RAPID DILATATION AND THE PROLONGED USE OF INTUBATION TUBES IN CICATRICIAL OCCLUSION AND IN STENOSIS OF THE LARYNX.

Dr. J. Payson Clark of Boston reported two cases of this kind.

THE DEVELOPMENT OF THE TONSILS.

Dr. Charles S. Minot, professor of embryology in Harvard University, gave an interesting discourse on this subject, illustrated by numerous models and specimens.

THE GROWTH OF THE FACE, AND ESPECIALLY OF THE PHARYNX.

Dr. Thomas Dwight, professor of anatomy in Harvard University, delivered an address on this subject. It was made exceptionally instructive and interesting by the use of models and specimens prepared in an original manner.

SOME REMARKS ON THE ANATOMY OF THE INFERIOR ETHMOIDAL TURBINATE, WITH PARTICULAR REFERENCE TO CELL FORMATION.

Dr. Howard A. Lathrop, assistant in surgery in Harvard University, discussed this subject, giving his hearers the benefit of the knowledge he had gained from a painstaking study of one thousand turbinates. Numerous specimens and lantern slides were used in illustration.

SECOND DAY.

DISCUSSION ON ACUTE GENERAL INFECTIONS ORIGINATING IN THE LYMPHOID TISSUE OF THE UPPER AIR TRACT.

Dr. J. L. Goodale of Boston reviewed the pathology of the tonsil. His experiments showed that finely divided substances in the crypts of the tonsil are capable of entering the tonsils proper through the interfollicular lymph spaces. Bacteria were not found in the tonsillar tissue proper, though they were often numerous in the crypts. In opposition to the statements usually found in the books, he declared that the leucocytes found in the tonsils are not phagocytes. His view is that the tonsils present open channels along which polynuclear leucocytes pass from the blood vessels to the surface of the mucous membrane. Acute infecting bacteria multiply in the tissue of the tonsil only when penetration has been effected into the centres of the follicles.

SYMPTOMS AND TREATMENT.

Dr. H. L. Swain of New Haven took up this topic. He reminded his hearers that this region is an active part of the lymphatic system, and that, therefore, it was not a matter of surprise that acute inflammation of this part should give rise to profound constitutional disturbance. The fact that such disturbance originated chiefly in infection of the fauces, pharynx or tonsil might be explained by the more direct connection with the lymphatic trunks and their much greater mass. In his experience, acute Hodgkin's disease and lymphadenoma had originated from the tonsil. As a rule, very young children were affected by purely third tonsil inflammation, and in children between the ages of three and six years the results of tonsillar inflammation were apt to be quite lasting. The author then proceeded to sketch the clinical picture commonly presented by these little patients. The attack is apt to be ushered in by fever and slight stoppage of the nose, but almost entirely unaccompanied by local signs. After a day or two of fever, headache and foul breath, the attack would perhaps subside, and the family physician finding all his examinations negative, concludes that the case was after all nothing more than an attack of indigestion. But in a few days more the neck begins to swell, and with the clear signs of a lymphadenitis the child is evidently quite ill. The point to be especially emphasized was the almost total absence of local manifestations. Even in young children it was ordinarily feasible to inspect the parts and determine the size of the third tonsil and the existence of follicular inflammation if a weak solution of cocain is used in a spray. In 133 autopsies at the New York Foundling Hospital tubercular lymph-nodes were found in the chest in every instance, irrespective of the cause of death, and it was believed that the tuberculosis originated in the tonsils. Dr. Swain said that he looked upon the tonsils just as upon normal lymph-nodes elsewhere in the body, and if they became infected he favored removing them. A weak solution of boric acid and adrenalin would be found useful for cleansing the nasal passages. Sometimes a weak solution of peroxide of hydrogen was useful for this purpose, but its prolonged use caused irritation, and in any case its application should always be followed by an alkaline spray or wash.

Dr. E. L. Shurly was of the opinion that the tonsils normally rendered useful service in assisting in the fermentation of food lodged there and in destroying saprophytic organisms.

Dr. Clarence C. Rice of New York thought the physician sometimes favored the penetration inward of infection by the use of such astringents as nitrate of silver. Soothing disinfectants and relaxing gargles were to be preferred.

Dr. John O. Roe of Rochester observed that a tonsil so diseased as to require removal was not necessarily hypertrophied.

Dr. George A. Leland remarked that the clinical picture drawn by Dr. Swain was very characteristic of inflammation of the middle ear, and he believed these children would be found to be so affected.

Dr. W. E. Casselberry advised the use of a medicine dropper in treating the nose in young children, and for diagnostic purposes a $\frac{1}{10}\%$ solution of cocain.

DR. SAMUEL JOHNSTON of Baltimore recommended the following treatment for acute follicular tonsillitis, claiming that it would usually effect a cure in three days: Calomel, followed by citrate of magnesia, is given as an initial purge. Then a saltspoonful of a powder composed of 2½ dr. each of the biborate, bicarbonate and salicylate of soda, 4 gr. of carbolic acid, and 4 minims of oil of cassia, is dissolved in a tumbler of hot water. This is used as a gargle at intervals of half an hour or an hour.

DR. W. K. SIMPSON remarked that, in his opinion, this disease is self-limited, and not affected to any extent by any method of treatment.

DR. EMIL MAYER of New York gave as a useful diagnostic point in young children the presence of adenoid tissue on the posterior pharyngeal wall as almost surely indicative of adenoids in the nasopharynx.

DR. E. FLETCHER INGALS said that he believed it was possible to abort acute follicular tonsillitis. He had formerly used nitrate of silver for this purpose, but now preferred to apply a 50% solution of guaiacol in oil. This produces a severe burning for about thirty seconds, and then gives almost complete relief for a number of hours. He was of the opinion that by this treatment fully three-fourths of the cases could be aborted if seen sufficiently early, and that even in those that had existed for three or four days it was not without good effect.

DR. J. H. BRYAN of Washington, D. C., said that he had long been convinced that the lymphoid tissue in the post-nasal space was a fertile source of systemic infections.

### THE SO-CALLED IMMUNIZING TREATMENT OF HAY FEVER.

DR. E. FLETCHER INGALS of Chicago gave in this paper the results of a series of observations that he had made with a remedy composed of equal parts of the fluid extracts of the pollen of golden-rod and ragweed. This was given to hay fever patients four times a day, beginning with a dose of 2 minims and gradually increasing it up to 20 minims. Twelve patients, or 67%, declared that they had been relieved by this preparation, and in several cases the hay fever returned on discontinuing the medicine, but disappeared once more on resuming it. Sixty per cent. of the whole number were subject to asthma during the attack, and 50% of these reported either benefit or complete relief. In two instances the medicine disturbed digestion, and in one patient it so repeatedly gave rise to menorrhagia that it had to be discontinued. Although the dose used was less than one-fourth that ordinarily recommended, it was found that any attempt to increase this dose resulted in disturbed digestion. It was interesting to note that the eclectics use ambrosia as a hemostatic, and that many of Dr. Ingals' patients noticed a dryness of the nasal mucous membrane while using the medicine. About 25% of the persons who believed that they had been benefited by this preparation attributed their hay fever to ragweed, and not one to golden-rod. It was hoped that the observations to be made during the coming hay fever season would either establish or disprove the value of this supposed method of treatment.

*(To be continued.)*

## AMERICAN SURGICAL ASSOCIATION.

ABSTRACT OF PAPERS AND DISCUSSIONS AT THE TWENTY-THIRD ANNUAL MEETING, HELD IN ALBANY, N. Y., JUNE 3, 4 AND 5, 1902, THE PRESIDENT, DR. DE FOREST WILLARD OF PHILADELPHIA, IN THE CHAIR.

[Concluded from No. 4, p. 110.]

A PAPER by DR. THEODORE A. MCGRAW of Detroit, entitled

### A CASE OF SPLENECTOMY FOR LEUKEMIC ENLARGEMENT,

described in detail the symptoms of the case reported, and particularly the results of the examinations of the blood. Various experiments on guinea-pigs were referred to, which gave negative results. In the author's opinion the pathology of leukemia in its various forms is, as yet, so obscure that rational therapeutics is out of the question.

A problem which ought to be studied in these cases is the tendency of the enlarged spleen to become adherent to the surrounding structures, the most frequent cause of death after splenectomy for leukemia being the hemorrhage due to the ruptured adhesions. In the author's case he was agreeably surprised at the almost total absence of hemorrhage, and in his opinion it is highly probable that in very early operations, skilfully done, this source of danger would be almost entirely obliterated.

This paper was discussed by Dr. Meyer of New York and Dr. Richardson of Boston.

DR. F. W. MURRAY of New York read a paper on "Suppurative Pancreatitis, with Report of a Successful Case."

A paper by DR. ROSWELL PARK of Buffalo, N. Y., for which no title was given, was read by title.

### CARCINOMA LIMITED TO THE APPENDIX VERMIFORMIS: DISCUSSION OF ITS ORIGIN AND ITS RELATION TO APPENDICITIS.

DR. RICHARD H. HARTE and DR. ROBERT N. WILLSON of Philadelphia read this paper. They said that the two cases that form the subject of this paper were reported as of interest, not only from the pathological standpoint, but because of features that give them a direct bearing upon a disease that has become of late years almost as frequent in its occurrence as any one other pathologic condition. Both were instances of a malignant growth in young adults (one a young

woman, twenty-four years of age and in the better class of life; and the other a man, twenty-five years of age), and this growth was limited to the structures of the appendix vermiformis. In both cases there was simply the history of recurrent appendicitis, and both cases when operated upon seemed to have had an acute exacerbation of that condition.

As the literature of the subject is studied it is seen that in all not more than seventeen other cases have been reported of carcinoma limited to the appendix. In all, moreover, there was the same picture of a chronic relapsing appendicitis, and no hint as to the real condition. A number of other cases have been reported in which the growth had probably been primary in the appendix but had extended to other organs, thus preventing a positive knowledge as to the origin of the malignant growth.

In studying the frequency of occurrence and the symptoms of these cases it is noted as a striking fact that of the thirty and odd reports of carcinoma of the appendix, probably primary, whether limited to the organ or not, fully two-thirds have been noted since 1890, and of the seventeen cases that we acknowledge as certainly limited to the appendix, all except one have been noted since 1895, and ten since 1898. Of the latter ten, six have occurred within the last eighteen months.

All of these facts point to the one conclusion, that as the custom grows of examining all specimens of pathological tissue, conditions become common that have been considered rare, and among them appendiceal carcinoma seems to be growing familiar. We incline decidedly to the inflammatory origin of carcinoma, and we believe that these appendiceal growths, especially Case I of this paper, strongly warrant such an opinion. In support of this view were the long standing of the appendicitis (five years) in our Case I, the absence of traumatic or hereditary influence, the superb physical condition of the patient, and the dissimilarity between such a slow course of growth (providing the carcinoma were present here for five years) and its well-known rapidity of extension elsewhere in the body.

Most interesting questions arise as to the diagnosis, treatment and prognosis. In reply to the query "Can the condition be diagnosticated in its early stages?" we must answer, only in the event of an exploratory operation, and perhaps not then. The malignant growth in Case I was not evident macroscopically at any time, and its presence was unsuspected until the section was studied under the microscope. In other cases a small, fibroid-like tumor has been seen. Moreover, the symptoms have invariably been those of recurring appendicitis. If the increase in the frequency of the condition continues, it will demonstrate the importance of a prompt and invariable operation in any case of appendicitis; and even in its present frequency it raises a serious question as to whether or not the possibility of its occurrence should not be considered as an additional reason for prompt interference in every case of appendicitis.

As to the prognosis; in the event that operation is deferred, as we know from a considerable number of cases, the bowel proper and the surrounding structures are soon involved in a malignant growth. In such a case as Case I everything except the history of carcinoma itself would point to a probability of perfect cure. In more extensive growths the outlook must be a gloomy one, because of the probability of recurrence. Even in Case I, though well at the present time, one and one-half years from the operation, no one can foretell the result. The patient has gained in weight, is absolutely free from lumbar and abdominal pain, and, except for the remembrance of the many months of suffering, seems only the stronger and more active for all the suffering she has endured. The outcome of her case should definitely establish not only the prognosis, but also the treatment, at least, in similar cases, and we shall consider it both a privilege and a duty to publish the result at a later date.

This paper was discussed by Drs. Elting of Albany, Weir of New York, Gerster of New York and Matas of New Orleans, and closed by Dr. Harte.

### A MODIFIED RADICAL OPERATION FOR THE CURE OF PERIPHERAL ANEURISMS, WITH REPORTS OF CASES.

Dr. Rudolph Matas of New Orleans, La., read this paper, and after defining the radical operation for the cure of aneurism and referring to the technique of the methods of Antyllus (simple incision of the sac after ligation of the main trunk above and below the tumor) and the operation of Purmann or Phillagrius (extirpation of the sac), as classically taught, he referred to the revival of interest at the present time in the suture of arterial wounds — a procedure which has been demonstrated to be perfectly feasible in practice by the researches and clinical experiences of the many surgeons and writers whom he quoted. But in spite of the great impetus recently given to arteriorrhaphy, or the suture of wounded arteries, it is surprising that the profession has been so slow in substituting the suture for the ligature in the treatment of aneurism, when the advantages of such a procedure were obvious enough to be recommended by a surgeon practising under much less favorable conditions over 126 years ago. It is to this particular phase of the subject, namely, the intra-aneurismal or intrasaccular suture of the arterial orifices in aneurismal tumors, that the author directs particular attention in his paper, as it constitutes the basis of the radical operation which he has had occasion to apply, with other modifications, most satisfactorily, in his surgical practice.

The operation proposed by the author is applicable to all aneurisms in which there is a distinct sac and the cardiac end of the main artery of supply can be controlled. The operation per-

formed by Dr. Matas may be briefly described as follows:

(1) Control of the circulation in the sac by means of the Esmarch bandage and constrictor or by a tourniquet. Prophylactic hemostasis may also be obtained, but less satisfactorily, by temporary compression of the parent trunk at a point close to the cardiac pole of the tumor; this temporary compression may be effectively applied by a provisional traction loop passed under the artery, or by the finger of an assistant, or by properly adjusted clamps which will not exercise an injurious pressure upon the tunics of the artery.

(2) Free incision into the sac, extending from one extremity of the tumor to the other, and evacuation of all clots, so as to expose all openings or arterial orifices which open into the sac.

(3) Obliteration of these orifices by continued or interrupted sutures with chromicized catgut or fine kangaroo tendon, introduced with a curved round needle, on the Lembert plan.

(4) Reinforcement of the first plane of sutures by an additional row of stitches, preferably continued, and applied on the Lembert plan, so as to protect against leakage and also to reduce the capacity of the sac.

(5) Inversion or infolding of the walls of the sac together with the overlying skin, so as to completely obliterate the cavity by bringing the walls in perfect apposition with the floor of the aneurismal space. The skin, which is usually relaxed after the evacuation of the aneurism, forms two flaps which are adherent to the sac and are readily sutured to the bottom of the cavity by interrupted catgut sutures. In large aneurisms, the obliteration of the cavity is further effected, and the formation of dead spaces between the inverted sac walls is prevented, by deep chromicized catgut or silkworm sutures, which are passed through all the walls of the sac, including the skin, and are tied over small rollers or pads of aseptic gauze.

When the operation is completed the aneurismal cavity is entirely obliterated without disturbing, in any manner, the sac from its bed or interfering with its relations or with the collateral circulation. At the site of the bulging tumor, which previously existed, there is a depression varying in depth according to the size of the original sac, and presenting the appearance of an inverted hollow cone or ovoid. As no exposed or raw surfaces are left in view, and the apposition of the skin is complete, there is no need for drainage, and union *per primam* can be confidently expected, thus greatly abbreviating the duration of the after-treatment. A simple sterile dressing is applied and the limb is immobilized with plaster-of-Paris, or by a suitable splint after a sufficient padding had been applied to protect the parts from undue pressure or exposure to cold. In applying this modified procedure two distinct varieties of aneurismal sacs must be kept in mind. In one type, the more frequent, the sac is elongated, fusiform main orifices which correspond to the inlet and or ovoidal in shape, and shows when opened two outlet of the main artery; these openings are usually separated by a short interspace of variable length, which is frequently grooved and represents the continuation or floor of the parent vessel. In this variety of aneurism the suture entirely obliterates the openings, together with the floor of the sac, as the continuity of the artery has been lost by merging with the walls of the aneurism. In the second type, the true saccular aneurisms, the sac is simply grafted upon a nearly complete artery. In this type the main artery communicates with the sac by a single opening, which is either saccular or ovoidal in shape. In this class of cases, it is quite possible, in dealing with the larger vessels, such as the iliac, femoral or popliteal, axillary, brachial, subclavian or carotid, to obliterate the orifice of communication by suturing its edges, leaving the lumen of the vessel still open and pervious. This is an ideal mode of restoring the artery to a comparatively normal state, because the aneurismal lesion is simply eliminated by obliteration without interfering with the circulation of the arterial trunks which supply it. The larger the calibre of the diseased or injured vessel the greater the chances of obtaining this ideal restitution, which should always be borne in mind in applying this method.

The author's experience with this operation is limited to four cases which illustrate the most common types of peripheral aneurisms. Two cases of traumatic aneurism of the brachial, one femoral and one popliteal; all successful and terminating in uneventful recoveries. The advantages claimed for this operation over the classical procedures, are:

(1) It greatly simplifies the technique, and by confining the intervention to the interior of the aneurismal sac reduces the risk of traumatism to a minimum.

(2) It eliminates the ligature altogether and does not endanger the nerves and veins and other structures in intimate relation with the aneurismal sac.

(3) It does not disturb the collateral circulation, and thus reduces the danger of gangrene to a minimum.

(4) It is capable, in favorable cases, of obliterating and curing the aneurism without obstructing the circulation of the main artery with which it is connected, by simply suturing the orifice of communication.

(5) As it simply obliterates the aneurism by lining the cavity with the overlying skin, it favors prompt healing *per primam*, and thus greatly abbreviates the period of convalescence.

This paper was discussed by Drs. Gerster of New York, Mayo of Rochester, Ransohoff of Cincinnati, Bevan of Chicago and Elliott of New York and closed by Dr. Matas.

DR. W. B. COLEY of Brooklyn spoke on

THE INFLUENCE OF THE RONTGEN RAYS ON THE DIFFERENT VARIETIES OF SARCOMA.

This paper was discussed by Drs. Richardson of Boston, Ochsner of Chicago, Gerster of New

York, McGraw of Detroit, and closed by Dr. Coley.

CYSTS IN CONNECTION WITH THE TEETH.

This paper was presented by Dr. John Chadwick Oliver of Cincinnati, Ohio.

Attention was called to the lack of literature on the subject, and to the fact that because of this many mutilating operations had been done in cases calling for less radical measures. Three cases were then reported illustrating the practical points of the affection.

A short résumé of the history and literature of the subject was given. The developmental changes were considered *in extenso*. Lantern slides were used to illustrate the developmental changes and to show the embryological transformation.

Cystic growths were divided into two classes, that is, one, those connected with the roots of the teeth, and, two, those connected with the crown of the tooth or several teeth. Sutton's classification of the odontomata was recommended because it is based upon the embryology of the teeth.

It was shown that age is a very important etiological factor. The vast majority of the cysts occur before the thirtieth year. Supernumerary teeth have, in rare instances, been the seat of this affection. The exciting cause or causes of the affection are imperfectly known. Various explanations are given but they are, without exception, open to doubt.

The diagnosis rests largely upon the absence of a permanent tooth after it should have been erupted, the cystic nature of the growth, the crackling sensation when the cyst wall is pressed upon, and exploratory incision. Removal of the retained tooth or teeth, thorough curetting and subsequent packing of the cavity will in all cases result in a cure of the condition.

This paper was not discussed.

IMPLANTATION OF SILVER FILIGREE FOR THE CLOSURE OF LARGE HERNIAL APERTURES.

Dr. Willy Meyer of New York read this paper.

Large hernial apertures which cannot be closed by a radical operation or autoplasty are often met with. Such cases were formerly considered incurable. The implantation of silver filigree — either made within the wound during the operation or procured ready-made and fastened immediately in front of the gap in the abdominal parietes — furnishes a means of curing such patients. Witzel and Goepel inaugurated the method two years ago.

Dr. Meyer successfully employed the procedure in three cases, one being a man with a recurrent inguinofemoral hernia of enormous size; the other two were women, one with a recurrent abdominal hernia, having been operated upon twice before (weight 250 lbs.), the other with a hernia of the tinea alba immediately to the left of the umbilicus (weight 190 lbs.). In the man the netting was made within the wound during the operation; in the two other patients ready-made silver filigree was fastened in front of the abdominal opening, after the omentum had first been drawn well down and stitched to the borders of the same. All three patients made a good recovery. In the first two a slight protrusion occurred at one corner some time later, but this was well accounted for by external causes. The third case is entirely cured.

Dr. Meyer considers the method a most valuable one and well worthy of recommendation. He adds that silver filigree has also been successfully used in replacing the diaphysis of the tibia that had been lost in consequence of osteomyelitis; furthermore, in replacing the resected part of the lower maxilla — in overbridging a gap in the skull after trephining,— in covering a defect in the trachea, etc.

This paper was discussed by Dr. Finney of Baltimore and closed by Dr. Meyer.

A paper by Dr. Emmet Rixford of San Francisco was entitled

TWO CASES OF EXOPHTHALMIC GOITRE TREATED BY OPERATION

and contained a very minute description of each one before and after operation. In recapitulation, it was stated that in both cases the symptoms indicative of Graves' disease were secondary to pre-existing goitre; both were chronic and were characterized by increasing rapidity of heart action, fine tremor, increased rapidity of respiration, excessive nervousness, diarrhea, periodical increase of the symptoms, with remissions, constant slight rise of temperature, dyspnea, general muscular weakness, flushings and sudden periods of excessive perspiration.

This paper was not discussed.

Dr. A. D. Bevan of Chicago, Ill., read a paper entitled

THE PRESENT STATUS OF THE X-RAY AS A MEANS OF DIAGNOSIS.

This paper was discussed by Drs. Meyer of New York, Vander Veer of Albany, Meyer of Chicago, Ochsner of Chicago, Moore of Minneapolis, Rodman of Philadelphia, and Estes of Bethlehem and closed by Dr. Bevan.

The officers for the coming year were elected as follows: President, Dr. M. H. Richardson, Boston; Secretary, Dr. Dudley P. Allen, Cleveland; Treasurer, Dr. George R. Fowler, Brooklyn; Recorder, Dr. Richard H. Harte, Philadelphia.

The place of meeting in 1902 was fixed as Washington, D. C.

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A careful inquiry into the average height of the different nations has shown the English professional classes to be the tallest adult males, attaining the high average of 5 feet 9.14 inches. Next on the list come the males of the United States, a minute fraction behind the Englishmen. Thus, the English and American nations are approximately of the same height. Most European nations average 5 feet 6 inches for the adult male. — *Philadelphia Medical Journal.*

## Recent Literature.

*The Surgery of the Rectum.* By CHARLES B. KELSEY, A.M., M.D., Late Professor of Pelvic and Abdominal Surgery at the New York Post-Graduate Hospital, etc. Sixth edition. New York: William Wood & Co. 1902.

The work of Dr. Kelsey is well known. In this new edition he has endeavored to present to his readers the surgery of the rectum as it appears to him after a large clinical experience of twenty-five years. He has endeavored to introduce all recent scientific advance in this branch of surgery in addition to his own personal views and experience, also to retain only what is of practical value; to produce a concise work adapted to the wants of those who desire to intelligently treat all rectal affections as well as complications. With this object in view the book has been entirely rewritten.

In its new form it appears as a "well-published" volume of 402 pages. The introductory chapters discuss methods of examination and diagnosis, and operative technique in general. Then are considered congenital malformations; rectal inflammation, its specific diseases and tuberculosis; rectal ulceration; stricture; abscess; fistula; hemorrhoids; prolapse; intussusception; artificial anus; intestinal resection; tumors of the rectum and anus; cancer; constipation and fecal impaction; wounds; foreign bodies; wounds of the bladder and urethra; rupture of the intestines from obstruction; affections of the genito-urinary organs involving the rectum, especially perineal lacerations and cystotomy in women; affections of the cervix uteri; prolapse of the uterus; the prostate; seminal vesicles; ureteroplastics, in the above order.

From this résumé it will be seen that the work has a more extended scope than is usually noted in works on rectal surgery. Some subjects are treated with marked brevity, while those more closely identified with the rectum, as prolapse, fistula, and others, are considered more exhaustively. As regards these latter, most of the modern ideas and methods are introduced and discussed. The writer's style is, as formerly, graphic.

The text is extensively illustrated.

*The Artificial Feeding of Infants.* Including a Critical Review of the Recent Literature of the Subject. By CHARLES F. JUDSON, M.D., Physician to The Medical Dispensary of The Children's Hospital, and J. CLAXTON GITTINGS, M.D., Assistant Physician to the Medical Dispensary of The Children's Hospital. Philadelphia: J. B. Lippincott Company. 1902.

The authors state in their preface that "the aim of this work is to place before the medical profession a thorough and reliable account of the principles and methods of artificial feeding in vogue at the present day." "The substance . . . has been gleaned from the periodical literature, monographs and textbooks of the last eight years." "The purpose . . . is to give a clear, impartial statement of the views of each author." "Detailed criticisms of their methods . . . are avoided."

Some of the subjects considered are: "Mother's and Cows' Milk," "The Chemistry of Digestion in Infancy," "Modern Methods of Infant Feeding," "The Care and Bacteriology of Milk," "Sterilization and Pasteurization," "Metabolism," "Principles of Infant Feeding," and "Methods for the Home Modification of Milk."

The authors have fulfilled their aims most satisfactorily. The book contains a mass of data which, so far as we know, has not been previously collected in one volume in English. It is, however, as would be expected, full of repetitions and of conflicting statements. On this account it is hardly a suitable book for a beginner; he would necessarily have great difficulty in separating the chaff from the wheat. For one who wishes to look up special methods, or to find out clearly the present views on moot points it will save a great deal of time and be of great service. No one interested in the subject of infant feeding can afford to be without it.

*An Experimental and Clinical Research into Certain Problems Relating to Surgical Operations.* By GEORGE W. CRILE, A.M., M.D., Ph.D. Philadelphia: J. B. Lippincott Co. 1901.

This is the publication in book form of the prize essay by the author which was awarded the Alvavenga prize for 1901 by the College of Physicians and Surgeons of Philadelphia.

The problems investigated are the following: (1) The effects of severing and of mechanically irritating the pneumogastric nerves; (2) The effect of intravenous infusion of saline solutions; (3) physiological effect of cocain and eucain; (4) The effect of temporary closure of the carotid arteries.

These are subjects of active interest to the operating surgeon, and Dr. Crile's results will be read with interest. The essay is well written. The investigation of the subjects is extensive, bibliographical as well as experimental, and the results carefully considered. The general plan of the work has been to review the literature of the subject, perform the experimental work, summarize the results, and finally to report its clinical application. In both clinical and experimental work the detailed cases are published, presenting for the consideration of the reader the facts from which the author's conclusions were formulated.

The book is well worth a careful perusal. The research work required three years on the part of Dr. Crile, who states that it is interesting to note the close correspondence of the phenomena as observed in the laboratory and the operating room. He makes a plea for the more extensive study of surgical pathology.

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## THE AERIAL CONVEYANCE OF SMALLPOX.

THE present epidemic of smallpox has given opportunity to observe many of the serious difficulties which are bound to arise in attempting to control the spread of the disease in densely settled communities, not properly provided with means for isolation.

London, with its maximum density of population, has afforded conspicuous examples of the serious consequences due to the assembling of large numbers of cases of smallpox in the midst of the crowded portions of the city. Similar conditions are likely to prevail in American cities if due care is not taken in locating hospitals intended for the reception of patients ill with smallpox. The city of Everett has had a somewhat similar experience on a limited scale. This city has had a phenomenal growth, its population having increased from 2,220 in 1870, to 24,336 in 1900, or more than tenfold in thirty years. It is likewise a city of very small area, this population being limited to a territory of less than three square miles. At the beginning of the present outbreak of smallpox in Massachusetts, Everett had no smallpox hospital, and the first case of the disease was isolated in the house where the patient was taken ill, this house being upon a public street, opposite a railway station, and in the immediate neighborhood of many other houses. As fast as other cases were found in the city, they were taken to this house for treatment, so that, for the time being, the house became a smallpox hospital. During the past few months several cases have occurred in the immediate neighborhood, which could only be accounted for on the score of their proximity to this hospital. Provision has now been made by the city government for a more isolated location.

These experiences in densely settled communities make it desirable to restate the observations and principles which have been recorded upon this subject in recent years. The subject is fully treated in the report of the English Local Government Board, upon "The Use and Influence of Infectious Disease Hospitals," published in 1882. Dr. Thorne also presented a paper upon the same subject at the International Congress of Hygiene in 1891. He then said in commenting upon the subject of infectious disease hospitals in general:

"So far, there is no evidence that aggregation of the infectious sick suffering from any of these diseases, *except smallpox*, such as is likely to be carried out by any ordinary sanitary authority, leads to infection of the surrounding community, provided that the hospital be constructed and administered, and subject to a zone of some forty feet being provided between all buildings intended to receive infected persons or things, and the boundary wall or close fence around the site. *Experience has shown that it is otherwise with smallpox*, and it yet remains to be ascertained what are the circumstances under which cases of that disease can be aggregated for the purposes of sanitary authorities without risk to the community. Fortunately, owing to the protection afforded by vaccination, smallpox does not, as is commonly supposed, stand foremost among the infectious fevers calling for isolation in a hospital."

ADMISSIONS OF ACUTE SMALLPOX TO FULHAM HOSPITAL, AND INCIDENCE OF SMALLPOX UPON HOUSES IN SEVERAL DIVISIONS OF THE SPECIAL AREA DURING FIVE EPIDEMIC PERIODS.

| Cases of acute smallpox admitted. | In Epidemic Periods Since Opening of Hospital. | Incidence on Every Hundred Houses within the Special Area and its Divisions. | | | | |
|---|---|---|---|---|---|---|
| | | On Total Special Area. | On Small Circle 0-¼ Mile. | On First Ring ¼-½ Mile. | On Second Ring ½-¾ Mile. | On Third Ring ¾-1 Mile. |
| 327 | Mar., 1877-end of 1877 | 1.10 | 3.47 | 1.37 | 1.27 | .36 |
| 714 | Jan., 1878-Sept., 1878 | 1.80 | 4.62 | 2.55 | 1.84 | .67 |
| 679 | Sept., 1878-Oct., 1879 | 1.68 | 4.40 | 2.63 | 1.49 | .64 |
| 292 | Oct., 1879-Dec., 1880 | .58 | 1.85 | 1.06 | .30 | .28 |
| 515 | Dec., 1880-Apr., 1881 | 1.21 | 3.00 | 1.54 | 1.25 | .61 |
| 2,527 | Five periods | 6.37 | 17.35 | 9.20 | 6.16 | 2.57 |

Dr. Power made a thorough investigation in 1882, and reported to the Local Government Board, showing that in the neighborhood of the Fulham hospital, smallpox had increased almost in a direct ratio to the nearness of the population to the hospital. This increase was also independent of lines of human intercourse. In point of time there was also a very marked relation between the varying use of the hospital and the manifestations of excessive smallpox in the neighborhood. Hence much greater care is necessary in selecting an isolated site in the case of hospitals intended for the reception of smallpox pa-

tients than is necessary in the case of those which are to be used for other infectious diseases.

The foregoing condensed table of general conclusions is taken from Dr. Power's report.

CONCLUSIONS RELATIVE TO THE SPREAD OF SMALLPOX IN THE NEIGHBORHOOD OF HOSPITALS.

(1) There has been in each epidemic period an excessive incidence of smallpox in houses in the neighborhood of the hospital as compared with more distant houses in Chelsea, Fulham and Kensington.

(2) The percentage of houses invaded in the neighborhood of the hospital has become gradually smaller as the distance of the houses from the hospital has increased.

This gradation has been very exact and very constant.

(3) Houses upon the chief lines of human intercourse with the hospital have not suffered more than houses lying in other directions from the hospital.

(4) In point of time, there has been a very marked relation between the varying use of the hospital and the manifestations of excessive smallpox in the neighborhood.

This relation has not shown itself while the use of the hospital has been for convalescents only.

(5) The appearance of excessive smallpox in houses around the hospital has never been delayed until the hospital has become full or nearly full. It has been always most remarkable at the time when admissions to the hospital were beginning to increase rapidly.

In the succeeding months of active operations, though the use of the hospital may have gone on increasing, the excess of smallpox upon the neighborhood has habitually become less marked.

(6) On comparison of different epidemics an almost constant ratio is observed between the amount of the hospital operations and the degree of excess of smallpox in the neighborhood.

(7) The machinery of the hospital administration, with inclusion of defects in that machinery, does not account for the peculiarity of smallpox incidence within the three parishes of Chelsea, Fulham and Kensington since the establishment of the hospital.

(8) There must have been some condition or conditions operating to produce the observed distribution of smallpox around the hospital that have pertained to the hospital as such, and that have been in excess of the condition of smallpox extension as usually recognized.

(9) During the present epidemic period, and most probably during former similar periods, there has arisen in the atmospheric circumstances of the time, peculiar facility for the dissemination in an undamaged state of any matter that may have been given off from the hospital.

In consequence of this investigation, and also on account of similar experiences which had been observed in other English cities, the smallpox hospitals of London were abandoned, and provision was made for receiving smallpox patients in several hospital ships, which were anchored in the Thames at a point several miles below the city. About a mile from these hospital ships, on the left bank of the Thames, lies the village of Purfleet. In a communication to the *Medical Magazine* of June, 1902, Dr. J. C. Thresh, medical officer of health of the district, says: "This hamlet (Purfleet) is included in the three-fourth mile radius from the hospital ships. It comprises 110 houses, chiefly cottages, and the population is 479. In Purfleet there have been 47 cases of smallpox, and in West Thurrock, two miles away, 70 cases. The attack rate is as follows: In Purfleet, 100 per 1,000 population; in West Thurrock, 33 per 1,000 population. In other words, smallpox has been three times more prevalent in Purfleet than in the remainder of the district. Strong as are these proofs of the effect of the proximity of the hospital ships, they can be further strengthened by a consideration of the effect of the prevailing winds. By far the most prevalent winds in the past eight months have been from southwest and west-southwest, blowing from the ships over the south portion of Purfleet. The wind which would blow over West Purfleet has been very occasional indeed; hence if the infection is carried by the air, we should expect to find that the great majority of the cases of smallpox would have been in South Purfleet, and this is exactly what has happened. I am convinced that there is no other factor than aerial convection which can explain the above facts."

In a communication to the *London Lancet* dated Feb. 22, 1902, Dr. Thresh also says: "We cannot hope by isolation to get rid of smallpox." The mainstay and reliance consists in vaccination and revaccination of the entire population.

In view of these repeated occurrences of infection in the neighborhood of smallpox hospitals, which could be accounted for in no other way than by transmission through the air, the Local Government Board came to the following conclusions, which were expressed in its circular of January, 1895:

Smallpox hospitals have again and again served to disseminate that disease to neighboring communities, and this, to use the words of the Royal commission, "in spite of precautions almost in excess of any that would have been anticipated."[1] It is not certain at what distance they are dangerous to surrounding populations, but it may be accepted that it is *not safe* to erect a smallpox hospital:

(1) On a site within one-fourth mile of a hospital, either general or for infectious diseases, or of a workhouse or similar institution, or of any aggregation of 150 to 200 persons.

(2) On a site where it would have within one-half mile a population of 500 to 600, whether in one institution or in dwelling houses.[2]

These distances are not to be taken as absolutely fixed, and the case of a considerable population resident just outside such limit would call for serious consideration.

The German nation, with its fifty millions of population, is not disturbed by the continual occurrence of these harassing questions relating to

[1] L. G. B., Memorandum, 1895.
[2] Himes' Practical Guide to the Public Health Acts, p. 639.

the management of smallpox epidemics, since it has a good vaccination law well enforced, and consequently has neither smallpox nor smallpox hospitals. The question has therefore an important economic side, since a very large financial saving is made in the matter of hospital construction, care, maintenance, sickness, and loss of life.

## MEDICAL NOTES.

Losses by London Hospitals Incident to the Failure of Coronation Ceremonies.— According to a London paper certain of the London hospitals have had to face a serious situation because of the postponement of the procession at the time when the King's coronation should have taken place. St. George's and the Westminster Hospitals, as well as St. Thomas's, would presumably have cleared a large amount of money, after paying all expenses, due to the sale of seats for the procession. It is said that nearly ten thousand pounds of this would have been profit after all expenses had been met. When postponement was necessitated, the authorities offered to return the money of those who had secured seats, but suggested that it might be given to the hospital on the ground of the good use to which it would be put. It is said that a large number of the buyers have declined to be reimbursed.

The Study of Tuberculosis on its Social Side.— It is reported that the New York Charity Organization Society desires subscriptions to the amount of $10,000 for the purpose of meeting the expenses incident to research and later publication by a committee which is to study the social aspects of tuberculosis. The aim will be to inquire into the relation of overcrowding upon the transmission of disease and the value of improved diet and methods of living. It will also encourage movements for public and private sanitaria and will take measures to serve indigent persons suffering from the disease. The publications of the society will seek to spread as widely as possible the knowledge that tuberculosis is communicable and preventable.

Resignation of Professor von Kœlliker. — It is reported that Prof. Albert von Kœlliker has resigned his professorship at the University of Würzburg, which he has occupied fifty-five years. He is now in his eighty-fifth year, and has continued up to this advanced age to do most valuable scientific work.

Colonel R. M. O'Reilly to be Surgeon-General of the Army.— President Roosevelt is reported to have designated Col. R. M. O'Reilly Surgeon-General of the Army, to succeed General Forwood, who will retire on Sept. 7 next. Colonel O'Reilly was graduated from the Medical Department of the University of Pennsylvania.

Cholera in the East.— It is announced that cholera has appeared in Manchuria with a very large number of cases and numerous deaths. The disease is also reported from Cairo and Moucha near Assioot in Egypt, with a very large proportion of fatal cases.

A Woman Professor at University of Milan.— Dr. Rina Mastio has been appointed professor of anatomy at the University of Milan. This is said to be the first instance of the appointment of a woman to a professorship in an Italian university.

### BOSTON AND NEW ENGLAND.

Acute Infectious Diseases in Boston.— For the week ending at noon, July 30, 1902, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: Diphtheria 27, scarlatina 28, measles 17, typhoid fever 8, smallpox 7.

Old Tufts College Medical School to Become a Church.— The former Tufts medical school building has been purchased by the Swedish Baptist Church and will be remodelled to suit its new requirements. The building was originally a church.

The Donor of the New Yale Medical School Clinic.— Mrs. Thomas G. Bennett is the donor to Yale University of the new clinic for the medical school. Not until recently could the identity of the giver be learned. The building is now nearly finished at a cost of $96,000. Mrs. Bennett's husband for a number of years, and until July 1 last, was a member of the Yale corporation.— *Medical News.*

In Court for Refusing to be Vaccinated.— Several citizens of more or less prominence have been arraigned in court in Cambridge, Mass., for refusing to be vaccinated. A fine of $5.00 was imposed in each case, but they were all appealed. The usual arguments were used by the counsel for the defendants as to the reasons why they should not be vaccinated against their wills.

### NEW YORK.

Verdict Against a Railroad for Injuries from Charged Track.— On an action against the Nassau Railroad Company to recover damages for injuries received in stepping upon a charged railroad track, a judgment in favor has been affirmed by the Appellate Division of the New York Supreme Court. The court holds that from evidence taken at the time of the accident the track rails were so laid as not to allow sufficiently for expansion and contraction and that this would probably result in imperfect joints, which, if not

properly bonded or welded, would permit of the infliction of an electric charge upon anyone whose foot should come in contact with the rail, established the railroad company's liability in the absence of a satisfactory explanation. The defendant sought to rebut the presumption of negligence by the testimony of one of its employees to the effect that the tracks were in good order at the time and place of the accident. In summing up for the court Justice Hirschberg said: "The happening of the accident under the circumstances tended to prove the existence of conditions necessary to cause it, which could not arise without either negligence on the defendant's part or a defect of some kind, . . . . and proof merely that no defect whatever existed would not serve to remove the case from the province of the jury, where the proof was furnished by an interested witness in the defendant's employment, and the question of credibility was accordingly a factor."

A BACTERIA HUNT BY THE STREET CLEANING DEPARTMENT.— The Street Cleaning Department, under the energetic management of Dr. Woodbury, has been on a bacteria hunt, and captured so many that it found it had an *embarras de richesse*. Gelatine plates were exposed in the streets at different altitudes with the object of securing microbes in the atmosphere, but when the latter were enlarged microscopically for photographic purposes it was ascertained that the plates did not show them to advantage. Each picture was a blur, for the reason that the microbes were so numerous and so closely clustered together. The mistake was made of exposing the plates too long, and the experiment is to repeated with a shorter exposure.

SMALLPOX AT GENEVA.— There is an outbreak of smallpox in the vicinity of Geneva, N.Y., and the cases appear to be distributed over a considerable district. In the town of Fayette seven cases are reported to have been contracted from a woman suffering from the disease who went there from Rochester.

## MEDICINE AND MATRIMONY.

UNDER this heading, the *British Medical Journal* comments editorially upon the subject of legislative restriction of marriage recently brought again before the medical profession at the meeting of the American Medical Association. The concluding paragraphs are as follows:

"The only practical result of the prohibition of marriage to the diseased and the degenerate would be the increase of concubinage; the birth-rate of the unfit would not be appreciably decreased, and they would have the added brand of illegitimacy to make the struggle for life harder to them. What right has society, for no better end than the physical perfection of the breed, to inflict on persons guilty of nothing but a diseased inheritance, a disability which makes a life overshadowed by ill health still gloomier?

"Doubtless we have the right to protect ourselves and those under our charge against the physical and often moral wreck that follows marriage with a person actually diseased or of unhealthy stock. We should gladly welcome any attempt to deter persons so tainted from inflicting on unsuspecting victims the terrible injury of a union with them. But we deprecate grandmotherly legislation for the preservation of the human species as not only essentially selfish in itself, but as distinctly antisocial in its tendency and probable results.

"After all, even with all the assistance for the survival of the unfit given by modern sanitary improvement and humanitarian effort, they cannot escape the doom of natural extinction for more than a generation or two. If we are to admit the doctrine that society is justified by the law of self-preservation in purging itself of the unfit, the simpler plan would be to revert to the barbarism of ancient peoples, who solved the problem by destroying them in infancy. This method is at once more effectual and more humane than condemning them to a life of isolation from their kind and exclusion from the chief solace and support against the ills of life to which every human being born into the world has a natural right. In the interest of society itself it might not be altogether wise to drive a large body of unfortunates who carry in their very constitution the capacity of infinite mischief, into active revolt.

"The true mission of the medical profession in this matter is not to promote legislation which is almost certain to defeat its own purpose, but to instruct the public in the dangers, both to the individual and to the community, of unwholesome marriages. The education of the public mind in the practical aspects of a question in which all members, not only of the nation and the race, but of the human family, are directly interested would, although the process must needs be slow, make laws for the medical regulation of marriage unnecessary."

## TUBERCULOSIS OF THE INTESTINE.

AT the Swiss Medical Congress held at Berne May 30 and 31, Professor Kocher spoke on the above subject. There were about eighty cases on record. Professor Kocher reported about twenty-nine cases, in twenty-one of which he operated. The fact that primary tuberculosis was so rare spoke in favor of the thesis that Koch supported at the British Congress on Tuberculosis, that the disease was not transmittible from animals and that bovine and human tuberculosis were two different diseases. Secondary tuberculosis was very general; 500 out of Fenwick's 863 cases of consumption had some tuberculous lesions in the intestines. Professor Kocher wished to call his cases local-

ized tuberculosis of the intestines, yet the previous history of the patients was generally doubtful as to freedom from tuberculosis, for they came from a tuberculous stock or had suffered from lengthy bronchitis or even pleurisy, or in infancy from glandular swellings; thus there was a possibility or probability of there being some primary latent tuberculous focus somewhere. In cases of constipation, infection of a slight lesion with tubercle bacilli was possible; generally the ulcers were localized in the cecum. Ulcerations were followed by stenosis, the multiplicity of the ulcerations, excluding the diagnosis of carcinomatous ulceration. For the diagnosis the diazo-reaction was of importance; the symptoms might be very slight; only localized recurrent pain might assist the physician, who should do all he could to get the patient into the surgeon's care in the first ulcerative stage where excision could still be performed. Generally the surgeon only saw the patient in the second stenotic stage, suffering from all the symptoms of the chronic form of ileus with intermittent symptoms.— *Medical Record.*

## OLD CLOTHING AND BEDDING AS A SOURCE OF INFECTION.

According to *American Medicine* the spread of leprosy in the Soudan and other arid regions is attributed to the custom of passing soiled wearing apparel from person to person. Owing to the scarcity of water, the cleansing of clothing is almost impossible, and it is customary for the original purchaser of new clothing to wear the same until it becomes unbearably dirty, when it is given or sold to some servant or person of lower station, by whom it is in turn handed over to some one still more impoverished, and thus passes along the line to the beggar or slave. The daily calls of the old-clothesman in our larger cities and the advertisements seen in the daily papers offering the highest prices for cast-off clothing, old feather beds, etc., remind us that more highly civilized communities are not free from the same source of infection — cast-off apparel. What guarantee has the public that the clothing purchased of the old-clothes dealer has been properly disinfected? While it is impossible to trace the transmission of disease through cast-off clothing or second-hand bedding with the same certainty that applies to the transmission of leprosy by similar means in the Soudan, it requires little medical knowledge to comprehend the dangers to which the poor are subjected by the unregulated traffic in soiled clothes. Bromidrosis and hyperhidrosis of the feet are affections of microbic origin, and the very sight of rows of cobbled up old shoes at second-hand stores is certainly suggested of stinking, sweaty feet; the discarded trousers of the wealthy rake and old feather beds certainly present innumerable possibilities of infection. If old clothing must be passed down the line, let it at least be fumigated.

## METEOROLOGICAL RECORD

For the week ending July 19, in Boston, according to observations furnished by Sergeant J. W. Smith of the United States Signal Corps:

| Date | Barometer. Daily mean. | Thermometer. Daily mean. | Thermometer. Maximum. | Thermometer. Minimum. | Relative humidity. 8.00 A.M. | Relative humidity. 8.00 P.M. | Relative humidity. Daily mean. | Direction of wind. 8.00 A.M. | Direction of wind. 8.00 P.M. | Velocity of wind. 8.00 A.M. | Velocity of wind. 8.00 P.M. | Weather* 8.00 A.M. | Weather* 8.00 P.M. | Rainfall in inches. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S...13 | 29.99 | 74 | 87 | 62 | 59 | 49 | 54 | W | S W | 8 | 9 | C. | C. | 0 |
| M..14 | 29.96 | 78 | 91 | 66 | 58 | 56 | 57 | W | S W | 10 | 8 | C. | O. | 0 |
| T..15 | 29.78 | 74 | 87 | 62 | 72 | 100 | 86 | S W | N W | 10 | 5 | F. | R. | .70 |
| W.16 | 29.81 | 68 | 76 | 61 | 64 | 62 | 63 | N W | N W | 12 | 7 | C. | C. | .06 |
| T..17 | 29.88 | 66 | 76 | 55 | 53 | 81 | 67 | W | S W | 7 | 15 | O. | O. | .03 |
| F..18 | 29.94 | 72 | 77 | 68 | 58 | 69 | 64 | W | W | 10 | 5 | O. | O. | 0 |
| S...19 | 30.08 | 62 | 64 | 59 | 70 | 92 | 81 | E | E | 9 | 4 | R. | O. | .01 |
| ☞ | 29.92 | | 80 | 62 | | | 67 | | | | | | | .80 |

*O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow. †Indicates trace of rainfall. ☞ Mean for week.

## RECORD OF MORTALITY

For the Week ending Saturday, July 19, 1902.

| Cities. | Population Estimated, 1902. | Reported deaths in each. | Deaths under five years. | Percentage of deaths from: Infectious diseases. | Acute lung diseases. | Diphtheria and croup. | Scarlet fever. | Diarrheal diseases. |
|---|---|---|---|---|---|---|---|---|
| New York | 3,665,352 | 1,540 | 762 | 43.18 | 6.17 | 2.60 | 1.49 | 26.04 |
| Chicago | 1,852,828 | 519 | 197 | 39.36 | 5.78 | 1.92 | 1.15 | 19.26 |
| Philadelphia | 1,349,624 | 509 | 210 | 30.63 | 5.89 | 1.76 | .20 | 10.60 |
| St. Louis | 603,717 | — | — | — | — | — | — | — |
| Baltimore | 525,330 | 218 | 109 | 42.66 | 4.13 | — | — | 31.19 |
| Cleveland | 411,826 | — | — | — | — | — | — | — |
| Buffalo | 375,742 | — | — | — | — | — | — | — |
| Pittsburg | 341,401 | 137 | 72 | 45.26 | 10.95 | — | 2.19 | 30.00 |
| Cincinnati | 332,032 | — | — | — | — | — | — | — |
| Milwaukee | 304,975 | — | — | — | — | — | — | — |
| Washington | 289,537 | — | — | — | — | — | — | — |
| Providence | 185,870 | 80 | 30 | 23.75 | — | 1.25 | — | 10.00 |
| Boston | 588,736 | 189 | 73 | 34.91 | 7.40 | 2.64 | 1.06 | 19.57 |
| Worcester | 127,337 | 31 | 15 | 41.93 | 6.45 | — | — | 29.93 |
| Fall River | 111,872 | 55 | 43 | 58.17 | — | — | 1.81 | 47.26 |
| Lowell | 99,574 | 51 | 30 | 43.12 | 1.96 | — | 1.96 | 37.24 |
| Cambridge | 96,334 | 30 | 15 | 63.33 | 3.33 | 3.33 | 3.33 | 33.33 |
| Lynn | 71,144 | 16 | 5 | 18.75 | — | — | — | 6.25 |
| Lawrence | 67,275 | 22 | 15 | 72.72 | 4.54 | — | — | 54.54 |
| Springfield | 66,854 | 35 | 16 | 17.14 | 2.85 | — | — | — |
| Somerville | 65,882 | 13 | 5 | 46.20 | — | — | — | 7.70 |
| New Bedford | 65,574 | 27 | 15 | 7.40 | 7.40 | — | — | — |
| Holyoke | 48,065 | 17 | 7 | — | — | — | — | — |
| Brockton | 43,208 | 3 | 0 | 100.00 | — | — | — | — |
| Haverhill | 40,392 | 14 | 1 | 21.42 | — | — | — | — |
| Salem | 36,567 | 10 | 6 | — | — | — | — | — |
| Newton | 36,336 | 10 | 3 | 20.00 | — | — | — | 10.00 |
| Malden | 35,390 | 8 | 2 | 25.00 | — | — | — | — |
| Chelsea | 35,264 | 11 | 8 | — | 9.09 | — | — | — |
| Fitchburg | 33,848 | 4 | 2 | — | — | — | — | — |
| Taunton | 32,759 | 10 | 3 | 30.00 | — | — | — | 30.00 |
| Everett | 27,114 | 7 | 3 | 42.90 | — | — | — | 28.60 |
| North Adams | 26,583 | 4 | 2 | 25.00 | — | — | — | 25.00 |
| Gloucester | 26,121 | 7 | 3 | 28.60 | — | — | — | — |
| Quincy | 25,307 | 2 | — | 50.00 | 50.00 | — | — | — |
| Waltham | 24,612 | 7 | 3 | 14.30 | — | — | — | — |
| Pittsfield | 22,311 | 4 | — | — | 25.00 | — | — | — |
| Brookline | 21,679 | 3 | 0 | 33.33 | — | — | — | — |
| Chicopee | 20,390 | 13 | 12 | 38.50 | — | — | — | 38.50 |
| Medford | 20,014 | 6 | 5 | 66.67 | — | — | — | 33.33 |
| Newburyport | 14,478 | 5 | 1 | — | — | — | — | — |
| Melrose | 13,384 | — | — | — | — | — | — | — |
| Westfield | 13,038 | 2 | — | — | — | — | — | — |
| Attleboro | 12,846 | — | — | — | — | — | — | — |
| Adams | 12,813 | — | — | — | — | — | — | — |
| Milford | 12,516 | — | — | — | — | — | — | — |
| Framingham | 12,109 | — | — | — | — | — | — | — |
| Peabody | 11,957 | — | — | — | — | — | — | — |
| Revere | 11,894 | 7 | 3 | 14.30 | — | — | — | — |
| Gardner | 11,544 | 5 | — | — | 40.00 | — | — | — |
| Weymouth | 11,337 | 1 | 1 | — | — | — | — | — |
| Southbridge | 10,838 | 2 | — | 50.00 | — | — | — | — |
| Watertown | 10,600 | 1 | 1 | 100.00 | — | — | — | 100.00 |
| Plymouth | 10,336 | — | — | — | — | — | — | — |

Deaths reported 3,655; under five years of age, 1,681; principal infectious diseases (smallpox, measles, scarlet fever, cerebrospinal meningitis, diphtheria and croup, diarrheal diseases, whooping cough, erysipelas, fevers and consumption) 1,410, acute lung diseases 206, consumption 343, scarlet fever 38, whooping cough 41, cerebrospinal meningitis 10, smallpox 12, measles 29, diarrheal diseases 805.

From whooping cough, New York 18, Chicago 7, Philadelphia 7, Baltimore 3, Pittsburg 1, Boston 3, Fall River 1, Springfield 1. From measles New York 8, Chicago 6, Philadelphia 8, Pittsburg 4, Worcester, Lawrence and Somerville, 1 each. From erysipelas, New York 4, Pittsburg 2. From smallpox New York 3, Philadelphia 3, Pittsburg 2, Cambridge 2, Somerville and Everett, 1 each.

In the seventy-six great towns of England and Wales, with an estimated population of 14,862,456, for the week ending July 5, the death-rate was 15.4. Deaths reported 4,384; acute diseases of the respiratory organs (London) 168, whooping cough 125, diphtheria 64, measles 117, smallpox 16, scarlet fever 64.

The death-rate ranged from 7.6 in Hornsey to 25.7 in Middlesborough; London 15.1, West Ham 14.4, Croydon 11.0, Brighton 14.2, Portsmouth 16.0, Southampton 12.1, Bristol 13.7, Birmingham 18.4, Leicester 9.2, Nottingham 12.2, Birkenhead 15.8, Liverpool 20.3, Manchester 18.3, Salford 19.3, Bradford 14.6, Leeds 15.6, Sheffield 16.8, Hull 17.4, Newcastle-on-Tyne 19.0, Cardiff 14.2.

## CHANGES IN THE MEDICAL CORPS OF THE NAVY FOR THE WEEK ENDING JULY 26, 1902.

E. M. SHIPP, passed assistant surgeon. Detached from the "Celtic" and ordered to Port Isabela, P. I.

J. A. GUTHRIE, passed assistant surgeon. Detached from Port Isabela, and ordered home via the "Solace."

L. W. BISHOP, assistant surgeon. Detached from the Naval Brigade and ordered to the "Celtic."

M. W. BAKER, J. H. HALLOWAY, W. C. RUCKER, acting assistant surgeons. Commissioned acting assistant surgeons from July 10, 1902.

A. C. H. RUSSELL, surgeon. Detached from duty as member and recorder of the board of medical examiners, naval laboratory, New York, Aug. 25, and ordered to the Naval Museum of Hygiene and Medical School, Washington, D. C., for duty as a member and recorder of the Board of Medical Examiners.

E. R. STITT, surgeon. Detached from the "Hartford" and ordered home and to wait orders.

C. T. HIBBETT, surgeon. Ordered to the "Franklin" Aug. 1.

A. R. ALFRED, passed assistant surgeon. Detached from the "Monadnock" and ordered to the "Solace."

W. SEAMAN, assistant surgeon. Detached from the Naval Hospital, Yokohama, Japan, and ordered to the "Monadnock."

W. E. GRIFFIN, assistant surgeon. Detached from the Naval Hospital, Yokohama, Japan, and ordered to duty at Olongapo, P. I.

J. H. HALLOWAY, acting assistant surgeon. Ordered to the Naval Hospital, Boston, Mass.

M. W. BAKER, acting assistant surgeon. Ordered to the Naval Hospital, Norfolk, Va.

## SOCIETY NOTICE.

AMERICAN ASSOCIATION OF OBSTETRICIANS AND GYNECOLOGISTS.—The American Association of Obstetricians and Gynecologists will hold its fifteenth annual meeting in the Convention Hall of the Hotel Raleigh, Washington, D. C., Tuesday, Wednesday and Thursday, Sept. 16, 17 and 18, 1902, under the presidency of Dr. Edwin Ricketts of Cincinnati.

## RECENT DEATH.

DR. CARLO IMPERATORI DI RINALDO of New York, one of the founders of the Medical Association of the Greater City of New York, died suddenly from cerebral apoplexy on July 26. Dr. Imperatori, who was a descendant of one of the old noble families of Venice, was born in Italy in 1832. He studied medicine in Paris under Majendie and Claude Bernard, but did not take a degree there. He came to New York in 1859 and was graduated from Bellevue Hospital Medical College in 1874. One of his sons, Dr. Charles Johnstone Imperatori, was associated with him in practice, and they had a large clientele among Italian and French residents.

## BOOKS AND PAMPHLETS RECEIVED.

Mittheilungen aus der Medicinischen Facultät der Kaiserlich-Japanischen Universität zu Tokio. Bd. V., No. IV. Verlag der Kaiserlichen Universität zu Tokio. 1902.

A Lecture on Myopathy and a Distal Form. Delivered at the National Hospital for the Paralyzed and Epileptic. By Sir W. R. Gowers, M.D., F.R.S., Physician to the Hospital. Reprint. 1902.

The Appendix Vermiformis and Cecum. A Comparative Study. (1814-1901); Appendicectomy — Surgical History. (1758-1888). By B. Merrill Ricketts, Ph.B., M.D., Cincinnati, Ohio. Reprint. 1901.

Inhibition of the Heart as an Aid in Diagnosis. By Albert Abrams, A.M., M.D., of San Francisco, Consulting Physician to the Mount Zion Hospital and the French Hospital. Chart. Reprint. 1900.

The Essentials of Histology, Descriptive and Practical, for the use of Students. By E. A. Schäfer, LL.D., F.R.S. Sixth edition, revised and enlarged. Illustrated. Philadelphia and New York: Lea Brothers & Co. 1902.

Abdominal Hysterocolpectomy, a New Operation for Removal of Cancer of the Cervix Uteri. By John H. Gleason, M.D., of Manchester, N. H., Attending Surgeon to the Elliot Hospital, Manchester, N. H. Reprint. 1902.

Operative Treatment of Fibromyomata Uteri. By F. W. Vowinckel, M.D., Surgeon in Charge of the California Woman's Hospital, San Francisco. Read by title before the Medical Society of the State of California April 15, 16 and 17, San Francisco.

Pennsylvania Hospital. Annual Report of the Department for the Insane for the Year Ending April 24, 1902. Presented to the One Hundred and Fifty-first Annual Meeting of the Contributors to the Pennsylvania Hospital. Philadelphia, Pa. 1902.

Clinical Psychiatry, A Textbook for Students and Physicians, Abstracted and Adapted from the Sixth German Edition of Kraepelin's "Lehrbuch der Psychiatrie." By A. Ross Defendorf, M.D. Illustrated. New York: The MacMillan Co. 1902.

Medical and Surgical Report of the Presbyterian Hospital in the City of New York. Vol. V., January, 1902. Edited by Andrew J. McCosh, M.D., W. Gilman Thompson, M.D. New York: Trow Directory Printing and Bookbinding Company.

Textbook of Physiological and Pathological Chemistry. By G. Bunge. Second English Edition. Translated from the Fourth German Edition. By Florence A. Starling and edited by Ernest H. Starling, M.D., F.R.S. Philadelphia: P. Blakiston's Son & Co. 1902.

A System of Physiologic Therapeutics, a Practical Exposition of the Methods other than Drug-Giving, useful in the Prevention of Disease and in the Treatment of the Sick. Edited by Solomon Solis Cohen, A.M., M.D. Vol. IX. Illustrated. Philadelphia: P. Blakiston's Son & Co. 1902.

Progressive Medicine, a Quarterly Digest of Advances, Discoveries and Improvements in the Medical and Surgical Sciences. Edited by Hobart Amory Hare, M.D., assisted by H. R. M. Landis, M.D. Vol. II. June, 1902. Illustrated. Philadelphia and New York: Lea Brothers & Co. 1902.

A Manual of Instruction in the Principles of Prompt Aid to the Injured, including a Chapter on Hygiene and the Drill Regulations for the Hospital Corps, U. S. A. Designed for Military and Civil Use by Alvah H. Doty, M.D. Fourth edition, revised and enlarged. New York: D. Appleton & Co. 1902.

The President's Address. Twenty-second Annual Meeting of the Ontario Medical Association. By N. A. Powell, M.D., Toronto, Professor Medical Jurisprudence and Associate Professor Clinical Surgery Trinity Medical College, Surgeon to the Hospital for Sick Children and to the Emergency Hospital, Assistant Surgeon Toronto General Hospital. Illustrated. Reprint. 1902.

The Nauheim Treatment. By Prof. H. Newton Heineman, M.D., of New York; formerly Assistant in Laboratory and Clinical Assistant, College of Physicians and Surgeons, Medical Department, Columbia University; Assistant Pathologist and Curator Roosevelt Hospital; Attending Physician for Children's Diseases Out-Patient Department, New York Hospital; Visiting Physician to Mount Sinai Hospital; Professor of Practice of Medicine in Woman's Medical College of New York Infirmary; Clinical Professor of Medicine in Polyclinic Medical College, etc., etc., all of New York City. Bad Nauheim. Illustrated. Reprint. 1901.

## Original Articles.

### THE PRESENT STATUS OF THE PESSARY IN THE TREATMENT OF DISPLACEMENTS OF THE UTERUS.[1]

BY F. H. DAVENPORT, M.D., BOSTON.

In these days which are characterized by rapid and radical changes in medical practice, it falls to the lot of even those of us who have been in practice but a comparatively short time, to be able to follow these changes in our own experience. What was universal twenty-five years ago has in many cases either completely gone out of use and been superseded by newer and different methods, or has so far lost ground that in the minds of many it only survives as a relic of the past and an evidence of failure to keep abreast with the march of progress. Perhaps in no branch of medicine is this more true than in gynecology. A period of twenty-five years almost covers the development of surgical methods and the consequent relegation into the background of so-called minor gynecology. As an illustration of these facts I would like to briefly trace the change in opinion which has occurred with regard to the use of pessaries in the treatment of displacements of the uterus. As a result of this change of sentiment and practice it will be interesting to ask ourselves the question whether such changes as have occurred have justified themselves in results, and what should now be our attitude of mind towards this question.

It is fair to say that twenty-five years ago there was practically only one method of treatment for this class of uterine diseases. From the time that we have any records of medical treatment some mechanical means for treating displacements of the uterus were employed. Inasmuch as the methods of diagnosis were in the early days crude and confined to what could be actually seen, the only displacement which was known to the old-time practitioner was prolapsus. Some mechanical contrivance, therefore, inserted into the vagina to hold up the prolapsed uterus, was known to the ancients, and similar supports have been employed ever since that time. With the more accurate knowledge obtained by the development of the bimanual examination, it became possible to recognize other displacements of the uterus, and it followed as a matter of course that pessaries were devised which should meet the requirements necessary for the treatment of versions and flexions.

The result was the multiplication of forms of pessaries almost beyond belief. To illustrate this fact I have recently looked at the instrument catalogue of Codman & Shurtleff, of this city, and find in their list of pessaries, which has not been practically changed for twenty or twenty-five years, seventy-six varieties of these appliances for the treatment of uterine displacements. I can remember well, in my earlier days of practice, making out of flexible, soft rubber rings, or rings of block tin, a number of special forms of support which were not to be found in this comprehensive stock of the instrument maker.

Another evidence of the importance which was attached to this form of treatment was the space given to the subject in the textbooks. The chapter on displacements and their treatment by pessaries occupied a much larger share of the whole textbook than is at present the case. I think anyone whose practice dates back twenty-five years will agree with me that this is a fair statement of the condition of medical opinion with regard to this important subject at that time.

With the development of surgical methods throughout the whole field of gynecology, this subject was not left out; yet the substitution of operative procedures for the treatment by pessary made progress only slowly. The greatest impulse in this direction was given in 1889 by Alexander, who at that time published his account of the operation which has since gone by his name, namely, that of shortening the round ligaments. To be sure, before this time the uterus had been stitched forward to the abdominal wall when the abdomen had been opened for other reasons, but it was rarely done solely for the purpose of correcting the displacement. About this time German operators perfected a variety of operative procedures almost all of which had for their object the correction of retrodisplacements through an incision in the anterior cul-de-sac. Later the principle of the Alexander operation has been adopted with modifications, such as the intra-abdominal shortening of the round ligaments and other procedures which need not be more definitely described here.

As might have been expected coincident with the development of surgical methods, there grew up a distrust and neglect of the pessary, which has continued more or less to the present time.

If we look a little more closely at the results of this change of opinion as to the best methods of treating displacements of the uterus, it will, I think, be seen that they are more disastrous in the case of the general practitioner than of the specialist. The general practitioner is the man who sees the most of these cases. They come to him in the course of his everyday practice, and this is as it should be. The diagnosis of uterine displacements should be a comparatively easy matter to any well-educated physician, and the rules which govern the choice and application of the ordinary forms of pessary are so simple that they should present no real difficulty. When, then, as has happened, a feeling has arisen that pessaries are either of no value or positively harmful, the result is that many displacements are entirely neglected. With the alternative in the mind of a doctor between operation and no treatment, it certainly must happen that many patients suffer who could be relieved. The trained gynecologist, on the other hand, being familiar with the non-operative as well as the operative treatment of these affections, while perhaps inclining to one or

[1] Read before the Suffolk District Medical Society, Section for Obstetrics and Diseases of Women, March 26, 1902.

the other, would be less apt to neglect either in a suitable case, and would give the patient the benefit of his enlarged experience. But taking the profession as a whole, I am inclined to believe that in the last few years there are signs of a reaction setting in from the extreme view of the worthlessness of the pessary and the satisfactory substitution of surgical methods. There is by no means a concensus of opinion either that pessaries are useless or that surgical methods accomplish everything.

Before taking up the consideration of the real value of pessaries and the place which I consider they should hold in the treatment of these diseases, I would like to say a word as to the importance of displacements of the uterus in the production of symptoms. This is essential because if, as is claimed by some observers and even writers on gynecological matters, displacements are in themselves of comparatively little importance, any discussion as to the relative value of different methods of treatment would be futile. In the first place, I think it should be distinctly stated that in my opinion displacements do not necessarily produce symptoms. I have no question that there are a great many women who for long periods of time have displacement of the uterus without its giving rise to any symptoms whatever. They are not aware from either local or general disturbances that anything is wrong with the pelvic organs. I have found a good many such cases when examining for other conditions. If a woman's general health is kept up at a satisfactory level, a displacement may not show itself by any disturbance whatever. This is particularly true of backward displacements, less so of prolapse. But let such a woman become the victim of any unusual strain either physical or mental, and the insignificant lesion of the pelvic organ will then become an important factor in keeping her below par. It is this class of displacements which we most often meet with in unmarried women, and is usually a *result* of impaired general health, and I say result advisably. I am of the opinion that in a majority of those cases which we call neurasthenics, where in addition to the varied manifestations of a depressed and deteriorated nervous system we find some local difficulty, particularly a displacement, the latter is a secondary manifestation and not a primary causal factor. When it once, however, begins to have an influence upon the general health it then becomes so important that in most of these cases no permanent improvement can be hoped for until it is rectified.

In older women who have been married and had children, we have another class of displacements connected with childbirth, and due to lesions of the pelvic floor, lacerations of the cervix and perineum and subinvolution. These, therefore, are complicated with other conditions which put them in a class by themselves. The displacement becomes then merely one of a group of pathological conditions which demand treatment.

The symptomatology of displacements is twofold. There are the local and general symptoms. The former are the most easily recognized and too well known to need enumeration here. The general symptoms, however, the reflex manifestations which affect other parts of the body, head, heart, digestive organs, organs of special sense, and that impalpable complex which we call the nervous system, are often, I am sure, the most important, as showing more serious results and more imperative need of relief, and are too often overlooked. Their relation to and dependence upon the local disorder is not appreciated. Upon a correct estimation of the value of these more remote symptoms, the question of the character of the treatment to be employed often depends.

We come now to the question of treatment. Suppose a patient presents herself for advice whose sole complaint is a displacement, or who has such a condition complicated with other lesions. What advice shall we give as to the best method to be pursued for relief? This is not so simple a question as would appear at first sight. It will not do to say off-hand, put in a pessary and you will be well. The question is by no means so simple a one. A good many factors must be taken into consideration before an intelligent opinion can be given.

If each case of displacement which presents itself for treatment is considered individually, and the various factors of causation, symptomatology and complications given due weight, in a certain proportion it will be found that the method is clearly indicated and there is practically no choice. Let us take, for instance, the cases which occur in young unmarried women. As I said before, these are usually associated with some condition of the general health which is primarily at fault. If there has been no previous treatment, if the hymen is intact, and if the general health is fair, treatment by pessary should not be considered. The physical difficulties which attend any local measures, the wear and tear on the nervous system incident to replacement, adjustment of the pessary, and its subsequent care, make it extremely unwise. Almost the only displacement which we have to consider here is retroversion, as prolapse without backward displacement is in these cases rare, so that under these conditions the Alexander operation can be recommended as the easiest, surest, and most permanently successful measure we can employ.

On the other hand, in a patient who has already had local treatment, where the faulty position is presumably a result of a general nervous breakdown, and where the shock of an operation might be badly borne, much may be expected from treatment by pessary. If the support can be easily adjusted and comfortably worn, the relief from the symptoms due to the retroversion will be a great help towards building up the general health, and after a length of time varying from one or two years, the pessary may be tentatively removed. If a cure either anatomical or symptomatic has been effected, well and good; if the

displacement with symptoms returns, the operation can then be performed with less shock to the patient.

A second class of cases where operation is clearly indicated is in married women who have had children, and where we find a displacement, either retroversion alone or complicated with prolapse, and where we have in addition a laceration of the cervix or perineum or both, with often a heavy uterus as consequence. Here while a pessary may give temporary relief it is not in the line of cure. The prospect is that the patient will be obliged to wear the pessary indefinitely, and as the displacement is not the sole pathological condition there will not be adequate relief to the symptoms. This is a combination of conditions which is fruitful of distressing symptoms both local and general, and I am convinced from long observation of such cases that the latter are by far the most important in many cases. It is a mistake to suppose that the relief afforded by the reposition of the uterus alone will make a well woman. An operation is imperatively demanded, and can be the more urgently advised inasmuch as the relief is so sure.

Such operative measures must, however, be thorough. It is a mistake to suppose that in such a case as this the repair of the lacerations alone will be sufficient. In addition the uterus must be fastened forward either by an Alexander or a suspensio uteri. It is surprising what perfect relief the careful performance of these various operative procedures will give.

The choice of method to be employed in fixing the uterus in a forward position is determined in my mind by the size of the body and the existence of prolapse. I do not think the shortening of the round ligaments will be sufficient to hold a heavy uterus forward, and I am confident that even a slight degree of prolapse is a contra-indication to the Alexander and a frequent cause of its failure to maintain the organ in its forward position. Under these circumstances I advise two operations, one for suspending, not fixing, the uterus, the other for the repair of the lacerations. I never like to complicate an abdominal operation with any other operative measure. Where the uterus is small and not prolapsed, I do at one sitting the plastic work and the Alexander.

In married women who have either had no children or have had them without lacerations, and who are suffering from a displacement, the question of method of treatment cannot be decided so definitely. Here there may be a choice, and it is well to inquire a little more into the grounds upon which such choice should be made.

As I said in an earlier part of this paper, there has been a growing distrust of the pessary and a corresponding faith in operation as the sole method of treatment, and it may be well to examine the principal reasons for this. I think the reason which has the greatest weight with the objectors to the pessary, and is more often urged than any other, is that a definite cure of the displacement cannot be expected, and the patient is either doomed to wear the support for life, or if she discards it, is as badly off as before. I think such an opinion is erroneous and based on imperfect and limited observation.

Some years ago I took occasion to look over and study a series of cases of retrodisplacements treated by pessary, which had been under observation long enough to give definite results, and found that what might fairly be called a cure resulted in about a third of the cases. These were divided into two categories, those where the pessary was removed and the uterus stayed forward, which I called anatomically cured, and those where even though the uterus returned to its abnormal position after the removal of the pessary, yet were free from the symptoms of the displacement, and were called symptomatically cured.

It cannot be said, therefore, that pessaries do not cure, nor do I think that these figures are as good as they would be now. I have already alluded to two classes where cure could not be expected without operation. When my statistics were compiled the Alexander operation was in its infancy, and I had not begun to employ it either alone or as an adjunct to plastic work. These cases, therefore, which are clearly only to be reached by operation, should not be included. If then the question of the curability by pessary is confined to those cases where there is a choice, I am sure the proportion would be much greater than one in three.

But it may be said if even in selected cases, and with the skilled use of pessaries, only about half are cured, even with the best showing, why not operate in all cases: (1) Because, as I have said, some cases are better treated by pessary, and (2) because many women will refuse to be operated upon at all.

It is unwise to insist upon operation in all cases; in many it is a mistake to suggest it. There are only three ways of treating displacement, by operation, by pessary, and indirectly by building up the general health by the well-known methods of the neurologist.

Perhaps I ought to add a fourth for completeness' sake, namely, local massage, but that is a method which I consider of doubtful utility, and in many cases open to grave objections.

The value of general measures to cure a displacement I have already alluded to. If they could be applied early enough before the displacement had in its turn begun to cause symptoms, a cure might be hoped for. But when once the displacement has become a factor in keeping the general health in a depressed condition, it must in my opinion be treated and relieved before improvement can be lasting.

We are reduced, therefore, to operation or pessary in the majority of cases, and I feel very strongly that the man who attempts to treat uterine displacements, whether specialist or general practitioner, and neglects or condemns treatment by pessaries, is not fair to his patients. I feel this the more strongly because as a result of a considerable experience in the treatment of these

cases this method has grown more and more simple as time has gone on.

In the first place, in my own mind, the number of displacements which have a pathological significance has reduced itself to two, retrodisplacements and prolapse. The first will include retroversion and retroflexion, inasmuch as it is rarely necessary to differentiate between them. I have never seen a retroflexion without a retroversion, and a slight degree of flexion added to the version does not usually modify either the symptomatology or the treatment.

Prolapse is not a common affection except as a concomitant and late complication of retroversion.

Anteversion rarely gives rise to symptoms, and anteflexion is not a displacement but a deformity.

My statistics show that about one in five of all cases which consult me have a retroversion, and that retroflexion and prolapse are rare.

If the displacements themselves can be reduced to such simple terms, quite as much may be said of the pessaries for their relief. I have practically reduced the forms of pessary which I use to three varieties. As a matter of fact I treat all cases of retroversion with the so-called Langford pessary. This comes in all sizes which need be employed, and fulfils better than any other I know, the necessary conditions. It is easily introduced and very comfortable. Where there is retroflexion necessitating a longer arm I use the one which is sold under the name of the Smith pessary. For prolapse the Langford pessary answers in all cases where the vaginal outlet is narrow enough to exert some retentive power, and where that is not the case the large calibre Meig's ring will be found eminently satisfactory. A few other pessaries, as the bulb, the old-fashioned Hodge, and the Chadwick are very occasionally used.

Perhaps it will be pardoned if I add a few general principles which if adhered to will make the treatment of displacements by pessary a success in the greatest number of cases possible.

(1) Study the cases. Determine the probable length of time that the displacement has lasted, its possible cause, the symptoms it has caused, their order of occurrence, and the relative importance of the general and local manifestations, and from these data form a careful opinion as to the chances of cure by one or the other methods of treatment.

(2) In a case of retroversion or flexion, always replace the uterus before adjusting the support. The pessary should not be relied upon to do this, as only in the rarest case will it be possible.

(3) In fitting a support choose one which fits exactly if possible, but if not, have it rather too small than too large.

(4) The ideal pessary is one which supports the uterus perfectly, and without the patient being conscious of its presence.

(5) The patient should be kept under observation while she is wearing the pessary, and seen at regular intervals, preferably after each monthly period, for the cleansing of the support and its replacement.

(6) When it is deemed wise to make an attempt to go without it, it should not be removed at once, but a smaller one substituted to be worn a month, and then a still smaller one, which may then finally be removed.

The answer to the question proposed in the title of the paper, What is the present status of the pessary in the treatment of displacements of the uterus? may thus be summed up:

The pessary, the use of which twenty-five years ago was the sole method for the treatment of these affections, suffered with the development of surgical methods a temporary neglect. It is now regaining its position to some extent, and the indications for its use are better understood, and are upon a more scientific basis.

In uncomplicated cases in young women who have not had treatment, operation should be advised. Operation is the only method which holds out prospect of cure in cases complicated with lacerations, enlarged uterus or much prolapse. In other cases, especially where the uterus is small, where symptoms have been present but a short time, and particularly if they are associated with neurasthenia, treatment by pessary will often result in a cure. In such selected cases cure may be expected in about one-half. Even in cases where cure cannot be hoped for by pessary, its temporary use is often of value in relieving symptoms and in aiding to restore the general health.

## ELECTRICITY: ITS USE IN GYNECOLOGY.[1]

BY W. H. WHITE, M.D., BOSTON.

IN this paper, which I have the honor to present to your notice this evening, I would like to give first a short sketch leading up to the time of Dr. George Apostoli, the man who brought electrotherapeutics into prominent use in gynecology; also some causes of failure, as well as the proper apparatus and its application. Electricity should only be used when indicated — the same as we would use quinin, strychnia or any other drug. It has its place in therapeutics, and is one of the greatest adjuvants in medicine when given intelligently. It is decried because so largely used by non-scientific persons, and they, having little if any training, are often successful. How much more success should we have with it when combined with our knowledge of disease! Stimulation or sedation either can be produced, growth of muscular tissue and a strengthening of relaxed tissues, by the interrupted current.

The legitimate use of electrotherapeutics has been largely monopolized by neurologists, the work of Duchenne, Tripier, Erb, Lewandowsky, Althaus and Rockwell being the most prominent. Dr. Golding Bird of Guy's Hospital in 1847 said: "In electricity we possess the only really direct

[1] Read at the Suffolk District Medical Society, Section for Obstetrics and Diseases of Women, March 26, 1902.

emmenagogue which the experience of our profession has furnished us with." His treatment consisted of a dozen shocks of the Leyden jar charged from a friction machine, these shocks being given through the pelvis from sacrum to pubis. Magneto-electric machines and coarse faradic coils were principally used without rheostats to govern the strength of the current. In 1876 Dr. Ephraim Cutter performed electrolysis on tumors by puncture through the abdominal walls. Later Dr. Gaillard Thomas and others used vaginal puncture.

Abdominal surgery was a thing very much to be dreaded in those days, though the mortality had then been reduced to 33% (Ashhurst). In 1881 Dr. George Apostoli read some papers on faradization of the uterus, after confinements, to prevent hemorrhage. In 1882 his method became systematized, thanks to the galvanometer, or, as we now call it, the milliamperemeter, together with the clay pad and intra-uterine electrode. In 1884 was first published his method for the "Treatment of Fibroids of the Uterus," by Dr. Carlet, one of his pupils, which made quite a stir in the surgical world.

Dr. Apostoli attended various congresses and came to America, where his enthusiasm was contagious, and so galvanic batteries were purchased. It was easy to procure the apparatus but not so easy to apply successfully. Many got disgusted and sold their batteries, only too glad to be rid of them; the safer and slower method did not agree with the American idea of quick results. I well remember his clinic at 19 rue de Jour, crowded afternoons with patients, for his work was well known to the poor women of Paris. The dedication by Dr. Thomas Keith, in 1889, of his work "Uterine Tumors Treated by Electricity" shows how the work of Apostoli was regarded by that famous gynecologist. Dr. Apostoli's treatment of fibroid tumors did a good work by stimulating antiseptic surgery, so that now the mortality has been reduced to 3% and some claim as low as 1%. Far be it from me to say anything against surgery when it is needed, and I shall continue to speak in its favor; but the removal of ovaries to beautify American women, as advocated by a Philadelphia surgeon, is not to be commended. It is easy to remove, but not so easy to replace. Some cases are inoperable, then why not give the patient relief by the proper electrical application.

Dr. E. Stanmore Bishop, in his work on "Uterine Fibromyomata, their Pathology, Diagnosis and Treatment," devotes a chapter to electricity, and the *American Medical Journal* says he wisely advocates its use only so long as it does not blind patient and surgeon to the actual dangers of delay in cases which ultimately require operation.

Dr. Beatson's operation for cancer of the breast will probably be superseded by the use of the x-ray treatment, which is already being largely used with good results, this treatment giving relief to those severe pains oftentimes after the first application.

In buying an electrical outfit, first know *what* you wish to accomplish. As I am speaking to those interested in gynecology, I would say procure the best high-tension coil from a reliable manufacturer, one like the Kidder coil, or a set of three called the "Engleman coils," one of short heavy wire, No. 21, about 238 yards, the second a long fine wire, say No. 36, 1,500 yards, and the third, or medium, as No. 31, of 800 yards. I have seen a faradic battery made to sell for $2.50; such a battery would be of no use whatever. If you cannot afford a good outfit go without, as you will not get the results you desire. A good faradic battery will cost about $25.

For what we physicians call galvanic work, spoken of in technical works as the continuous current, the office cabinet is the best, consisting of forty or more cells. Personally, I use the street current, controlled by lamps, besides being fused. It has six lamps, three to govern the amperage, the other three to govern the voltage, the current being again controlled by water rheostats, there being a variation in voltage from 110 down to 13 volts. In addition there are two dozen cells divided into three sets of eight each. The interrupted current is from a Kidder high-tension coil. Either current can be given to the patient singly, or the two combined — what we physicians call the galvano-faradic current. Either the continuous or the high-tension current can be interrupted by a rheotome from 8 to 600 times a minute approximately, or the combined can be used and interrupted in the same way. There are two water rheostats, one for the high-tension or interrupted current and one for the continuous current. There is a Weston milliamperemeter and a Whitney voltmeter. I would *not* recommend the electric light current to be used unless the wires are carried under ground, as in our own city, and protected by both lamps and fuses.

The sinusoidal apparatus does good work. It gives an alternating induced current without break, and the rise and fall of potential are the same in both directions, describing a sine curve, as differing from the faradic, or the current from an induction coil, the "make and break" of the hammer giving a sharp rise of potential with an irregular drop similar, when drawn on paper, to a pulse-beat diagram. The sensation of the sinusoidal is throbbing without painful contraction. On account of both of these currents being alternating, you do not get the chemical action as with direct or continuous current. The sinusoidal strengthens and gives tone to relaxed muscular tissue, voluntary and involuntary. With high speed alternations the effect is beneficial in neuralgic pains and local inflammations.

A static machine is especially good when the pains are neuralgic or when the conditions are due to some form of nervous disease; there is nothing so good for neurasthenia. The best work is done with a ten or twelve revolving plate machine.

Having your apparatus, get well acquainted with it and do not attempt too much at first; not

too strong currents or for too long a time. Feel your way, as it were, remembering each patient is a new case, in some form differing from the last.

It is almost needless to add that no one form of apparatus will do all kinds of work. In the reporting of cases treated, there is usually a lack of details, the amperage and voltage being omitted so that otherwise interesting cases fail to give any instruction in the cure of similar cases.

Some only say: "I gave the patient electricity." Such a report is of no use whatever. A proper report of a case should say what kind of generative power, shape and size of electrodes, also their position, labile or stable application, voltage, milliamperage, duration of treatment.

We now call the poles, or terminals, "anode," instead of positive, and "cathode" instead of negative, and by electrolysis know that the anode attracts acids, liberates oxygen, contracts blood vessels, arrests hemorrhage, corrodes metals, has an anodyne effect, and a scar produced by it is hard and white. The cathode attracts alkalies, liberates hydrogen, dilates blood vessels, does not coagulate albumin nor corrode metals. The corrosion of aluminum plates comes from the alkalies in the tissues attracted to it, increases pain, and the scar is soft and mostly red. Be sure the electrodes are in place before the current is turned on and that the electricity is "off" before removing the electrodes. If at any time the current does not register, withdraw one of the cords and test out the apparatus on yourself; not experiment with your patient in circuit. Use antiseptics. I usually douche the patient before and after treatment in gynecological work. The average treatment would be of ten minutes' duration.

*Electrolysis.*— By the use of the continuous current we can decompose a compound body into its constituent elements; these elements are termed "ions"; those that are attracted to the positive, or anode, are termed "anions," while those attracted to the negative, or cathode, are termed "cathions."

I have already spoken of the action of the two poles. There is another physical action called "cataphoresis," which is the disintegration of liquids or metals which are carried into the tissues; except platinum the metals are attacked by the anions, especially oxygen and chlorine, so forming an oxychloride of zinc, copper or silver, according to the metal used. Some remedies, notably cocain, can be forced through the skin to produce local anesthesia.

This action of absorption of tissue is made use of in stenosis or stricture of the cervical canal by the use of a metal tipped electrode introduced at the cervix and a pad, 75 to 100 cm., placed above the symphysis pubis, a current of about 20 mam., 25 to 35 volts. Stricture of the rectum by the use of large rectal copper olives can be cured in the same way, about the same strength of current for ten minutes time. These tips should be slightly larger than the opening, increasing in size if necessary at each treatment.

*Relaxed tissues* are best strengthened by the sinusoidal current, given as strong as can be borne without pain, using the bipolar vaginal electrode for about ten minutes. In displacements I use a special electrode of my own, which is placed against the ligaments, first on the right ligament and then on the left, with the pad above the pubis for retroversion and the pad at the back for anteverson, keeping the uterus in position between treatments by tampons.

*Amenorrhea.*—The galvano-faradic current applied abdomino-dorsal on pad applied to each, or an intra-uterine electrode with abdominal pad about 20 mam., 40 volts for ten minutes.

*Menorrhagia.*— If uterus is enlarged the positive intra-uterine application with a large abdominal pad 300 cm., strength of current about 25 mam., 40 volts.

*Metritis or enlarged uterus from neglected subinvolution.*— Use the negative intra-uterine electrode, with a large abdominal pad as the positive, giving current as strong as can be borne, 30 to 50 mam., about 40 volts; this causes a bloody serum to exude which continues for one or two days, if you put in ichthyol tampons after the treatment.

*Ovaries.*—Ovarian inflammation or congestion is treated by the carbon ball electrode for the anode placed in the vagina as near to the ovary as possible, with a pad 75 to 100 cm. for the cathodal pole on the abdomen over the ovary, using a current of about 10 mam., of 30 to 40 volts, for about ten minutes. If the case is more acute the high-tension, long, fine wire with the same electrodes will relieve the acute symptoms.

*Salpingitis.*— The pain is relieved by using either the high-tension or sinusoidal current with the bipolar vaginal electrode. In subacute or chronic cases the intra-uterine electrode passed into the uterus and turned to the tube to set up a drainage relieves the congestion. The amount of current varies with the amount of inflammation. Do not make the treatment painful; the amount of current may vary from 20 to 50 mam. In gonorrheal salpingitis you can use copper or silver-tipped electrode as positive, getting the action of the oxychloride of those metals.

*Tumors.*— The treatment of tumors by the continuous current was considered the most conservative treatment, but the improved methods of surgery, with a decided reduction in mortality, now seems in most cases preferable. The electrical treatment is so very slow and long drawn out that I should not recommend it *except* in some cases which for various reasons may be inoperable. It is seldom that a uterine tumor is reduced in size while symptomatic cures, relief of pain, and checking of hemorrhage are usual. The intra-uterine electrode used as the anodal pole checks the hemorrhage; otherwise this electrode would be used as the cathodal pole, with a large pad of about 600 cm., with a current of 50 to 100 mam., or possibly more. Treatments are once in four or five days or a week, and extend for a year or more. The puncture of the tumor is made

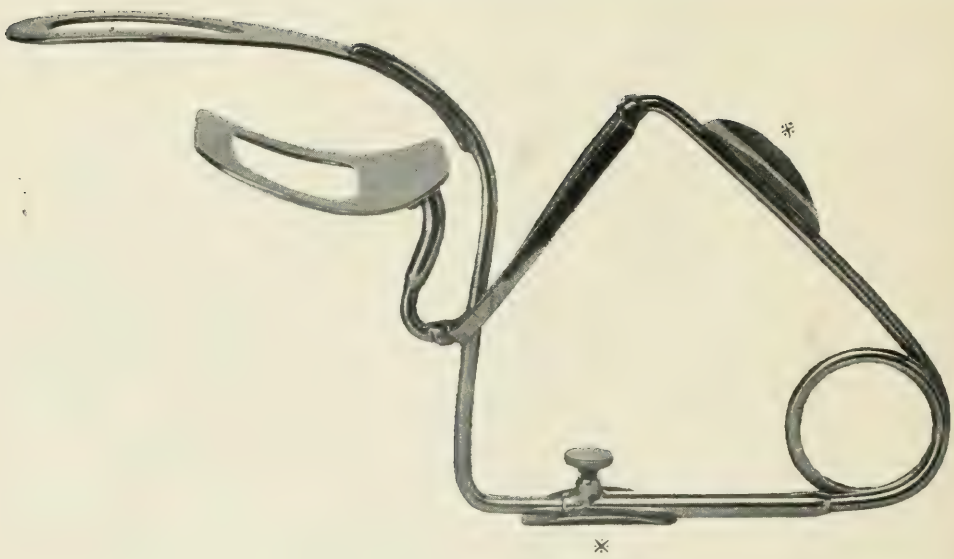


FIG. I.— Side view of tongue depressor. To open: press on the two finger plates (*).



FIG. II.— This cut shows the pivoting of the chin piece, so that it can be placed at an angle in order to catch on the side of the chin.

with two or three needles or a trocar electrode, using them as the negative pole, and a large pad for the positive on the abdomen; the clay pad is the best except from the fact of being more or less dirty.

## MULTIPLE FIBROIDS OF THE UTERUS.[1]

BY SAMUEL BRECK, M.D., BOSTON.

The specimen illustrated by the accompanying photograph is one obtained by autopsy from a negress, forty-seven, single. I first saw her forty-eight hours before death; she was then evi-



dently suffering from peritonitis, and any active interference was not to be thought of. She had had the abdominal enlargement for many years, but was in dread of an operation.

Examination post-mortem showed multiple fibroids of the uterus — the largest of which, the size of a small watermelon, had become cystic and had ruptured into the peritoneum in its upper and posterior portion. The opening was sealed by exudate at the time of the autopsy. The tumor and the abdomen were full of rather thin greenish pus, in quantity about half a pailful. The tumors and the peritoneum were covered with a recent fibrinous exudate. In addition to the main tumor, which was pedunculated and rose to the epigastrium, were numerous small ones, varying from the size of a cherry stone to that of an orange. They were subserous, the uterus being but little enlarged. The tubes and ovaries were healthy. As a rather rare complication there was complete prolapse of the vagina, with elongation of the supravaginal cervix. The prolapse has evidently been of long standing, as the vaginal wall is much thickened and shows ulceration.

The kidney and liver are fatty in a marked degree. The heart of normal size, the muscular substance probably somewhat fatty. Lungs and spleen healthy.

The life history of these tumors seems to have been this: Beginning as small subserous masses, their weight led to the prolapse of the vagina. As they enlarged they gradually rose out of the pelvis, drawing the uterus with them and thus causing elongation of the supravaginal cervix. Finally, cystic degeneration of the largest tumor; rupture into the peritoneum; general purulent peritonitis; death.

[1] Read before the Suffolk District Medical Society, Section for Obstetrics and Diseases of Women, March 26, 1902.

## A SELF-RETAINING TONGUE DEPRESSOR.

BY HARRIS PEYTON MOSHER, M.D., BOSTON.

It is often necessary, in mouth operations, especially in the operation of snaring off the tonsils, to have the tongue depressor held by an assistant. This method is generally only half satisfactory, because in transferring the tongue depressor to another the grip of the inner end is altered, and the exposure of the tonsil, which the instrument gave while it was in the operator's hand, is partly or wholly lost. In addition, while the snare is being tightened home, both hands of the operator are engaged, so that the tongue has to be left to itself, with the result that the view of the tonsil is lost again. In the latter case it does not matter; in the former it does. As the tonsil is being drawn into the loop by the double hooks, and the wire fitted about it, a clear view is absolutely essential. A simple self-retaining tongue depressor would be a great help. There have been many complicated self-retaining tongue depressors, but they have never attained any popularity.

I have found the tongue depressor, which is illustrated here (Fig. I), to meet my wants. It is simple — a spring merely, one end of which catches on the tongue and the other under the chin. It is applied and taken off by pressing on the two sides, just as is customary in working any spring clasp.

The original of this tongue depressor I bought in a Boston shop. I could not learn the inventor's name. On trying the instrument it worked nicely for holding the tongue down in the middle line, but it would not stay in place on the side of the tongue. This was necessary in order to make it of general use. By pivoting

the chin piece (Fig. II) so that it could swing on a horizontal axis and catch on the side of the chin, I found that this improvement was accomplished. In addition, the length of the blade was made changeable. Other minor modifications were made. These two are the essential ones, especially the pivoting of the chin piece. Owing to this, the depressor will lie on the side of the tongue and expose the tonsil to its base.

The illustrations explain themselves. The blade of the tongue depressor is controlled by a thumb-screw, so that it is possible to take the blade out and to substitute a blade of any size or shape that the operator may prefer. This would not be called for in the majority of cases, because as the depressor is now made the blade can be shortened one-half inch.

I have found this instrument in operating to be what I have claimed for it. With the tongue controlled by it, and with the etherization carried on by the Fillebrown ether vapor apparatus, throat operating is made much easier.

## Clinical Department.

### A VARIETY OF SKIN LESIONS TREATED BY X-RAY.

BY EDITH R. MEEK, M.D., BOSTON.

CASE I. Mrs. R. S., age 25; Russian. Lupus vulgaris. Duration of disease, seventeen years. The patient was first seen by me at the Pope Dispensary on Nov. 30, 1901. The skin of the entire left cheek was reddened, thickened, and in places covered with yellowish white crusts. Beneath the left eye was a reddish-brown nodule about the size of a French pea. Near this was an ulcer, which was freely discharging. Scattered here and there on the cheek were areas of cicatricial tissue. Directly beneath the lower lip were three brownish-red nodules; under the chin were three similar ones; on the chin was another ulcerating area.

After the first few treatments the discharge from the ulcers ceased, the nodule on the cheek flattened out and showed a small scale. At the close of the treatments the nodule on the cheek had entirely disappeared, the ulcerating areas had completely healed, and the skin of the cicatricial parts had become softer and more vascular. The nodules under the lip were somewhat flattened and had scales attached to them. A similar condition existed under the chin, except that the nodules were much more flattened.

Unfortunately, at this time the patient was unable to return for more treatments; she had never at any time been able to come regularly. The exposures were scattered over a period of five months' time, a treatment being given when possible. In spite of all these disadvantages, the condition was very much improved, and if more time could have been given, the disease would undoubtedly have entirely yielded to the treatment.

CASE II. Miss A. R., American, thirty-one years old. The patient had a large growth of hair on each side of the chin; the hairs were rather coarse, long, and very disfiguring.

X-ray treatments were given her, beginning at two a week and increasing to four. After the fifteenth exposure a very few hairs fell out; treatments were continued; after the seventeenth a large number fell out, and on the left side of the chin there was a reddening of the skin involving an area equal in size to a five-cent piece. Treatments were discontinued. Four days after, the patient was again seen. Almost all of the redness had disappeared and all of the hairs except five on one side and three on the other had fallen out.

At the end of a week the patient again returned. All of the redness was gone and the chin was entirely free from hairs.

As to the permanency of the removal of hairs by x-ray, the following may be quoted. Histologically[1] the tissues showed: (1) Enormous thickening of the epidermis in all its layers; (2) atrophy of the hair follicles, which in places had entirely disappeared.

They conclude: The thickening of the epidermis in all of its layers, the increase of keratohyaline, and the quite extraordinary atrophy of the follicles may be viewed as a reaction against an irritant of unusual strength. This irritant appears to increase the vitality of the least differentiated skin elements, while the differentiated elements, hair, nails and glands, undergo retrogressive changes and atrophy. Of the hair follicles only traces remain, one, or at most three, in a microscopic field, and these are no longer follicles, but only conical prolongations of epidermis which dip down seemingly only half so deep as normal follicles. Of hair papilla, or regeneration bulb, every trace is lacking. Bearing these observations in mind, the statement that permanent removal of hair may be caused by exposure to x-rays loses some of its startling character.

The changes in the corium are those of an ordinary inflammatory process without peculiar features — to quote Kibbe: "Capillary dilatation, with collection of round cells scattered through its (the corium's) structure, particularly around the hair follicles." There is, therefore, little suggestive of the explanation of the effects of x-rays upon diseased conditions of the connective tissue structures of the skin, in the histology of x-ray dermatitis, as far as it has been studied. An analysis of the clinical phenomena does, however, throw some light on the subject. In the first place, as regards the hair follicles, Kibbe has made the interesting observation, which I am able to confirm as regards x-ray erythemas, that in the development of an x-ray dermatitis the erythema is seen, under a hand lens, to develop first as a "punctate redness due to hyperæmia around the hair follicles." In other words, the

[1] Monats. f. Prak. Dermat., 1897, xxv, 9.

hair follicles and their connective tissue envelopes are particularly sensitive and react first to the irritation of x-rays.

Case III. Woman, age thirty-two; married; German. Acute eczema. The face and ears were very much swollen, the skin was reddened and covered with numerous small vesicles; the patient complained of almost intolerable itching and burning. A treatment was given on a Wednesday. On the following Saturday the patient returned; the swelling of the face had entirely gone, the redness and moisture were practically absent. One ear was still slightly swollen; the other was normal in size.

The patient said that since the first treatment she had but very little itching or burning, and was able to sleep.

An exposure was once more given.

The following week the patient returned. The skin of both face and ear was quite normal, and all irritation had subsided.

Case IV. Miss A. P., age sixty-five; unmarried; American. This patient was first seen by me at the Trinity Dispensary on March 24, 1902. The skin of the entire lower leg, from about one inch below the knee to the ankle, was the seat of a chronic eczema; duration two years. X-ray treatments were advised.

Nineteen exposures were given; at the end of this time the skin was quite normal in appearance. All itching and irritation had subsided.

Case V. Mrs. G. A.; German; thirty-three years. The patient was first seen by me at the Pope Dispensary on Feb. 27, 1902.

The greater part of the skin on the backs of both hands was reddened, very much thickened, here and there scales were present. The extensor surface of the lower arms was similarly affected, but to a slighter degree. The itching and burning were very troublesome, keeping the patient awake at night.

The diagnosis of eczema was made and x-ray treatments twice a week were given. After the second treatment the patient no longer complained of itching or discomfort of any kind. Eighteen treatments in all were given. The patient was then discharged. The appearance of the skin at this time was perfectly normal.

## Medical Progress.

### REPORT ON THE DISEASES OF CHILDREN.

BY THOMAS MORGAN ROTCH, M.D., AND JOHN LOVETT MORSE, M.D., BOSTON.

#### THYMUS GLAND AND RHACHITIS.

Mendel[1] claims that the bony changes in rhachitis are due to a disturbance of development of bone and not to a disease of developed bone. The most active period in the growth of bone occurs at the time when the activity of the thymus is greatest, that is, between the ninth and twenty-fourth months. The chemical constituents of the thymus alter with age. The salts, calcic sulphate, earthy phosphates, alkaline phosphates and chloride of potash are at their maximum in infancy. Extirpation of the thymus in animals causes disturbance in the growth of the bones, anemia, profuse sweats and a diminution in the amount of $CO_2$ eliminated. In rhachitis the relative and absolute weight of the thymus is below normal, or it is abnormally large, hard, and the secretion diminished. Hence it seems justifiable to assume a connection between rhachitis and the function of the thymus. He believes the disturbances of nutrition which by most pediatrists are considered to be the causes of rhachitis only lead to rhachitis because they disturb the internal secretion of the thymus gland. He believes that the enlargement of the spleen in rhachitis is merely a vicarious hypertrophy, and that the nervous symptoms seen in rhachitis, especially laryngismus stridulus, are due to a disturbance of the secretion of the thymus.

He treated more than one hundred cases of rhachitis with the thymus gland, using either fresh calves' glands or the tabloids of Burroughs, Welcome & Co. He gave daily one gramme of fresh thymus for each month of age, or six to twelve tablets. He obtained favorable results in many cases in which the other conditions of life were unchanged. The functional disturbances were most quickly and favorably influenced. The sweating ceased after two or three weeks, sleep became quieter, and the child's general appearance better. In one case in which treatment was omitted the symptoms recurred but ceased again with the renewal of treatment. The attacks of laryngismus stridulus diminished in frequency and severity and ceased in a few weeks. In one case which had had repeated convulsions and which had been treated for a long time with phosphorus without relief, the convulsions ceased after several days' use of thymus, and in three weeks all the rhachitic symptoms had disappeared. The enlargement of the spleen was markedly diminished in two or three weeks, and gradually disappeared. The distention of the abdomen rapidly diminished under treatment. In one case, in which treatment was omitted on account of a concurrent stomatitis, the splenic tumor increased in size again. There was a gradual improvement in the rhachitic bone changes, dentition was hastened and the fontanelle became smaller. After a time it was only necessary to use the thymus twice a week. He explains the action of this method of treatment in this way: The substitution of the internal secretion of the thymus first relieves the rhachitic symptoms and thus improves the whole constitution. This improvement, as the physiology of the thymus teaches, has as its result the gradual restitution of the gland and with it the final cure of the rhachitis. It is evident, therefore, that this treatment must be useless if specific diseases of the thymus, such as congenital syphilis or tuberculosis, are the cause of the rhachitis.

[1] Münch. Med. Woch., 1902, xlix, 134.

PHOSPHORUS POISONING IN THE TREATMENT OF RHACHITIS.

Leo,[2] in the course of the last two years, has seen two fatal cases of phosphorus poisoning in the course of rhachitis. In the first case the child took phosphorated cod liver oil for fifteen days, receiving in all .015 of phosphorus. In the second case, with intermissions, the child was given for almost six months .001 of phosphorus daily. The symptoms which preceded death in both cases were icterus and apathy. In the second case enlargement of the liver was also present. There was an autopsy in the first case. It showed extreme fatty degeneration of the heart muscle, of the kidney and of the liver. The pathological diagnosis was phosphorus poisoning.

GELATIN INJECTIONS AS A CURE FOR MELENA NEONATORUM.

Holtschmidt[3] states that of the fourteen cases of melena neonatorum at the Woman's Clinic at Dresden in the years 1894 to 1900 inclusive 50% died. In 1901 every case, five in number, was treated by subcutaneous injections of about 15 cc. of a 2% solution of gelatin. The hemorrhages were at once arrested in three infants; one required a second and one a third injection before the cure was complete. All recovered. No other styptic was used. The gelatin was always absorbed without reaction. From his experience he thinks that if the loss of blood is excessive, injections should be repeated again the same day until the hemorrhages are arrested.

THE ETIOLOGY AND PATHOLOGY OF SCLEREMA NEONATORUM.

Comba[4] reports two cases. In the first case the infant was born at term and fairly well developed. The autopsy showed a generalized infection with Friedlander's bacillus. The infection took place through the umbilicus. The pus in the umbilical wound contained this micro-organism, the right umbilical artery being inflamed. There was also a bronchopneumonia and acute nephritis due to the same infection. In the second case the bacillus of Friedlander was also found associated with the streptococcus. Infection in this case probably occurred through the respiratory mucous membrane. Comba states that in all cases of sclerema there is a septicemia, its development being favored by the feebleness of the infant or by a local infection of some important organ. Micro-organisms or their toxins produce such a disturbance of the centres regulating thermogenesis that the temperature falls and induration of the subcutaneous adipose tissue follows.

NEPHRITIS IN INFLUENZA.

Miller[5] reports a case of acute hemorrhagic nephritis complicating influenza in an infant of thirteen months, and analyzes forty other cases of nephritis complicating influenza collected from the literature. From this study he draws the following conclusions: Nephritis is a rare complication of influenza, occurring chiefly in young adults and children. In infancy it is almost unknown. Albuminuria is more common, and is probably present in all severe cases. Hematuria alone is not infrequent, and, like the nephritis, is seen oftenest in early life. The sexes are equally affected. The nephritis may appear early in the influenza, or at varying periods after the acute symptoms have subsided. It is usually an early complication, occurring in one-half the cases within eight, and in two-thirds of the cases within twenty-one, days of the commencement of the influenza. The clinical type varies; it may be that of an ordinary acute nephritis, but in the majority of cases is of the hemorrhagic type, this form being especially frequent in young adults and children. Edema is absent in more than half of the cases, and is apt to be slight. The onset is usually attended with fever. The nephritis is of short duration, generally lasting under three weeks. The prognosis is good, recovery being the rule, although a small number of cases pass into the chronic subacute stage. When influenza attacks those whose kidneys are already diseased, it is apt to be serious and fatal. From the meagre pathological reports the lesions appear to be those of an infectious or toxic nephritis, often taking the form of a glomerulonephritis.

TREATMENT OF WHOOPING COUGH BY FORMOL.

Lamallerée[6] evaporated a paraform pastile over an alcohol lamp every hour for three days, the children not being allowed to leave the room during this time. In two cases treatment was completely unsuccessful; in four the successful results were slow; in sixteen convalescence began in from twenty-four to seventy-two hours, and cure was complete in eight days. Treatment was omitted after three days. In the successful cases the paroxysms began to diminish in from twenty-four to seventy-two hours, falling from eighteen to thirty-seven to two or three in twenty-four hours. In order to obtain success with this treatment he found that it must be begun within the first ten days of the disease and that the child must be confined in a closed room.

ACUTE DIFFUSE GONOCOCCUS PERITONITIS.

Dowd[7] showed a girl of seven before the New York Surgical Society. She had had a vaginal discharge containing gonococci for three or four days. Then pain had developed in the right lower portion of the abdomen. She was admitted to the hospital three or four days later. At that time she held the thighs flexed. There was marked rigidity of the abdominal muscles and great tenderness in the right lower abdomen. The temperature was 102° F., the pulse 136. The pain and tenderness soon extended to the oppo-

[2] Jahrb. f. Kinderheilk., 1901, No. 5, p. 673.
[3] Meunch. Med. Woch., Jan. 7, 1902; abstract in Journal of the American Association, 1902, xxxviii, 360.
[4] La Clinica med. Italiana, May, 1901; American Journal of the Medical Sciences, 1902, cxxiii, 559.
[5] Arch. of Pediatrics, 1902, xix, 1.
[6] Le Centre méd., 1902, No. 1; abstract in Rev. mens. des mal. de l'enfance, 1902, xx, 94.
[7] Annals of Surgery, 1902, xxxv, 276.

site side of the abdomen, and great tympanites developed. The temperature ranged about 100° F., the pulse 120. Laparotomy was performed three days after admittance and six or seven days after the onset of the pain. The intestines were much inflamed, bright red in color, and showed a slight deposit of fibrin. There was a small quantity of free serum in the peritoneal cavity. Both sides of the abdomen were inflamed, the inflammation being more marked in the pelvis. There was a small abscess containing about one-half teaspoonful of pus at the outer extremity of the right Fallopian tube. The right tube and ovary were removed. The peritoneal cavity was irrigated with several quarts of normal saline solution at 110° F. and the incision closed. Recovery was uninterrupted. Smears made from the pus from the abscess and from the exudate showed many gonococci but no other bacteria. Cultures from the peritoneal exudate and from the pus made on bouillon, agar-agar, gelatin and blood serum were sterile.

He refers to two fatal cases in children reported by Braquehaye and Baginsky.

METABOLISM IN ATROPHIC INFANTS.

Poppi[8] studied first nitrogen, fats, carbohydrates, mineral matters and water. Later he investigated the respiratory tissue changes. His results were as follows:

(1) The atrophic infant takes in a greater amount of nourishment per kilogramme of body weight than the normal child. (2) The atrophic infant loses in the stools a considerable portion of the ingested nourishment. (3) A greater amount of nitrogen per kilogramme of body weight is eliminated with the urine than by the normal child. The nitrogen elimination with the urine in the cases investigated was on the whole greater than the nitrogen taken in.

The water lost through the skin and lungs was investigated in only one infant. It was smaller than under normal conditions.

In general the quantity of $CO_2$ which was eliminated in a given time was smaller than under normal conditions. The absorption of oxygen was also smaller than in normal children. In some cases the excretion of $CO_2$ was greater than the absorption of oxygen.

ATROPHY AND ITS PATHOGENESIS.

Alessandrello[9] asserts that atrophy was caused in puppies by improper and insufficient nourishment. In the intestinal canal of puppies killed while dying, no destruction of the glands or tufts was found, but only a marked thinning of the intestinal wall. When pieces of the intestine were studied which were taken from puppies twenty-four hours after death, severe histological changes were always found. These must, therefore, be considered merely as the result of decomposition. The liver and to a less extent the kidneys of the atrophic puppies showed a greater toxicity than the liver and kidneys of normal puppies. The alkalescence of the blood of the atrophic puppies was from one-third to one-seventh smaller than that of the normal puppies.

THE SOLUBLE FERMENTS OF WOMAN'S MILK AND OF THE MILK OF OTHER ANIMALS AND THEIR SPECIFICITY.

Spolverini[10] investigated and compared the ferments of woman's, dog's, cow's, goat's and ass's milk as to their ferments. He found that the tryptic and peptic ferments are present in all forms of milk. Amylase is present in woman's and dog's milk but absent in cow's and goat's milk. It is often absent in ass's milk. The same is true of the salol splitting ferment. Lipase is found in all sorts of milk, likewise a more or less powerful glycolytic ferment. When bitches received for thirty days a vegetable diet only, amylase and the salol splitting ferment disappeared from the milk. On the other hand, when goats received only meat for sixty days, amylase and the salol splitting ferment appeared in their milk. When the cows and goats ate malt, which contains amylase, he found in their milk more amylolytic and salol splitting ferment than in woman's milk. Working in these directions it may be possible, perhaps, to produce a milk for infants which will be similar to woman's milk and as easily digestible.

SOLUBLE FERMENTS IN MILK.

Luzzatti and Biolchini[11] studied woman's, cow's and ass's milk. Woman's milk contains a very powerful sugar-forming diastase which is absent in cow's and goat's milk. The latter, however, always contains a glycolytic ferment. Ass's milk likewise contains a sugar-forming diastase which is less powerful and less permanent. Woman's milk contains a very powerful lipase. This is less powerful in cow's milk, still less so in goat's milk, and often absent in ass's milk. Woman's and ass's milk break up salol and benzol very energetically. Cow's and goat's milk do not possess this power. Woman's milk possesses katalytic properties. Cooked milk loses all these properties.

NOTES ON BREAST FEEDING.

Schlossmann[12] studied two infants, one a case of congenital syphilis, from the one hundred and thirty-first to the two hundred and tenth day, the other, an infant four or five weeks premature, from the twelfth to the eightieth day. He investigated the daily weight of the infant, the quantity of breast milk ingested, and its composition. He examined 100 litres of breast milk and found the average composition to be 3.47% fat, 7.14% sugar, and .26% nitrogen (=1.62% proteids).

The average gain of the syphilitic infant was about the normal. That of the premature baby

[8] Proceedings of the Italian Pediatric Congress in Florence, 1901; Jahrb. f. Kinderheilk., 1902, lv, 104.
[9] Proceedings of the Italian Pediatric Congress in Florence, 1901: Jahrb. f. Kinderheilk., 1902, lv, 106.
[10] Proceedings of the Italian Pediatric Congress in Florence, 1901; Jahrb. f. Kinderheilk., 1902, lv, 107.
[11] Proceedings of the Italian Pediatric Congress in Florence, 1901: Jahrb. f. Kinderheilk., 1902, lv, 107.
[12] Arch. f. Kinderheilk., 1902, xxxiii, 339.

was slower. The first infant took an average of 563 gm. of milk daily, equalling 381 calories. Reckoned per kilogramme of the child, he took 115 calories and gained 5 gm. The second child got 119 calories per kilogramme and gained 5½ gm. Thus it is evident that in the first child 115 calories, and in the second 119 calories were sufficient for the needs of the organism, and a daily gain of 5 or 5½ gm. The first child, during ten days in which he received only 97.4 calories per kilogramme, lost weight; this also happened at a time when he received only 104 calories. The smallest number of calories on which he gained was 108. Consequently, Schlossmann considers 110 calories as the best average figure. In this same infant the increase in the number of calories above a certain point resulted in a diminished gain in weight. In the most favorable period of this child's life he received 120 calories per kilogramme and gained 6.7 gm. per kilogramme. He concludes that the best results are obtained in breast feeding if the quantity of milk taken does not much exceed 110 calories per kilogramme of infant; that is, the infant does better if he does not eat too much.

THE BALANCE OF NUTRITION IN THE NURSLING.

Heubner[13] states that the exact knowledge of the amount of energy necessary for the nursling to carry on the functions of the organism should form the basis of every rational alimentation. The balance of energy is easily represented by the following equation: the potential energy absorbed in the form of food equals the work done by the organism plus the latent energy accumulated in the organs. For the infant to develop, the quantity of energy contained in the nourishment must be greater than that which is used up by the organism in mechanical and chemical work with the production of heat. If the energy provided by the food is just sufficient for the immediate needs of the organism, it cannot gain, but it does not use up its reserve. On the contrary, if the energy of the food is insufficient, whether as the result of actual insufficiency or of incomplete assimilation, the organism must get the amount which is lacking from its resources, and hence loses in weight.

He estimates the number of calories which are indispensable by subtracting from the amount of the energy furnished by a known food the energy accumulated by the organism and represented by the increase of weight. Heubner reports four observations performed in this way to establish the nursling's balance of energy. The first infant was fed on the breast. During the first week the quotient of energy, that is to say, the number of calories ingested per kilogramme of weight averaged 50, and the infant lost during this period. During the rest of the first three months the quotient was at least 100 calories, the gain in weight was rapid. From the fourth to the sixth month it fell gradually to 80 calories, and the gain in weight was less rapid than before. During the third three months the quotient of energy descended to 75 calories. The infant gained on this, but did not at a time when it was only 60 calories.

The second case was fed on a modified cows' milk from the seventh to the thirty-sixth week. During most of the time the quotient of energy varied between 125 and 135 calories. Notwithstanding this high quotient the increase in weight was very slow during the first part of the time. It later became greater.

These figures show very clearly the superiority of the natural alimentation over artificial alimentation in the first months of life. Although the quotient of energy in the infant fed on the breast was one-fifth more feeble than that in the infant fed artificially the rate of growth in the first was twice as great as in the second. The less favorable results of artificial food have usually been attributed to the difference in the casein in women's and cows' milk. Heubner believes that the essential cause really lies in the greater work which cows' milk imposes on the digestive organs. This work absorbs a certain number of calories which normally are made use of by the organism. The best nourishment, therefore, is that which demands the least effort of the organs of assimilation.

It is evident, moreover, from these two observations, that after the sixth month a given quotient of energy gives better results as regards gain in weight than in the first six months. That is to say, in the second half of the first year the organism works more economically than at the beginning of life.

The third observation concerns a premature infant, with an initial weight of 1,350 gm., fed on peptonized milk. Although the quotient of energy after the sixth week varied between 120 and 135 calories, the gain in this case was only half as great as that in the preceding infant, which was also fed artificially. The smaller the baby the greater is the relative caloric loss. This explains why it is so essential to avoid as much as possible the loss of heat in premature infants.

Heubner draws the following conclusions: In order to obtain the same results a larger quotient of energy is required in artificial alimentation than in natural alimentation. The quantity of calories provided by the alimentation is more important than the identity of chemical composition generally sought between the artificial food and the maternal milk. An alimentation whose quotient of energy does not exceed 70 calories, is insufficient for an infant, even if breast fed, to prosper, at least during the first six months. In order to get a normal gain, a quotient of energy of at least 100 calories with natural alimentation and of 120 with artificial alimentation is necessary.

THE AMOUNT OF SINGLE FEEDINGS IN BREAST-FED INFANTS.

Peters[14] weighed twenty-nine babies before and after each nursing for periods varying from

[13] Abstract in Rev. mens. des mal. de l'enfance, 1902, xx, 136.

[14] Arch. f. Kinderheilk., 1902, xxxiii, 295.

two to eleven weeks. Thirteen of these infants were normal, four premature and twelve sick. In the normal babies at least one feeding a day was greater than the amount usually considered normal, for example, a baby thirty-three days old took at one feeding 210 gm., another twenty days old took 180 gm. All the normal infants did perfectly well in every way in spite of these excesses.

One of the premature babies, weighing 1,380 gm., took 90 gm. at a feeding. Another weighing 1,680 gm. took 30 gm. on the third day, and 140 gm. when one month old. Another, sixteen days old, took 100 gm.

The sick infants were on the whole older. Before entrance all of them were fed artificially. These infants, as a rule, had first to learn to take the breast. As soon as they were accustomed to the breast, however, they began to take large amounts at individual feedings. Many of them had dilated stomachs, and had been given too much at a feeding before entrance. They were thus especially likely to take unusual amounts at a feeding. One infant, a month old, took 200 gm. at a feeding, and a few days later 260 gm. Another, eight weeks old, took 230 gm. In spite of the large amount taken at a feeding the vomiting soon ceased and the character of the stools became normal. No injury from the large amount of individual feedings was seen in any of these cases.

The amount of milk in the breasts was not the reason of the differences in the individual nursings, because each baby had a chance at two women at each feeding. When the amount taken was small another child was always able to get more milk from the same breast, showing that the small amount taken was not due to insufficient milk in the breasts. The only reason that could be made out why the infants did not take more at a feeding was that they did not want it. They were contented after taking a small amount and wished to go to sleep.

None of these infants showed any evidences of dilatation of the stomach. He believes that there must be a temporary dilatation of the stomach. He considers this to be physiological because the stomach always returns again to its normal size. He endeavored to favor this return by allowing the stomach to rest after being overfilled. If an infant drank more than he should he had to wait a correspondingly long time before the next feeding. In this way the stomach was emptied before the next feeding, and the muscularis had a sufficient time to reduce the stomach to its original form, for example, an infant of 3,000 gm. took 320 gm. at a feeding. He slept quietly for four hours; the next two hours he played with his fingers and was contented, then gradually became restless. He had to wait eight hours, however, before being fed. He thinks that another reason why large single feedings in breast-fed infants do not do harm is because considerable quantities of the milk leave the stomach during the feeding. This is because the fine curds of breast milk pass so much more easily and quickly into the intestinal canal than do the curds of cows' milk.

The general impression that the duration of nursing is a guide to the amount taken is false. Many infants drink slowly, many quickly, and the same child often shows great differences. The time depends, on the one hand, upon the fulness of the breasts and the flow of milk, and on the other hand, upon the ability of the child to suck. The infant, already mentioned, who took 320 gm. as a feeding did it in less than eight minutes; another infant took 150 gm. of milk in forty-five seconds. The average time which the normal infants took in nursing was about ten minutes, while the sick and feeble took about fifteen minutes. It was interesting also to determine at what time of the nursing the child took the greatest amount. There were great individual differences. Some children took most during the first minutes, others somewhat later. Only one fact was accurately determined, and that was that all of the infants took but very small amounts during the last minutes.

He concluded that his observations prove that weighing plays an important part in the exact feeding of breast-fed infants. The greatest part of the digestive disturbances of breast-fed infants may be avoided if control is kept in this way. When the proper amount at a feeding is overstepped the infant should wait a correspondingly long time before the next feeding. In this way dilatation of the stomach with its sequelæ can be avoided.

## Reports of Societies.

### SUFFOLK DISTRICT MEDICAL SOCIETY. SECTION FOR OBSTETRICS AND DISEASES OF WOMEN.

W. H. GRANT, M.D., SECRETARY.

Regular meeting, March 26, 1902, Dr. E. S. Boland in the chair.

Dr. F. H. Davenport read a paper entitled

THE PRESENT STATUS OF THE PESSARY IN THE TREATMENT OF DISPLACEMENTS OF THE UTERUS.[1]

Dr. Samuel Breck showed a specimen of

MULTIPLE FIBROIDS OF THE UTERUS.[2]

Dr. D. H. Craig: There are only a very few things that were left unsaid in the paper. One thing that has occurred to me is that in doubtful cases perhaps we are not willing enough to use the pessary, and give the patient the benefit of the doubt instead of operating right away. While the pessary may do nothing in the permanent cure of the patient, it does give her temporary relief. Then sometimes we may even use a pessary against our better judgment in order to satisfy the patient; she often goes on using the support, which may do her no harm at first, but does later. Using the pessary in that way may do harm where

[1] See page 145 of the Journal.
[2] See page 151 of the Journal.

an operation may in the first place have been the safer and wiser plan, because the relief she gets from the pessary renders her unwilling to submit to the operation, while the pessary is absolutely incapable of bringing about a real cure. I think women are divided into three classes. One class do abhor an operation, and will stand almost anything rather than go through with one; another class will accept an operation, but are more or less indifferent in regard to it; the third class represent those women who, when an operation is suggested, will not rest until it has been performed. A woman may come to you, and after talking over the matter with her, if nothing is said about an operation, she will ask: "Are you not going to suggest an operation? I came in because I wanted an operation done." That illustrates very well the third class of women you have to deal with. Then I think it should be taken into consideration what people expect as a result of treatment in displacements of the uterus. I think many women expect that after they have had an operation or worn a pessary for a long time, that they are sort of exempt or immune from any retroversion of the uterus ever after. I believe we should caution them very carefully against the cause of the trouble in the first place. I do not believe that in the vast majority of cases it is possible to make them proof against retroversion.

DR. S. BRECK: I should like to say, especially in regard to retroversion, that the length of time the displacement has existed means much as to the prognosis. In recent cases it is remarkable how much a little treatment will accomplish. A few replacements in the knee-chest position, a little packing, or the wearing of a pessary for a few weeks, will often result in a cure. I believe that in favorable cases a pessary should be tried for a year at least, possibly two years, before resorting to operation. An important point in considering the case a favorable one is whether the patient can have proper general care, rest, etc. Thus a line is drawn quite sharply between private and hospital cases, though it is true that many of the latter are so comfortable with pessaries that they do not wish anything more done. The uterus is frequently so flabby as to render the use of pessaries valueless.

For an entirely different condition, namely, complete prolapse of the vagina, I should like to say a word in favor of a pessary, which is, I believe, unnamed, but in my hands has been very useful. We frequently see such cases in old and feeble women, or (as in a case now under treatment) with diabetes mellitus or some other serious complication that prohibits operation. In such cases this pessary is the only one that I have seen retained. It is made of hard rubber, round, with thick edges, — hollow and therefore very *light*, — the centre flat and thin, with a small perforation. Its construction would seem to call atmospheric pressure into play in aiding its retention.

This pessary I have frequently seen worn for long periods of time with the greatest comfort.

DR. EDWARD L. TWOMBLY: I feel that Dr. Davenport's points are very well taken, although in general experience we may have less favorable results. For instance, with the pessaries as used by the general practitioner, the results are anything but satisfactory. We often find them placed in all sorts of malpositions. The general practitioner does not realize the care necessary, nor has he been taught how to place the pessary properly and how long to retain it in place. Yet the pessary does have its place, and we do not wish to discard it entirely. I have not had any wonderful results after working with them for many years, a cure resulting only once in about five. I may have something yet to learn, as Dr. Davenport effects a cure in every other case.

There should be a distinction made between hospital patients and private patients. Of course, it stands to reason your private patient will do better, with all the quiet and rest and care of the home, than a dispensary patient will, for our dispensary patient is obliged to work, and can have little of rest and quiet. As a class they are usually working girls who have to support themselves, and cannot rest whenever they have a backache. Many have to be packed for a long while, and the result is very unsatisfactory. When we offer them the alternative between an operation in the hospital, necessitating a rest of three or four weeks, and a long treatment of six months or a year with the pessary, they are willing to have the operation done, rather than have to drag along for a long time. For this reason many of us advocate operation more than we otherwise should, because it does hold out to them better chances of getting well sooner than a long course of treatment with the pessary.

I notice that Dr. Davenport did not discuss retroversions with adhesions, perhaps not thinking best to speak of that complication, but it is a very frequent one. In those cases certainly we would not think of inserting a pessary at the beginning. We sometimes gain a great deal by packing well, but even then the gain is very slow, and the process by pessary is exceedingly slow and sometimes painful. I think that when he comes to speak of these cases he will agree that an operation for the purpose of breaking up the adhesions, etc., is the wisest plan. We certainly have found it so, at Saint Elizabeth's Hospital. Now do not let this lead you to believe that I uphold operation entirely, because I believe the pessary has a place, albeit its range of usefulness is a more limited one than was formerly believed.

DR. F. E. BUNDY: I will speak of a case I happen to have under my care at present, illustrating the danger of allowing a pessary to remain too long without an examination. I was called to this case a few days ago. The young woman was suffering from pain in the ovarian region and an offensive discharge. I learned that she had been wearing the pessary for ten years, and that it had not been removed for three years. When last removed she was advised to try going without it,

but she declined to do so. With a great deal of difficulty I removed it, and she is getting well.

Dr. Brewster: I should like to ask Dr. Davenport if a case is a suitable one for operation, whether he can assure the patient of a cure. I am surprised to receive the impression that all operations are successful, as I had supposed a good many were followed by a recurrence of the retroversion.

Dr. Boland: Personally, I feel very grateful to Dr. Davenport for bringing this matter up. The conclusions he has reached must have great weight with any thoughtful practitioner. The round pessary spoken of has given me great satisfaction in the treatment of procidentia in elderly women.

Dr. Kaan: I am thoroughly in accord with what Dr. Davenport has read on the subject. I believe in treatment by pessary first before operation. In operations we have yet to hear of the results. At first the patient may be relieved of her symptoms by the operation, but in a good many of the cases there occur adhesions of the omentum and of new-formed bands to the abdominal walls. We have already heard of trouble from this cause in the west, and undoubtedly we shall in the east. In a great many of the cases the uterus has been brought forward too far, resulting in very severe strain on the sacro-uterine ligaments, and giving a new set of symptoms fully as bad as the old.

It seems to me that the pessary has been altogether neglected of late, especially by the general practitioner. I do not feel that women have had a fair show in the treatment of these retroversions. Under Professor Pfannenstiel in the Krankenhaus at Breslau, 760 cases of retroversion were treated by pessary and 304 by operation between April, 1896, and October, 1900. Professor Pfannenstiel, on the other hand, in his private practice, treated 736 by pessary and 24 by operation. It seems to me that this disproportion between hospital and private work should not exist; and it pretty clearly shows also that we are treating too many of these cases by operation.

Dr. F. H. Davenport: In regard to what Dr. Craig stated about one objection to the pessary being that it rather lulled the patient into a state of false security. I think it should be distinctly stated to the patient when the pessary is used that it may succeed or it may not. The chances should be made very plain to her, that there is not more than one chance in three that it will cure her, and that if after a time no relief is felt from its use, operation would be the proper thing. I think it is true that operations are much less feared than they used to be. In these times results are generally good, and with all the modern facilities, people are feeling more confidence, so that even in the more severe operations, the old dread is largely passing away.

I agree with what Dr. Breck said about its making a difference as to what class of patients we deal with. It does make a difference as to what class they belong to, how much leisure they have, and how much time they have to take care of themselves.

I am decidedly of the opinion that even with a well-fitted pessary the chances for cure in retroflexion are much less than in retroversion. Nor is it such an easy matter to adjust a pessary. For these cases I think an operation is much more likely to be required than in cases of simple retroversion. If an anatomical cure is sought for an operation must be advised.

In regard to what Dr. Brewster said as to whether we can assure a patient that they can be definitely cured by an operation. I think the question is one of degree. If the results show that pessary treatment will not cure one in three or one in two, the question is, can we show any improvement in these statistics by operation? I think we can decidedly. That is the impression I have from my own cases, although I have not looked them up in detail. I think we can assure our patients of a cure with the same reservations that we make in any operation. I think we can tell our patients that the chances of a cure by operation are very much better than by means of the pessary.

Dr. W. H. White read a paper on

ELECTRICITY: ITS USE IN GYNECOLOGY.[3]

Dr. F. H. Davenport: I have had very little experience with the use of electricity, except for a brief time with the treatment of fibroid tumors, both by electrolysis and by intra-uterine application. I have wondered whether the method of Dr. Apostoli is still used in treating fibroid tumors. I see nothing about it in the journals, and I should like to know whether his followers are as urgent advocates of this method of treatment as he was years ago. In amenorrhea it seems to me that the use of the faradic current may help sometimes, but the results have been very uncertain and not very constant. Also in the treatment of sterility I think the use of electricity might be of much benefit, using the faradic current.

Dr. W. H. White: Dr. Davenport asked about Dr. Apostoli. Dr. Apostoli died April 27, 1900, of pneumonia. I have not seen so much about his treatment in the French electrotherapeutic journals. It is more of an old story. There are reports at times, but high frequency and x-ray reports have taken its place.

In regard to what Dr. Kaan said about the use of electricity in sterility, I have not used it much in those cases. It has been either with the sinusoidal or high-tension, coarse wire coil to stimulate the muscular parts to come up to normal action.

The use of the x-ray in gynecology is yet in its experimental stage. It has been used in some cases of uterine cancers, and especially by Dr. Skinner of New Haven. He claims that in cancer of the stomach he has seen the general appearance of the patient improve and an absence of bad

[3] See page 148 of the Journal.

symptoms where he had been using it a little while. He used what is called the hard or high vacuum tube; others of us are using it on similar cases. How successful this is going to prove I cannot say now.

## AMERICAN LARYNGOLOGICAL ASSOCIATION.

TWENTY-FOURTH ANNUAL CONGRESS, HELD IN THE MEDICAL LIBRARY, BOSTON, MASS., MAY 26, 27 AND 28, 1902, DR. JOHN W. FARLOW OF BOSTON, PRESIDENT.

[Concluded from No. 5, p. 134.]

### SECOND DAY.

#### SOME CLINICAL FEATURES REGARDING HAY FEVER AND ITS RATIONAL TREATMENT.

DR. GEORGE B. HOPE of New York was the author of this paper. He said that the pollen theory of hay fever had received a severe check by the occasional occurrence of cases of perennial congestive activity in the nose. In all cases that he had met with, the clinical symptoms of hay fever had been associated with hypertrophy of the middle turbinate, and the surgical treatment of this condition had invariably resulted in improvement. It was his custom to make use of the snare for the removal of the hypertrophied tissue.

DR. JOHN O. ROE of Rochester expressed his abiding faith in the theory that hay fever is a reflex disorder having its origin in nasal abnormalities. These were often to be found in the middle turbinate, and hence tended to confirm many of the statements contained in Dr. Hope's paper.

DR. J. N. MACKENZIE was opposed to such experiments as had been described by Dr. Ingals, believing that they served no good purpose, and only opened the door to quackery. Whatever benefit was believed to have been derived in those patients from the use of this so-called remedy he would attribute to a psychical effect produced upon a neurotic individual.

DR. F. I. KNIGHT of Boston objected to this vague use of the term hay fever, and expressed his preference for the more specific designation, autumnal catarrh. He had seen occasional relief of this catarrh by treatment of local conditions, but it was rare indeed that a cure was effected in this manner. The etiology embraced three factors, namely, (1) local irritation; (2) local disease, and (3) a neurotic tendency.

DR. W. E. CASSELBERRY said that the surgical treatment of the middle turbinate was far from being simple, and sometimes gave rise to hemorrhage and sepsis. As to Dr. Roe's theory of sensitive areas he would say that even with the most careful use of the probe he had not always been able to detect such areas in cases of hay fever.

#### REPORT OF A CASE OF STAMMERING.

DR. G. HUDSON MAKUEN of Philadelphia presented a young man of thirty who had been a stammerer practically all his life. The fundamental difficulty seemed to be in a lack of appreciation of the time element in speech; hence he talked with great rapidity. This was a common defect with stammerers, and consequently an important part of the treatment consisted in training the ear of the stammerer to recognize normal speech. So important was this that it constituted the whole secret of many vaunted cures for stammering. The aim in treatment should be to train the ear, and many used for this purpose such aids as beating time with the foot or by the nodding of the head or the swinging of a pendulum. Dr. Makuen thought it was better in most cases to avoid these extraneous and artificial devices, educating the person to use the physiological elements of our language. In the present case the treatment had extended over a period of about two weeks, and had consisted in a rhythmical exercise of the organs of respiration and phonation, the patient being taught to beat time, as it were, with his own respiratory organs, by counting one, two, three, etc., and at the same time momentarily expanding the abdomen. In the same way he was taught to speak in syllables. The result was excellent.

#### CHANGES IN THE FORM OF THE ARYTENOID CARTILAGE OCCASIONALLY SEEN IN SINGERS AND ACTORS.

DR. CLARENCE C. RICE of New York presented a paper with this title. He laid it down as a general rule that where there was a lesion of the larynx existing alone it was ordinarily the result of some extraordinary strain of the voice. The over-use of certain of the laryngeal muscles was apt to be accompanied by diminished use of other muscles, and one often observed a remarkable compensatory increase in the size and function of the false vocal bands where the action of the true cords was impaired. Choked voice was most frequently seen in second-rate singers as a result of an effort to use the voice beyond its normal and proper range. The requirements of their occupation and the impossibility often of giving the voice sufficient rest made the prognosis in this class unfavorable.

DR. S. W. LANGMAID of Boston remarked that frequently one of the first symptoms of this strain upon the voice was the losing of the high notes, and this was because the person shrunk from making the undue muscular effort demanded for their proper production under the abnormal conditions present.

#### AN EPIDEMIC OF NON-SUPPURATIVE CERVICAL ADENITIS.

DR. LANGMAID also read this paper, which was a clinical report of four cases. In each instance there had been an initial chill and high fever, followed by extreme dysphagia, great prostration and moderate swelling in the throat. After a short interval a cervical adenitis had suddenly developed, but the larynx had not become involved in the morbid process. He thought it possible

that the disorder had resulted from the absorption of noxious matter in the region of the tonsil.

That this affection, whatever its nature, had been especially prevalent in Boston, was shown by the fact that, in the discussion on this report, similar cases were described by Drs. G. A. Leland, J. L. Goodale, F. C. Cobb, A. Coolidge and J. W. Farlow of that city. Dr. H. L. Swain of New Haven and Dr. W. K. Simpson of New York had also met with a similar condition.

THE CHEMICAL PATHOLOGY OF THE SALIVA AND PHARNYGEAL SECRETIONS (SIALO-SEMEIOLOGY) AS A MEANS OF DIAGNOSIS.

Dr. D. Braden Kyle of Philadelphia presented this communication, which was based upon some original and experimental work that he had been engaged in since 1895. This study had impressed him with the valuable aid in diagnosis that might often be derived from a study of the composition of the saliva. Of course, intelligent work in this field presupposed a knowledge of the physiological variations occurring in normal saliva. He had not only investigated normal saliva but hypoacid and hyperacid saliva. He thought it not improbable that some of the reflex disorders, such as asthma, might be traced to a perversion of the salivary secretion. He had succeeded in curing certain cases of hay fever by attention to the secretions. In all these studies care had been taken to avoid complicating the problem by excluding bacterial action.

THIRD DAY.

SYPHILITIC CONTRACTION OF THE PHARYNX.

Dr. George A. Leland of Boston exhibited a patient with this condition with extensive syphilitic disease of the nose. The bridge of the nose had been retained, but very little else had been spared. In the spring of 1897 this man had been a patient at the Boston City Hospital, and had been treated by dilatation because of continual narrowing of the cicatrices at the base of the tongue. About the first of May tracheotomy had been required. Just before this he had been unable to take anything by the mouth. On Oct. 6 the method of the late Dr. J. E. Nichols had been tried. This consists in dissolving the cicatrices from the back wall of the pharnyx, a suture being inserted and allowed to cicatrize as in the case of the operation for webbed fingers. The patient was fed by the rectum for about seven months, a fact worthy of note.

A CASE OF INCISED WOUND OF THE LARYNX.

Dr. F. E. Hopkins of Springfield, Mass., presented this report. The patient was a man of thirty-eight who had been admitted in July, 1901, to the Springfield Hospital with a history of having attempted suicide shortly before. Extending transversely across the throat between the cricoid cartilage and the hyoid bone was a gaping wound, the sutures that had been introduced by the physician first in attendance, having sloughed out. The vocal cords and arytenoids could be easily seen through the wound. The patient could not take any food by the mouth, and the house surgeon was unable to pass a stomach tube so that rectal alimentation was required. The wound was again sutured, and it healed promptly.

A CASE OF FOREIGN BODY IN THE BRONCHUS.

Dr. Hopkins also reported this case. A young girl was skating and at the same time holding in her mouth a toy balloon having attached to it a musical reed. During a fit of laughing she took a deep inspiration and the toy was drawn down through the larynx into the trachea. The girl appeared to be in a desperate state on reaching the hospital, and as she was hysterical and uncontrollable, a general anesthetic was at once administered. She took the anesthetic very badly, and a hurried tracheotomy was required. The patient appeared to be all but dead; nevertheless the right bronchus was explored, the foreign body found and removed with forceps. After this the girl's recovery was uneventful.

Dr. Emil Mayer of New York suggested that it would be safer to do a tracheotomy under local anesthesia and then proceed with the exploration under general anesthesia.

Dr. Price Brown of Toronto said that while this procedure might be of advantage in some cases, it would not be in all, and in support of this statement reported a case of tracheotomy in which the dyspnea and cyanosis had subsided under the influence of the general anesthetic. In this instance, occurring in a young child, no foreign body was found at the time, and the history was doubtful, consequently a tube was left in for four days. On removing the tube the child had a fit of coughing, during which a grain of corn was expelled. It was interesting to note that although the grain of corn had remained in so long it did not show any sign of germination.

Dr. H. L. Swain cited a case in which after five months a child had expelled from the respiratory passages half of the kernel of a peanut, and the latter exhibited no evidence of distinct softening.

Dr. Bryson Delavan of New York thought the case reported by Dr. Hopkins was unique as regards the size of the foreign body inhaled. In his opinion the use of a general anesthetic was very dangerous in these cases.

Dr. A. Coolidge, Jr., of Boston, reiterated his belief that our ability at the present time to inspect the trachea and bronchi by direct illumination had taken away much of the danger of inhaling foreign bodies. A waiting policy, while preferable to the old plan of hunting blindly with long forceps in the passages, was more dangerous than attempting to remove the intruder under the guidance of inspection and direct illumination. The bronchi were very tolerant of such bodies, and if the person possessed fair self-control cocain anesthesia was all that was necessary for the performance of tracheotomy.

DR. W. K. SIMPSON said that O'Dwyer's cylindrical foreign-body tube would be found an excellent means of causing the expulsion of the body during the act of coughing in cases in which the body was making excursions into the trachea.

TREATMENT OF EMPYEMA OF THE SPHENOIDAL SINUS.

DR. F. WHITEHILL HINKEL of Buffalo was the author of this paper. In it he detailed his experience in twenty cases, in all of which the diagnosis was proved correct by operation. Severe headache had been uniformly present, but he had been unable to find any distinct localization for this pain. Pain in the ears and along the tempero-parietal region was occasionally complained of. In eight cases a chronic cough was associated with purulent expectoration. A positive diagnosis was only made by seeing pus welling up from the ostium or from the sinus when irrigated. There were no characteristic symptoms of disease of this sinus and polypi were often associated with it. He had not found that irrigation of the sinus through the natural opening relieved the symptoms or controlled the empyema, indeed such irrigations had often caused headache. The anterior wall should be broken down with a sharp spoon. Although comparatively few cases of severe hemorrhage had been reported in this connection, he had once met with severe secondary hemorrhage ten days after having made a free opening in the anterior wall of the sphenoidal sinus, and it was supposed at the time that the sphenopalatine artery had been injured at the operation.

DR. J. H. BRYAN of Washington, D. C., enlarged upon the dangerous character of this region, particularly as regards the danger of wounding the carotid artery or of opening the orbital cavity and causing the development of an orbital abscess. The treatment of these cases presented many difficulties, and moreover the anatomy of the region was subject to constant variations to such an extent that he did not think he had found two sphenoids that were exactly alike.

DR. EMIL MAYER said that he thought he was able to add a new cause, that is, the infection of the parts by germs forced in by currents of air produced by automobile riding.

DR. W. E. CASSELBERRY spoke of the part played by syphilis in the production of suppuration in the maxillary, ethmoidal and sphenoidal sinuses.

DR. J. W. FARLOW advised the use of the Grünwald wedge-shaped hook for making a large opening into the sinus.

DR. D. BRYSON DELAVAN said that *apropos* of what had been said by Dr. Casselberry he desired to state that in several cases he had secured almost perfect results by the internal use of the iodides. Of course, in these cases there was a syphilitic taint.

DR. HINKEL said that a dull pain in the eye associated with hemicrania constituted an important point in the diagnosis. He had not succeeded in relieving any of his cases of sinus empyema by antisyphilitic medication.

ADENOMA OF THE NOSE.

DR. EMIL MAYER of New York reported this case. The patient was a man of sixty-eight years, who had been kicked by a horse six years ago, and since then had suffered from nasal obstruction. The patient had been sent to him because of a suspicion of sarcoma of the nose. Under chloroform anesthesia he had done tracheotomy and an extensive external operation. The pathologist reported that the tumor weighed 117 gm., and was composed chiefly of a papilloma with adenomatous tissue; it was, therefore, a papilloadenoma. There were only a few cells present suggesting sarcomatous tissue. The very unusual size of the tumor and the extensive absorption of bone, together with the extraordinary method of removal demanded, made the case of especial interest. The operation was begun on the outer edge of the growth, commencing with the inner canthus of the eye and going down close to the outer edge of the nose and through the lip, thus obtaining a large flap and leaving the nose intact. The latter was pushed to one side. Finding the large growth exposed, it was taken away piecemeal. The nasal bone was found to have been absorbed. The preliminary tracheotomy was done because of the uncertainty as to the extent and nature of the growth and the fear of hemorrhage in the patient's already weakened state.

THE USE OF RUBBER SPLINTS IN THE TREATMENT OF CURVATURE OF THE TRIANGULAR CARTILAGE.

DR. PRICE BROWN of Toronto presented this paper. The splints are inserted after the use of cocain and a cleansing alkaline spray. The splint should be sufficiently tight to maintain its position by elastic pressure, and, as a rule, it should not be removed until union was solid, whether this was two or four weeks, because if the patient were seen daily and the passages cleansed there would be no sepsis resulting from this prolonged retention of the splint.

LEUKOPLAKIA.

DR. FREDERIC C. COBB of Boston was the author of this paper. He said that this condition had formerly been described under the name of ichthyosis. Out of sixty-eight cases of non-syphilitic leukoplakia, 98.4% were among smokers. Smoking had been supposed to account for the preponderance of leukoplakia in males, yet among Turkish women, who are excessive smokers, it was unknown. There was frequently a history of syphilis. During the last five years ten cases of leukoplakia had been admitted to the Massachusetts General Hospital, eight of them being males and smokers. In one case the disease had existed for twenty-three years before the development of carcinoma. In four of the cases the leukoplakia was upon the tongue.

### A NEW OPERATION FOR THE RESTORATION OF THE NASAL SEPTUM.

Dr. John O. Roe of Rochester described in this paper a new operation that he had done for the restoration of the columnar and anterior portions of the nasal septum, and presented photographs of the patient before and after the operation. He dissected up sufficient tissue from the under side of the lip to fill the deficiency of the septum; then buttonholed the upper lip and pushed the flap through this opening at the point of insertion of the lower columnar. By pulling this flap inward and stitching the cut surfaces together, and then to the anterior stump of the septum, a good substitute for the original septum was formed.

### ELECTION OF OFFICERS.

The following were elected for the ensuing year:

Dr. J. H. Bryan, Washington, D. C., President; Dr. George A. Leland, Boston, First Vice-President; Dr. T. Melville Hardie, Chicago, Second Vice-President; Dr. J. E. Newcomb, New York, Secretary and Treasurer; Dr. J. W. Farlow, Boston, Member of Council.

## Recent Literature.

*Hernia, its Etiology, Symptoms and Treatment.* By W. McAdam Eccles, M.S. (Lond.), F.R.C.S. (Eng.). Senior Assistant Surgeon, West London Hospital and City of London Truss Society, etc., etc. Second edition. New York: William Wood & Co. 1902.

The first edition of this work was published in 1900. It was an interestingly written and well-arranged treatise which without pretending to exhaust the subject, presented its salient points to the reader, especially those facts relating to etiology, symptomatology and treatment which an extended personal experience had shown the author to be of great practical importance and value.

That the book has been an attractive one is shown by the demand for a second edition in so short a time. The new edition, with the exception of the addition of twenty-one new illustrations, shows little change from its predecessors. In fact, an effort has been made to prevent an increase in its size. It is an octavo of 233 pages. The classification, arrangement of chapters and table of contents is the same in both editions. Truss treatment is described more in detail than is usual in works on this subject, while the descriptions and illustrations are interesting as giving an insight into English methods.

The type, binding, paper and other details of the publishers' art have been combined so as to produce an attractive, easily handled, easily read volume.

THE BOSTON

# Medical and Surgical Journal.

THURSDAY, AUGUST 7, 1902.

*A Journal of Medicine, Surgery and Allied Sciences, published at Boston, weekly, by the undersigned.*

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## MEDICINE IN RELATION TO UNIVERSITIES.

It is evident to the most casual observer that the next few years are destined to see fundamental changes in the attitude of educated men, both within and without the universities, toward medicine. Hardly a month passes that we do not find a paper on some subject relating to the improved teaching of one or another branch of medical science. This is a most healthy sign of the times and will no doubt lead in the near future to a readjustment of the whole problem of medical education which will ultimately lead to the decided elevation of the profession. We have before us an important paper by Prof. Lewellys F. Barker of the University of Chicago,[1] on the subject of "Medicine and the Universities," which was originally read at a meeting of the Western Alumni of the Johns Hopkins University recently held in Chicago. Dr. Barker outlines the development of the medical school in America in such a way that no doubt is left in the mind of the reader that we have progressed very far within the last fifty years. The so-called proprietary medical school, designed in the first place for the education of young men in the medical art, and in the second place for the self-improvement and the personal advancement of those connected with the school, is given its due share of credit in the general development of medical education. The pernicious result to which this type of medical school led, namely, the purchase of professorships by certain men desirous of advertising themselves, is alluded to. All this, fortunately, is rapidly becoming a thing of the past, due largely to the growth of the so-called laboratory branches of medicine, which necessitates a larger expenditure of money than was possible under the proprietary plan. This led to the effort on the part of certain proprietary schools

[1] American Medicine, July 26, 1902.

to associate themselves with established universities. Such "pseudo university schools," as Dr. Barker calls them, have apparently also had their day, and in some respects must be regarded as a worse menace than the regular proprietary school.

At the present time the best institutions for medical instruction in America may be termed semi-university schools. These are schools in which the subjects of the first two years are taught by university professors, who devote themselves to the investigation and the teaching of the sciences which they represent, the remaining years of the course being given up to clinical branches taught by physicians, who also are private practitioners of medicine. This institution Dr. Barker regards as a very great advance, a point of view in which no doubt a large majority of thinking persons will agree. From this state of affairs to the real university schools is a considerable step. In this part of his paper Dr. Barker sketches what appears to him to be the ideal of medical education, namely, an institution in which all of the heads of departments should be paid from university funds and should renounce the temptations of private practice in order that they may devote their best energies to the teaching of students and the investigation of medical questions. Until this is done Dr. Barker maintains that the medical sciences cannot be expected to stand on the same footing as the sciences taught in the academic departments of a university. To carry out this plan means the institution of university hospitals, large endowments for medical research and the complete subordination of personal financial interests to the good of the profession at large. In certain great branches, such, for example, as medicine, surgery, obstetrics and possibly psychiatry, Dr. Barker thinks this consummation may not be far distant. He fears, however, that many years will elapse before the so-called specialties of medical practice be accorded a like place of dignity.

The whole article is stimulating and representative of the radical point of view which modern progress in medicine has made possible. It is clear that the whole matter will probably work itself out by slow degrees rather than in a revolutionary way. It is altogether probable that by degrees men will be found and endowments will be forthcoming which will make possible the differentiation of the branches of medicine under a single liberally paid head. This is no doubt in great measure desirable, but we may hardly regard it as attainable for many years to come. As *American Medicine*, commenting on this paper, editorially remarks, what is to become of the specialties? It is through the development of special lines of work that as Dr. Barker would agree, advance is in every case to be made. It is likely, therefore, that these special fields will differentiate more and more as time goes on, and that such differentiation will be encouraged by broad-minded universities. It is not, however, to be supposed that sufficient endowments for the maintenance of these subdepartments will be attainable for many years to come.

This will no doubt necessitate the continuance of private practice on the part of many teachers in our best medical schools. We are not inclined to look upon this, by any means, as an unmixed evil, nor do we believe it will interfere with the best medical progress. After all is said, the fact remains that medicine is an applied science and must not lose its touch upon the community which it is designed to benefit. A clinical teacher will not be the worse for being an able practitioner, provided only that part of his life which is given to teaching be not subordinated to the mere acquisition of money. We certainly need investigators, the more the better, but we also need men imbued with the dignity of teaching, who will continue to bridge the widening gulf between the laboratory and the facts of concrete sickness which lie outside.

## CHILD INSURANCE.

THAT the custom of insuring young children carries with it a certain temptation for the parents is undeniable. How often this temptation realizes itself in fact is a very serious question for the law and for humanitarians to consider. From time to time reports are published of gross carelessness on the part of parents in the care of young children which at least indirectly leads to their death, a carelessness which arouses the suspicion of an ulterior motive. A peculiarly flagrant case of this sort has recently been reported in the *Child's Guardian* for July, 1902, at Bradford, England. It appears that a certain man and his wife were summoned to the city police court for cruelty to a child that had died. The jury held at the inquest that there had been negligence on the part of the mother and that death was due to starvation. The evidence brought out the fact that the male defendant was a laborer in receipt of good wages and that his home was sufficiently provided for. It also transpired that this was the fifth child of a family of six which had died very young and that all had been insured. The woman in the case was committed for six weeks' hard labor, the magistrate remarking that the case was extremely suspicious against her.

The investigation of such cases, which probably occur more often than we realize, is fraught with the very greatest difficulty. To charge a parent

with neglect of so criminal a sort requires more definite evidence than is usually obtainable. In the instance above cited it is clear that the punishment was in no way commensurate with the crime, could the crime have been definitely proved. It is certainly not to be supposed that neglect leading to death is commonly practised for the sake of the insurance money, but if such instances have occurred and can be proved, no penalty would seem to be too severe for the perpetrators. No doubt the plan of insuring children has certain definite advantages which should not be lost sight of in considering the evils to which it may lead. It is a matter, however, to which both the legal and the medical professions should give their earnest attention when such suspicious cases come to their notice.

## CONTAGIOUS EYE DISEASES IN SCHOOL CHILDREN.

At the monthly meeting of the New York Board of Education, held July 30, a report on the health of the public school children was presented by Commissioner Lederle, president of the Health Department, which was principally devoted to the matter of contagious eye diseases. He stated that in the short period remaining of the school year at the time of their appointment as inspectors the eye specialists selected for the purpose examined 55,470 children in thirty-six schools, and that they found 6,670, or a percentage of 12, affected with contagious eye diseases. Of these cases 2,328 were of the severest type of trachoma, necessitating almost immediate operation. There were 3,240 children suffering from a milder type of trachoma, while 1,099 had acute purulent conjunctivitis. The reports of the inspectors showed the percentage of eye disease was not the same in each school, varying from 22.2 in a school in East 20th Street, to 3.2 in one in East 77th Street, and it was found more prevalent among boys than girls. At this meeting of the Board of Education it was decided to set aside suitable rooms in the school buildings for the work of the health inspectors, and the Committee on Buildings announced that in the plans for new schoolhouses provision for ample accommodations for this purpose would be arranged. The criticism having been made by the superintendent of public schools that the inspectors examined one child after another without disinfecting their hands between the examinations, and thus exposed healthy children to the risk of infection, Dr. C. Cole Bradley, one of the inspectors, wrote a letter in which he explained the situation as follows:

"It is true that the oculists went from child to child without washing or disinfecting their hands, for the reason that there were no facilities for such disinfection, nor even towels in any school, furnished by the Board of Education. The examiner was always cautious to evert the lid by traction on the cheek rather than on the lid. These chronic cases have very little discharge excepting after the night's rest, and it was a rarity to find pus on the outside of the lid, but on the inside. This danger of infection of the well children certainly exists, and in the future examinations it will be possible for the Health Board to insist on proper washing facilities being furnished. The hurried character of the examinations (ten days) gave no time for preparation, and in my opinion the eversion of the lids by men knowing the possibility of infection was done in such a manner as to reduce the possibility of contagion to a minimum."

Commissioner Lederle, in making this letter public, stated that in future examinations all possible precautions would be adopted and proper disinfection practised.

## MEDICAL NOTES.

Cholera in the Philippines.— While cholera is decreasing in Manila, a large number of cases and deaths are said to be occurring in the provinces. Since the outbreak of the epidemic there have been throughout the archipelago a total of 21,408 cases of cholera and 16,105 deaths. It is believed that many cases were not reported, and the total number of cases is estimated at 28,000. Forty-eight Americans and eighteen Europeans are reported to have died in Manila since the outbreak.

Trouble with the Milk Supply of St. Louis. — Dr. Starkloff, health commissioner of St. Louis, has requested the commission of supply to cancel the contract for furnishing milk to the City Hospital, the poorhouse and the quarantine ward of the old City Hall on the ground that the contractor had been furnishing milk of a poor quality.— *New York Medical Journal.*

Opening of a Hospital at Santiago.— The Centro Beneficio Hospital has been opened in Santiago, Cuba, in the building formerly used as headquarters by the American officers. It was the occasion of a celebration by the Spanish Colony.

The Health of Professor Virchow.— It is again reported that Professor Virchow, who has been sojourning in the Harz Mountains, is failing in health. He had been recovering from a severe accident which befell him some months ago.

"American Gynecology."— The first number of the new monthly journal, *American Gynecology*, has appeared. It is attractively published

and printed, and this number is profusely illustrated.

UNVEILING OF A STATUE TO PASTEUR. — A statue of Pasteur has been unveiled at his birthplace, Dole, Jura.

BOSTON AND NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON. — For the week ending at noon, Aug. 6, 1902, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: Diphtheria 26, scarlatina 13, measles 13, typhoid fever 7, smallpox 5.

DEMURRER IN THE BRIGHAM HOSPITAL CASE. — In the case of Herbert F. Brigham vs. the Peter Bent Brigham Hospital and others, the defendant hospital has filed a demurrer to the bill in the office of the clerk of the United States Circuit Court. The ground of the demurrer is general, — that the plaintiff has no case, — and the defendant asks that the bill be dismissed. The action is brought, as previously mentioned in these columns, to determine the plaintiff's right in a trust fund for $4,000,000 created under the will of Peter Bent Brigham.

SMALLPOX. — Several new cases of smallpox have occurred within a week at Cambridge, Mass., and new cases have also appeared at Everett, Mass.

NEW YORK.

A MODEL SCHOOL. — In the new DeWitt Clinton High School, situated on Stuyvesant Square, which, it is stated, will be the largest building of its kind in the world and will furnish accommodations for a minimum of 3,100 pupils, an enormous gymnasium and swimming pool will be placed in the basement and the most ample facilities provided for the physical development of the children. In the Morris High School, in the borough of the Bronx, which is to be second in size to the DeWitt Clinton, accommodating 3,000 children and which is already approaching completion, there will be separate gymnasiums for boys and girls, as the school is to be attended by both sexes. A feature of the building will be twelve laboratories for chemical, physiological, biological and other practical scientific study. This summer the Board of Education, having received a special appropriation for the purpose, has inaugurated a series of evening band concerts for the children on the roofs of some of the schoolhouses, converted into roof-gardens. The vacation schools, with their combination of study, exercise and play, are being carried on upon a more extended scale than in any previous season.

SUPPRESSING A PUBLIC NUISANCE BY EATING IT. — A German resident of Newark, N. J., has promised the health authorities there to suppress a public nuisance by eating it. His neighbors made a complaint that he was maintaining a nuisance in the shape of a flock of eighty ducks, and the charge was dismissed on the condition, proposed by himself, that he and his family would eat one of the ducks every day until they were all gone. The officer of the Board of Health before whom the man was summoned endeavored to induce him to have two ducks eaten each day, but he stoutly maintained that one was all that could possibly be disposed of by his household in this way.

ERYSIPELAS FROM MOSQUITO BITE. — During the past week the death of a child in the borough of the Bronx, supposed to be from erysipelas caused by the bite of a mosquito, has called renewed attention to the mosquito-pest, and the Board of Health is making special efforts to abate the evil as far as possible in the localities afflicted with it.

## Miscellany.

### CANCER IN TROPICAL COUNTRIES.

IN connection with an article on cancer in India in the *British Medical Journal* of June 28, page 1,625, Dr. Dalgetty has called our attention to a recent contribution of his own,[1] dealing with the occurrence of malignant growths in tropical countries. Working at Adampore, in South Sylhet, he had to deal with an imported laboring population of 12,000 Hindus of all ages and a resident population of about 15,000 Mussulmans. During five years' experience he met with only eight cases of malignant disease and four cases of non-malignant tumor among the Hindus; while the Mussulmans, with whom, however, he was not so well acquainted, furnished still fewer, there being only three malignant growths recorded — a cancer of the lip, a sarcoma of the scalp and a melanotic sarcoma of the eye, and one non-malignant tumor, a uterine fibroid. Dr. Dalgetty believes that his statistics for the Hindu population are fairly complete, with the possible exception of some concealed cases of uterine disease, and he notes that the new growths did not exhibit marked predilection for any particular site, the eight cases comprising growths of the tongue, lip, gum and cheek, glans penis, uterus, palma fascia and rib.

Commenting on the absence of cancer of the breast from his list, he says: "It is a remarkable thing, but it is a fact, that I have not yet seen a case of malignant disease of the mamma in a native of this country." As the breasts are freely exposed and other diseases of that region — such as those connected with lactation or due to want of cleanliness — are often met with, the presence of a cancer would not be likely to escape detection. Dr. Dalgetty is therefore inclined to think

[1] Journal Tropical Medicine, April 15, 1902.

that the relative freedom of native women from carcinoma mammæ may be taken as substantiated, and may perhaps be accounted for by differences in their habits from those of Western races. In the first place, as the dress is simply a cotton cloth loosely worn, the breasts are not subjected to any chronic irritation arising from pressure of the clothing. The period of lactation is also much longer, children being allowed to suck the breast for eighteen months or more — in fact, until it is literally sucked dry; a gland thus completely exhausted may possibly be less liable to undergo malignant proliferation.

We find that Dr. Dalgetty's experience is in accordance with the opinion which we have already expressed as to the improbability of there being anything in the nature of an antagonism between cancer and malaria. Speaking of his own cases of malignant disease, he says: "It is safe to say that every one of the cases in the list given above had suffered from malaria, so that the two diseases are not absolutely antagonistic, at any rate." In fact, it is difficult to understand what inducement anyone can have for supposing that two such different diseases as cancer and malaria are likely to bear a definite relationship to one another. In considering the relative frequency of cancer in two countries so widely different as England and India we must bear in mind that the figures are not strictly comparable, owing to the fact that Eastern races do not generally live long enough to reach the age at which cancer is most common in this country. This difficulty can hardly be disposed of in the ready way which Dr. Dalgetty suggests. Age is, as he says, a relative term, and a native of India may become an old man at thirty; but it is not safe to infer on these grounds that the Western cancer-age "would be merely anticipated by ten or fifteen years if the disease were as common in the East as it is in the West." The susceptibility of a tissue to malignant proliferation is not necessarily proportional to its mere diminution in powers of survival, and therefore we cannot assume that because an Oriental may be senile at forty his tissues have acquired at that age the same degree of predisposition to cancer or have been exposed to the same dangers of incurring malignancy as those of a European of fifty-five.— *British Medical Journal.*

## Correspondence.

### WOMEN AS PROFESSORS IN ITALY.

Boston, Aug. 1, 1902.

Mr. Editor: In this week's *Journal* it is stated that the recent appointment of Dr. Rena Mastio to the professorship of anatomy at Milan is the first instance of the appointment of a woman to a professorship in an Italian university. I fear you have forgotten Prof. Novella L'Andrea of Bologna, who, long years ago, lectured from behind a curtain lest her beauty should distract her students. Another woman, also beautiful, was lecturing on pathology in Bologna a dozen years ago, but she may not have been a professor.

### METEOROLOGICAL RECORD

For the week ending July 26, in Boston, according to observations furnished by Sergeant J. W. Smith of the United States Signal Corps:

| Date | Barometer: Daily mean. | Thermometer: Daily mean. | Thermometer: Maximum. | Thermometer: Minimum. | Relative humidity: 8.00 A.M. | Relative humidity: 8.00 P.M. | Relative humidity: Daily mean. | Direction of wind: 8.00 A.M. | Direction of wind: 8.00 P.M. | Velocity of wind: 8.00 A.M. | Velocity of wind: 8.00 P.M. | Weather: 8.00 A.M. | Weather: 8.00 P.M. | Rainfall in inches |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S. | 20 29.88 | 59 | 60 | 58 | 97 | 97 | 97 | E | E | 15 | 12 | R. | R. | .51 |
| M. | 21 29.82 | 60 | 64 | 57 | 94 | 94 | 94 | E | E | 6 | 8 | O. | O. | .55 |
| T. | 22 29.90 | 63 | 67 | 59 | 95 | 97 | 96 | N | N | L. | 5 | 9 | O. | R. | .05 |
| W. | 23 30.10 | 62 | 66 | 58 | 91 | 94 | 92 | N | E | 8 | 8 | O. | F. | T. |
| T. | 24 30.20 | 64 | 64 | 59 | 79 | 86 | 82 | N | E | E | 4 | 9 | O. | F. | O |
| F. | 25 30.22 | 62 | 67 | 58 | 89 | 89 | 89 | N | E | E | 4 | 6 | O. | O. | .01 |
| S. | 26 30.19 | 62 | 65 | 58 | 89 | 92 | 90 | N | E | L. | 6 | 5 | O. | O. | .03 |
| Mean for week. | 30 01 | | 64 | 58 | | | 91 | | | | | | | 1.16 |

* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow. † Indicates trace of rainfall. ‡ Mean for week.

### RECORD OF MORTALITY

For the Week ending Saturday, July 26, 1902.

| Cities. | Population Estimated, 1902. | Reported deaths in each. | Deaths under five years. | Percentage of deaths from: Infectious diseases. | Acute lung diseases. | Diphtheria and croup. | Scarlet fever. | Diarrheal diseases. |
|---|---|---|---|---|---|---|---|---|
| New York | 3,665,352 | 1,470 | 707 | 41.97 | 4.83 | .27 | .41 | 27.27 |
| Chicago | 1,852,828 | 520 | 208 | 38.07 | 3.01 | .57 | .38 | 20.76 |
| Philadelphia | 1,349,624 | 474 | 185 | 30.37 | 4.64 | 1.68 | .42 | 13.50 |
| St. Louis | 603,717 | — | — | — | — | — | — | — |
| Baltimore | 525,330 | 246 | 120 | 41.87 | 4.47 | .81 | .40 | 30.08 |
| Cleveland | 411,826 | — | — | — | — | — | — | — |
| Buffalo | 375,742 | — | — | — | — | — | — | — |
| Pittsburg | 341,101 | 140 | 72 | 54.28 | 6.42 | 2.14 | 1.42 | 30.71 |
| Cincinnati | 332,032 | — | — | — | — | — | — | — |
| Milwaukee | 304,975 | — | — | — | — | — | — | — |
| Washington | 289,537 | — | — | — | — | — | — | — |
| Providence | 185,870 | 62 | 29 | 51.61 | — | 1.61 | — | 22.26 |
| Boston | 588,736 | 224 | 94 | 40.17 | 5.35 | 1.35 | — | 19.64 |
| Worcester | 127,337 | 46 | 30 | 36.95 | 6.52 | — | 6.52 | 26.08 |
| Fall River | 111,872 | 66 | 49 | 54.54 | 1.54 | 1.51 | — | 48.48 |
| Lowell | 99,574 | 52 | 7 | 50.00 | 3.84 | — | — | 42.30 |
| Cambridge | 96,354 | 31 | 12 | 51.61 | 16.13 | — | — | 29.03 |
| Lynn | 71,144 | 19 | 5 | 31.57 | 5.26 | 5.26 | — | 15.79 |
| Lawrence | 67,275 | 30 | 17 | 30.00 | 6.66 | 3.33 | — | 20.00 |
| Springfield | 66,854 | 15 | 3 | 13.33 | 6.66 | — | — | 6.66 |
| Somerville | 65,882 | 15 | 5 | 33.33 | 13.33 | — | — | 6.66 |
| New Bedford | 65,574 | 29 | 19 | 51.72 | 13.79 | — | — | 48.27 |
| Holyoke | 48,065 | 26 | 21 | — | — | — | — | — |
| Brockton | 43,208 | 7 | 1 | — | — | — | — | — |
| Haverhill | 40,392 | 7 | 1 | 14.30 | 14.30 | — | — | — |
| Salem | 36,567 | 10 | 3 | 20.00 | 20.00 | — | — | 10.00 |
| Newton | 36,336 | 9 | 4 | 33.33 | — | — | — | 33.33 |
| Malden | 35,390 | 9 | 1 | 55.55 | — | — | — | — |
| Chelsea | 35,264 | 8 | 5 | 25.00 | 12.50 | — | — | 12.50 |
| Fitchburg | 33,848 | 6 | 1 | 33.33 | — | — | — | 16.67 |
| Taunton | 32,759 | 15 | 5 | 20.00 | — | — | — | 6.67 |
| Everett | 27,114 | 13 | 5 | 46.20 | — | — | — | 7.70 |
| North Adams | 26,583 | 6 | 1 | 16.67 | — | — | — | 16.67 |
| Gloucester | 26,121 | 11 | 2 | 27.27 | — | 9.09 | — | — |
| Quincy | 25,307 | 10 | 6 | 60.00 | — | — | — | 30.00 |
| Waltham | 24,612 | 5 | 1 | 20.00 | — | — | — | — |
| Pittsfield | 22,311 | — | — | — | — | — | — | — |
| Brookline | 21,679 | 5 | 1 | 20.00 | — | — | — | — |
| Chicopee | 20,390 | 11 | 6 | 18.18 | 18.18 | 9.09 | — | — |
| Medford | 20,014 | 6 | 3 | — | — | — | — | — |
| Newburyport | 14,478 | 5 | 2 | 20.00 | — | — | — | 20.00 |
| Melrose | 13,384 | 5 | 1 | 20.00 | — | — | — | — |
| Westfield | 13,038 | 2 | 2 | — | — | — | — | — |
| Attleboro | 12,846 | — | — | — | — | — | — | — |
| Adams | 12,813 | — | — | — | — | — | — | — |
| Milford | 12,516 | — | — | — | — | — | — | — |
| Framingham | 12,109 | — | — | — | — | — | — | — |
| Peabody | 11,957 | — | — | — | — | — | — | — |
| Revere | 11,894 | 4 | 3 | 25.00 | — | — | — | — |
| Gardner | 11,544 | 3 | 1 | 33.33 | — | — | — | — |
| Weymouth | 11,337 | 1 | 1 | — | — | — | — | — |
| Southbridge | 10,838 | 1 | — | — | — | — | — | — |
| Watertown | 10,600 | 5 | 3 | 40.00 | — | — | 20.00 | 20.00 |
| Plymouth | 10,336 | — | — | — | — | — | — | — |

Deaths reported 3,651; under five years of age, 1,651; principal infectious diseases (smallpox, measles, scarlet fever, cerebrospinal meningitis, diphtheria and croup, diarrheal diseases, whooping cough, erysipelas, fevers and consumption) 1,440, acute lung diseases 182, consumption 344, scarlet fever 23, whooping cough 40, cerebrospinal meningitis 9, smallpox 13, measles 22, diarrheal diseases 873.

From whooping cough, New York 16, Chicago 8, Philadelphia 5, Baltimore 1, Pittsburg 1, Providence 2, Boston 5, Somerville 1, Malden 1. From measles New York 9, Chicago 2, Baltimore 1, Pittsburg 7, Boston, Fitchburg and Chicopee, 1 each. From erysipelas, New York 1, Chicago 2, Baltimore, Boston and Malden, 1 each. From smallpox New York 3, Philadelphia 1, Pittsburg 1, Boston 2, Lowell 1, Cambridge 3, Everett 1, Melrose 1.

In the seventy-six great towns of England and Wales, with an estimated population of 14,862,456, for the week ending July 12, the death-rate was 14.5. Deaths reported 4,120; acute diseases of the respiratory organs (London) 159, whooping cough 131, diphtheria 54, measles 116, smallpox 18, scarlet fever 45.

The death-rate ranged from 6.2 in Walthamstow, to 23.3, in Coventry; London 14.6, West Ham 11.9, Croydon 11.0, Brighton 9.6, Portsmouth 10.9, Southampton 10.6, Bristol 11.5, Birmingham 15.3, Leicester 8.0, Nottingham 10.9, Birkenhead 19.5, Liverpool 19.7, Manchester 21.1, Salford 14.2, Bradford 12.8, Leeds 13.8, Sheffield 14.3, Hull 14.2, Newcastle-on-Tyne 21.9, Cardiff 16.7.

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## OFFICIAL LIST OF THE CHANGES OF STATION AND DUTIES OF COMMISSIONED AND NON-COMMISSIONED OFFICERS OF THE PUBLIC HEALTH AND MARINE HOSPITAL SERVICE FOR THE SEVEN DAYS ENDING JULY 17, 1902.

SAWTELLE, H. W., surgeon. Relieved from duty at Chicago, Illinois, and directed to proceed to the Purveying Depot, New York, N. Y., assuming command and relieving Surgeon C. E. Banks. July 16, 1902.

AUSTIN, H. W., surgeon. Upon being relieved at Philadelphia, Pa., by Surgeon Fairfax Irwin, to proceed to Detroit, Michigan, and assume command of the service, relieving Passed Assistant Surgeon E. K. Sprague. July 16, 1902.

IRWIN, FAIRFAX, surgeon. Upon being relieved at Boston, Mass., by Surgeon R. M. Woodward, to proceed to Philadelphia, Pa., assuming command of the service and relieving Surgeon H. W. Austin. July 10, 1902.

CARTER, H. R., surgeon. Granted leave of absence for 1 month and 15 days from July 14. July 12, 1902.

BANKS, C. E., surgeon. Upon being relieved at the Purveying Depot, New York, by Surgeon H. W. Sawtelle, to proceed to Chicago, Ill., and assume command of the service. July 16, 1902.

PETTUS, W. J., surgeon. Upon being relieved at Cleveland, Ohio, by Passed Assistant Surgeon J. B. Greene, to proceed to Washington, D. C., and report at Bureau for duty in the Division of Insular and Foreign Quarantine. July 17, 1902.

WOODWARD, R. M., assistant surgeon general. Relieved from duty in the Bureau, Washington, D. C., effective July 26, 1902, and directed to proceed to Boston, Mass., and assume command of the service, relieving Surgeon Fairfax Irwin. July 16, 1902.

WERTENBAKER, C. P., passed assistant surgeon. Two days' leave from July 15, 1902, under paragraph 179 of the regulations.

ROSENAU, M. J., passed assistant surgeon. Detailed as a delegate at meeting of the International Sanitary Conference to be held in Washington, D. C., Oct. 15, 1902.

NYDEGGER, J. A., passed assistant surgeon. Granted one day's extension of leave of absence, July 10. July 15, 1902.

SPRAGUE, E. K., passed assistant surgeon. Upon being relieved at Detroit, Michigan, by Surgeon H. W. Austin, to proceed to Fort Stanton, N. M., and report to medical officer in command for duty and assignment to quarters. July 16, 1902.

WICKES, H. W., passed assistant surgeon. Granted leave of absence for one month from Aug. 11. July 17, 1902.

GREENE, J. B., passed assistant surgeon. To proceed to Cleveland, Ohio, and assume temporary command of the service, relieving Surgeon W. J. Pettus. July 12, 1902.

RUSSELL, H. C., assistant surgeon. Relieved from duty at Boston, Mass., and directed to proceed to Stapleton N. Y., and report to medical officer in command for duty and assignment to quarters. July 14, 1902.

HEISER, V. G., assistant surgeon. Upon being relieved at Quebec, Canada, by Assistant Surgeon W. C. Billings, to proceed to Manila, P. I., and report to the chief quarantine officer for duty. July 17, 1902.

BILLINGS, W. C., assistant surgeon. Relieved from duty at the Immigration Depot, New York, and directed to proceed to Quebec, Canada, relieving Assistant Surgeon V. G. Heiser, and reporting to the Commissioner of Immigration for duty under his direction. July 17, 1902.

FRANCIS, EDWARD, assistant surgeon. To proceed to Point Pleasant, N. J., for the physical examination of crews of the Life Saving Service. July 17, 1902.

WARREN, B. S., assistant surgeon. To proceed to Atlantic City, N. J., for the physical examination of crews of the Life Saving Service. July 17, 1902.

HICKS, W. R., acting assistant surgeon. Granted leave of absence for five days from July 14. July 12, 1902.

STEVENSON, J. W., acting assistant surgeon. Granted leave of absence for twenty-one days from July 18. July 12, 1902.

MAGUIRE, E. S., senior pharmacist. Granted leave of absence for thirty days from June 7. July 10, 1902.

RICHARDSON, S. W., senior pharmacist. Relieved from temporary duty at Washington, D. C., and directed to rejoin his station at St. Louis, Missouri, relieving Junior Pharmacist C. W. Stephenson. July 17, 1902.

ROGERS, EDWARDS, senior pharmacist. Granted leave of absence for twenty-eight days from July 12. July 10, 1902.

SOUTHARD, F. A., senior pharmacist. Granted fifteen days' extension of leave of absence from July 22. July 10, 1902.

STEPHENSON, C. W., junior pharmacist. Upon being relieved from duty by Senior Pharmacist S. W. Richardson, to proceed to Louisville, Ky., and report to medical officer in command for duty and assignment to quarters. July 17, 1902.

### BOARDS CONVENED.

Board convened to meet at Baltimore, Maryland, July 17, 1902, for the physical examination of an officer of the Revenue Cutter Service. Detail for the Board: Assistant Surgeon General L. L. Williams, chairman; Passed Assistant Surgeon J. A. Nydegger, recorder.

### RESIGNATION.

Junior Pharmacist W. C. Phillips resigned to take effect July 20, 1902.

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## BOOKS AND PAMPHLETS RECEIVED.

Is Adrenalin the Active Principle of the Suprarenal Gland? By T. B. Aldrich. Reprint. 1902.

Studies in Heterogenesis. By H. Charlton Bastian, M.A., M.D., F.R.S. Second Part. Illustrated. London: Williams & Norgate. 1902.

S. Weir Mitchell, M.D., LL.D. By Guy Hinsdale, A.M., M.D., Assistant Physician to the Infirmary for Nervous Diseases. Illustrated. Reprint.

John A. Wyeth, M.D., LL.D. By Guy Hinsdale, A.M., M.D., Assistant Physician to the Infirmary for Nervous Diseases. Illustrated. Reprint.

Beiträge zur Syphilis-Forschung. Contributions à l'étude de la Syphilis von par Dr. Max von Niessen. Parts VI and VII. Illustrated. Wiesbaden. 1902.

Treatise on Diseases of the Skin for the Use of Advanced Students and Practitioners. By Henry W. Stelwagon, M.D., Ph.D. Illustrated. Philadelphia and London: W. B. Saunders & Co. 1902.

Atlas and Epitome of Abdominal Hernias. By Dr. Georg Sültan. Authorized translation from the German. Edited by William B. Coley, M.D. Illustrated. Philadelphia and London: W. B. Saunders & Co. 1902.

The Practical Medicine Series of Year Books, comprising Ten Volumes on the Year's Progress in Medicine and Surgery. Issued Monthly under the General Editorial Charge of Gustavus P. Head, M.D. Vol. VII. Chicago: The Year Book Publishers. 1902.

Is the Dislocation of the Lens into the Vitreous Ever Justifiable? By George F. Suker, M.D., Professor of Ophthalmology in the Post-Graduate Medical School; Clinical Instructor in Ophthalmology in the College of Physicians and Surgeons, University of Illinois. Chicago. Reprint. 1902.

# Original Articles.

## THE DIAGNOSIS OF HIP DISEASE; AN ANALYSIS OF NINETY-FIVE CASES.[1]

BY ROBERT W. LOVETT, M.D., BOSTON.

The name "hip disease" is by general agreement used[2] to designate a tuberculous ostitis of the hip joint. If one examines the reports of our chief orthopedic hospitals one finds the diagnosis of hip disease in children at least to be the overwhelmingly prevailing one where the hip joint is concerned.

There are two possibilities suggested by these figures: (1) Either tuberculous ostitis of the hip is practically the only affection of the hip that occurs with any frequency, or (2) other affections of the hip joint are confounded with tuberculous ostitis and mistaken for it.

In the hope of contributing something to the clearing up of this question the writer has taken for analysis ninety-five cases of affections of the hip first presenting themselves at the Out-Patient Department of the second service of the Children's Hospital in Boston in the years 1897 and 1898. These were all of the cases occurring in those two years. This investigation was begun at the beginning of the year 1901 and lasted until the spring of 1902. The object of the inquiry has been to ascertain the present condition of these ninety-five cases, with a view to determining how many of them have pursued a course characteristic of tuberculous disease, and how many of them have pursued a course not characteristic of that affection as we know it. It is one thing to analyze a number of cases of so-called hip disease on the strength of a diagnosis made after observation of a week or a few weeks, and another to make an analysis of a group where some four years, more or less, have elapsed since the beginning of the affection.

These two years were selected for inquiry as being sufficiently remote to permit a fair judgment as to the full development of any chronic affection, and as being sufficiently near to permit a reasonable chance of finding the cases. The year 1897 was first investigated, but the findings were so unexpected that it seemed as if that year were perhaps exceptional, and 1898 was subsequently looked into with almost identical results.

The writer is indebted to his colleagues for permission to publish the cases and to Dr. L. T. Wilson, house officer at the hospital, for invaluable assistance in tracing the cases.

The present paper is to be regarded as preliminary, and as suggestive rather than conclusive. One conclusion that seems justified is that the diagnosis of tuberculous hip disease is one not to be made off-hand by certain symptoms and signs generally considered pathognomonic, but that it must be made with very great care, often only after prolonged observation.

It is hoped by the writer in a series of recent cases now under observation, to be able at some future time to present more definite information as to the real diagnostic signs of the different affections. The present paper must be confined to the task of showing that many of the cases likely to be classed as hip disease are not tuberculous hip disease at all, but entirely different affections.

To answer the criticism that an unduly large number of cases have been diagnosticated as hip disease at the Children's Hospital the following figures are given from the published reports of similar institutions for the same years, 1897 and 1898.

New York Orthopedic Hospital and Dispensary, 1897 and 1898. New cases received.

| | |
|---|---|
| Pott's disease | 177 |
| Hip disease | 144 |
| Disease of other joints | 170 |

Hospital for the Ruptured and Crippled, 1897 and 1898. New and continued cases.

| | |
|---|---|
| Pott's disease | 486 |
| Hip disease | 522 |
| Ostitis of other joints | 201 |

Hospital for Crippled and Deformed Children, Baltimore, 1897. New cases.

| | |
|---|---|
| Pott's disease | 25 |
| Hip disease | 27 |
| Ostitis of knee and ankle | 5 |

Children's Hospital, Boston, 1897 and 1898. New cases in Out-Patient Department.

| | |
|---|---|
| Pott's disease | 176 |
| Hip disease | 174 |
| Ostitis of other joints | 102 |

These figures show that the number of cases of hip disease diagnosticated at the four institutions named, is approximately the same when considered in relation to the number of diagnoses of Pott's disease made in the same time. These, as they were the two most frequent affections, were chosen for comparison.

Of the ninety-five cases presenting themselves, seven were old cases of hip disease of some years' duration, when they first appeared, and these are of no interest in the present inquiry. They were therefore dropped out of the analysis and the eighty-eight remaining cases only considered.

The diagnosis in these cases as recorded in the records was as given below. It was not made by house officers or students, but by the assistant surgeons in charge of the clinic, the writer, and his colleagues. The recorded diagnosis was:

| | |
|---|---|
| Hip disease | 67 |
| Hip disease (?) | 13 |
| Synovitis | 3 |
| Synovitis (?) | 2 |
| Functional hip | 1 |
| Hysterical hip | 1 |
| Tumor of hip | 1 |
| Total number of cases | 88 |

When the investigation began at the beginning of 1901, only seven of the forty-nine cases first appearing in 1897 were under treatment, or had been, at the hospital within a year. Towards the close of 1901, when the investigation of the 1898

[1] Read before the American Orthopedic Association at Philadelphia, June 6, 1902.

[2] Whitman: Orthopedic Surgery, Philadelphia, 1901, p. 221; Moore: Orthopedic Surgery, Philadelphia, 1898, p. 243; Young: Orthopedic Surgery, Philadelphia, 1894, p. 64; Bradford and Lovett: Orthopedic Surgery, New York, 1899, p. 205.

cases was begun, only eleven out of forty-six cases first appearing in 1898 were under treatment or had been at the hospital within a year. This fact is of significance because the Children's Hospital is practically the only institution in Boston or the neighborhood, treating these cases in children, and the other hospitals, as a rule, send back the cases which have wandered. So that the fact that only eighteen out of ninety-five cases were under observation or treatment some three or four years after their appearance is significant. Investigation showed that they had not wandered to other institutions.

The present condition of these cases as given is derived in most instances from personal examination, in some cases from letters, in one or two by verbal information, and in a few from the last recorded note in the hospital records. In general a period of about four years may be assumed to have elapsed since the children first applied for treatment.

In arranging the cases for study some classification was obviously necessary, and such classification must be largely clinical and from x-rays, because excision of the joint is used at the hospital only as a last resort, and this means of investigation is not available.

The cases fell at once into two groups: (1) Those where a destruction, progressive, and perhaps painful affection was present which lasted at least many months and which presented those symptoms which we associate with hip disease, that is, shortening, atrophy, joint stiffness and thickening about the joint. Unless there was evidence to place it elsewhere each case of this sort was classed as tuberculous disease in order not to violate the usual tradition too widely, and (2) a group of cases at once became evident where the disease either recovered almost at once, or pursued a course differing widely from that which we associate with tuberculous ostitis. Such cases have been classified as well as possible, but many remain questionable.

A provisional classification of the results found is as follows:

A. Old disease rejected, seven.

B. Insufficient data for diagnosis, eight.

C. Recovery after a transitory affection, twenty-one.

D. Some serious affection not obviously tuberculous, fourteen.

E. Tuberculous hip disease, forty-five.

Class A has been already considered.

CLASS B. *Insufficient data for diagnosis (eight cases).*— The one definite conclusion of this paper being that a reliable diagnosis of hip disease cannot as a rule be made at one examination, these eight cases, which were seen only once or a few times and which cannot now be found, must be left out of account, simply on the ground of insufficient information. Two are said to have died of tuberculous meningitis, but one of them, a child one year old, presented symptoms much more like those of acute osteomyelitis than of tuberculosis, being of two weeks' duration and very severe, with abscess formation. One other died of what apparently was empyema. Another was the case diagnosticated as "tumor of the hip," who is still lame, but cannot be seen. It is probable that some of the cases were tuberculous hip disease and some were not, as they were average cases so far as can be told, and are rejected.

CLASS C. *Recovery after a transitory affection (twenty-one cases).*— The original diagnosis in this interesting group of cases was as follows:

| | |
|---|---|
| Hip disease | 7 |
| Hip disease (?) | 7 |
| Synovitis | 3 |
| Synovitis (?) | 2 |
| Functional hip | 1 |
| Hysterical hip | 1 |
| Total | 21 |

It is interesting to compare the diagnosis made in the forty-five cases which appeared later to be tuberculous hip disease.

It is obvious, therefore, that many of these cases presented certain features at these early examinations which attracted attention. Yet a third were considered to be unquestionably hip disease.

The classification of all the cases into groups was made first and the diagnosis in each case afterward looked up and recorded. The study of this group of cases is of course of interest in regard to their early symptoms. The practical questions are: (1) What are the early characteristics of such transitory affections? (2) Can they be diagnosticated early from tuberculous disease? (3) What is their average course and duration? (4) What is their probable pathological character?

A detailed analysis of the cases would be of little value. Certain points are of interest:

*Age.*— One was four months old and one fifteen months, nine were between two and four and the rest from nine to thirteen. There was nothing characteristic about age.

*Cause.*— In some cases there was a fall preceding, in others no cause. Nothing was developed in the study of the cause.

*Duration of symptoms at time of examination.*— Two weeks or less in sixteen, in one nine months, five weeks in bed; in one, five months; in one, one year. A short duration is the rule, but in some cases which recover speedily it runs into months.

*Symptoms.*— Atrophy of thigh or calf was present in more than half of the cases. As a rule it was slight; in one case it was three-fourths of an inch. In some cases it was absent.

*Lameness* was present in all cases. In some the children were unable to walk.

*Stiffness of joint* to some extent was present in all cases. In some no motion was allowed and in several the leg was held in a position of deformity, permitted no motion, and was very painful. In one case apparent shortening of one and one-fourth inches was present. There was no type of limitation of motion which was characteristic. Of other symptoms noted as present were

pain in knee, gluteal fold lost, and elevation of temperature (100°-103°). *Night cries* were frequent and are especially noteworthy as occurring in one case where the chief trouble consisted of an adenitis of the groin with secondary irritation of the hip. Thickening about the trochanter was noted as being absent in several cases and no note of its presence was made. The conclusion is: (1) That the presence of atrophy of marked grade, night cries, pain in the knee, severe muscular spasm, loss of the gluteal fold, apparent shortening and fixation in deformity are not inconsistent with the presence of an affection which will speedily recover.

(2) That such cases are on the whole likely to be diagnosticated as questionable cases of hip disease is shown by the number of questioned diagnoses made in this group. That a third of them were diagnosticated as hip disease without question shows that this diagnosis cannot be made with any certainty.

(3) The average cause and duration was as follows: Recovery occurred in from one to four weeks in ten cases, and in from two to four months in five cases. In other cases the time of recovery was not definitely stated. In most cases the question of treatment by apparatus was not of importance, as recovery occurred so speedily that treatment by apparatus was pursued only in a very few cases. Rest in bed was, however, advised in all cases temporarily. Antirheumatic treatment was followed by speedy recovery in three cases.

(4) The pathology of these cases must be a matter of conjecture. Traumatic and rheumatic synovitis were strongly suggested by the history of certain cases and epiphyseal hyperemia by others. Some of them conform in a general way to the synovial type of acute infectious coxitis described by Kœing,[3] where cases presenting similar symptoms are inferred from analogy to severer cases to be of the same character. As to the beginning and aborted tuberculosis as the cause of symptoms, it is of course quite possible; it can only be said, however, that all of the cases in this class have recovered in a short time and show now no atrophy, shortening or limitation of motion. It is possible that a persistence of the condition might have eventuated in hip disease, but to account for the symptoms the assumption of tuberculosis seems unnecessary in most of these cases.

The conclusion from these cases is that complete recovery within a few weeks in cases presenting classical symptoms of hip disease may occur. It is obvious that the fact must introduce an element of error into groups of cases of hip disease considered only in the light of their early history, and such groups as a rule present too favorable a picture of the disease. The report of individual early cases of hip disease progressing to complete recovery falls under the same criticism.

[3] Kœing: Die Spec. Tule der Knochen Geleukeu, Berlin, 1902, H. Ii.

If these twenty-one cases were reported in the light of their early symptoms, fourteen would be considered hip disease and the recovery percentage with little or no treatment would be 100.

Class D. *Some serious affections not obviously tuberculosis (fourteen cases).*— In this group are included cases which did not entirely recover in a short time, yet which did not present the routine history of tuberculous ostitis of the hip. In some instances the nature of the affection is clear, in others it must remain a matter of conjecture. As a group the cases are of interest inasmuch as, presenting at the beginning symptoms of hip disease, they pursued a course at variance with the ordinary history of the affection.

The original diagnosis in these cases was as follows:

| | |
|---|---|
| Hip disease | 11 |
| Hip disease (?) | 3 |
| Total | 14 |

For purposes of study this group may be divided into the following subdivisions:

(1) Infantile paralysis, two cases.
(2) Acute osteomyelitis, two cases.
(3) Coxa vara, one case.
(4) Incomplete recovery, normal x-ray, two cases.
(5) Arthritis Deformans (?) two cases.
(6) Questionable, five cases.

(1) *Infantile paralysis.*— Two cases were obviously infantile paralysis of the leg, simulating hip disease:

Case XXVIII. Boy, two years old. Aug. 20, 1898. Lies with right hip abducted and rotated out; motion in flexion to nearly a right angle without much spasm; one-half inch atrophy of thigh. Was admitted to wards for bed treatment by traction on account of irritability of joint and deformity.

Oct. 4, 1898. Traction splint applied.

March, 1899. Motions nearly normal; disappeared.

November, 1901. Sent for and responded. One-fourth inch shortening, hip normal, paralytic talipes equino varus of severe grade of right leg; marked atrophy; reflexes lost.

That this case resembled hip disease is made evident that the diagnosis was made by two separate persons, one in the Out-Patient Department and one in the wards.

One similar case follows:

Case XXXVIII. Boy, six years old. October, 1898. Suddenly discovered to be lame. No history of illness preceding except slight tonsillitis. Limitation of motion in abduction chiefly; hip painful and tender; atrophy of calf; sensitiveness to motion in all directions. Diagnosis considered questionable at first, but later considered definitely dip disease; traction splint.

March, 1900. Seventy-five degrees of flexion and thirty degrees of abduction allowed in motion. Atrophy, calf, two and one-half inches; thigh, one and three-fourths; shortening, one-half inch. Hip still tender and painful.

Feb. 12, 1901. Real condition discovered. Hip out of place; slight talipes equinus; three-fourths inch shortening. X-ray shows head of femur dislocated forward. Reaction of degeneration found by the neurologist in the muscles of hip and leg.

This case during the painful period was diagnosticated hip disease by at least three members of the staff.

(2) *Acute osteomyelitis (two cases).*— A comment on the small proportion of cases obviously belonging to this class must be made. The fact that Kœnig in 747 cases of hip joint inflammation classed 110 as acute infectious coxitis is surprising, and of these 86 were under twenty-five years and 43 from 1 to 15 years of age.

Bruns [4] holds similar views as to the frequency of the affection, reporting 106 cases of osteomyelitis of the hip, of which 80 were less than fifteen years old.[5] It can only be said that in all the cases analyzed the investigation from a clinical standpoint has been carefully directed to this question, that in all cases where the bacteriological record was preserved the results were negative as to the presence of pyogenic organisms. Moreover, in twenty consecutive cases of hip abscess more recently operated on in the same service in no one were pyogenic organisms present. It is not possible to say that some of the cases classed as tuberculous destructive inflammation were not of an infectious character. It does not seem likely, however, that a proportion in any way equal of that found by Kœnig existed.

CASE XLIII *a*. Girl, five years old. April, 1897. During the course of scarlet fever and diphtheria at another hospital developed an acute affection of hip attended by temperature of 103°, leucocytosis of 21,600 and rapid abscess formation with severe pain and fixation in deformity. Abscess was opened and joint found eroded. Bacteriology not recorded.

July, 1898. Fifteen degrees motion; no tenderness; one-half inch shortening; two scars. Diagnosis of surgeon after operation, "acute suppurative arthritis."

Present condition: One inch shortening; atrophy; stiffness; abscesses healed; no treatment since 1898.

One similar case follows:

CASE XXXVI. Boy, one year and a half old. September, 1897. Trouble in hip for six months; lame and stiff in leg; three-eighths inch atrophy of thigh; five-eighths inch of calf; hip held flexed at 45°; trochanter enlarged; hip sensitive.

November, 1897. Abscess with loose dislocation of femur onto dorsum of ilium.

July, 1898. Died of whooping cough, not having improved.

(3) *Caxa vara (one case).*

CASE XXXIII. Boy, five years old. September, 1898. Lame for two weeks; no cause known. Motion free except in abduction and hyperextension; one-fourth and one-half inch atrophy; shortening not noted. Patient disappeared and returned in January, 1900, having been lame for a year. Sixty degrees motion restricted by spasm; one-half inch shortening; atrophy three-fourths and one-half inch; traction splint.

March, 1902. Motion practically normal except in abduction. Some atrophy of muscles about hip; shortening one-half inch, no pain, leaving off splint at night. X-ray shows a well-marked change in the angle of the neck of the femur with no evidence of inflammatory disease or destruction of epiphysis.

(4) *Incomplete recovery, normal x-ray (two cases).*—Of this condition the writer has seen no account in literature. It consists of an acute painful period, and rapid but incomplete recovery. In the end result there is no evidence of destructive disease, little or no shortening, and a normal x-ray.

CASE XXI. Girl, age seven years. April 17, 1897. For three months trouble with hip; lame; pain at night and hip irritable. Motions about one-third of normal, being limited by muscular spasm; no shortening; one-fourth inch atrophy of muscles. Traction splint ordered and worn one night.

Seen four years later, Feb. 4, 1901. Motion normal. No atrophy, no shortening; x-ray normal. Does not walk lame generally, but hip is irritable and she is lame a little after long walks, much running, etc. General condition fair.

One similar case follows:

CASE XXXIV *a*. Boy, eight years of age. July, 1897. Duration of symptoms, two weeks; pain and lameness; no shortening; flexion normal; rotation and abduction limited by spasm. No treatment followed, as patient disappeared.

February, 1901. Limps at times, some irritability of hip, but except for internal rotation no one motion much restricted. X-ray normal.

(5) *Arthritis deformans(?)osteo-arthritis, hemmatoid arthritis.*— Two cases pursued a course not characteristic of tuberculosis, and the appearances in the x-ray three or four years after the beginning of the affection show a proliferation of bone around the circumference of the head of the femur suggestive of arthritis deformans (or osteo-arthritis). It is not, of course, possible from the x-ray to say definitely that these were cases of this character. They may have been the proliferating process accompanying a tuberculosis, but their clinical history was like that of several others in the present division, where no x-ray was obtainable (classed as questionable cases), and the group is worth calling to your attention.

CASE XXVII. Boy, ten years old. August, 1898. Pain and lameness of three months following a fall. Atrophy one-half inch; thickening about trochanter; some limitation of motion, especially in extension. Treated by high shoe and crutches. Diagnosis recorded April, 1899, "mild hip disease."

November, 1901. Improvement has been more or less steady from last note. No spasm; flexion to normal extent possible; abduction limited; rotation at right angle impaired; shortening none; atrophy of thigh one-half inch; calf three-eighths inch. X-ray shows no destruction of epiphysis but marked proliferation of bone about the circumference of the head of the femur, some osteophytes on the trochanter major, and a suggestion of a similar change in the other hip.

One other case follows:

CASE XXXVII. Boy, eight years old. September, 1898. Diagnosis then, "hip disease"(?). Six months' duration, lameness and pain; no cause known; no shortening; fulness about joint; no atrophy of thigh; three-eighths inch of calf; muscular spasm present, chief limitation being in rotation at right angle; trochanteric thickening.

Disappeared and was seen again November, 1901. No treatment in meantime. General condition good; one-fourth inch shortening; one-half inch atrophy of calf; one inch of thigh. Left hip slightly limited in flexion. Rotation free; abduction limited more by stiffness than spasm. Walks with scarcely perceptible limp; has little or no pain, but after running and skating is quite lame for a day or two. X-ray shows a moderate proliferation of bone about the circumference of the head of the femur.

(6) *Questionable cases.*— The following cases are placed here rather than in tuberculous hip

[4] Die Spec. Tubere. der Knochen and Gelenken, H. ii, 1902, Berlin.

[5] Bruns and Housell, Beitr. zur klin. chir., 1899, pp. 24-41.

disease, as evidence of characteristic destructive disease is wanting, and as in all but one it is not possible to obtain an x-ray, it is not justifiable to class them as belonging to any one of the above groups. They may have been tuberculous or they may not, but their clinical history is more suggestive of one of the above causes than of destructive tuberculous disease.

It must be remembered that syphilis, fracture of the neck of the femur, periarticular disease and other conditions may have been present to account for some of these cases, but the writer's effort has been to present the recorded facts rather than theoretical considerations as to the pathology of obscure cases.

Case XLI *a*. Boy, seven years old. August, 1897. Trouble of four days' duration. Permanent flexion of 20°; motion in flexion of 80°; abduction absent; atrophy of calf and thigh; temperature 101°; traction splint.

April, 1900. Convalescent splint for four months.

February, 1902. Apparatus being omitted gradually; one-half inch shortening; motion in flexion to right angle abduction; motion of 45°; rotation one-third of normal. X-ray shows no destruction of epiphysis; some shortening and thickening of neck of femur and no evidence of bony proliferation.

Case XI *a*. Boy, six years old. March, 1897. Slight symptoms of nine months' duration. Treatment by traction. Complete recovery in little over a year. Disappeared; no treatment since. The parents write that since then the boy has been perfectly well and never lame.

Case VII. Boy, five years old. April, 1898. Symptoms of long duration, consisting of stiffness and atrophy about gluteals; motions slightly limited and infantile paralysis was suspected, and the neurologist found the faradic reaction diminished, but did not think infantile paralysis present. In six weeks motion in hip was practically normal, and he disappeared.

February, 1902. No shortening; three-eighths inch atrophy of thigh; one-fourth inch of calf; motion normal. Some atrophy of muscles about trochanter and slight limp in walking. No x-ray.

Case XLIX *a*. Boy, eleven years old. October, 1897. Three weeks' duration. Slight limitation of motion in all directions; no shortening; trochanteric thickening; traction splint until he disappeared November, 1900.

January, 1902. One-fourth inch shortening; one-half inch atrophy of thigh; some atrophy of muscles about hip; motion normal; no limp. No x-ray.

Case XIV. Girl, four years old. Lameness of four weeks following a fall. Symptoms slight; traction splint. Motion nearly normal in six months, when she disappeared.

December, 1901. Said to be still lame. No x-ray; not seen.

Class E. *Tuberculous hip disease* (*forty-five cases*).— Original diagnosis, "hip disease, forty-five cases." Of all the groups this offers the least interest, as being merely a number of routine cases of destructive hip disease. Their chief value lies in the fact that they are cases which have proved to be destructive disease and not cases where simply a diagnosis of "hip disease" at the first examination was made.

Doubtful cases presenting evidence of destructive disease, which may have been of some other character than tuberculous, have been placed in this class; other cases, possibly tuberculous, but not presenting evidence of destructive disease, have been spoken of when placed elsewhere.

An analysis of the cases in certain respects may be of interest in the diagnosis.

*Age.*— The youngest case was fifteen months old. This case was soon lost sight of and was not demonstrated to be tuberculous. The next youngest case was one year and eight months old, and this case has been demonstrated to be tuberculous by bacteriology, operation and x-ray. Three cases were two years old, and twenty-eight between three and six. The remainder were pretty evenly distributed between seven and eleven.

*Duration.*— The duration at the beginning of treatment on the average was distinctly longer than that of transitory cases, being most often from a few weeks to a year or more, the average, perhaps, being not far from six months.

*Cause.*— A study of the cases as to their cause revealed nothing of value.

*Symptoms.*— The symptoms as recorded at the time of the first examination were then analyzed to see if (1) they served to diagnosticate tuberculous hip disease from other forms of inflammation of the joint in any certain way, and (2) to see if the early symptoms as a rule gave any evidence of the severity or mildness of the disease as it ultimately developed.

As to diagnosis, atrophy was practically always present at the first examination. Limitation of motion to some degree was always found, and in most cases, thickening about the trochanter was noted as present. In no one case was it definitely stated to be absent. The latter of all diagnostic symptoms seems the one most characteristic of tuberculous disease.

The symptom group was either slight or severe, pain absent or present, and all grades and groupings of symptoms were present. The most characteristic combination for diagnostic purposes being the combination of atrophy, muscular spasm and thickening about the trochanter. If the symptoms had been of long duration this group was all the more suggestive.

In the second inquiry as to the prognosis of the mild or severe progress of the disease from the early symptoms, on the whole no reliable information could be gained. A very rapid and destructive case might present at first the mildest of symptoms, while a case which was to run a mild course and make a fair recovery, might at first present severe symptoms. Two typical examples are as follows:

Case XIII *a*. Girl, seven years old. March, 1897. Duration, two months. Limp in left leg; one-fourth inch atrophy of thigh and calf. Motion in hip nearly normal in flexion but restricted in abduction; considerable spasm; trochanter thickening not noted. In spite of efficient treatment by traction and good home surroundings this case proved so severe that in November, 1897, the hip joint was excised as a life-saving measure, the head of the femur being found loose at operation. The present condition is that of a patient doing rather poor after excision, with impaired constitution, much swelling, sinuses, and a leg which cannot yet be walked on. The condition is, however, steadily improving.

Case XXIV. Girl, eight years old. Came in July, 1898. Duration, two months. Night cries; right leg held flexed and abducted 45° and 30°; no motion at hip;

one-fourth inch shortening; atrophy of thigh one inch; calf one-half inch; no abscess. This case disappeared and returned in six months, but with imperfect treatment on the part of the parents has progressed favorably and is now convalescent.

These two cases are not exceptional, but are two cases of about the same age and duration taken at random.

The results of treatment in this group of cases are not worth analysis, as only a small number of the whole have had continuous treatment, as has been said. Six have been excised as a life-saving measure, or because of very extensive progress of disease uncontrolled by treatment; four of these have died, one has a good leg, and one is doing fairly. Five other cases are known to have died mostly of tuberculous meningitis. The condition of the others varies from well-established convalescence to cases where the disease is still acute and uncontrolled.

There are also recorded certain mild cases where the disease ran a short course, but where the x-ray showed evidence of bony destruction in the neighborhood of the epiphysis. In one such case the process in a boy of eight had run its acute course, and in two years a convalescent splint was applied and worn for four months and then the patient disappeared. He is now perfectly well except for a scarcely perceptible limp; there is perfect motion and slight atrophy. The x-ray shows evidence of some destruction at the inner part of the epiphysis.

In conclusion it is obvious that the signs ordinarily taken to be diagnostic of tuberculous hip disease are not characteristic of it, but are also present in cases which rapidly recover, and in other forms of chronic joint inflammation than the tuberculous. It is therefore obvious that some diagnostic criterion must be sought more accurate than the presence of one or all of the signs — muscular spasm, atrophy, night cries, gluteal wasting, and sensitiveness of the joint. In other words, a new diagnostic standard better than that advocated in the books must be formulated. It seems probable that this work will lie in the closer study of the signs given above, and their grouping along with a development of the facts to be learned by careful palpation of the parts about the joint. Of all the signs given "thickening of the trochanter" proved to be the most reliable. The x-ray is of great value in early diagnosis.

## A CONSIDERATION OF UREMIA.[1]

BY WILLIAM H. ROBEY, JR., M.D., BOSTON,

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THAT alarming symptom which we still call uremia is not always easy of recognition, especially when it occurs in a person not previously suspected of renal insufficiency. In illustration of this fact and before discussing our present knowledge of uremia, I should like to refer to a few cases, one in my practice and a few occurring in the Boston City Hospital.

I am indebted to Dr. T. F. Greene for much of the data in the following case:

CASE I. Miss W., a music teacher, fifty-seven years of age. Was always nervous and never robust, but had enjoyed fairly good health until two years ago, when she began to have considerable distress about the area of the stomach, suggesting indigestion. At times she was melancholy. She was under the care of a physician who was rather vague in diagnosis, but who finally told the patient that she was probably suffering from "a malignant tumor situated posteriorly to the stomach." This information so depressed and discouraged the patient that she told her niece that if there was the prospect of a prolonged and painful illness, she would end it all herself.

On Nov. 15, 1900, she had gone about her work as usual; she gave her music lessons in the afternoon, but the last pupil noticed that she acted rather strangely, appearing to be dazed, and saying queer, meaningless things. She finished with her teaching and managed to get out to the apartment house where she lived, but made such a noise in going up the stairs that some of her neighbors came out on the landing and were surprised to see Miss W. stumbling about in her efforts to get up to her own flat. They spoke to her several times, and although she continued to mount the stairs, made them no answer. Dr. Greene was sent for at 6 P.M., immediately after she had gotten into her room. He had never seen her before. The patient was lying dressed on the bed, in an unconscious condition, and could not be roused.

*Physical examination.*— Fairly well developed and nourished; face pale; skin harsh and dry. Pupils evenly contracted; respirations 28, temperature in axilla 98.6°; pulse tense and full; chest negative; no apparent valvular lesion; abdomen retracted and tense; reflexes absent. Urine by catheter showed fair amount, normal color and some albumin. Shortly after arrival there was an epileptiform convulsion, the breathing became loud, high-pitched, of the Cheyne-Stokes type.

After the convulsion the patient remained comatose, salivation marked, no vomiting, no sweating. At nine o'clock the same evening the patient had another convulsion, and again at two o'clock on the morning of Nov. 16, when Dr. Bolles was asked to see her in consultation. He invited me to see the patient with him.

Examination at this time was as follows: Patient lying in deep coma, from which she could not be roused, with stertorous respiration; the face dusky, but not puffy. The pupils were slightly dilated, the left being a little larger than the right. They reacted feebly to the light of a match. There was a question whether the left side of the mouth was drawn down or not; we could not decide that it was. The heart area and sounds were normal. Very slight dulness at both bases of the lungs; no other signs. The reflexes were equally absent; no edema. The pulse was small, regular, 120 per minute, of poor strength and volume. We drew the urine, and found that she had secreted about four ounces of urine of normal appearance in about four hours. In the absence of better apparatus some of the urine had, at the previous examination, been heated in a spoon, but the exposure of so much urine to the air formed a scum on the surface which was misleading, since it suggested the presence of more albumin than there really was. I took a specimen to Dr. Bolles' office for examination, and found a very slight trace of albumin and a small amount of sugar.

The clonic convulsions, always right-sided, occurred at intervals of two or three hours. In the forenoon of the 16th the skin became moist, the pulse improved, and the breathing was more normal, although the deep coma persisted; at noon there were more convulsions, and she died at 3 P.M.

At the autopsy by Dr. H. C. Low there was a slight edema of the brain, and the kidneys suggested a small

[1] Read before the Suffolk District Medical Society, Section for Clinical Medicine, Pathology and Hygiene, March 19, 1902.

amount of interstitial nephritis. The heart, lungs, liver, spleen, stomach and intestines were practically normal. Dr. Low was unable to make a diagnosis from the gross appearances alone. The histological examination was as follows:

*Heart.*— There is a moderately thick layer of subepicardial fat. Perinuclear pigment distinct. Muscle fibres appear normal. No connective tissue increase.

*Lung.*— Many alveoli contain a small number of polymorphonuclear leucocytes. Very exceptionally there are fibrin threads in these.

*Liver.*— In places between liver cells and capillary wall there is a narrow space. Liver cells appear normal. No connective tissue increase.

*Spleen.*— Shows nothing abnormal.

*Kidney.*— Most of the tubules contain ring reticulum and granular material, as do the capsular spaces of some glomeruli. Both lumina of tubules and capsular spaces of Bowman appear distended. Capillary loops of glomeruli patent, with no cell increase. Tubular epithelium is quite granular. Cells in many places are partially disintegrated. At times there is no sharp line of demarcation between cell and granular contents of lumen. Nuclei of many of these cells stain very poorly. These changes in tubular epithelium indicate some acute degeneration. Kidney shows no connective tissue increase or focus of infiltration.

The microscopical study of this case shows edema of the lungs and acute degenerative changes in the kidney. The former is unimportant; the latter suggests some form of acute intoxication. There is nothing to indicate the source or character of the intoxication.

As Dr. J. Bergen Ogden was good enough to look at the urine, you will be more interested in his report:

Color pale; reaction acid; specific gravity, 1,024; amount of sediment considerable; indoxyl increased; chlorides diminished; urea, 1.2%; uric acid increased; albumin, a very slight trace; sugar present, 1.25%; no acetone nor diacetic; bile pigments absent; a few hyaline and fine granular casts and granular renal cells; a few leucocytes, squamous cells and normal and abnormal blood globules.

Dr. Ogden found in the urine evidence of considerable renal disturbance. It was consistent with the pathological findings: a senile interstitial nephritis. The presence of the sugar he was unable to explain. The convulsions and the absence of acetone, diacetic acid and B-oxybutyric acid were against glycosuria being the cause of death. He says:

Although uremia is a possible cause of death, it does not seem to me probable, on account of the small amount of disease in the kidneys and their very fair action even during the period of coma and convulsions.

In this patient we were able to rule out fairly well cerebral conditions, as we did not even have the localized palsies which may obscure the diagnosis of an auto-infection. Hemiplegia, of uremic origin, is mentioned in the literature several times, especially in the two cases reported by Brodier. Lugaro reports a case of tumor of the frontal lobe which simulated symptoms of uremia. The glycosuria seemed too slight, in a woman of her age, to be considered. It was necessary to rule out the action of an ingested poison when we remember that the patient had been very despondent and had talked of suicide.

I have been interested in looking over the records of the Third Medical Service of the Boston City Hospital for the last ten years, and of those cases of chronic nephritis which occurred on the other services during half of that time.

Many of these cases are so similar in their histories and physical examinations that there is nothing to be gained by a recital of them, and I have selected certain ones as typical of a class of renal symptoms.

Case II. Rebecca B, age 40, married. No clinical diagnosis. Confused in answers. Says that she has had several shocks. Pupils equal but react to light sluggishly; paralysis of external rectus of left eye. Tongue protruded in median line. Heart: slight enlargement to the left, with soft systolic murmur at apex transmitted to axilla; reflexes not increased; no loss of muscular power save for slight diminution in right hand and arm. Other organs normal. Urine: Fair amount; normal color; acid; specific gravity 1,020; slight trace of albumin; no casts. Four days after entrance a clonic convulsion, after which she could not be roused.

*Autopsy.*— Bladder distended with urine. Kidneys slightly diminished in size; capsule peeled off with some difficulty: on section medullary rays injected; cortex slightly diminished. Heart, brain, lungs and pancreas normal.

*Anatomical diagnosis.*— Chronic interstitial nephritis.

The general findings in Case I are quite similar to those in Case II.

Are these two patients to be classed as cases of uremia? Until we know more of the various elements of the urine and blood a positive diagnosis cannot be made.

Case III. W. Y., male, age twenty-eight, single. Diagnosis of chronic diffuse nephritis. Three months ago began to have vomiting, severe headaches and frequent micturition, at times considerable impairment of vision. Pulse slightly irregular, of high tension; heart normal; second aortic accentuated. Lungs negative. No edema of extremities. Average daily amount of urine, 20 oz.; pale; urea, 96%; albumin, $\frac{1}{8}$%; sediment of chronic diffuse nephritis. Almost blind at times, with slight dulness of intellect. No coma, no convulsions. Death. No autopsy.

This case gives every evidence clinically of marked renal insufficiency, yet there were no symptoms of uremia.

The records of 143 persons dying in the hospital of chronic nephritis during the above-mentioned period show that 53 died in convulsions, 33 in coma without convulsions, and 57 died of exhaustion without convulsions or coma. Sixty per cent were males. The urinary examinations recorded give no clue to the degree of renal insufficiency, nor do they point to the reasons why one case should terminate so differently from another. A discussion of the varying conditions of the urine is found elsewhere in the paper. The writer has not considered that a table of these cases would be of any special value for the purposes of this paper.

Of the many theories which have been advanced to account for the causation of uremia an examination of the literature for the last six years shows that we are now limited practically to two, only one of which is receiving much attention from investigators at the present time. I refer to the mechanical theory and the toxic theory.

The mechanical theory, which advocates a change in the arterial supply of the brain, has not many adherents. Traube's experiments in ligating the carotids in animals, and thus producing convulsions and epileptiform seizures similar to those seen in uremia, led him to suppose that the convulsions of the latter were due to an anemia of the brain. As high tension so often occurs in renal disease it was thought that the same condition obtained in the cerebral arteries as in the peripheral, hence an anemia which was responsible for the convulsions, but to compare the anemia produced by an obliteration of the blood supply and that produced by high tension, was an exaggeration of the real facts. It was thought that the degree of tension of the cerebral arteries could be told by an examination of the peripheral arteries. When lesions were not found in the cerebral arteries it was supposed that the anemia was produced either by a spasm of the muscular coat, due either indirectly to the action of the vasomotor nerves or directly to the action of some toxic substance floating in the circulation.

Hill, however, makes the statement that the degree of tension of the cerebral arteries cannot be told by the condition of the peripheral circulation. There is the well-known physiological fact that there are two factors concerned in the production of arterial tension, the pressure of the blood stream against the arteries and the pressure of the artery against the blood stream, driving it in the direction of least resistance.

Now Hill says that when the increased tension is produced by increasing the peripheral resistance, the blood vessels of one part may be affected in a different manner from those of another. In other words, the constriction in one area may be more powerful than another, due either to a difference in the muscular coat or innervation of the vessels, so that the increased tension in one part overcomes that of a weaker, and dilatation is produced. With such a condition of things, congestion would result rather than anemia, and Hill believes that this fact explains why we can have cerebral hemorrhage in the course of renal disease and localized paralyses with uremia.

The toxic theory has been the basis of recent investigation and has more supporters than any other. No substance has yet been isolated which can be looked upon as the definite cause of uremia. Moor, in 1900, published an account of "ureine" which he called the principal organic constituent of human urine and which he considered the true cause of uremia. It surpasses urea in quantity. For the study of the chemical properties of "ureine" and its effect when inoculated into animals I must refer the reader to the original article. Moor reported his work only a few weeks after making the discovery, and has offered nothing since, so that, as he himself says, considerable work must be done before it can have any clinical or pathological importance. Urea as a cause of uremia has been given up. Coleman states that it may be injected into the blood stream in large amounts without causing any symptoms. In the majority of our cases where the test was made it occurred in the urine in normal amounts. C. A. Herter has shown that the toxicity of the blood stream is increased in uremia; he urges the estimation of the urea in the blood as an index of renal insufficiency, as the amount of urea in the urine gives no evidence of the quantity in the circulation.

Orlovsky states that the diminution in the alkalinity of the blood in uremia depends upon the accumulation in the blood of acid products of metabolism, as in diabetic coma, and urges alkaline treatment. He studied the alkalinity of the blood in a number of cases, using the method of Lowy, which he considers the best. While he states that the alkalinity is diminished in advanced uremia, due to the cause mentioned above, he offers nothing further to explain the etiology of uremia, and his experiments terminate in corroborating the advisability of increasing the alkalinity of the blood in diabetic coma by using bicarbonate of soda. There are as yet no methods of studying the reaction of the blood which are sufficiently simple to make them of use in ordinary practice.

Cabot has observed a slight increase in the leucocytes in acute and chronic nephritis which he believes may be due to uremia or hemorrhage. In the more recent cases at the hospital where the blood was studied as a routine there was no leucocytosis. The temperature was generally normal or subnormal; in an occasional case it was slightly elevated, never very high, except just before death.

With regard to a study of the toxins formed in human urine it seems to me that there is a question as to the value to be derived from their inoculation into animals when we consider how variable is the action of other human toxins on different animals.

Jelks reports several cases of uremia occurring without albumin, although I do not understand that the condition of the kidneys was shown by autopsy in any of them. He made his diagnosis of uremia on the symptoms of auto-intoxication and the diminished urinary solids, and found that when the solids were raised to the normal amount the symptoms disappeared.

Ogden, who studied a large number of cases in the Boston City Hospital, never saw uremia without at least a very slight trace of albumin, and my results have been the same.

The small white kidney is the one which is usually associated with uremia, but as a matter of fact post-mortem examinations show that the degree of auto-intoxication depends very little upon the extent of destruction of the renal tissue. In the two first cases which we have mentioned there was only a very slight interstitial change, and yet the intoxication was profound. Widal gives some results of experiments in his clinic in testing the permeability of the kidneys with methylene-blue, after the method of Achard and Castaigne. He explains that the blue is eliminated more slowly in interstitial nephritis than in parenchymatous, since in the former it must jump the barrier of the sclerosed

arteries and capillaries. The fact which Widal shows, that a patient with uremia may eliminate blue as readily as one with normal kidneys, is of interest. He mentions the case of a man with a sharp nephritis of syphilitic origin, in which the permeability of the kidney for methylene-blue was entirely normal. Some days after appropriate treatment with iodides and mercury the symptoms of nephritis and syphilis rapidly diminished. A few weeks later he returned to the hospital in full uremic coma, and while still in this condition he was tested with methylene-blue and showed a normal elimination. He finds that the permeability varies for different substances. In a case of diffuse nephritis in his service the elimination of methylene-blue was much retarded, while that of potassium iodide was normal. In a woman who entered with dyspnea, edema of both bases and extremities, but whose condition was chiefly cardiac, blue was eliminated only after six or seven hours following the injection, and Widal remarks that had all the urinary constituents been retained it would have been equal to almost complete anuria, yet she speedily recovered from her symptoms under suitable treatment.

A glance at our cases shows that the patient who presents all the signs of marked degeneration of the kidneys, and whose daily excretion is far below normal, does not necessarily die of acute uremia, and need not even have any uremic symptoms, while one in whom the insufficiency is apparently very slight (as shown by urinary examination and autopsy), may suddenly develop uremia, although before and during the attack the kidneys seem to be doing their work, and at the autopsy are found to be no more degenerated than those of persons dying of some other condition.

We may have total anuria for days without having uremia. Sinkler reports one of many such cases. Herzfeld has found compression of the ureters a cause of eclampsia in quite a number of pregnant women, especially primipara. In many of the cases of chronic nephritis at the hospital, where there was a diminished, highly albuminous urine, high-tension pulse, enlarged heart and dyspnea, there was no uremia, the patient merely dying of exhaustion.

We have a good deal to say about renal insufficiency, and in past years the kidneys have been considered adequate if they were secreting a fair amount of the solid constituents of the urine. Our cases clearly show that we must radically revise our ideas of renal insufficiency; we must learn to recognize new elements in urine or blood before we can justly make a prognosis in any case of chronic nephritis, no matter how favorable the condition may appear when measured by our present standard.

Here is a common note which I find in the records of patients dying of uremia: Yesterday he seemed generally more comfortable; there was less edema, the patient breathed with more ease, and the pulse was more nearly normal. The amount of urine secreted is somewhat greater. At six o'clock at night house officer was suddenly called to see patient, who was in a convulsion followed by coma from which he could not be roused. Patient died at 9.30 o'clock.

In this brief paper the writer has confined himself largely to a consideration of the diagnosis of uremia, which is so important from a prophylactic, therapeutic and prognostic standpoint. Prophylactic, because, if by laboratory methods we were able to recognize in the blood or urine the element or combination of elements which probably appears prior to the onset of uremia, we might be able to ward off the condition; or in cases of convulsions or coma which come under our care for the first time, an accurate diagnosis would prevent the zealous physician from giving hot-air baths in cerebral hemorrhage with damaged arteries or in nervous affections which might occur to show some albumin in urine.

Lastly, the prognosis would be infinitely better if we were able to intelligently combat a definite toxin.

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## DEMONSTRATION OF A MODEL OF THE THORACIC AND ABDOMINAL VISCERA PREPARED FROM A HUMAN SUBJECT HARDENED IN FORMALIN.[1]

BY JOHN WARREN, M.D., BOSTON.

This model was made during the winter of 1902 in the Anatomical Department of the Harvard Medical School. A few years ago, a model of the abdominal viscera was made under the direction of Professor Dwight by this same method. This model was enlarged three times on a linear scale, and was intended for use in the lecture room; later four smaller models of actual life size were made for section teaching. These models were so successful that we attempted this time to make a model of the entire trunk with the thoracic and abdominal viscera *in situ*.

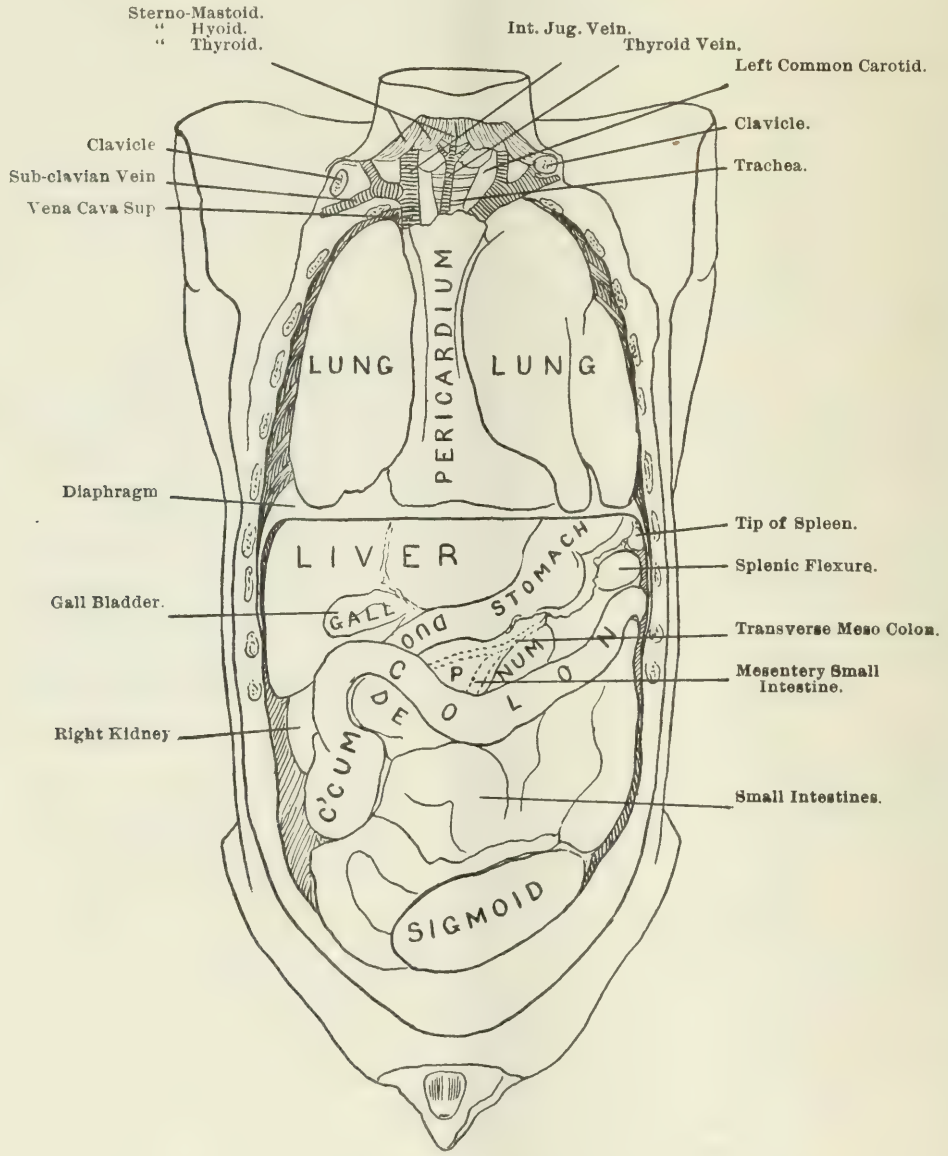
The method of preparation was as follows: The best subject then on hand was selected. It was a male about sixty-five years of age, muscular and apparently well nourished. The body was hardened by successive injections of formalin,

[1] Read before The Massachusetts Medical Society, June 11, 1902.

which was allowed to move very gradually into the right femoral artery; about four and one-half quarts were used in four strengths of 10, 25, 35, and 50% respectively. This method of hardening subjects by formalin is a well-known one, and has been used extensively by Professor Cunningham of Dublin and Professor His of Leipzig. It was also used by Professor Dwight to prepare the models made here previously. It is the best method of obtaining the exact shape and position of the various organs, and their relations to each other, and is especially useful in the study of variations in the size and shape of the abdominal organs.

The subject was allowed to harden about three weeks and then the larger vessels were filled with the usual wax mass. The entire anterior wall of the trunk was thus removed and a cast in plaster taken of all the viscera *in situ*. The lungs were removed, a cast of these organs made, and then a cast of the pleural cavities with the pericardium in place. Next the pericardium was removed, the great vessels in the superior mediastinum dissected out, and a cast of these structures made. The heart and structures in the posterior mediastinum were then treated in the same manner. The diaphragm was then cut at the sides and laid back to enable us to make a cast of the upper surface of stomach, spleen and liver. The various abdominal organs were then removed in succession, and treated in the same manner as the thoracic viscera. From these casts the organs were modeled in blotting paper with the exception of the spleen and kidneys, which were made in

FIGURE 1.



plaster. These paper models are much better than plaster ones, as they are very light and durable, and especially useful in a model which is to be handled to any extent. Plaster models are unwieldy and tend to chip and break. The casts and modeling were done by Mr. J. H. Emerton of Boston, who made the other models

be removed in order to enable us to remove and replace the models easily. Therefore we have contented ourselves with a rough model only of these organs, chiefly to show their relations in front to the pericardium. The anterior edge of the diaphragm has been cut away for about two inches, in order to expose the liver and stomach

FIGURE II.

LIVER FROM BEHIND.

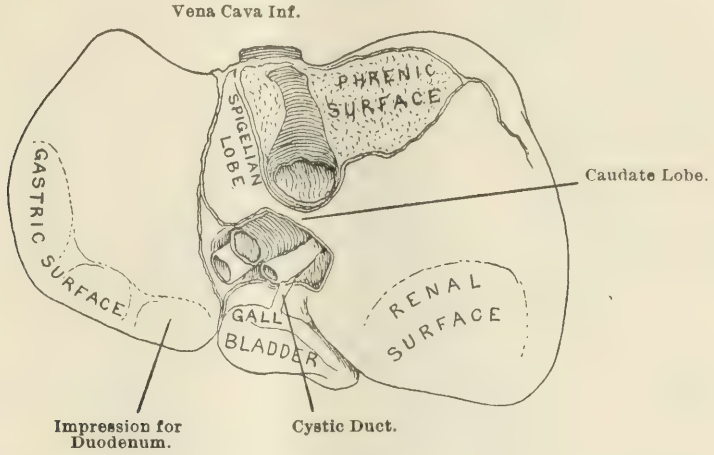
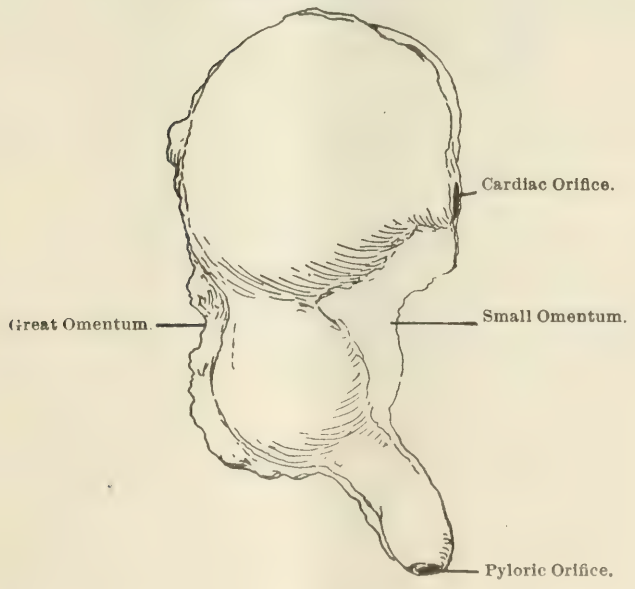



FIGURE III.

STOMACH FROM BEHIND.




here, and this success has been largely due to his skill.

Fig. I shows the whole model with all the viscera in place. The lungs were very difficult to model, as they did not harden well, and the right lung was much contracted, and its fissures entirely obliterated by old inflammatory adhesions. A portion of the posterior lobes behind had to

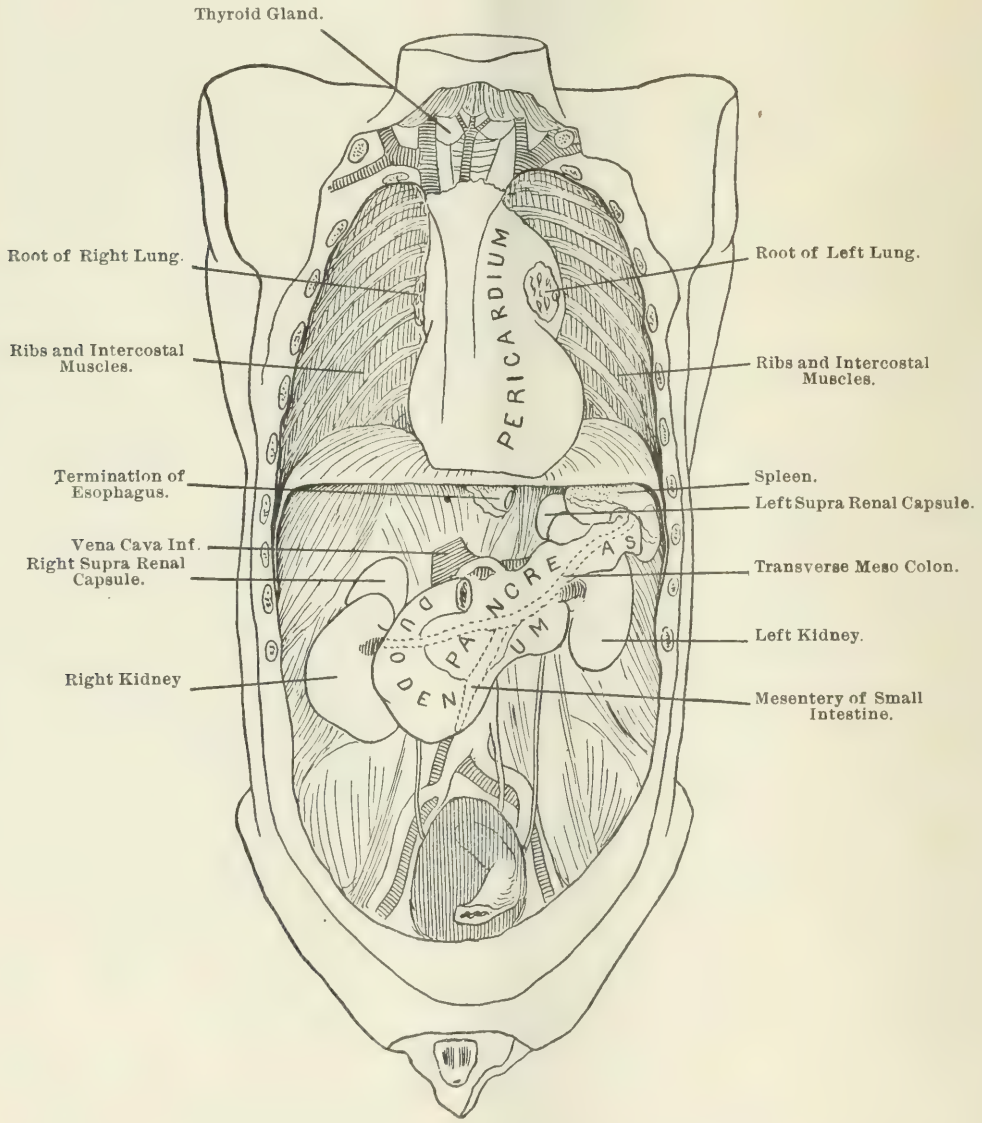
more completely and to enable us to remove these organs with ease.

The left lobe of the liver projects about three inches to the left of the median line; this is the usual limit of this lobe, though it may not uncommonly extend entirely across to the left abdominal wall. The gall bladder is distinctly large, though no gallstones were present. Fig.

II shows the liver from behind. The double lines represent the reflections of the peritoneum; the dotted area corresponds to the non-peritoneal area that is attached to the diaphragm. On the under surface of the left lobe is seen an impression for the stomach and also for the duodenum. This latter organ has been displaced somewhat to the left owing to the small and contracted stomach. The renal impression on the right lobe is placed much lower down and farther forward than usual; this is due, I think, to the low position of the right kidney (Fig. VI). Therefore there is quite a large surface on the back of the right lobe covered by peritoneum, between this renal impression and the non-peritoneal area, where the renal impression should be, if the kidney was in its normal position.

The stomach is distinctly small, and in the model it has been slightly distended for convenience in making the cast. A distinct contraction is seen at about the middle of the greater curvature; this is much more distinct on the posterior surface (Fig. III), and is probably an hour-glass contraction. Just below this, and about two inches from the pyloric orifice, is seen another contraction. This part of the stomach, known as the antrum pylori, is quite variable and may be double or even triple. Its tubular form is in this case quite striking. The pyloric orifice in this case lies in the median line, or if anything a bit to the left. Usually this part of the stomach is more or less to the right of the median line, depending on the distention of the organ. The first portion of the duodenum is placed farther

FIGURE IV.



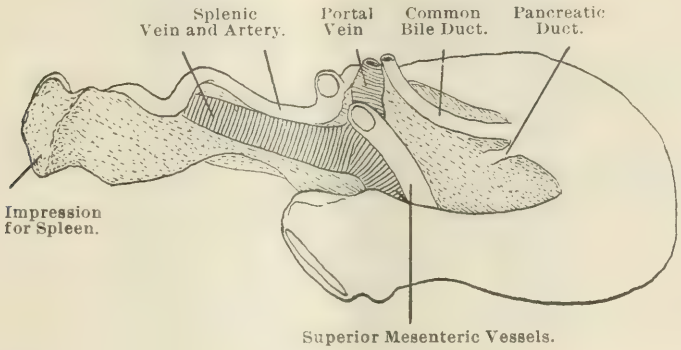
to the left than usual, and a distinct impression is seen for it on the wider surface of the left lobe of the liver (Fig. II). This part also runs almost directly to the right with but little of its usual backward direction. The first part of the duodenum and the pyloric end of the stomach are very movable, and their position is easily affected by the degree of distention or size of the stomach. The small size of that organ accounts, I think, for the position of the duodenum and pylorus in this case.

The cecum is very small and very tightly contracted. The space seen between it and the abdominal wall is due to the fact that there was a large collection of fat here, which had to be removed in order to take the cast. No appendix could be found, though a most careful search was made. It is possible to have this organ absent, as was the case in a subject I saw this year in the dissecting room; but it is only fair to say that it may have been lost in the removal of the fat, which becomes very hard when treated with formalin, in spite of all care to the contrary.

In Fig. IV the lungs, stomach, liver and intestines below the duodenum have been removed. The pericardium is seen *in situ*, the lines on its anterior surface representing the limits of the two pleural sacks. The pleura has not been represented and the ribs and intercostal muscles are seen in the two pleural cavities. The roots of the lungs are shown in section on either side of the pericardium. In the abdominal cavity the duodenum and pancreas are seen. The former is shown in its whole length, the second portion overlapping the right kidney and being crossed by the line of attachment of the transverse mesocolon, which extends along the body of the pancreas to the spleen. The third portion is crossed by the line of attachment of the mesentery of the small intestines. There is practically no fourth portion in this case, and though the duodenum with four portions is as a rule the more usual, still one with only three is not at all uncommon. The pancreas is well developed in this case and its tail is in close apposition with the spleen, there being a well-marked impression there for that organ. Fig. V shows the pancreas and duodenum from behind, these two organs being modeled in one piece. Along the upper border are seen the splenic vessels; passing down behind the body, but in front of the third part of the duodenum, are the superior mesenteric vessels. The portal vein and common bile duct, with the pancreatic duct joining it at the second portion of the duodenum, are seen behind the head of the pancreas.

FIGURE V.

PANCREAS AND DUODENUM FROM BEHIND.




The ascending colon is short and is also very contracted, as is also the case with the transverse and descending colons. The latter is concealed by coils of small intestine, but the beginning of the sigmoid is quite dilated (Fig. I). The various coils of the small intestine have been represented in a rough model, as it was practically impossible to make an exact model that would fit. I do not expect, however, that they will be used in practical work with the model, and simply had them made to complete the abdominal contents.

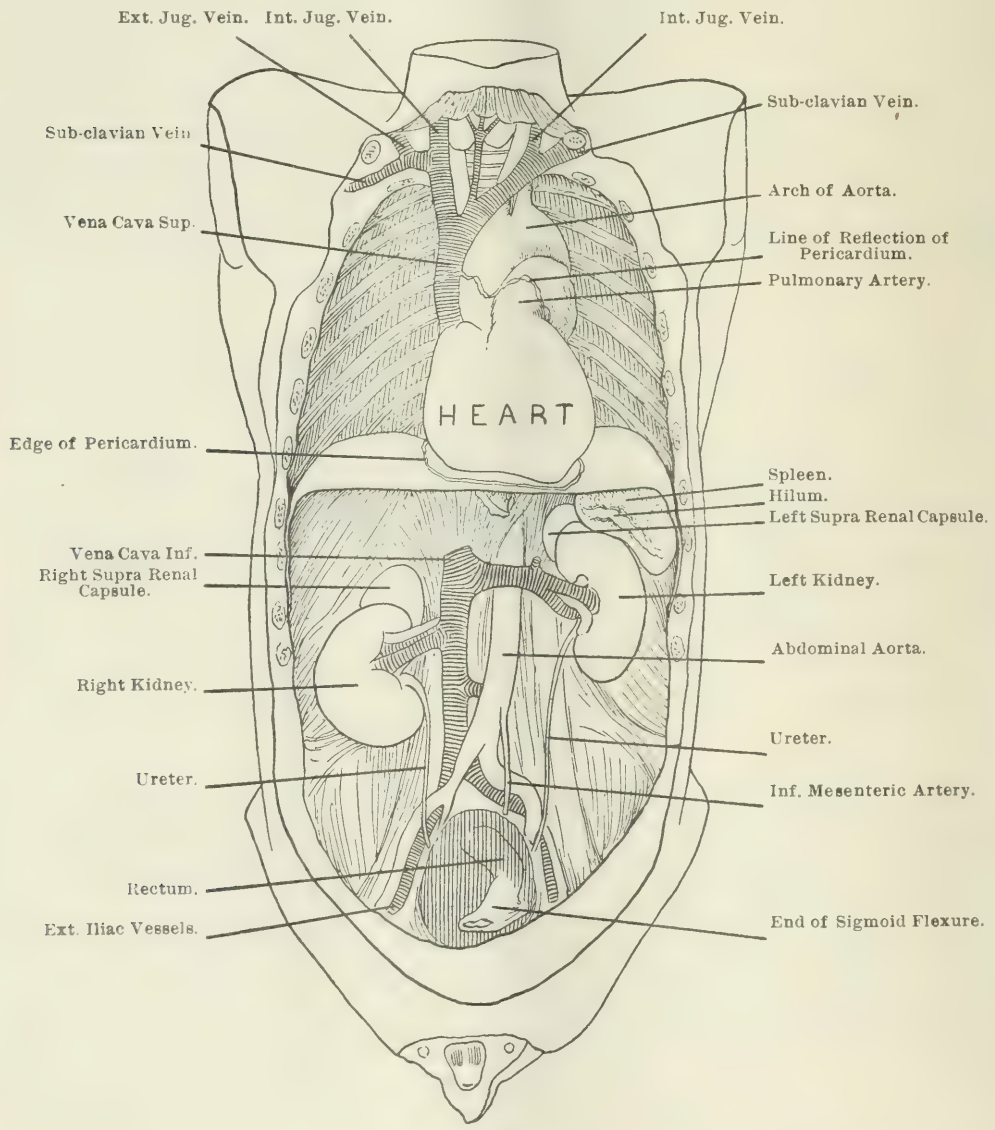
A part of the second portion of the duodenum is seen just below the hepatic flexure and the termination just above the transverse colon farther to the left. A portion of the pancreas (Fig. I P), is seen within the curve of the duodenum; the dotted lines represent the attachments of the transverse mesocolon and mesentery of the small intestine. The tip of the spleen and the splenic flexure of the colon are seen on the left just below the greater curvature of the stomach.

In Fig. VI the heart and great vessels are exposed. The heart is large and the arch of the aorta rather dilated; this condition is probably due, partly to the age of the subject, and partly to some overdistention from the wax mass. For this latter reason, the beginning of the pulmonary artery does not lie so directly in front of the beginning of the aorta as usual. Across these vessels and the superior vena cava is seen the line of reflection of the pericardium. In front of the trachea is a large vein passing from the thyroid gland to the left innominate vein. Above the gland are the cut ends of the sternohyoid, sternothyroid

and sternomastoid muscles. In the abdomen, the duodenum and pancreas have been removed. The left kidney is in its usual position, but the right is displaced downwards and overhangs the brim of the pelvis. This is not due to pathological causes, I think, but is rather of congenital origin, as the right renal vein is given off two inches below the left. The suprarenal capsules are the only artificial part of this model. In the subject they were so very small, of such unusual shape, and the right one separated so far from its kidney, that it was impossible to reproduce them. Those for the suprarenal bodies of another subject were hardened and models made from them, in order to have all the abdominal organs represented. There is a distinct separation between the aorta and superior vena cava. The former bends to the left, and the iliac vessels, especially the left common iliac, are quite tortuous, as if the whole aorta was rather too long for the trunk. There were no spinal curvatures present, however, to account for this condition, though perhaps overdistention by the wax mass may have had something to do with it.

In Fig. VII the structures in the posterior mediastinum are shown. The aorta seems large, especially at the arch, and lies somewhat more to the left of the esophagus than usual, probably for the reason just mentioned. In the abdomen, there is an admirable view of the muscles of the posterior abdominal wall, the outlines of which were very distinct in the hardened subject. The diaphragm is shown with the two crura surrounding the beginning of the abdominal aorta, and the two arched

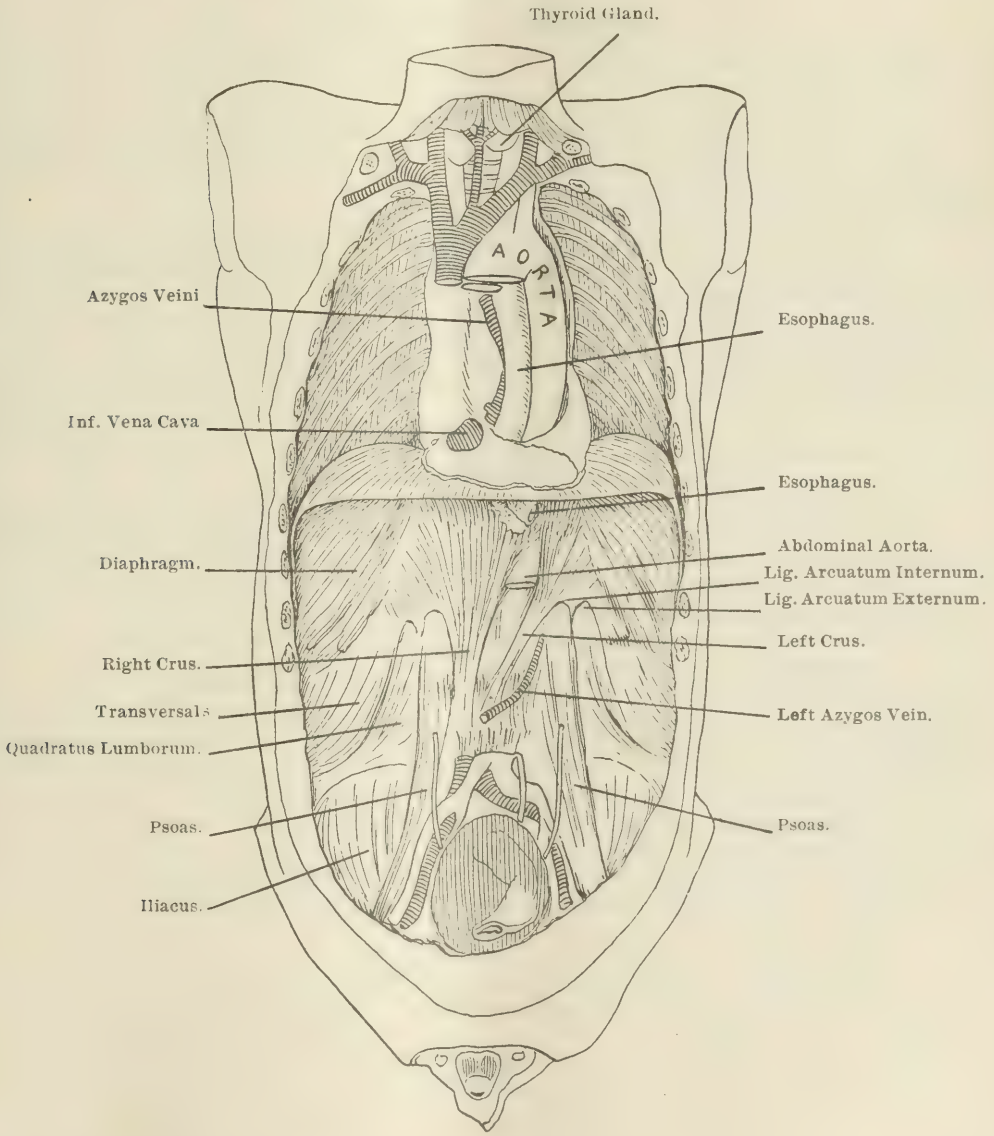
FIGURE VI.



ligaments, the ligamentum arcuatum internum and externum, arching over the psoas and quadratus lumborum. To the outer side of the quadratus lies the transversalis, and below this muscle the iliacus. To the left of the left crus is seen a left azygos vein passing from the inferior vena cava (Fig. VI) to the left lumbar veins. In the pelvis the peritoneum has been left in place and the termination of the sigmoid flexure and the beginning of the rectum are seen. The external genitals were removed at the pubes, and the corpus spongiosum with the urethra, the corpora cavernosa and the spermatic cords are seen in section. The trunk was made in paper, just as the various viscera were made, but some plaster has been placed along the spinal column to strengthen it and act as ballast. The whole model is quite light and easy to handle, and weighs with all the viscera in place fourteen and one-half pounds.

These models have been found very useful in section teaching, as in the dissecting room the student often fails to get an exact idea of the shape and relations of the various organs, as they are usually soft, and impressions made on them by neighboring viscera are generally absent. There are several details about this model which are unusual or even abnormal,—the shape of the stomach especially, the position of the duodenum and right kidney, the size of the cecum and colon. To be of any value, however, such a model must represent the exact anatomical conditions found in a given subject, and no attempt should be made to improve on nature. That is what has been done here with great care, with the exception of

FIGURE VII.



the suprarenal capsules, and I rather doubt the wisdom of what was done in that case. It is only by this careful representation that any correct idea can be obtained of the variations in the shape and relations of organs, and from a study of models prepared in this manner it may be found that there are wider variations within normal limits than one would suppose. Even if the conditions found here are not perfect from an anatomical point of view, they are certainly interesting for clinical study.

## A CASE OF POSSIBLE FATAL MORPHIN POISONING: A DIFFICULT DIAGNOSIS.[1]

BY F. A. HARRIS, M.D., BOSTON,
*Medical Examiner, Suffolk County, Northern District.*

ON the 14th of July, 1901, about half past seven in the evening I was notified that there was a case in East Boston which required my official presence. The police, who telephoned me, said that it was a case of poisoning by morphin administered by a person who had no authority so to do. In company with Mr. Samuel M. Child, the assistant city solicitor, I went to the house where the body lay. I received from the police, the members of the family and the physician who was called to attend the woman the following history:

The woman who had died was the wife of the owner, or tenant, of the house, and mother of a family of adult children. Her occupation was housewife and her age about fifty-five. For many years she had been subject to attacks of congestive cephalalgia of great severity, incapacitating her from the performance of household duties temporarily. Otherwise she had had no illness worth mentioning.

It had been planned that the family should pass the day, Sunday, at Revere Beach, and it was proposed that they should start about noon. When the woman, Mrs. E. J. B., arose in the morning she was suffering from one of her "old-fashioned headaches," but attended to her daily avocations in spite of the pain, "expecting that the trouble would wear away." The headache, however, increased in severity. At eleven o'clock she was in great pain. The weather at the time was intensely hot. The mercury had ranged from 85 to over 90° on the previous day and had been but little lower during the night, while there was every prospect that Sunday would be still hotter, and the expectation proved well grounded. The house occupied by the family was a small cottage, almost entirely devoid of shade, and on the south and east exposed to the full power of the sun.

It so happened that the family had had for some time living with them a boarder, of German extraction, who was nominally a broker of some sort; a man who, while not claiming to be a doctor of medicine, claimed to be entitled to use the letters D.M.S. after his name. These letters were understood to mean "doctor of medical science" — whatever that might mean. He claimed to have been a student at a German university and a graduate therefrom. Now this man, R., had had for years a popliteal aneurism, and for the relief of the pain which this aneurism caused him he had resorted to the use of hypodermic morphin until he had become a victim of the habit. It was stated that on one or two occasions he had administered small doses to young people of the neighborhood, "just to make them feel good." On one occasion, some time previous to the Sunday of which this story is told, R. had with the consent of Mrs. B. administered to her for a similar headache a small dose of morphin, injecting it into the "finger." He was told by the husband never to do it again. That is, such is the statement of Mr. B. Just why he, Mr. B., should have done this is not clear, as she apparently suffered no ill effects from the exhibition of that particular dose.

It does not appear that any doubts as to the sanity of R. were entertained, although his tales of expected wealth from Europe and his propositions to take the whole family to New York and entertain them indefinitely, and other similar things, suggest a possible megalomania. At all events it is undoubtedly true that at times, when under the influence of his favorite drug, he was to a greater or less degree (to coin an expression) megalocephalic.

R. made no secret of his use of the drug. He not only kept the drug in the form of tablets in his room, but also kept his syringe and a solution of the tablets on the mantelpiece in the kitchen, and he was in the habit of administering to himself a dose, at intervals, in the presence of the members of the family.

To return to the Sunday in question: As Mrs. B. did not get any better, and the time approached for their departure for the outing [and the statement was made that he (R.) had some objection to the proposed outing, though for what reason was not apparent], R. suggested to Mrs. B. that she take a hypodermic injection of the drug. To this she consented. About this there is no dispute. Accordingly he administered an undetermined amount. This amount will be discussed later.

Approximately a half hour after the exhibition of the drug Mrs. B. is said to have looked "strangely," among other appearances being unusually pale. She was asked what the matter was, and to this she replied, "Oh, nothing; I shall be all right very soon." Her condition did not improve and the family became alarmed. She seemed to be losing consciousness and her appearance was unusual. The husband came downstairs, and observing her appearance asked R. if he had given her any morphin. He admitted that he had. A little later Mrs. B. became unconscious, her breathing rather loud and (apparently, from description) stertorous. Then R. became disturbed and went for a physician. The nearest was a Dr. B., a man who was registered under Grade C by

[1] Read before The Massachusetts Medico Legal Society, Feb. 5, 1902.

the provisions of the *then* law, which has since been repealed. He responded to the call.

He stated that he found the woman with face "ablaze," her pulse very rapid and her temperature 99° F. Dr. B. diagnosticated opium poisoning, and administered $\frac{1}{150}$ gr. of sulphate of atropia. It could not be learned that he did anything else, although he said that he "worked over her." It does not appear that he used any of the ordinary remedies for opium poisoning, such as the infliction of pain, the use of cold water, artificial respiration, continued motion, or, in fact, anything else except that he gave some extract of coffee. The condition of the woman grew steadily worse and the breathing more and more stertorous, the pulse fell, the temperature lowered, and she gradually sank away and died about six o'clock in the afternoon — say six to seven hours after the administration of the drug. When the Dr. B. was asked as to the various conditions, he did not appear to wholly appreciate just what was meant, and no very clear idea could be formed as to just what obtained between the time of his arrival on the scene at, say 1 P.M., and the time of death. Asked "What was the condition of the conjunctiva?" he repeated the word interrogatively, and then said, "Oh, you mean the *holes* you look into."

The information gained from this physician was on the whole unsatisfactory, but as far as could be learned it seemed that the pupils were unequal, the conjunctiva pale, and there was at no time any dusky purplish hue to the countenance such as is usually observed in cases of fatal opium poisoning.

Next, came the question as to the amount administered. The man R. was under arrest at the time of view, and soon after his arrest, owing to deprivation of the drug to which he was accustomed, was almost in a state of collapse, and any information from him at that time was practically worthless. However, from what he said to the family, the doctor and the police, it appeared that the amount administered was one-half a grain or a little more. He was in the habit of buying the tablets of sulphate of morphia, made by Wyeth, of the strength of one-quarter of a grain each. He had a two-drachm vial. He dissolved sixteen of these tablets in the vial full of water. Of this solution he said he administered sixteen drops or minims to the deceased. This would give a solution of two grains to the drachm and the dose given about half of a grain, allowing for a little waste. He claimed that he gave but half of a grain. There was quite a discrepancy between his statements at different times, but on the whole it seemed probable that he gave but little over half of a grain to Mrs. B.

The "view" showed this condition: A well-nourished woman, between fifty-two and fifty-five years of age. Rigor mortis commencing. A little lividity of the dependent parts. A very unusual pallor of the whole skin. Indeed, the body, except where the lividity was noted, was almost like alabaster. The conjunctiva marble white. No dusky hue to the skin anywhere. The pupils were equal and dilated. There was a small puncture, a mark like that of a pin or needle on the outer aspect of the right arm. Nothing else unusual.

The undertaker was instructed not to embalm the body, but was told that he might use ice if he wished. This he did not do. Early on the following morning the case was laid before the district attorney, who on review of all the circumstances declined to authorize an autopsy. Thereupon I furnished a certificate of death from "heat exhaustion, combined with hypothetical morphin poisoning."

The man R., who was under arrest, was brought up for trial in the lower court. The testimony as to the amount of morphin said to have been admitted to have been administered, was fixed at a little larger amount than was stated at the time of my investigation, but still not increasing the amount to anything near what is usually considered a fatal dose for a healthy adult. The judge held the man for the grand jury. Before that body the amount of morphia said to have been given was still further increased, according to the testimony of those who had heard my evidence in the lower court. The grand jury found no bill, and the man R. was therefore discharged.

The case suggests several points which seem to me of interest as affecting the action of the medical examiner.

Naturally the first thing requisite in such a case as has been related is to establish if possible what was the exact cause of death. For this purpose the examiner must rely on three things: the history of the case, the appearances at autopsy, and the result of chemical analysis.

As far as the history of the case is concerned the symptoms and appearances observed are consistent with either heat or morphin poisoning unless undue weight be given to the statement as to inequality of the pupils. And while it is a fact that directly after the administration of a large dose of morphin hypodermically, there is great congestion of the face, especially if by mistake the needle is pushed into a vein, yet as far as I know such an appearance is transient and would hardly be expected as late as half an hour or more after the administration. Weakness and vertigo, dimness of vision and loss of sight, loss of consciousness, stupor and coma, stertorous breathing, pupils primarily contracted and later dilated, flushing and pallor of the face are alike observed in fatal cases of heat exhaustion and morphin poisoning. The appearances at autopsy also offer very little which is of value in making a differential diagnosis. These are not constant in either form of death, but in general: dark and fluid blood, congestion of brain, lungs and the viscera in general, dilatation of the right side of the heart, in short, those appearances usually observed in cases of asphyxia are found in both morphin poisoning and death from heat. Some other things of less consequence reported to have

been observed are found in cases of death from either cause.

The chemical examination is also liable to fall short of giving results which would enable an absolute diagnosis to be made in such a case as this, where it is probable that a small amount had been administered. Indeed, it is reported that in none of a very large number of cases occurring in India, where the fact of opium poisoning was undoubted, and where autopsy and chemical analysis followed very speedily and the amount of the drug large and, furthermore, administered by the mouth, was it possible to detect opium. The gentleman, whom I presume we should all regard as the most skilful chemist in New England, tells me that it would be practically impossible to detect the presence of the drug in a case where so small an amount was given as in the case of Mrs. B., especially when given hypodermically, owing to the rapid elimination or change in the body. In this case life was prolonged six or seven hours. Therefore, in view of all these things, the medical examiner is not, after exhausting all the resources at his command, in a position to answer the question "What was the exact cause of death?"

My object in reporting this case is to suggest a discussion as to what the proper action of the medical examiner should be in such a case. Should he perform an autopsy, incur the expense of a chemical examination and put the machinery of the law in motion, or in view of what is probable, should he confine his action to the view and furnishing a certificate for burial.

In order that this matter may be still more clearly appreciated, it is worth while to consider what the outcome would be in case of trial, although legal questions are supposed to be outside the province of the medical examiner, and the object of the law was and is assumed to be a divorce between law and medicine. In this case assume that on the whole the examiner was convinced that death resulted from opium poisoning, and should conscientiously testify to that effect. There can be little doubt that such evidence would be pretty successfully contested at time of trial, and he would be obliged to admit that there was at least that reasonable doubt to which the accused is entitled.

Again there comes the question as to who, if any person, is responsible. Is it the man who administered the drug with the consent of the deceased and without intent of doing her harm, but rather intending to do good, though not sufficiently familiar with the effects of morphin to fully appreciate the danger of his act, or was it the man who holding himself out as a competent physician, yet who used none of the well-known methods of treating opium poisoning, such as the infliction of pain, motion, cold douches, artificial respiration, electricity, etc., but confined himself to the exhibition of a little extract of coffee and the administration of a minute quantity of atropin, whose efficacy is rather a matter of academic discussion than of practical demonstration.

On this point the former attorney-general, Hon. Hosea M. Knowlton, says: "Guilt ordinarily can only be predicated upon some form of criminal intent. Familiar examples of this, of course, are assault and battery not intending death; or the extreme but somewhat illustrative example of a man shooting at an animal whose killing is forbidden under the game laws, and hitting a man and causing his death. A criminal act was being done, and while the homicide was not intended it was the result of an act done criminally.

"There is another class of cases, however, of which homicide may be predicated, to wit, those involving carelessness. Familiar examples of these are reckless driving by teamsters, or want of ordinary care by a motorman or an engineer. Another example, which presents a case somewhat similar to this (R.'s), is carelessness in the use of firearms. Ordinarily, mere negligence is not criminal; but there can be such gross carelessness in the use of a pistol or other firearm as to make the negligence criminal if death results. So as to the use of poisons. Mere negligence, and much less, want of skill, in the administration of a poisonous drug is not criminal of itself. But the administration of a drug known to be poisonous, with a reckless disregard of consequences and in such quantities as would to the knowledge of an *ordinary man* be excessive, would be indictable. I do not think your case (the case of R., who gave the drug to Mrs. B.) presents any such situation.

"To sum it all up, death resulting from gross carelessness is a criminal offense. Death from mere negligence, although actionable on the civil side, is not criminal. It is not always easy to draw the line — in fact, the only tribunal which has authority to draw the line is the jury.

"As to the physician. The rule is the same as to this class of people, with the addition of a principle which is applicable to them alone. A physician who holds himself out as competent to administer drugs, is bound to exercise the skill and knowledge ordinarily required of men of his class. You will observe two factors to this proposition: (1) that he holds himself out as a physician, and (2) that he must exercise the knowledge which an ordinary physician ought to have. If therefore an unlearned man pretends to be a physician, he is held up to the same rules as a physician, and if he grossly fails to observe the rules which the ordinary experience and skill of physicians have shown to be necessary, he may be liable criminally. In other words, gross negligence may be predicated of a physician when it could not be of a layman. He is held to the knowledge which he pretends to have.

"There is an another question. That is, how far the negligence of the physician may affect the guilt of the layman who administered the poison. It has no effect whatever. The guilt of the man is determined by his own conduct, provided death results. If, of course, the death results from the misconduct solely of another person, it is not the

killing by the first man, but if the misconduct of the second man contributes, it does not excuse the misconduct of the first man."

Another opinion is as follows: "If there is a legal duty imposed, failure to exercise ordinary care or skill if the result be fatal is indictable. In the case of R. there was no legal duty, but a voluntary exercise of medical science (?) with the patient's consent. I should say, with my present knowledge, that if the person administering the morphia was grossly careless and knew the dangerous property of morphia, that he would be liable. No intent is necessary. The calling in a physician would not change the offense. As to the physician, the answer should be that the physician is liable."

As far as I have to learn from a perusal of the "Transactions" of this society, there has never been any entirely satisfactory solution of various ambiguities in the wording of the statute concerning the duties of the medical examiner. I remember at the very earliest times of the existence of this society an opinion was requested of the then attorney-general, the late Charles R. Train, as to the interpretation of certain ambiguous phrases, and that he replied that he had "yet to discover that it was any part of his duty to instruct medical examiners as to the proper performance of their duties," or words to that effect. Owing to my life-long acquaintance with that gentleman, he, however, furnished to me as a personal favor his opinion as to the meaning of the several clauses under discussion, and I reported this to the society at that time, and I have yet to learn that any other interpretation widely at variance with his views has been obtained from any of his successors.

He claimed that the duty of the medical examiner was to investigate only such cases as those where criminal violence was suspected. Again, Chief Justice Mellen Chamberlain, one of the ablest judges of the municipal court who have held the office, laid down the rule that "The object of an inquest is not to lay the foundation for the prosecution or defence of a civil suit." As I understand the matter, it was the intention of the law-makers in the enactment of the so-called medical examiner law to divorce as far as possible law and medicine. The case which I have just detailed is one which in my opinion shows the extreme difficulty in accomplishing that supposed object of the law. As before stated, if it were possible to absolutely determine in this case that the death had resulted from morphin poisoning, then comes the question as to the individual responsible. Of course it may be said that is no concern of the medical examiner, but that it is solely the duty of the court. This is true, but before the examiner takes such action as to put the county to the great expense attendant upon a complete demonstration of the medical facts, if such demonstration be possible, is it not his duty to look far enough ahead to determine if all the labor and expense is to be warranted? If no person can be held responsible, or if a criminal prosecution is more than likely to fail when it comes to the trial in the higher court, is the medical examiner justified in allowing or compelling the county to assume that expense, in a matter resting so largely on his dictum.

In a case like that of Mrs. B., suppose that the results obtained at autopsy are consistent with opium poisoning; suppose that the results of chemical analysis showed that there had been by the most careful estimate a half a grain or even a whole grain of the drug administered, and suppose that the medical expert should most concientiously testify that on all the facts it was his opinion that the deceased came to her death from opium poisoning, what would be the probable result? It would have to be admitted that the amount assumed to have been administered was below the minimum fatal dose for an average healthy adult. He would be without aid from the chemist in the matter of establishing that a probably fatal dose had been administered. He would be obliged to admit that the history, the symptoms and the results of chemical examination were consistent with either morphin poisoning or heat, but were rather more in favor of death by heat. That at all events, if morphin caused the death, the deceased must have been one of those persons with an idiosyncrasy which he could not have known, nor especially in view of the fact of his having previously given the same woman a hypodermic injection without bad results suspected. This idiosyncrasy might have been followed by startling results had the drug been given by the most skilful physician. All these things would in all human probability have created in the mind of the average juryman that reasonable doubt to the benefit of which the accused is entitled.

It is easy to say off-hand that the obvious thing to do is to lay the whole matter before the district attorney and be guided by his decision. That would be perfectly feasible in counties like Suffolk, where the district attorney or one of the assistants is easily accessible, but I am informed that there are districts — I mean medical examiner districts — when that matter is not so easy and where action by the examiner ought to be taken before the district attorney could be reached.

Another point occurs to me which should have been mentioned earlier to preserve a logical sequence, and that is this: According to the legal opinions cited it is difficult to see why two different persons are not liable to indictment for the same crime, and yet it is hard to understand that the second man should have been an accessory after the fact. If the first man, R., was criminally negligent in giving the drug, then he is to be indicted for the killing, but also, if the doctor called did not act up to the scientific knowledge which he was supposed to have, then he is to be indicted for the killing, and the act or negligence of one in no way affects the criminality of the other. It seems to me that there would be a very pretty legal snarl in case of such a trial.

But still further, assuming that the doctor alone should be indicted, would he not be in position, after the government had put in its case, to claim that the diagnosis was difficult, and he could not absolutely differentiate between heat effects and morphin, believing both to be operative, and therefore he only used such remedies as would counteract the effects of opium while not doing harm, if the case were only one of heat exhaustion, as most of the methods of treatment for opium poisoning would be? My own opinion is that in such a case, although a medical examiner ought not, where it is to be avoided, to attempt to settle legal questions, he would be justified in dismissing the matter with a "view" if he could not readily get the opinion of the attorney general or the district attorney. At the worst his action could later be overruled by either of those officers, and further action taken if they thought that all the labor and expense would be justified by the probable results inasmuch as the presence of morphin could probably be as readily detected a week after death as immediately after.

## Reports of Societies.

### SUFFOLK DISTRICT MEDICAL SOCIETY. SECTION FOR CLINICAL MEDICINE, PATHOLOGY AND HYGIENE.

HENRY F. HEWES, M.D., SECRETARY.

REGULAR meeting, March 19, 1902, DR. W. H. PRESCOTT in the chair.

DR. W. H. ROBEY read a paper entitled

A CONSIDERATION OF UREMIA.[1]

DR. WOOD: I did not come prepared to discuss any of the papers. I did not know what the program was. The paper has been a remarkably interesting one to me, and I recall a good many similar cases which have occurred in my experience. I would like to ask in regard to the first case, whether there was ever any history of a gouty condition or not.

DR. ROBEY: Not as far as I know.

DR. WOOD: I have known of a similar condition in a patient who was completely comatose, with convulsions, where the kidneys were practically in the same condition as the one described here, and did not terminate fatally, but in final recovery, where there was no question about the gouty origin of the whole attack, the toxemia resulting in a convulsion, and an acute degeneration of the kidneys such as has been described in this case had been produced. I have known a case of chronic diffuse nephritis which thoroughly upheld the opinion just advanced by the reader, that uremia does not depend necessarily upon the extent of the destruction of renal tissue. I have seen a patient in uremia in which the kidneys were secreting on the day before death 950 cc., and on the day before that 1,100 cc., with about 1.5% of urea, — in other words, doing good fair work, — and at the autopsy found to have lost only about one-third of their secreting structure. The kidneys were not very small. They were in the condition of chronic diffuse nephritis, but in this case the heart absolutely gave out, and it was considered that that was contributary.

So far as the causation of uremia is concerned I think that the feeling at the present day is that it is a toxemia, but what the toxins are we do not know, but the feeling generally is that they are some of the alloxuric bodies with which we are not familiar, and that the explanation is that they cannot be excreted by the diseased kidneys to a proper extent to prevent the toxic cerebral symptoms from appearing. But why one patient should have uremic attacks with convulsions and coma and another not, with a similar amount of disease of the kidneys, we do not know. Everybody knows the suddenness with which the attacks may come — as, for example, in the eclamptic attacks of primiparæ; how here we may have a normal quantity of urine secreted regularly, and in one hour find complete suppression.

[1] See page 174 of the Journal.

### AMERICAN CLIMATOLOGICAL ASSOCIATION.

NINETEENTH ANNUAL MEETING, HELD AT LOS ANGELES, CAL., JUNE 9, 10 AND 11, 1902.

THE meeting was called to order by the president, DR. SAMUEL A. FISK of Denver, who delivered the opening address, noting the wide field occupied by the association and its important position among the national societies. The transactions show that attention has been directed to the prevailing climatic characteristics of the several parts of our country with researches on the ocean climate, the seashore, the climate of the interior, that of moderate elevation and that of more marked heights. It is our aim to apply to the individual the results of our study; to point out what would be beneficial or injurious. It is our delight to talk of fresh air, to walk by the shore and hear the waves break; to forget, for a while, the strain; to take off our hats and let the mountain breezes blow through our locks; to remember that God made us human beings; to eat, to sleep, to breathe, to walk in the sunshine; to live, and not to starve; not to toss and twist under the burden of investments and spend our days in a chase for gold. The Climatological Association bears this in mind, endeavoring to use the noble gift, common to all mankind, free as air — to use it aright itself and to show others how to use it.

DR. A. C. GETCHELL of Worcester, Mass., read a paper on

THE CLIMATE OF CENTRAL MASSACHUSETTS.

This portion of the State is termed the central plateau, ranging in elevation from 500 to 1,000 feet and extending from a line about 50 miles west of Boston to the Connecticut River. After taking

up the geology of this region and the evidences of glacial action, Dr. Getchell showed that this central plateau has not yielded to the wearing process evident in the valleys, and thus preserves a uniform elevation of over 1,000 feet above sea level. From any of the hills within this plateau one gets an even sky line in all directions broken only by such isolated peaks as Wachusett and Monadnock. The soil underlying the city of Worcester was described, and particular attention given to the town of Rutland, the site of the Massachusetts State Sanatorium for Consumptives. Spencer, Brookfield, Warren, Paxton, Coldbrook, Athol, Ashburnham, Fitchburg, Princeton, Hubbardston and Templeton were noted with particular reference to geological conditions. Dr. Getchell called attention to the advantages which Templeton offers as a place of residence for consumptives. It is five miles from the Fitchburg railway, commands a wide prospect, and is on the southern border of the large sand belt stretching to New Hampshire.

Tables giving the mean annual temperature, character of the sky, precipitation and wind, by months, were given for Worcester and Rutland. A well-equipped weather observatory has been installed at the Sanatorium at Rutland. A comparison showed Rutland to be from two to three degrees (F.) cooler than Worcester and somewhat more cloudy and rainy from January to April inclusive. The relative humidity for the year is from 71 to 72%, with the lowest record during April, May and June. This plateau is more than 40 miles from the ocean, extends over about 700 square miles, and contains no large bodies of water, marshy lands or large towns. Fogs occur in the autumn and spring, because Rutland lies high enough to be in the zone of the atmosphere where there may be low-lying clouds — not true fogs from condensation of moisture because of contact with the earth. Dr. Getchell described the sudden passage of the season from winter to summer. Like the climate of all of New England that of this section is subject to sudden and extreme changes.

Dr. E. O. Otis of Boston spoke of the innumerable small boarding-houses which have sprung up near Rutland and which are presided over generally by graduates of the Sanatorium, and are receiving considerable numbers of the more unfavorable cases which are refused at the State Sanatorium. He has had charge for several years of a clinic at Boston where large numbers of patients in the various stages of tuberculosis appear, and has been able to make use of these boarding-houses, which are of very moderate price, and has been surprised and pleased at the results. The economic cures, if I may speak of them in such a way, have been most satisfactory. Many of these houses charge only from $5.00 to $7.00 per week, but have a régime that is very exacting. The officers presiding over them are imbued with the advantages of out-door life and proper care. I had a young lady in one of these boarding-houses a few winters ago, who during the whole of the inclement winter weather was out doors eight hours daily. There was no fire in the house except in the very cold weather; she was obliged to sleep with open windows; every morning she took a cold bath, and from a condition of hopelessness she has improved so as to be able to support herself.

Dr. Otis asked whether evaporation from the large body of water which will be accumulated in the vicinity of this region when the huge metropolitan water basin now in construction is completed would have any effect upon the humidity of the region? Dr. Getchell thought not.

Dr. Guy Hinsdale of Philadelphia said he was familiar with the region described. He spoke of the natural beauty of the town of Pelham on the western border of the plateau: "There are opportunities for trout-fishing and hunting of small game and for out-of-door occupation which would appeal to young men going away for health. In journeying to California we have passed through a vast territory where there are no birds, no fish, scarcely a tree; the unfavorable influence of desolation on the human mind, although the sky may be bright and the air dry, should be taken into consideration in choosing a health resort."

Dr. S. A. Fisk of Denver said that he had spent some time in the region described; he had had some patients there, and they had done well.

Dr. Getchell: The Metropolitan area, Boston and the adjoining towns, are building now a large dam on the river that will cause a flow back to cover over an area from Boylston up to Sterling, about nine miles in length and averaging two miles in width, to make a great lake. I cannot see how it is going to materially affect our atmosphere as concerns moisture. The climate of that section in this respect approaches nearly that of Boston, a city, as you know, which is nearly surrounded by water, and it would seem that this added volume of water in our neighborhood could not appreciably affect our climate.

Dr. E. A. de Schweinitz of Washington, D. C., read a paper entitled

SOME COMPARATIVE STUDIES OF THE TUBERCLE BACILLI AND THEIR IMPORTANCE IN RELATION TO TUBERCULOSIS IN MAN.

After noting the difference of virulence in the case of tubercle bacilli obtained from various animals, and also in the germs obtained from different organs of one and the same animal, as, for example, man, he called attention to his previous work on the possibility of rendering a tuberculosis germ non-virulent for small animals by cultivating it through a number of generations for several years on artificial media. The apparent variations in the virulence of the tubercle bacilli obtained from different animals can be largely explained by environment.

He exhibited drawings which showed the variations in morphological appearance due to environment. They show almost uniformly an increase

in the size of the various germs depending on the length of time they have been allowed to devolop on artificial media. Similar morphological differences in the germs obtained from the different organs of the same animal was demonstrated. Preparations made from a guinea-pig that had succumbed to tuberculosis derived from the horse showed that bacilli from the spleen differ from bacilli from the omentum in the same animal; likewise germs from the lungs and spleen of a monkey which had succumbed to an inoculation with the bovine germ showed marked morphological differences.

Chemical differences were also noted on making analyses of bacilli derived from swine, the horse, the bird, cattle and attenuated virulent human tubercle germs. It was noted that the phosphoric acid content of the ash derived from the human germs is considerably larger than that derived from those of the lower animals. The hypodermic use of nuclein and lecithin in the treatment of tuberculosis was considered reasonable in view of the composition of the germ and the examination of the waste products.

Dr. de Schweinitz showed that the statement of Koch that the bovine germ would not cause tuberculosis in man is entirely unwarranted, and quoted Ravenel's and his own experiments, which succeeded in producing generalized tuberculosis in cattle by using very virulent human bacilli, and in infecting monkeys by using bovine bacilli. Boyce and Greenbaum have also produced tuberculosis in chimpanzees by feeding them bovine bacilli. Accidental inoculation of man by bovine bacilli has been reported by Ravenel. The author lays great stress on the necessity of guarding against the use of tubercular meat and milk, and states that if milk is heated for ten minutes to a temperature of 60° C. in a closed vessel the tubercle bacilli are all destroyed. The author believes that a careful examination of the products of the tubercle bacilli may show us that these products may be used directly or indirectly as vaccines or antitoxins for the purpose of treating the disease.

DR. E. O. OTIS of Boston: I had the pleasure of hearing Dr. Koch's paper last year at the British Congress for the Prevention of Tuberculosis, and I have rarely witnessed such a dramatic scene as was produced by his statements. Although we may doubt as much as we please the truth of Professor Koch's assertion, that bovine tuberculosis is not capable of conveying the disease to man, until more abundant and definite evidence is adduced to the contrary, Professor Koch can remain imperturbable and ask for our facts; and herein lies the value of such experimental work, in the solution of this question, as Dr. de Schweinitz has so admirably presented.

DR. SEWELL of Denver: This accurate laboratory method of studying the subject is of course the only one from which we can get reliable results, and it seems extraordinary that this feature of the study has been so long delayed. Thirteen years ago, when I began to have occasion to use the microscope in studying sputum, it struck me that the morphologic characters of the tubercle bacilli conformed in some way with the clinical character of the disease. Similar observations have been noted through the intervening years, and I think we can come to a better understanding of our tuberculous patients on the clinical side by taking into account the morphological characters of the bacilli in their sputa. The little, short, deep-staining bacilli seem to indicate a rapid process of the disease or a low resistance on the part of the patient, while the long, or sporulated, bacilli especially distinguish the very chronic cases. I wish those having the advantages of laboratory training and facilities would carry out these observations and test them according to the experimental method, for it would be an enormous help to us as clinicians if we could determine in a definite case the relative virulence of the morbid process we are fighting or gain a notion of its probable outcome through a study of the sputum.

DR. CHARLES DENISON of Denver read a paper entitled

REMARKS ON INTRATHORACIC PRESSURE, WITH ILLUSTRATION OF THE AUTHOR'S METHOD OF LUNG IMMOBILIZATION.

He said that the misunderstanding between those in favor of immobilization and those opposing it is largely due to not stating the kind of case referred to and failure to recognize in this discussion, the desirability of exercise, the many characteristics of a case as well as its environment. There has been of late a too wholesale condemnation of exercise. Nature's method of cure in chronic pulmonary disease involves not only the contraction and scarring of diseased areas, but the coincident compensative distention of surrounding healthy or less affected portions. The author cited a case in which, after several years' arrest of tubercular disease of the right lung, there remains only a one-half inch movement on that side, while the opposite side has acquired an expansion of three inches.

The chief consideration for chest immobilization is that it can be unilaterally applied, and that the other lung can do the supplementary work. It may be used in localized hemorrhagic infarction, pleurisy and in excessive softening; in pulmonary hemorrhages it is specially useful. It limits cavity formation.

He attacked the rest treatment for pulmonary tuberculosis and advocated exercise such as walking, massage and properly adjusted pulmonary gymnastics in accordance with a personal knowledge of each individual case. Altitude was held to be a distinct advantage in treatment. Gas inflation by the Murphy method was condemned, the author having had four cases under observation in which the operation had been performed. He demonstrated his method of strapping the chest by the use of moleskin adhesive strips as manufactured in seven-inch wide pieces. For a small person one and one-half feet will answer, but for a very large chest two feet or more of the ten-inch width would be preferable. Without re-

moving the protecting muslin from the adhesive side the plaster is cut through the center lengthwise, diagonally, so as to leave small ends about two inches wide. Then the muslin is stripped back from the broad end halfway up to the small end. The application is made by lapping the adhesive ends over each other in the infra-axillary space of the side of the chest to be immobilized, the small ends extending diagonally upward, front and back, to the point of the opposite shoulder. A collar for a fulcrum is made to fit over this shoulder, out of cheesecloth in which cotton is rolled, or of Canton flannel with fuzzy side outward. With heavy safety-pins cinch up the non-sticking ends of the plasters to the collar; it will remain where it is put and as tight as the patient can comfortably bear it. It will give complete rest to the lung and may be left on without change for two weeks.

Dr. E. O. Otis of Boston said that in his opinion it would not be possible to produce sufficient mechanical pressure by strapping the chest to influence a hemorrhage going on inside the lungs, and he did not believe that any strapping of the chest as demonstrated could produce immobilization of the lungs to any extended degree. We can restrict the action of the intercostals and other accessory muscles of respiration,— a very useful procedure in the pain of acute pleurisy,— but that great muscle of respiration, the diaphragm, surely cannot be influenced by the method advocated. When you compress the lung by an artificial pneumothorax, as by the Murphy method, you act directly upon a compressible substance; but it is far different when you make the attempt by strapping the bony framework of the chest. Dr. Otis does not believe that method can produce any special favorable effect in pulmonary tuberculosis.

Dr. Albert Abrams of San Francisco, by invitation, said that during recent years the tendency of therapeutics is to seek for lung quiescence in pulmonary affections. This tendency has been inspired by the antagonism which has been known to exist between chronic valvular lesions of the heart and pulmonary tuberculosis, the one exception being stenosis of the pulmonary orifice. In treating hemoptysis lung immobilization is by no means as efficient in many instances as long, deep breaths. He had often observed patients under the x-rays suffering from the pains of pleuritis who showed immobilization of the diaphragm, whereas, when the intercostal muscles were palpated, they were extremely rigid, nature's tendency, as it were, to splint the lung. He found by the aid of x-rays, that when costal breathing is eliminated diaphragmatic breathing is compensatorily augmented, and that the apex of the lung corresponding to the side of the chest strapped is increased almost twice in area, a condition which he had termed apical ballooning. Hence in hemorrhage, situated usually in the apices, strapping the chest would tend to increase the existing trouble.

*(To be continued.)*

THE BOSTON

# Medical and Surgical Journal.

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## THE YOUNG PHYSICIAN.

It has been said that this is the age of young men; that in the various walks of life the young man is coming to the front as never before, and undertaking burdens of responsibility which a few years ago would always have rested upon the shoulders of older men. This has, moreover, occurred in face of the fact that the preliminary training for any calling is very much more arduous than ever before, and the actual time spent in preparation is on the whole, increasing. This is peculiarly true of medicine, with its continually widening scope and added requirements. It is, however, no less true that when a young medical man stands ready to begin his independent work, he is far better equipped than were his predecessors of twenty years ago. His equipment is better in two ways, first in his actual experience with disease at hospitals and dispensaries, and secondly in his training in scientific method. His disadvantage in beginning practice over his older colleague lies in the fact that the field to be covered is far broader than it was a few decades ago, and that he therefore enters upon his professional work, if he be conscientious, with a painful sense of his shortcomings in very many branches of medical practice. The knowledge which has come in these last years has evidently placed a peculiar responsibility upon the physician fresh from his studies. He knows far better than the routine practitioner of many years' standing, how unfair to his patients and the community at large it is for him to venture far into the fields of special practice. All this the "general practitioner" of thirty years ago was blissfully unconscious of. He absorbed the knowledge of his day and unhesitatingly put it into practice when opportunity came.

Now it is all different. We may affirm without fear of contradiction that no graduate in medi-

cine is, at the present stage of progress, fitted to do a general practice, in the sense in which that abused term has usually been employed. If he does attempt to practice internal medicine and surgery, ophthalmology, otology, larnygology and all the other special branches, he is a positive menace to the community in which he lives, and yet this is what should be meant by "general practice." As a matter of fact, except in remote country towns, such a comprehensive general practice has ceased to exist. Physicians are everywhere recognizing their limitations, and calling for counsel in all the diversified branches of their practice. This is rendered possible by the increasing ease and rapidity of communication even between cities and towns widely separated. It is to be hoped therefore that the term "general practitioner," as opposed to "specialist," will soon go the way of other inaccurate terms. It has come to be rather a difference in degree than in kind. There are few physicians in good standing at the present time who have not set some limitations to their practices. They may confine themselves to a narrow field or they may cultivate a larger one, but no one who attains any distinction attempts to cover all the fields. They may be surgeons, or orthopedic surgeons, physicians dealing with internal medicine, or physicians dealing with the eye, but they are, fortunately for all concerned, not in any case a combination of these. The term "general practitioner" has apparently clung tenaciously to that group of physicians which deals with the problems of what the Germans very properly call "internal medicine." If this term could be employed instead of the wholly misleading one of "general practitioner," we should hear less of the rival claims of general and special practice. All practice in our medical centres, which naturally moulds medical opinion, is special practice.

This, to our mind, is the state of affairs which the young practitioner has to face; he must make a choice at the very earliest moment, of the line of work which he designs to follow. Vacillation at this early stage of his career does not tend to beget confidence among his older colleagues, and certainly does not improve his chances of making an impression upon the community in which he happens to be. This applies with particular force to the larger cities and is coming rapidly to apply to smaller cities and towns. We cannot, therefore, agree with the advice given young doctors in a recent editorial of one of our contemporaries, when it says:

"The greatest mistake of all is to start in a specialty without being thoroughly grounded in general practice. There are too many such young men, who, lured by the hope of quick gains and relatively large incomes, are waiting in vain for office patients while their classmates are taking anything that comes and laying the broader foundations of really successful work in the future."

How is a man, in our large cities, under existing conditions, to become thoroughly grounded in general practice, and what is meant by general practice? "Take anything that comes," is the advice, and thereby lay the broader foundations of really successful work in the future. This seems to us positively unethical; it puts a premium on superficial work, out of which no real success ever has or ever can come. What we need above all things in our young practitioners is thoroughness; medical practice has suffered long enough from superficiality, and we are quite optimistic enough to believe that devotion to special lines of work, though it may have certain drawbacks, is doing much to deepen our conception of medical problems, and thereby lend a dignity to medical practice which at some periods has been sadly lacking. Apart from theories in the matter, what is actually happening is that our most gifted young medical men are, almost without exception, specializing early, realizing that this is in accord with the spirit of the age, and also decidedly practically useful to themselves. The man is now in demand who knows one subject well, not he who is superficially conversant with the whole field of medicine. We are coming to realize that depth is but another variety of breadth, and that the truly profound man cannot be bigoted and narrow-minded. Only the man who studies deeply can fully appreciate the real ramifications of knowledge, and this type of man the properly constituted modern specialist is coming to be. We are therefore strongly inclined to think that the proper advice to the young man is, do one thing well, better if possible than anyone else, and do not waste valuable time in superficial so-called general practice. One must have been a specialist, before he may hope to be a really good practitioner of medicine in any line, however general it may ultimately come to be. To encourage intelligent specialism is apparently to be the work of the coming medical school, and we need fear no catastrophes in consequence.

## THE SANITARY CONDITION OF CUBA.

From a medical point of view Cuba, and particularly the city of Havana, have come to assume a somewhat unique interest owing to the fact of the apparently successful crusade which has been carried on against the formerly dreaded disease of yellow fever. In general we find the regular

reports of the health department of Cuba reading of great practical importance. There, if anywhere, has been offered the opportunity of putting into practice methods of sanitation which have, both theoretically and practically, come to be recognized as efficacious. From a city of peculiar filth and laxity in sanitary precautions Havana has apparently emerged as a model of what the modern, well-organized, health-observing city should be. This is, of course, due wholly to the effect of the American occupation and of the able and industrious officers who have had charge of sanitary affairs. Apparently the chief danger of infectious and contagious disease in Cuba lies now in its importation from other tropical countries. This must be continually guarded against, and offers naturally a problem of no small magnitude. There has been recently an increase in deaths from diarrhea and enteritis in young children, and also in the number of deaths from typhoid fever. Such a tendency has been noted in Havana for some time past, and the difficulty has apparently been traced to objectionable methods of the Chinese truck gardeners in the raising of their vegetables. Washings of these vegetables have shown the presence of a virulent variety of the colon bacillus fatal to guinea-pigs in less than forty-eight hours. This, in addition to the fact that, through an accident to one of the main water pipes, pure drinking water in the most populous quarters of the city has not been obtainable, suffices to account for the present increase of these diseases. The report of Dr. Carlos J. Finlay, chief sanitary officer of Havana, for July 1, shows that the city of Havana, and, so far as information goes, the remainder of the island, have remained free from any case of yellow fever originating within its boundaries. Two mild cases have been imported from Vera Cruz, the patients having come on vessels which had shipped a cargo of cattle. It is supposed that mosquitoes living on the blood of these animals during the passage may infect men on their arrival in port. Every possible precaution is being taken to care for such sporadic yellow fever cases as occur, and so far as possible to prevent the possibility of local outbreaks. So unremitting has been the vigilance that for nine consecutive months not a single case of the disease has occurred in Havana, the origin of which could be located within the limits of its jurisdiction. Certainly the profession and the American people at large may be pardoned a high degree of satisfaction at the admirable work which has been and is being accomplished in Cuba.

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By not dumping the surplus garbage of New York City at sea, the bathing beaches at nearby resorts are clean this year.— *American Medicine.*

## MEDICAL NOTES.

Climatic Conditions and Typhoid Fever in Chicago.— According to the bulletin of the Chicago Health Department with the close of July there ended the wettest consecutive three months during the last ten years. In May, June and July, 1892, the rainfall measured 19.52 inches, or more than one-half the total rainfall for the year, and the greatest three months' precipitation recorded by the signal service at this station. In that year, 1892, there were 1,489 deaths from typhoid fever, and Chicago's typhoid death-rate was the highest of twenty-two principal American cities. During May, June and July of this year the rainfall measured 17.31 inches, or 60% more than the normal of the previous thirty-one years. There is already 40% more typhoid fever in the city than there was one year ago, as shown by the fact that there were only 80 cases in the county hospital in July, 1901, while there were 133 last month, and 34 more were received up to noon of Aug. 3 since July 31. The boiling of drinking water and the sterilization of milk is urgently advised.

Congress of Belgian Surgical Society.— The annual congress of the Belgian Surgical Society usually held in Brussels, in June, will this year meet in Brussels on Sept. 8, 9 and 10. The deliberations of this year will be exclusively devoted to the three following questions: "The Treatment of Appendicitis;" "The Treatment of Fractured Limbs," and "Asepsis of the Hands, of the Operated Area, of the Sewing and Ligature Materials." Drs. Roux, Broca, Sonnenburg, Tuffier and others will read papers.

King Edward's Gift to the English Nation. — King Edward is reported to have given to the English nation, Osborne House on the Isle of Wight, to be used as a convalescent home for wounded and disabled army and navy officers. Certain rooms used by the late Queen are to remain undisturbed.

### BOSTON.

Acute Infectious Diseases in Boston.— For the week ending at noon, Aug. 13, 1902, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: Diphtheria 23, scarlatina 20, measles 8, typhoid fever 9, smallpox 12.

### NEW YORK.

Mortality in July.— The mortality in the city during July was unusually low for that month, representing an annual death-rate of 20.87 per thousand of the estimated population, as against 25.23 in July of last year. It naturally exceeded the mortality of June, which repre-

sented an annual death-rate of only 17.99. The corrected death-rate for July, excluding the deaths of non-residents and infants under one week old, was 19.97. The most important increase as compared with the month of June was in the deaths from diarrheal diseases, which both in the week ending July 19 and that ending July 26 amounted to 401. This is probably the maximum mortality of the year in such affections, and it is considerably smaller than that for the latter part of July which has usually been recorded, even previous to the annexation of the boroughs of Brooklyn, Queens and Richmond. Among the diseases which showed an increased mortality were the following: The weekly average of deaths from diarrheal diseases increased from 116.75 in June to 350.8 in July; of deaths from diarrheal diseases in children under five years of age, 106.5 to 336.2; from whooping cough, 13.5 to 17.6; from typhoid fever, 11 to 13.4; and from cancer, 45.25 (an exceptionally low average), to 47.6. Almost all other diseases showed a decline in mortality. The weekly average of deaths from diphtheria and croup decreased from 40.75 to 32; from scarlet fever, 21.75 to 14.4; from measles, 18 to 10; from smallpox, 12.5 to 6.2; from pneumonia, 80 to 65.8; from phthisis, 145.5 to 142; from bronchitis, 20 to 17.6; and from diseases of the urinary system, 109 to 95. During the month there were reported one death from influenza and one from Hodgkin's disease. Six deaths were reported from "electric current." This cause of death now appears almost constantly on the mortality lists, scarcely a week passing without one or more fatalities occurring from it.

THE WARFARE AGAINST MOSQUITOES.— When Prof. John B. Smith, State entomologist of New Jersey, began operations against the mosquitoes of that State he issued a bulletin in which, after giving practical suggestions for the control of the pest, he expressly stated that the recommendations offered did not apply to the salt marsh or seashore mosquito. Since then he has visited Lawrence, Long Island, N. Y., where five miles of cheap ditches have destroyed all breeding-places over a large marsh area. To get rid of seashore mosquitoes he now expresses the opinion that it is necessary that all pools of water which are filled only at unusually high tides, and all depressions in which pools lasting a week or more form during the summer months, must be abolished. He has found such pools so crowded with the larvæ of mosquitoes that he estimates at least one hundred of them to occupy each square inch of area, so that a pool measuring 10 by 15 feet would produce 1,000,000 mosquitoes at one hatching.

PROTRACTED SOMNOLENCE.— The Harlem Hospital has at present a patient who apparently has entered upon a competition with the seven sleepers of antiquity. He is a young Italian who has now been in a condition of somnolence for over one hundred days. He was admitted to the hospital a little more than three months ago, and at that time it was said that he had been asleep for nearly a fortnight, during which time he was not known to have taken any nourishment. After his admission he was watched very carefully, as it was supposed that he was probably feigning and contrived to obtain food secretly. Satisfactory tests proved, however, that the patient was not feigning, and for a considerable period his fast remained absolute. At present it is stated that he can be aroused sufficiently to partake of meals, but that as soon as he has eaten he relapses again into deep slumber. He never received any head injury, and from what they have been able to learn of the young man's antecedents the physicians in charge of the case are inclined to believe that the most plausible explanation of it is that the trance-like state resulted from melancholia, since it has been found that shortly before its onset the young woman to whom he was engaged to be married eloped with another compatriot.

TETANUS SUCCESSFULLY TREATED.— A case of tetanus successfully treated with antitoxin injection is reported from the Harlem Hospital, from which the patient was discharged cured on Aug. 7. The novel feature of the treatment was that the tetanus antitoxin was injected into the spinal canal instead of into the brain. The patient was a young man of nineteen who shot himself in the hand on the Fourth of July with a blank cartridge.

## Miscellany.

### AN APPRECIATION OF DR. HENRY J. BIGELOW.

REFERRING to a recently published sketch of Dr. Henry J. Bigelow, which appeared in the *St. Paul Medical Journal*, a correspondent of that journal, Dr. Charles F. Denny, writes as follows:

My earliest remembrance of Dr. Bigelow was at the zenith of his glory in 1879 and 1880 at the Massachusetts General Hospital in Boston, while I was a student at the Harvard Medical School. To see him once was never to forget him. Tall, active, straight, clean cut with commanding features, he was truly pre-eminent above all others, and the term "King at the Massachusetts General," as he was often called by the students, fitted him perfectly.

His weekly clinical surgical visit at the hospital was looked forward to by the students, as they were always sure of obtaining practical points directly at the bedside, which were so given that they made an impression on the dullest.

No better illustration can be given than the pains he took to show students how to pass a sound into the bladder. He used to say: "Gentleman, a sound is a powerful lever, it should never be used as such with the rarest exceptions. It should be used with gentleness and should practically fall by its own weight into the bladder." Then he would show how to hold it, insert it and follow the curve of the urethra in its passage. He used to advise the pupils to bend a block tin sound into any shape and manipulate it into the urethral canal of a cadaver.

One public operating day in the old amphitheatre of the Massachusetts General Hospital a scene occurred which has probably fixed itself on everyone present, showing the wonderful readiness and dexterity of Bigelow. A patient with a malignant tumor of the upper jaw was being operated on for excision of the same, etherized in an upright position in Bigelow's operating chair. The operation was partially completed when the patient was choked by blood flowing into the larynx. Deadly pallor came over the face, the respirations ceased and a pin could have been heard, had it fallen, so still was that operating room. Quick as a flash Bigelow threw down his operating instruments. The chair was inverted and the patient's head lowered. Only two words were spoken; everything was hushed; all expected death; those words were characteristic of the man: "Knife! Quick!" It was instantly handed to him, and before we knew what was being done the trachea had been opened, artificial respiration applied, and slowly but surely life returned. The patient was then raised and the upper jaw excision completed. The patient eventually recovered.

After it was all over, Bigelow quietly observed to the students, "Gentlemen, you have witnessed something I doubt if you would have seen successfully done, even abroad. These things need instant action."

His interest in things outside the medical world is too well known to need comment. He was a keen observer of everything about him, and when once especially interested in anything, that thing had to be thoroughly and practically investigated.

No one could ever see the man without remembering him forever afterwards. His place in the medical history of the world is unique and deserved. His imprint is indelibly stamped on the Massachusetts General Hospital, Boston, for ages to come.

## Correspondence.

### FEES.

Boston, Aug. 11, 1902.

Mr. Editor: At varying periods of life the question of fees recurs, modified by changing events. This is such a period, for three things are now influencing professional receipts: (1) Hospitals and dispensaries; (2) specialties; (3) very high occasional charges.

Every city, every town, many villages, almost every race has its hospital or its free dispensary. Some charge nothing; some charge ten cents; some supply medicine; some do not; none pay the doctor. The laboring classes seek them normally; the mechanic and middle class are driven to them by the fear of high fees. As an instance, the writer was asked about a hypertrophied tonsil in a lad. He advised excision; one had been already removed. The mother said she was forced to ask the fee, for a specialist had charged fifty dollars and her husband's salary was $1,200. Such occasional errors of judgment are repeated over and over in narration among the moderate class and have a deterrent effect on those requiring professional treatment. The frequency of consultations with specialists also largely increases family expenses in sickness — and the salary of the trained nurse sometimes equals the remuneration of the physician. A heavier burden than is just is thus laid on the family of moderate means. Sickness drives the poor to the hospitals. Very heavy expenses once incurred influence the average citizen to seek to avoid them in any honorable way. Great fees, unusual fees resound, and their echoes are long in dying away. They frighten people; they also lead them to attribute too commercial a spirit to the doctor.

What is the commercial doctor? He who thinks of money first and the patient last.

What is the true professional doctor? He who thinks of the patient first, but of money last. Yet he ought to think of money. He must think of money. He has to pay his bills. He must collect his bills. The laborer is worthy of his hire. His services may be very valuable; he should be paid, but he cannot reasonably be paid by all alike. Some are rich; some are well off; some are poor. The doctor gives the same care to each, and yet each must pay him differently. Hence the absolute necessity of a sliding scale of fees according to the patient's means. A minimum fee is more just and important than a maximum. True, and yet if the maximum is too large it does mischief to the doctor's character. The minimum fee is better for *both* parties than no fee. Gratuitous service is pauperizing. It destroys self-respect in the recipient. It ennobles the donor, but it is better for both that some payment should be made. Therefore we advocate an extreme sliding scale for the single fee, ranging from one dollar to ten dollars. The poor, one dollar; the well-to-do, three dollars; the rich, five dollars; the very rich, ten dollars; the mechanic and shopgirl and servant, two dollars.

Now we also must consider that a good doctor has spent $10,000 in his education and plant; has studied from eighteen years of age to twenty-seven years of age (college, medical school and hospital) before he charges a single fee.

We must also remember that his earning capacity, with health, covers only thirty-five years. At sixty-two he is retired from appointments, and after sixty he gets few new patients and no new families. Needless to say, then, that he must reap his harvest in twenty-five years, ten years being consumed in getting into business after he begins. A good harvest; for in addition to the interest on his plant, he must earn bountifully to live in these expensive days, and to provide, if he can, for old age and dependence. Modern medicine almost equally, and modern surgery certainly, requires more and more expensive appliances for laboratory and aseptic work. The telephone, the x-ray, the typewriter, the office nurse — all seem often essentials now. Locomotion is cheaper; rents more; personal living much more.

The medical lamb is shorn on every side. His gratuitous service is no bar to a suit for damages, and it is an important question how he can be assured from loss, whether by a medical defence union, as in England, or by a casualty insurance company, as proposed here. Either is just and proper, to our thinking.

The young doctor of today may be described as follows: Expensively and exhaustively educated; overmature in years; stripped of fees in youth by free dispensaries; his business intimidated by the overcharging of some; his earning capacity limited by superannuation at sixty-two; his practice *nil* before thirty to thirty-five years; his brief harvest time clouded by damage claiming; his expenses increased by modern appliances.

After all, his back must be adjusted to his burden, and he must depend on the habits and the customs of his locality. Hence the importance of a *local* fee table as well as of a sliding scale.

Now the history of fees in Boston is as follows: In 1788, four shillings; 1800, one dollar; 1808, one dollar to one dollar and a half; 1857, one and a half to two dollars; 1864, three dollars; 1884, three to five dollars. No change has been made for eighteen years. Since 1897 the cost of living and general increase in wealth have been larger than at any previous period.

We describe a condition, and hope it will result in suggestions. Yours truly,

David W. Cheever, M.D.

## METEOROLOGICAL RECORD

For the week ending Aug. 2, in Boston, according to observations furnished by Sergeant J. W. Smith of the United States Signal Corps:

| Date | Barometer | Thermometer | | | Relative humidity | | | Direction of wind | | Velocity of wind | | We'th'r * | | Rainfall in inches. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Daily mean. | Daily mean. | Maximum. | Minimum. | 8.00 A.M. | 8.00 P.M. | Daily mean. | 8.00 A.M. | 8.00 P.M. | 8.00 A.M. | 8.00 P.M. | 8.00 A.M. | 8.00 P.M. | |
| S...27 | 30.08 | 64 | 70 | 59 | 80 | 85 | 82 | S W | S W | 6 | 10 | O. | O. | T. |
| M..28 | 29.93 | 75 | 83 | 67 | 86 | 67 | 76 | S W | W | 9 | 10 | O. | C. | |
| T ..29 | 29.97 | 70 | 76 | 64 | 74 | 90 | 82 | N W | N E | 6 | 6 | F. | O. | .03 |
| W..30 | 30.05 | 70 | 74 | 65 | 76 | 86 | 81 | N E | E | 12 | 5 | O. | C. | |
| T..31 | 30.09 | 72 | 81 | 62 | 77 | 60 | 68 | N W | S | 4 | 12 | C. | C. | |
| F ...1 | 30.00 | 72 | 80 | 65 | 78 | 81 | 80 | S | S | 7 | 8 | O. | O. | T. |
| S....2 | 29.94 | 76 | 85 | 68 | 82 | 75 | 78 | S W | S W | 7 | 8 | F. | C. | |
| ☞ | 30.01 | | 78 | 64 | | | 78 | | | | | | | .03 |

*O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow. †Indicates trace of rainfall.
☞ Mean for week.

## RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, AUG. 2, 1902.

| CITIES. | Population Estimated, 1902. | Reported deaths in each. | Deaths under five years. | Percentage of deaths from | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | Infectious diseases. | Acute lung diseases. | Diphtheria and croup. | Cerebro-spinal meningitis. | Diarrheal diseases. |
| New York . . | 3,665,352 | 1,365 | 678 | 43.50 | 5.25 | 1.40 | .22 | 28.20 |
| Chicago . . | 1,852,828 | 545 | 260 | 43.46 | 5.68 | 1.10 | — | 29.89 |
| Philadelphia. | 1,349,624 | 457 | 174 | 27.35 | 6.77 | — | — | 13.13 |
| St. Louis . . | 603,717 | — | — | — | — | — | — | — |
| Baltimore . . | 525,330 | 232 | 103 | 41.80 | 3.88 | .43 | — | 24.56 |
| Cleveland . . | 411,826 | — | — | — | — | — | — | — |
| Buffalo . . . | 375,742 | — | — | — | — | — | — | — |
| Pittsburg . . | 341,401 | 161 | 95 | 26.58 | 8.07 | — | — | 29.81 |
| Cincinnati . | 332,032 | — | — | — | — | — | — | — |
| Milwaukee . | 304.975 | — | — | — | — | — | — | — |
| Washington . | 289,537 | — | — | — | — | — | — | — |
| Providence . | 185,870 | 78 | 30 | 39.74 | 5.12 | — | — | 37.16 |
| Boston . . . | 588,736 | 197 | 86 | 31.98 | 4.06 | 1.01 | 1.01 | 12.69 |
| Worcester. . | 127.337 | 45 | 14 | 35.55 | 6.67 | — | 2.22 | 26.66 |
| Fall River. . | 111.872 | 57 | 32 | 42.09 | 7.01 | — | — | 31.57 |
| Lowell . . . | 99,574 | 54 | 31 | 31.45 | 3.70 | — | — | 24.05 |
| Cambridge . | 96,334 | 29 | 16 | 34.48 | 3.45 | — | — | 24.14 |
| Lynn. . . . | 71,144 | 23 | 10 | 47.82 | — | — | 17.39 | 21.74 |
| Lawrence . . | 67,275 | 29 | — | 72.40 | 3.45 | — | — | 65.51 |
| Springfield . | 66,854 | — | — | — | — | — | — | — |
| Somerville . | 65,882 | 16 | 5 | 37.50 | 6.25 | 6.25 | — | 18.75 |
| New Bedford. | 65,574 | 31 | 20 | 54.86 | 3.22 | 3.22 | — | 51.61 |
| Holyoke . . | 48,065 | 12 | 7 | — | — | — | — | — |
| Brockton . . | 43,208 | 9 | 1 | 33.33 | — | — | — | — |
| Haverhill . . | 40,392 | 10 | 4 | 10.00 | 10 00 | — | — | — |
| Salem . . . | 36,567 | 10 | 10 | 100.00 | — | — | — | 100.00 |
| Newton. . . | 36,336 | 13 | 10 | 38.50 | — | — | — | — |
| Malden . . . | 35,390 | 5 | 2 | 20.00 | — | — | — | 20.00 |
| Chelsea. . . | 35,264 | 18 | 12 | 22.22 | 22 22 | 5.55 | — | 22.22 |
| Fitchburg. . | 33,848 | 8 | 3 | — | — | — | — | — |
| Taunton . . | 32,559 | 9 | 4 | 33 33 | — | — | — | 33.33 |
| Everett. . . | 27,114 | 14 | 8 | 28.56 | — | — | 7.14 | 14.28 |
| North Adams | 26,583 | 3 | — | 33.33 | — | — | — | — |
| Gloucester . | 26,121 | 13 | 2 | 30.80 | — | — | — | — |
| Quincy . . . | 25,597 | 6 | 1 | 33.33 | — | — | — | 33.33 |
| Waltham . . | 24,612 | 9 | 2 | 33.33 | — | — | — | — |
| Pittsfield . . | 22,311 | 6 | 3 | 16.67 | — | — | — | 16.67 |
| Brookline . . | 21,679 | 3 | — | — | — | — | — | — |
| Chicopee . . | 20,390 | 10 | 6 | 30.00 | — | — | — | 30.00 |
| Medford . . | 20,014 | 4 | 3 | 50.00 | — | — | — | 25.00 |
| Newburyport | 14,478 | 8 | 3 | 12 50 | — | — | — | 12.50 |
| Melrose . . | 13,384 | 2 | — | — | — | — | — | — |
| Westfield . . | 13,068 | 7 | 2 | 14.30 | — | 14 30 | — | — |
| Attleboro . . | 12,846 | — | — | — | — | — | — | — |
| Adams . . . | 12,813 | — | — | — | — | — | — | — |
| Milford . . | 12,546 | — | — | — | — | — | — | — |
| Framingham | 12,109 | — | — | — | — | — | — | — |
| Peabody . . | 11,957 | — | — | — | — | — | — | — |
| Revere . . . | 11,894 | 1 | — | 100.00 | — | — | — | — |
| Gardner . . | 11,544 | — | — | — | — | — | — | — |
| Weymouth . | 11,337 | 1 | 1 | — | 25.00 | — | — | — |
| Southbridge . | 10,978 | 5 | 1 | 40.00 | 20.00 | — | — | 20.00 |
| Watertown . | 10,000 | 5 | 3 | 40.00 | — | — | — | 40.00 |
| Plymouth . . | 10,336 | — | — | — | — | — | — | — |

Deaths reported 3,532; under five years of age, 1,649; principal infectious diseases (smallpox, measles, scarlet fever, cerebrospinal meningitis, diphtheria and croup, diarrheal diseases, whooping cough, erysipelas, fevers and consumption) 1,396, acute lung diseases 187, consumption 306, scarlet fever 16, whooping cough 45, cerebrospinal meningitis 11, smallpox 9, measles 15, diarrheal diseases 890.

From whooping cough, New York 18, Chicago 8, Philadelphia 4, Baltimore 2, Pittsburg 5, Providence 1, Boston 4, Worcester, Fall River and Waltham 1 each. From measles New York 7, Chicago 1, Philadelphia 3, Baltimore 1, Pittsburg 2, Lawrence 1. From erysipelas, New York 2, Chicago 1, Philadelphia 1. From smallpox New York 5, Pittsburg 1, Cambridge 2, Medford 1.

In the seventy-six great towns of England and Wales, with an estimated population of 14,862,456, for the week ending July 19, the death-rate was 14.5. Deaths reported 4,123; acute diseases of the respiratory organs (London) 155, whooping cough 119, diphtheria 64, measles 129, smallpox 27, scarlet fever 59.

The death-rate ranged from 5.5 in Hornsey to 25.9 in Merthyr Tydfil; London 14.1, West Ham 15.1, Croydon 11.3, Brighton 11.3, Portsmouth 13.8, Southampton 14.0, Bristol 14.8, Birmingham 16.7, Leicester 10.8, Nottingham 12.9, Birkenhead 12.5, Liverpool 18.2, Manchester 18.5, Salford 16.8, Bradford 15.4, Leeds 16.6, Sheffield 15.8, Hull 14.2, Newcastle-on-Tyne 17.1, Cardiff 10.2.

## CHANGES IN THE MEDICAL CORPS OF THE NAVY FOR THE WEEK ENDING AUG. 2, 1902.

R. C. HOLCOMB, assistant surgeon. Ordered to duty at Naval Hospital, New York.

E. R. STITT, surgeon. Ordered to report to the surgeon general for duty at the Naval Museum of Hygiene and Medical School, Washington, D. C.

C. D. LANGHORNE, passed assistant surgeon. Detached from the Naval Hospital, Philadelphia, to duty at Naval Hospital, Port Royal, S. C.

S. G. EVANS, passed assistant surgeon. Detached from Naval Hospital, Port Royal, S. C., and ordered to Naval Hospital, Norfolk, Va.

F. L. PLEADWELL, passed assistant surgeon. Detached from the "Kearsarge" and to temporary duty on the "Sylph."

M. W. BAKER, doctor. Commissioned an assistant surgeon from July 23, 1902.

## SOCIETY NOTICE.

THE MISSISSIPPI VALLEY MEDICAL ASSOCIATION.— The twenty-eighth annual meeting of the Mississippi Valley Medical Association will be held in Kansas City, Mo., Oct. 15, 16, 17, 1902.

## RECENT DEATHS.

PETER DUGGAN WALSH, M.D., M.M.S.S., died in Boston Aug. 10, 1902, aged seventy-nine years.

DR. JESSE BRADFORD of Conesus Centre, Livingston County, N. Y., died on Aug. 5, at the age of seventy-five years. He was a graduate of the medical department of the University of Vermont, and had practised at Conesus for many years. During the Civil War he served with Sheridan through the Shenandoah Valley campaign in the Twenty-second New York Cavalry, and also rendered efficient services at the battles of the Wilderness and Malvern Hills.

## BOOKS AND PAMPHLETS RECEIVED.

Clinical Essays and Lectures. By Howard Marsh, F.R.C.S. Illustrated. Philadelphia: P. Blakiston's Son & Co. 1902.

The Principles and Practice of Bandaging. By Gwilym G. Davis, M.D. Illustrated. Philadelphia: P. Blakiston's Son & Co. 1902.

The Medical Student's Manual of Chemistry. By R. A. Witthaus, A.M., M.D. Fifth edition. New York: William Wood & Co. 1902.

A Brief of Necroscopy and its Medico-Legal Relation. Arranged by Gustav Schmitt, M.D. New York and London: Funk & Wagnalls Co. 1902.

Gibson and Russell's Physical Diagnosis. Third edition, revised and rewritten. By Francis D. Boyd, C.M.G., M.D., F.R.C.P. (Edin.) Illustrated. New York: D. Appleton & Co. 1902.

# Original Articles.

## VACCINATION AND SMALLPOX.

### THE PREPARATION OF AMIMAL VACCINE.*

BY THEOBALD SMITH, M.D., WEST ROXBURY, MASS.

The necessity for the vaccinal protection of the individual against such a subtle and pervasive virus as that of smallpox is answered in but one way by the experience of the century just passed. Without the specific protection given the community by vaccination, smallpox cannot be efficiently controlled and suppressed.

The acceptance of this proposition by the medical profession and the State creates the responsibility of supplying as pure and efficient vaccine virus as can be made under present conditions. The preparation of animal vaccine is in itself simple enough, and this very simplicity is a source of danger, because the production may be undertaken by such as are not sufficiently trained in scientific methods to apprehend and utilize the improvements wrought by investigation, as well as to anticipate and guard against the dangers due to altering conditions.† Simplicity of manufacture and the lack of a definite scientific code of procedure as regards details of preparation make safeguards of all kinds all the more necessary. It is the safeguards which represent by no means insignificant items of cost, for they mean the employment of trained persons to apply such routine tests as may be deemed necessary to eliminate dangers, and they demand the free use of animals for control observations and tests.

#### THE NATURE OF VACCINE.

Much has been said and written upon the original source of vaccine virus as an important factor in its efficiency. Since the day of Jenner, who considered cow pox as a derivative of grease of the hock in horses, there has been more or less fluctuation of opinion as to the nature of cow pox itself. The findings of the celebrated Lyons Commission in 1865 controlled for a long time the views of the medical profession. This commission, while admitting that smallpox virus may be successfully inoculated into the cow, denied that it underwent any mitigation and maintained that, if returned to man, it would produce genuine smallpox. Since that time a considerable number of investigators have succeeded in transmitting smallpox to the cow and producing genuine cow pox, and it is now quite generally regarded as a derivative of smallpox.[1] The frequent appearances of cow pox in the early years of the nineteenth century were in all probability due to the accidental inoculation of the cow with smallpox or with vaccine from the hands of the milker which in its turn was at some earlier time derived from smallpox by passage through the cow. Vaccine, derived from variola, the so-called variola vaccine, was prepared by Voigt, of Hamburg, in 1881, and it has been used by him with success ever since. Recently a new stock of variola vaccine has been prepared successfully in Munich, Bavaria.[2]

With the fact before us that vaccinia is smallpox profoundly modified by its passage through the cow, and that it may be reproduced whenever needed, the assumed danger of cow pox virus dying out may be regarded as non-existent. But the subtle differences in vaccine from different sources and the opinions of experienced men, that vaccine may in time become less efficient, makes the constant control of vaccine upon susceptible children, to determine its taking qualities, a matter of great importance.

#### THE PREPARATION OF ANIMAL VACCINE.

The micro-organisms of variola and vaccinia have not yet been recognized by the microscope, and their presence can be determined only by their effects. This gap in our knowledge is largely responsible for the divergencies in the preparation of vaccine witnessed today. The micro-organism of vaccinia is present in the proliferated epithelium of the inoculated skin of the cow, as well as in the serum or lymph which exudes from the vesicle and its base after the overlying scab or crust has been removed.* Two methods are based on these facts. In the one, now used throughout the continent of Europe, in England, and to a large extent in our own country, the proliferated epithelium along the line of inoculation is scraped away and it becomes the basis of the vaccine. It is the so-called pulp. The other method utilizes the fluid lymph or serum of the vesicle. This method is still used to a restricted degree in our own country.

In the preservation of the virus two methods are in vogue. In Europe, and to a considerable extent in our own country, the pulp is mixed with diluted glycerine and stored in sealed receptacles. Less used today is the method once universal in our country, of drying the vaccine on the ends of flattened slips of ivory or bone, the so-called vaccine points.

Let us now look hastily at the concrete processes, and in so doing let us glance first at the procedure now in general use — the preparation of glycerized vaccine.

Calves are chiefly employed. The preferred areas for inoculation are the abdomen, the inner aspect of the thighs, the scrotum, or simply one side of the animal. The thoroughly inspected, cleansed animal is fastened upon a suitable table, and the areas to be inoculated are shaved and washed. Disinfection of the skin with alcohol,

* Read before The Massachusetts Medical Society, June 10, 1902

† In this regard it differs from the preparation of diphtheria antitoxin, because the latter substance cannot be prepared excepting by those having had considerable technical training. Its successful manufacture necessarily implies that degree of care which also ensures the safety of the product.

* The micro-organism is also present in the internal organs of the inoculated calf, for typical vaccine eruptions were produced by the recent German Commission with the fluid from crushed spleen tissue and from lymph nodes. Positive results were obtained from one calf forty-four days after inoculation. These results need repetition and confirmation

lysol and other well-known disinfectants is variously practised and omitted by different authorities. In any case certain disinfectants must be removed with sterile water before the vaccine is applied. On this prepared area shallow incisions, barely deep enough to become reddened, are made in parallel lines about one-half inch apart. The vaccine or seed is thoroughly rubbed into the scarified area and the calf released. Much time and ingenuity has been sacrificed by German vaccine producers in the effort to obtain a proper aseptic protective dressing for the vaccinated area, but nothing has been brought forward which has received general approval, and I think that today most vaccine producers use no dressing, but depend on general cleanliness.

After four to six days, according to temperature and individual variation, the calf is again placed upon the table. The vaccinated surface is thoroughly washed with sterile water, and any scabs or crusts removed. A curette is then used to scrape away the slightly elevated ridges of epidermis and subjacent layers which represent the confluent eruption following the linear inoculation. This scraped material, or pulp, is thoroughly ground and comminuted in a mortar or a special machine while being mixed with a definite amount of about 66% of glycerine. When the process of grinding and mixing with glycerine has been completed, the vaccine is, as a rule, stored for at least a month before it is sold or dispensed free, as is done, for instance, in the German Empire. The usual dilution of the pulp with diluted glycerine is one part of pulp to three or four parts of diluted glycerine. The German Commission has shown that a dilution of 1 to 10 is equally efficient and that a dilution of 1 to 20 is still satisfactory in primary vaccination.[4]

From the outline here given there is more or less departure in different institutes. During a visit to a number of vaccine plants of the German Empire and Belgium, some years ago, I was struck with the variation in minor details presumably grounded upon the experience of the individual directors, all of whom had materially contributed to the advancement of the subject through laborious investigations. In some cases older animals are preferred, but, inasmuch as calves are more easily managed, since they have a more delicate skin, and especially since they can be fed on milk, or milk and eggs, in place of the dusty hay, they are generally used. Variations were also noticed in the time allowed for the development of the eruption, in the method of removal of the pulp, in the extent of the scarified area and in the amount of glycerine added.*

The use of fluid lymph dried upon ivory points has had and still has the favor of many practitioners in our country, because of the relative simplicity of the manipulation. After scraping or curetting for the preparation of the pulp, the serum which oozes from the base of the eruption may be used to charge the points. The usual way, however, is to wait longer, up to the seventh day after vaccination. The animal is then secured, the crusts covering the scarified area are removed, and the subjacent layer of cell débris wiped away. The lymph then oozes out, or its appearance may be hastened by compressing the base of the eruption. The fluid thus obtained is transferred to points in different ways and the latter allowed to dry.

It is of considerable interest to note that vaccine dispensed by different institutes is not derived from one and the same stock. There are three sources available:

(1) The virus descended from spontaneous cow pox and continued through an indefinite series of animals — the true animal vaccine.

(2) Virus obtained from animals which have been inoculated with lymph from human vaccine pustules, either directly, or indirectly through a series of calves. This is known as retrovaccine.

(3) Vaccine obtained by passing smallpox virus through the cow — the so-called variola vaccine.

It would probably be impossible for many vaccine plants to trace the genealogy of their current stock back to its beginnings. In Germany the use of lymph from the arms of children (retrovaccine) has been a favorite mode of rejuvenating impaired animal virus.

There has been a more or less heated discussion on the part of manufacturers in this country since the introduction of glycerized pulp, as to the relative efficiency and purity of the latter, and the fluid lymph dried on points, which it is slowly displacing. The controversy seems to me largely unnecessary. Both pulp and lymph are fundamentally the same, for both contain the microbe of vaccinia. Schulz of Berlin found that the clear fluid exuding from the human vaccine vesicle, when diluted in 2,000 parts of water, still yielded excellent results when used fresh.[4] Similarly the ordinary vaccine from calves produced vesicles in a dilution of 1 to 400. There are, however, several points of difference between the dried lymph and the glycerized pulp to which I wish to allude very briefly.

In the first place, it is highly probable that the vaccinal pulp is much richer in the specific virus than is the serum or lymph. This may not be of any significance at first, but with age the diluter virus, even in a menstruum of glycerine, becomes sooner inactive than a more concentrated virus. In the second place, the virus is less tenacious of life when dried than in glycerine. Its life is furthermore of uncertain duration. Bacteriologists know that the resistance of most bacteria to destruction, when in a dried condition, depends on a variety of factors, and what is true for bacteria is probably true for the microbes of vaccinia as well. Bacteria well covered by a dry film of albuminous matter, or embedded in dried mucus, live very much longer than those not so guarded. The resistance depends furthermore on the relative humidity to which they are exposed while in a

* For variations in the method of preparation in American plants see Dr. Pitfield's exhaustive paper in Public Health, July, 1902, p. 157.

dried state. These conditions necessarily fluctuate more or less in the case of points, and make their life period uncertain. Again, the elimination of extraneous bacteria does not proceed in the same way in the dry and the glycerized virus. In the former, the evidence points to a more or less parallel destruction of both vaccine virus and bacteria. In the latter, the vaccine virus possesses much greater resistance to the glycerine than the sporeless bacteria.

These facts in general speak in favor of the glycerized pulp as a more certain and more abundant source of vaccine.* But efficiency is not the only desideratum. Purity and safety are of still greater importance. This brings us to a consideration of the

BACTERIOLOGY OF VACCINE.

For much of the work done on this subject we are indebted to Europe, especially to the German Commission already referred to.[3] Since only the glycerized pulp is used on the Continent, our information is more extensive and detailed in regard to it. It has been known for some years that the fresh vaccine contains large numbers of bacteria. Up to 700,000 per cc. have been found. When 50 to 70% glycerine is added, these bacteria are slowly destroyed. After one month the number is greatly reduced. After two or three months the vaccine may be regarded as sterile. In the meantime the vaccine virus remains intact up to six months after preparation, and even longer. The bacteriology of the fluid lymph used for points has not been thoroughly studied, at least such studies have not seen the light to any extent. Though one might suppose that this fluid, presumably poorer in vaccine microbes, would also contain fewer bacteria, the recent report of Rosenau[5] does not support such inference. Of 41 points examined, an average of 4,807 bacteria per point was found. Of 51 tubes of glycerized virus an average of 2,865 bacteria per tube was found. His statement that the glycerized virus was too fresh when put upon the market seems warranted by his results, for a sufficient percentage of glycerine acting for four to six weeks should have reduced the number of bacteria below this level. The points, on the other hand, cannot be benefited by time, since the dried virus itself becomes uncertain after two months.

The micro-organisms we are now considering are largely harmless saprophytes, which are in part inhabitants of the normal skin of the calf, in part extraneous invaders of the eruption. The intimate seat of the local disease remains free from bacteria, and none have been found in sections of the vesicles until the seventh day.[3] They permeate the superficial scab in large numbers. Among them are found fungi and yeasts, spore-bearing bacilli of various kinds, cocci generally classed as staphylococci, *B. pyocyaneus*, and, very rarely, streptococci, together with a great variety of undetermined forms. The untoward effects of vaccination, as occasionally seen in large reddened areas around the vesicle, extensive infiltration and induration of the base of the latter, together with suppuration and the formation of large ulcers, have been, as a rule, ascribed to these bacteria. About seven years ago the German Commission[3] undertook to determine what, if any, relation existed between them and the severer forms of inflammation associated with vaccination. The outcome of prolonged studies of the effect of various vaccines was, that the contained bacteria had little or no effect upon the reaction. A bacteria-free vaccine might in one case produce extensive erysipelatous inflammation, while a vaccine containing many bacteria, among them so-called staphylococci, might have no effect whatever. The examination of excised portions of erysipelatous skin failed to reveal the anticipated streptococci. The cause of these variations was the individual susceptibility or idiosyncrasy of the child, which reacted alike to vaccine, whether sterile or containing numerous bacteria.

In estimating the effect of the pyogenic bacteria of animal life upon the human subject, we must be cautious about making assumptions that they readily produce disease in man, before we have more definite proof. In the meantime, however, no pains should be spared in removing, as far as possible, all organisms whenever this can be done without impairing the vaccine virus. Such a reduction of the miscellaneous bacteria has been attempted by variously modifying the details of the process of producing vaccine. Pads of gauze and cotton have been applied by Schulz over the scarified skin of the calf with signal success in some cases.[4] Recently Paul,[6] of the Austrian vaccine institute, has introduced, under the trade name of tegmin, a covering made up of beeswax, gum arabic and lanoline, and containing 5% zinc oxid,* which is now undergoing thorough tests in Europe. The careful application of disinfectants to the inoculated area, both before vaccination and before collecting the pulp, is growing in favor. Some have tried without much success to remove the superficial scabs or so-called sloughs, the bacteriological *corpus delicti*, before scraping away the pulp. Extensive experiments were made by the German commission to remove the bacteria by centrifugalizing and sedimenting the diluted pulp. The results were very good, but the vaccine lost so much of the specific virus at the same time that its keeping qualities became impaired. It is probable that by a combination of these improved details a bacteria-free vaccine may be obtainable in the near future, even without awaiting the bactericidal action of the glycerine.

* Information recently received from four large private vaccine establishments in the United States, in answer to some questions addressed to them, shows that only one of the four adheres to the use of the fluid lymph and condemns the use of the glycerized pulp. The others regularly use the pulp which is (*a*) mixed with glycerine and preserved in sealed tubes or other closed receptacles, (*b*) used to charge points without the addition of glycerine, and (*c*) used to charge points after glycerine has been added. The firm preparing the clear lymph dispenses it in the form of dried points and in tubes after glycerine has been added. I am, furthermore, informed that the demand for the fluid vaccine has been much greater than for the dry points.

* Actual composition not published.

The possible contamination of vaccine with the spores of tetanus bacilli has created consternation among those who see in vaccination one of the greatest safeguards of a dense and constantly intermingling population. The appearance of a number of cases of this dread disease in widely separated localities about three weeks after vaccination naturally enough called attention to the vaccine. But the condition is so rare — practically unknown in Germany, the most thoroughly vaccinated nation — that a second thought and a consideration of the carefully collated cases, so far as obtainable, make the suspicion seem unfounded.[7] [8] The whole subject is so new that few data are at hand upon which to base any inference. Careful investigations will be necessary to determine to what extent, if at all, tetanus spores may germinate and multiply in the vaccinal eruptions of the cow, so that the conditions may hereafter be promptly met. If it should appear that vaccine may be responsible for tetanus, only some unusual accident or gross negligence will explain its rare occurrence.[9]

We have thus far considered only the miscellaneous contaminations of vaccine. The objectionable agents due to definite diseases of the cow are few and easily eliminated. Among them, tuberculosis and diarrhea are perhaps the only ones I need mention here. Tuberculosis is comparatively rare in calves, and it may be easily excluded by the custom now prevailing in Europe and, I believe, in our best American vaccine plants, of killing the animal after the vaccine has been collected, and making a careful post-mortem examination. If disease is found, the vaccine is rejected. It has been claimed recently by some that tuberculosis is hardly worth considering as a source of danger in vaccine. It is true that the chances that tubercle bacilli may be in the vaccine are slight. It is also true that bovine tuberculosis does not appear today as the great danger to man which it was formerly pictured to be, but, as I stated recently in another paper, inoculation of bacteria is a process quite different from eating and enhaling them. A vaccination wound may favor tubercle bacilli which might be unable to find a foothold in the normal respiratory and digestive tracts. In short, no one will desire to use vaccine from which the suspicion of tuberculosis has not been removed when it can be done so readily. The tuberculin test, being not infallible, cannot take the place of the autopsy. The latter may at the same time reveal other pathological states which might pass unnoticed in the living animal.

### HOW CAN VACCINE BE SAFEGUARDED?

Vaccination being an operation prescribed by public authority, vaccine virus is placed in a position differing from that of any other medicinal agent. The State insists upon vaccinal protection, and justly so; but under existing conditions it can do little or nothing towards assuming any reponsibility for the quality of the vaccine used.

The testing or examination for purity and efficiency of animal products used in medicine is a problem of considerable difficulty. In the case of the antitoxins the task is somewhat simpler than for vaccine. There are to be considered (1) the animals yielding the product, (2) the process itself, and (3) the efficacy of the product as a protective agent. If the State should undertake to test the vaccine sold within its jurisdiction, it would be limited to such simple tests as the enumeration of the vulgar bacteria present and a microscopic examination of the vaccine itself. The animal test for stray tubercle bacilli would require four to eight weeks. The search for tetanus bacilli would be laborious and uncertain for small samples. Nothing could be inferred from such examination beyond, perhaps, the age of the virus and the original content of miscellaneous bacteria. No certain clue could be obtained as to the condition of the animals or the care used in preventing unusual and dangerous contamination. The protective power of the lymph could not be easily determined, owing to the many manufacturers and the large number of animals yielding the virus. In any case it would be impossible for the State to guarantee the purity of the many kinds of vaccine made within its border or sent in from without. The task would be enormously expensive and of uncertain value.

There are two ways out of the difficulty. One has been in vogue on the Continent for many years. Each small state or each subdivision of a large state assumes the responsibility of preparing the vaccine itself. I fully realize that in our country such public institutes, without the safeguard of absolute divorce from practical politics, without the loyal, unselfish support of the medical profession, and without adequate financial support, would, in all probability, be a disappointment. But granting these conditions as attainable, the advantages would be very great. There would be possible a close contact between the people using the vaccine and the institution preparing it. Its efficiency and safety would be subject to a continuous test at close range not obtainable otherwise.

Not less important is the advantage of publicity in improvements, as well as failures. There is a dearth of scientific publications upon vaccine in our country, which contrasts very unfavorably with the work done in Europe and the active interest manifested in the minutely detailed accounts of the vaccine institutes and the relative efficiency of their products, as announced annually by the German government. The advances made in this country in the preparation of antitoxins, for instance, have been published almost exclusively from laboratories under public authority.

According to the other alternative, the national government might appoint inspectors for the private vaccine plants, under whose supervision the virus is prepared, tested and officially stamped, just as all antitoxin sold in Germany is tested beforehand in large lots by government experts. The place where vaccine is tested most easily and economically, and where such testing would go

hand in hand with a corresponding improvement of the product, is at the source — where it is made.

In conclusion, I may say that the vaccine is but one of three factors which determine the success or failure of vaccination. The others are a satisfactory inoculation technique and the proper care of the wound afterward. These important factors are to be discussed by those who are to follow me on this program.

The following are some of the more recent publications referred to in the text:

1. Ch. Haccius. Variola vaccine. Contribution à l'étude des rapports qui existent entre la variole et la vaccine. Geneve, 1892.
2. Die Thätigkeit der im Deutshen Reiche errichteten staatlichen Anstalten zur Gewinnung von Thierlymphe während des Jahres, 1900. Berlin, Springer.
3. Bericht über die Impfstoffrage. Berichterstatter: Dr. P. Frosch. Berlin, 1896.
4. Zweiter Bericht. Berichterstatter: Vanselow und Freyer. Vierteljahrschrift für gerichtliche Medizin u. öffentliches Sanitätswesen. 1899, xvii, 93.
5. M. J. Rosenau. Dry points versus glycerinated virus from a bacteriologic standpoint. American Medicine, 1902, iii, 637.
6. G. Paul. Ueber einige Fortschritte in der Gewinnung des tierischen Impfstoffes und der Aseptic der Schutzpockenimpfung. Wiener med. Presse, 1898, p. 129.
7. R. N. Willson. An analysis of fifty-two cases of tetanus following vaccinia. Journal American Medical Association, 1902, xxxviii, 1147, 1222.
8. Joseph McFarland. Tetanus and vaccination. An analysis of ninety-five cases of this rare complication. Journal Medical Research, 1902, vii, 474.
9. Huddleston. Medical Record, March 8, 1902.

## VACCINATION: THE TECHNIQUE.[1]

BY EUGENE A. DARLING, M.D., CAMBRIDGE, MASS.

The two considerations which govern the technique of vaccination are that the operation shall be successful and that it shall be safe. Danger may come from the use of impure lymph, from unsuitable conditions in the patient, from infection at the time of the operation or during the development of the vesicle. A description of the technique therefore divides itself into four parts, as follows: (1) The selection of the lymph; (2) the condition of the patient; (3) the operation; (4) the after-treatment.

(1) *The selection of the lymph.*— This is perhaps the most important factor of all as regards both success and safety, and yet it is the one condition which is beyond the control of the physician. It is well recognized by bacteriologists that lymph taken directly from the vesicles on the calf contains many contaminating bacteria. When the lymph is dispensed dried on bone points a large proportion of these bacteria remain active. Probably most of them are harmless, yet the common occurrence of the pyogenic staphylococci and streptococci in lymph so dispensed constitutes a real danger. The use of glycerine as a slow bactericide has undoubtedly much diminished, if it has not wholly abolished the danger from this source; but the glycerinated lymph has certain disadvantages which have prevented its universal adoption, and many physicians still prefer the old unpurified lymph. The disadvantages of glycerinated lymph are the slowness with which it dries, and the difficulty which some have in making it "take." The latter may be due to too great dilution, since there are considerable variations in the proportion of successful vaccinations from different lots of lymph from the same source. However, with care in the insertion of the lymph and with proper protection while drying, the percentage of successful insertions may be very satisfactory, if not the 100% claimed by some producers.

In the absence of any feasible method of supervision by the health authorities, and of any practical test of the efficiency and purity of any given lymph short of actual inoculation of a susceptible individual, there must always be an element of uncertainty as to the care exercised in its preparation. There is no reason to doubt that many of the lymphs now on the market are prepared with due precautions, but this is certainly not true of all, and the physician has no means of discrimination. The State compels the child to be vaccinated, and should furnish the lymph for the operation, guaranteed to be pure and efficient. The reasons which justify the manufacture of diphtheria antitoxin by the State apply with even greater force to the production of vaccine lymph, and it is to be hoped that the present movement to place the control of this important matter in the hands of the State Board of Health will succeed.

(2) *The condition of the patient.*— The best age for the primary vaccination of healthy children is between three and six months, that is, after the child is well started in life and before it has begun the troublesome process of teething. At this period the constitutional disturbance is milder, as a rule, and the care of the child is much simpler than at a later age. In the case of delicate children, or of those suffering from some constitutional disease, the vaccination may be postponed at the discretion of the physician. Vaccination is contra-indicated when the child is suffering from any inflammatory skin disease, such as erysipelas or eczema, or when it has recently been exposed to any acute infectious disease, such as scarlet fever, measles, mumps or whooping cough. In time of epidemic, or when there has been an actual exposure to smallpox, vaccination may be performed as early as the first week of life, or in the face of circumstances which would ordinarily contra-indicate it, but in individual cases the decision as to its advisability must be left to the judgment of the attending physician.

There is considerable difference of opinion as to the proper time which should elapse before revaccination. In most cases children who have been vaccinated in infancy cannot be revaccinated successfully until after a period of eight or ten years. In Germany, where the matter has been regulated with great care, the law requires vaccination in infancy and revaccination at the age of twelve. The almost complete immunity from smallpox which Germany has enjoyed since the enactment of this law is attributed largely to the compulsory revaccination, and it is reasonable,

[1] Read before The Massachusetts Medical Society, June 19, 1902.

therefore, to recommend this practice. After two successful vaccinations it is not necessary to repeat the operation except in times of epidemic, when universal revaccination should be insisted upon. The plan which has been suggested, of repeating the vaccination at stated intervals, until there is complete insusceptibility, is theoretically correct, but is practically too drastic to be enforced, except in the case of physicians and nurses who are thrown into close contact with cases of smallpox.

(3) *The operation.*—The physician should remember that the operation of vaccination, though insignificant in itself, demands the observance of the ordinary rules of surgical asepsis. The hands of the operator and the skin of the patient should be surgically clean, and only a clean sterile instrument should be used for the scarification. With a little care it is possible to perform the operation without touching the skin of the patient with the fingers, and this source of infection may be entirely eliminated. The most convenient place for the insertion is the outer side of the upper arm. There is no objection to vaccinating on the leg in the case of girls, where it is desirable to avoid disfigurement; but in this location the after-treatment requires somewhat greater care to ensure protection and cleanliness. The skin of the patient should be washed thoroughly with soap and water, and afterwards with alcohol or ether, with enough friction to cause some reddening. This removes the superficial layer of the epidermis and dilates the cutaneous vessels, thus aiding in the absorption of the lymph. If there is any hair it is well to shave a small area, but this is rarely necessary. Antiseptics as a rule are not required. For the scarification the best instrument is an ordinary needle, which should be sterilized just before use by heating in an alcohol or Bunsen flame. The lymph may be placed on the skin first, and the scarification done through it, or the skin may first be scratched and the lymph then well rubbed and pricked in, the needle being used for this purpose. It is better to make three or four small insertions than one large one. A scarification no larger than an eighth of an inch in diameter will produce a vesicle and cicatrix from one-quarter to one-half an inch in diameter. When several insertions are made they should be at least an inch apart. If placed too near one another they are liable to coalesce and form a single large vesicle, which is much more likely to be injured than several small ones.

(4) *After-care.*—The arm should preferably be left bare until the lymph has dried. If glycerinated lymph has been used, this may take a considerable time — an hour or more — and in office practice this may cause much inconvenience. When this long wait is impracticable, it is permissible to use a shield for temporary protection. The best shield for this purpose is one of the light linen or paper forms, porous or perforated, and stiff enough to resist crushing. This may be held in place by two or three small strips of plaster. The shield may be left on for a few hours, and should then invariably be removed. The subsequent dressing should be the simplest compatible with cleanliness and adequate protection. It is sufficient for the first five days to wind a strip of sterilized gauze, or a clean handkerchief, about the arm and hold it in place by pinning it to the under-garment. After the vesicle has formed, this same dressing is still sufficient in most cases. If there is danger of breaking the vesicle, or if the patient is inclined to scratch it, it may be well protected by a cocoon of absorbent cotton and collodion. A very comfortable dressing may be made by using two square pads of folded gauze, one three inches in diameter and the other a little smaller. The larger one has a hole cut in its centre large enough to include the vesicles, and is held in place by two strips of zinc oxide plaster. The smaller pad is then pinned on so as to form a lid over the hole. This dressing has the advantage of permitting the inspection of the vesicles without disturbing it. If the vesicles break down and suppurate, they should be washed daily with boiled water or a mild antiseptic, and kept bandaged with sterilized gauze. If the itching is intolerable, a little aristol or some other mildly antiseptic powder may be dusted on. Occasionally a scab forms having a few drops of pus under it and some edematous granulations. Such a scab should be carefully removed, and the granulations should be cut off with a pair of flat-curved scissors. This proceeding is entirely painless and leaves a clean, healthy surface, which usually heals rapidly under mild antiseptic treatment.

Shields as permanent dressings are to be condemned, without exception. The transparent celluloid ones, which have been used so widely of late, are especially bad. If insufficiently ventilated they confine the perspiration, and this macerates the skin of the enclosed area, making it more or less red and edematous. If the sides are perforated, to allow the free access of air, lint is rubbed off from the inside of the undershirt and accumulates inside the shield. Sometimes this lint forms a feathery mass, looking much like a growth of mould. It is, of course, not sterile. Furthermore, the circle of plaster, which is employed to hold the shield in position, is very irritating to delicate skins, and often causes an eczematous eruption which greatly increases the discomfort of the patient. The only advantage which shields possess is their stiffness, which affords more protection against injury to the vesicles than a simple bandage, but this advantage is wholly counterbalanced by the disadvantages mentioned.

The simpler the after-treatment, the more likely it is to be carried out. The physician should always give detailed instructions to the patient, or, if the latter is a child, to the parents or nurse. This precaution is often neglected by the busy practitioner, or the instructions given are so general as to be of little value. Emphasis should be placed on the importance of cleanliness and pro-

tection from injury. The patient should be warned not to scratch the arm nor to prick the vesicles. He should also be cautioned not to apply vaseline or any other greasy substance to relieve the itching, as this softens the epidermis and may cause the vesicles to break down and suppurate. Ignorance and carelessness on the part of some patients are unavoidable, but personal attention to details on the part of the physician will do much to obviate this source of danger. The responsibility resting upon the physician in this matter is not a light one. If mishaps occur he is always blamed, whether justly or not. The sources of danger, as already pointed out, are not entirely under his control, but it is his duty, as well as his interest, to observe every precaution which will minimize the danger of vaccination, and yet afford his patients that immunity from smallpox which is one of the greatest blessings conferred on mankind by the art of medicine.

DISCUSSION.

Dr. J. H. McCollom of Boston: I heartily coincide with Dr. Darling's ideas, and it seems to me that he has brought out some very interesting points.

Having had a large experience, both before and after the epidemic of last fall and winter, I must confess that I think the majority of sore arms are due not so much to the carelessness of the individual, as to the physician in not giving sufficient directions.

## VACCINATIONS: ACCIDENTS AND UNTOWARD EFFECTS.[1]

BY JOHN H. MCCOLLOM, M.D., BOSTON.

In this paper no attempt will be made to prove the protective power of vaccination, a self-evident proposition, neither will anything be said regarding the technique of vaccination, these subjects having been ably treated in other papers presented to the society today. It must be taken for granted that vaccination is an operation, and that any operation, no matter how slight, may be followed by injurious effects, if there is carelessness in its performance or in the subsequent care of the wound. When we take into account the immense number of individuals vaccinated each year and the remarkable rarity of any serious results, the wonder is, if vaccination is such an injurious procedure as is claimed by its opponents, that there are not more disastrous effects. Many of the alleged injurious effects after careful investigation have been proved to have no connection with vaccination either directly or indirectly, but have been shown to be due to carelessness on the part of the individual.

It has been alleged that syphilis is frequently caused by vaccination. While this may have been possible in certain rare instances when humanized lymph was used, it is impossible when bovine lymph is employed. It has happened to the writer in several instances to investigate alleged occurrences of communication of syphilis, but in each case careful investigation revealed the fact that the individuals were suffering from the primary lesion of syphilis at the time they were vaccinated, and that vaccination was used as a cloak to cover this condition. As an illustration of the manner in which vaccination is unjustly accused of conveying syphilis, Dr. Cory, in his "Theory and Practice of Vaccination," describes very aptly the following case of a child whose father contracted syphilis shortly after his marriage. Dr. Cory says:[2] "It was the second child of the marriage; the first died within a very short period of birth. This child, being apparently healthy, was vaccinated at St. Thomas's Hospital in 1878. It was duly inspected, and was brought again with the eruption, which first appeared on the tenth day after vaccination. This is a very good example of the cases of alleged syphilis after vaccination. It is so tempting for parents to lay the results of their own iniquities upon vaccination, especially when they are encouraged so to do by shameless agitators. To enable us to view the truth of these allegations against vaccination, we will suppose a man to have had syphilis and to play a game of football; he receives a kick on the shin, and in due course a syphilitic node may develop from the bruise. The man would be as entitled to say he acquired his syphilis from playing football as a parent of a child who has had syphilis would be to say that the child acquired its syphilis from vaccination."

Erysipelas may follow vaccination, but there is no proof that the specific organism of this disease is in the vaccine lymph. Erysipelas also frequently follows the scratch of a pin or any slight abrasion, but this is no argument against vaccination but it is an argument for the careful protection of the vaccine vesicle. Urticaria may follow vaccination just the same as that the ingestion of fish and other food may also cause this troublesome eruption. Impetigo contagiosa sometimes appears after vaccination, but as impetigo is an extremely common disease, there is no proof that the vaccination is the cause of this manifestation, as the disease is fully as frequent among children who have not been recently vaccinated as among those who have been recently vaccinated.

Abscesses in the axilla may follow a vaccination, but this condition is extremely rare, and in my experience it has always been due to some carelessness on the part of the individual.

The site of the vaccination may slough, but I have never seen any serious result other than a somewhat tedious healing follow this condition. When this sloughing takes place it is always due either to a diminished vitality of the individual or carelessness in using the arm.

It is doubtful if cutaneous tuberculosis is ever communicable by vaccination, but the abraded surface if brought in contact with the sputum of a tuberculous patient may be infected. This is only another argument in favor of carefully protecting the site of the vaccination. As illustrating how the abraded surface may become

[1] Read before The Massachusetts Medical Society, June 10, 1902.

[2] Lectures on the Theory and Practice of Vaccination. By Robert Cory, M.A., M.D., Cantab., F.R.C.P., London, p. 65.

infected with micro-organisms the history of the following case is of interest. A child four years old was vaccinated with bovine lymph in the usual way. The vaccine vesicle passed through its regular stages and in due process of time the crust separated, leaving a slightly abraded surface. Shortly after this a small patch of a membrane having the clinical appearance of a diphtheric membrane appeared on the abraded surface. Cultures taken from this membrane revealed the presence of the bacilli of diphtheria. The child was not seriously ill, and after a short time the membrane disappeared. Investigation proved that a sister of this child was suffering from a mild attack of nasal diphtheria, as proved by a bacteriological examination, and no doubt infected the vaccinated patient with the micro-organism of diphtheria. Certainly vaccination of itself could not have caused diphtheria. If diphtheria can be communicated in this way certainly tuberculosis may be.

Within the past year there have been several instances in the country of tetanus alleged to have been communicated by vaccination. It is a matter of very great doubt if the vaccine lymph, unless prepared with a total lack of care such as is incomprehensible, ever contains the bacillus of tetanus. Dr. Joseph McFarland has investigated this subject very carefully and throughout the whole extent of the country he was unable to collect more than ninety-five cases. Considering the immense number of people vaccinated during the past year, if the lymph was at fault, it is hard to understand why there were not more cases of tetanus. An equal number of injuries with a toy pistol or a rusty nail would be followed by a vastly greater number of cases of tetanus. The conclusion which Dr. McFarland reached in his exhaustive paper are as follows:[3]

(1) Tetanus is not a frequent complication of vaccination, a total of ninety-five cases having been collected.

(2) The number of cases recently observed is out of all proportion to what has been observed heretofore.

(3) The cases are chiefly American and occur scattered throughout the eastern United States and Canada.

(4) They have nothing to do with atmospheric, telluric or seasonal conditions.

(5) They occur in small numbers after the use of various viruses.

(6) An overwhelming proportion has occurred after the use of a particular virus.

(7) The tetanus organism may be present in the virus in small numbers, being derived from the manure and hay.

(8) Occasionally the number of bacilli becomes greater than usual through carelessness or accident.

(9) The future avoidance of the complication is to be sought for in greater care in the preparation of the vaccine virus.

[3] The Journal of Medical Research, May, 1902, vol. vii. No. 4, p. 592.

During the past year there have been eighteen instances of dermatitis herpetiformis in Boston and vicinity following vaccination, and it has been alleged that this disease was due to vaccination. While it is perfectly true that these attacks followed vaccination there is no proof that vaccination caused them, as this disease has been observed in many cases where the individuals had not been vaccinated. Attacks of this disease occur after confinement and are described in works on dermatology. One instance of this kind has come under my notice. Several other cases which could have no possible connection with vaccination have also been observed. I must confess that I have been unable to gain any light on the etiology of this disease. The following account of the autopsy on the body of a man who died from this disease, taken from the records of the Pathological Department, Boston City Hospital, where the autopsy was made, may be of interest. It must be borne in mind that although the man had been vaccinated some five or six weeks previous to his illness, there was no irritation at the point of inoculation and nothing to indicate that the vaccination had anything to do with the disease.

CLINICAL DIAGNOSIS, DERMATITIS HERPETIFORMIS.[4]

Autopsy, thirteen hours post-mortem. Age forty-two years. Body length, 174 cm. White man, strongly built, fairly nourished. Body warm. Some rigor; lividity of dependent parts; pupils normal and of equal size; no edema. Scalp covered with scaly crusts. Corners of mouth and nose thick with dark clotted blood. Exudate on lids, and left lid discolored. Over clavicles a large excoriated dark red area on either side, irregular, not deep, showing thin crusts at borders and over part of its surface. The whole back from neck to fold of buttocks a mass of similar dried lesions. These areas also are distributed over chest and in axillæ and groins. Surface of the palms show scaly crusts. Nowhere are there vesicles or blebs, all the lesions being dry. Lower legs free except lesion size of a quarter over head of left fibula and one over left outer surface of leg above malleolus. Deepest excoriations appear to be over coccyx, centre of back, and right buttock. Elbows, outer side of right and inner aspect of left running up to above deltoid tubercle show deep involvement with lesions similar to those described above.

*Peritoneal cavity.*— Appendix lies behind the cecum, is curled in a "watch spring" spiral, has no mesentery, is 6 cm. long and is adherent to the cecum. Mesenteric lymph-nodes are normal. Diaphragm extends to fifth space on the left side, fifth rib on the right side. There is nothing notable on the peritoneum covering the intestines, stomach or parietes.

*Pleural cavity.*— On removing the sternocostal trap the lungs bulge forward prominently, nearly meeting in the median line and partially obscur-

[4] Taken from Records of Pathological Department, Boston City Hospital.

ing the pericardium. The lungs are everywhere free save for a few fibrinous shreds, stretching from the left lower base of the underlying diaphragmatic pleura. The left pleural cavity contains about 30 cc. straw-colored clear fluid.

*Pericardial cavity.*— The pericardium is everywhere normal. There are about 25 cc. of straw-colored clear fluid in the cavity. Pulmonary artery opened *in situ* contains white elastic non-adherent clot.

*Heart.*— Normal size; a trifle flabby. Cut surface of myocardium is brownish red. Endocardium presents the tiger-lily picture. With the exception of the mitral, the valves are normal. The mitral segments are retracted, and thickened irregularly at the borders; the chorda tendinæ are shortened and stiffened. Coronaries normal. Frozen section of the myocardium shows minute fat droplets in the intrafibrillar sarcoplasm.

*Measurements.*— Tricuspid valve, 12.5 cm.; pulmonary valve, 7 cm.; mitral valve, 9.5 cm.; aortic valve, 7 cm.; left ventricle, 1.5-2 cm.; right ventricle, 5 cm.

*Lungs.*— Pleura smooth, dirty gray in color, with usual carbon tracery. Right lung voluminous; on section marbled by alternating areas of bright red and gray; the great part crepitant, but throughout are firm airless areas somewhat granular. In places fine bubbles of air or dirty puriform fluid exudes on pressure.

*Left lung.*— Upper lobe similar to right lung except for fewer areas of hyperemia and more edema. Lower lobe solid, airless. The diaphragmatic surface of this lobe is roughened by yellowish fibrinous tags. Section at this point leads into numerous small cavities near the surface filled with extremely foul-smelling greenish necrotic material, smear from which shows numerous lanceolate cocci in pairs and short chains, smaller flattened cocci in chains and a stout bacillus all staining by Gram. The remainder of the lobe is dirty reddish gray in color, firm, moist, with a certain tenacious, almost mucoid exudation on the cut surface admixed with numerous air bubbles. A section sinks in water.

Beginning with the primary bronchus, the bronchi everywhere throughout both lungs are filled with a dirty gray, at times blood tinged, offensive mucopurulent exudation. The bronchial lymph-nodes are deeply pigmented and present nothing remarkable on section.

*Spleen.*— Weight 120 gm. Capsule wrinkled. Pulp soft, red-brown. Malpighian bodies appear as irregular spheroids of gray-white, measuring sometimes 2 mm. in diameter. Trabeculæ and blood vessels prominent.

*Liver.*— Weight, 2,320 gm. Surface smooth, yellowish red. Cut section yellow-red with occasional pale area. Markings fairly distinct.

*Pancreas.*— Normal.

*Kidneys.*— Weight, 390 gm. Capsule peels readily, leaving smooth surface. On section dark brownish red, markings regular, glomeruli evident. Cortex measures 7 mm. to 1 cm. Frozen section does not show fat.

*Adrenals.*— Rather large; normal in appearance on section.

*Bladder.*— Not remarkable. Prostate of average size; testicles pull out readily.

*Aorta.*— Normal.

*Organs of neck.*— Pharynx rather injected and granular, but no sign of vesicles or ulcerations either about tonsils, uvula or tongue. The larynx and trachea are covered in irregular patches by a yellowish green mucopurulent material which in one place forms a narrow line extending from the larynx to the bifurcation of the bronchi. This substance is extremely tenacious, being removed with difficulty from the tracheal mucous membrane. Besides this the trachea contains a considerable amount of dirty gray semifluid material, which empties itself on section of the organ.

*Gastro-intestinal tract.*— The lesser curvature of the stomach shows a patch 6 cm. in diameter, composed of discrete and confluent tuft-like areas of capillary injection. A few small hemorrhagic spots observed elsewhere on mucosa.

Save slight injection of surface of rugæ at irregular intervals, the small intestine is normal. Colon shows slight injection in its upper part.

*Brain.*— Weight, 1,485 gm.; normal. Pial surface quite wet.

### ANATOMICAL DIAGNOSES.

Extensive lesions of the skin; gangrene of lung (left lower lobe); acute lobar pneumonia (left lower lobe); Bronchopneumonia (right lung, left upper lobe); acute bronchitis, tracheitis, laryngitis and pharyngitis; acute gastritis; hydrothorax; chronic mitral endocarditis; fatty degeneration of heart; acute splenitis; acute fibrinous pleuritis (left lobe).

While the result of this autopsy explains the cause of death, it does not throw any light on the etiology of the disease. So far as is known, the bovine species are not affected with any disease resembling in the slightest degree dermatitis herpetiformis. If vaccination was the cause of the cutaneous manifestation in this instance, it would be reasonable to suppose, considering the immense number of people who have been vaccinated in the past hundred years, that some physician would have recognized and reported similar cases. The literature of vaccination is sterile on this point.

In the Sixth Report of the Royal Commission of England, appointed to inquire into the Subject of Vaccination with Minutes of Evidence, and Appendices, the following statement is found:[5]

"It is true that in a considerable number of the cases examined for us the injury or death is reported to have been only indirectly due to vaccination. Insanitary surroundings and parental ignorance, or even parental neglect, are assigned in some cases as the causes of complications. But even in such cases it is clear that, apart from the

[5] Sixth Report of the Royal Commission at England, appointed to inquire into the Subject of Vaccination, with Minutes of Evidence, and Appendices. 6 & Final. 1896-1897.

vaccination, the contributory causes alone would not have produced the results admitted. An operation which for its safety requires complete sanitation, with care and skill on the part of every mother, would seem to be scarcely a fit matter for universal compulsion."

This paragraph was written by the opponents of vaccination after a most searching investigation, taking many months, and they were unable to bring forward a single instance of death due directly to vaccination. There is no mention of any case of dermatitis herpetiformis. If the cases to which allusion has just been made were the direct result of vaccination, the question very naturally arises, why have not these cases been observed in England as well as in this country?

In order to obtain the consensus of opinion of the members of The Massachusetts Medical Society, the following circular was addressed to each member of the Society:

BOSTON, April 15, 1902.

DEAR DOCTOR: At the next meeting of The Massachusetts Medical Society one of the subjects for discussion will be "Vaccination." I have been asked to collect statistics regarding its injurious effects. You will confer a favor on the society by answering the following questions.

Please mail as soon as convenient, in the enclosed envelope, your replies.

Yours truly,

JOHN H. MCCOLLOM.

To DR.———

(1) How long have you been in practice?

(2) How many individuals, approximately, have you vaccinated?

(3) What injurious effects, due to vaccination, have you observed?

Twenty-seven hundred circulars were mailed and replies have been received from 1,859 individuals. It was thought that in this way valuable information from a large number of physicians practising in different parts of the country could be obtained. The experience of 1,859 physicians whose professional life ranged from six months to sixty years, aggregating 29,631 years of practice and 2,525,083 vaccinations, would be valuable testimony for or against vaccination, so far as injurious effects are concerned.

In the replies from 1,701 physicians the statement is made that no injurious effect has followed vaccination. Moderately severe effects, in which the individuals were unable to attend to their business for four or five weeks, were reported in sixty-eight instances. In fifty-four instances there were extremely severe results of vaccination, namely, severe cellulitis, twenty-eight; erysipelas, nine; extensive sloughs, five; poisoning from the dye of underclothing, two; cases of dermatitis herpetiformis, six. In two instances where diabetic patients were vaccinated there were somewhat extensive sloughs on the arm, which eventually healed. There were two cases of syphilis alleged to have been contracted from vaccination. The deaths reported to have followed vaccination were thirty-five, namely, tetanus, eleven; erysipelas, four; dermatitis herpetiformis, twelve; septicemia, three. In two instances the cause of death was not given. In one case tuberculosis was alleged to be due to vaccination. In one instance a chronic nephritis was said to be exacerbated sufficiently by vaccination to cause the death of the individual, and one death came from pyemia. In regard to the deaths in six instances, the connection between the vaccination and the death of the patient was certainly problematical. Of the eleven deaths from tetanus two were certainly not connected with vaccination. In one of these cases, although tetanic convulsions were present, the autopsy proved the existence of tubercular meningitis. In the other there was a septic wound which it is reasonable to suppose may have become infected with the tetanus bacillus.

As illustrating the protective power of vaccination the following statement of a physician, who was a medical student in 1857, is of interest. This man, after having been vaccinated with humanized lymph, inoculated himself two or three times with virus taken from a patient ill with the smallpox, without any injurious results.

One physician who was a surgeon in the army during the Spanish-American war reports that the Eighth Massachusetts Regiment was revaccinated four times during a year, and also that the Forty-sixth Regiment was revaccinated seven times without causing loss of time on account of sore arms. A health officer in one of the cities of a neighboring state, reports that he vaccinated 30,000 individuals without any deleterious results.

The report from an institution where 1,500 prisoners were vaccinated without injury would seem to prove the innoxiousness of the operation.

In the United States navy a surgeon in the service reports 5,000 vaccinations without a single man being placed on the sick list. The reports from many of the smaller institutions also show a similar immunity from particularly sore arms.

During the past year a very large proportion of the attendants and patients at the Boston City Hospital have been vaccinated. I have carefully watched these vaccinations, and I have failed to discover any instance of marked discomfort to the individuals.

At the South Department during the year vaccination has been general. In no instance have the patients or attendants suffered anything more than a slight and temporary discomfort. It is certainly true that vaccination is unjustly held responsible for many manifestations which would occur in the natural course of events if the individuals had not been vaccinated. For instance, one physician reports a case of appendicitis occurring one week after the patient was vaccinated, and the same man also states that a patient who had been vaccinated four days previously developed an abscess of the face due to a carious tooth. It is due to this man to say that he did not attribute these occurrences to the vac-

cinations, but that the relatives and friends of the patients did.

Two instances of death following vaccination, occurring in a neighboring city and attributed by many of the friends to vaccination, are examples of the manner in which vaccination suffers. One was the case of a child who was vaccinated four days previous to a fall which caused a fracture of the skull, the other was that of a patient who died from pneumonia one week after vaccination. I have investigated some six deaths alleged to have been due to vaccination where there was no irritation of the arm, and the cause of death was, without a shadow of a doubt, due to gastro-enteritis.

If the reports of the 2,525,083 vaccinations are summarized it will be found that in 2,516,684 cases there were no injurious results; that in 68 instances there were moderately severe results; that in 54 cases extremely severe effects were noted, and that the deaths numbered only 35.

If 2,525,083 subcutaneous injections of morphia in ordinary doses were given there is no doubt that there would have been a much larger number of deleterious effects.

If there had been a simple scarification of 2,525,083 arms there certainly would be nearly as great a number of cases of cellulitis and erysipelas as has been found after vaccination, and there is no doubt that there would have been a certain number of deaths due to the abrasion of the cuticle.

It would seem, therefore, both theoretically and practically, judging from the reports of 1,859 physicians, that the following conclusions are justifiable: (1) That vaccination should be carefully done with aseptic precautions; (2) that the after-treatment of the site of the scarification is very important in preventing cellulitis, erysipelas and tetanus; (3) that vaccination when carefully done with properly prepared lymph is a harmless procedure.

DISCUSSION.

Dr. Francis D. Donoghue of Boston: The case I wish to report is of extreme interest from the fact that without operation a fatal case of peritonitis might have been recorded as attributable to vaccination. The case occurred in the practice of Dr. R. P. Loring of Newton Centre, who conducted the post-operative treatment, and to whom I am indebted for notes of the case, and was seen and operated upon by Dr. Mixter, who has permitted this report.

Female, age three years and eight months. Was vaccinated on the left leg, Oct. 25, 1901. The vaccination pursued the usual course for a successful take.

On Nov. 4 she was taken with pain in the abdomen indistinct in location. There was rather more tenderness in the right iliac region than elsewhere, occasional vomiting. Pulse 140, temperature 104°.

Nov. 5: No change. Nov. 6: Seen by Dr. Worcester of Waltham, in consultation with Dr. Loring. Symptoms same as on 4th, pulse 120, temperature 103°. Nov. 7: Seen by Dr. Mixter. Not much change in the condition. Glands in left groin slightly enlarged and tender, but there were no localizing abdominal symptoms. On account of the indefinite nature of the symptoms no operative interference seemed indicated. Nov. 9: Condition about the same, except for some rigidity of the right rectus muscle. Temperature 104°, pulse 140.

Longer delay did not seem advisable, and laparotomy was performed. Incision was made through right rectus muscles, and a gangrenous appendix was found in a partially walled-off cavity containing pus. Culture taken showed pure colon bacillus. Appendix removed, incision closed and gauze drainage. Convalescence uninterrupted.

Dr. G. H. French of Dorchester: I would like to ask the writer how he would consider the question of vaccinating a person who had at the time some acute febrile disease. Would it be safe, for instance, to vaccinate a patient sick with a severe attack of the grippe?

Dr. McCollom: In answer to the question, I would say, if the patient has been exposed to smallpox, I should certainly vaccinate. I speak with some assurance, because I have vaccinated patients in the South Department with scarlet fever and diphtheria during the acute stage of these diseases, and have seen no ill effects from so doing.

One point which I would like to have brought up here is the vaccination of pregnant women. It seems to me very important.

## SMALLPOX: ITS DIAGNOSIS.[1]

BY JOHN T. BULLARD, M.D., NEW BEDFORD, MASS.

In many cases the diagnosis of smallpox can be made at once from the eruption itself and without hesitation, while in others the decision can be made with certainty, but only after a few days of observation. It is in the milder and modified forms of smallpox, however, that considerable difficulty or even impossibility in making a correct diagnosis occurs, and it is through these patients that the disease is usually transmitted to a large number of others. It becomes often a most difficult matter for a health officer, called in perhaps for the first time in the stage of desquamation, to decide from the imperfect history he is usually able to glean, whether the case has been one of smallpox, should be immediately removed, a large number of people quarantined, or whether the malady has been a varicella and no precautions are demanded.

It should be borne in mind that several facts beside the eruption are of value, and should receive consideration in each case.

The first question that should be asked is: Has the patient in any way been exposed to smallpox? In epidemics where exposures can be easily traced, we are enabled to decide very early in the disease what we have to deal with, and are justified in sending our patients early into quarantine, thereby lessening the danger to others. While the history of exposure cannot, many times, be ascertained, it is well to remember that no case of smallpox originates *de novo*, and careful questioning may reveal some friend or neighbor who has had a recent eruption, and investigation of the latter case may throw considerable light upon the one under consideration.

Secondly, has the patient been vaccinated, and if so how recently? In an epidemic of about 175 cases in New Bedford in 1900, nearly all occurring in French-Canadians, 95% of the victims were unvaccinated, and in many households the

[1] Read before The Massachusetts Medical Society, June 10, 1902.

unvaccinated were affected and those vaccinated escaped. A pertinent question also is, "Has the patient ever had chicken pox?" Age also has some diagnostic value. While chicken pox is essentially a disease of childhood, smallpox attacks all ages equally.

Next come the constitutional disturbances which occur before the eruption. Notice the sudden onset, the rise in temperature, rigors or chills, often nausea and vomiting, severe frontal headache, and backache,—in fact, the usual symptoms of any acute febrile disorder. All writers lay especial stress on the severe and peculiar backache corresponding to the lower dorsal, lumbar and sacral vertebræ, and some state that it is hardly ever absent, and is almost pathognomonic.

Especial care was taken by the writer and his associates on the health board to investigate this symptom during the epidemic above referred to, with the result that they found it not at all a prominent symptom, being absent entirely in many cases, and in others complained of as merely a dull aching low down in the back. Severe frontal headache was much more prominent and frequent. The consensus of opinion, however, points to backache as of considerable diagnostic value. In mild cases these prodromal symptoms may be present either with the same intensity as in the severe ones, or they may be greatly modified and not pass beyond a period of feverishness and malaise.

If a diagnosis is attempted at this stage, influenza must be remembered. The symptoms are very similar, and many errors have been made by both physician and patient thinking that the case was one of grippe, the patient being discharged before the appearance of the eruption.

During the stage of invasion, usually on the second day, in a small proportion of cases a so-called initial rash of two different forms may appear, either erythematous as a scarlatina or blotchy as in measles, and may lead to an error in diagnosis; although sometimes general, as a rule they affect only the lower part of the abdomen and inner surfaces of the thighs, usually are transient, fading away in twelve to twenty-four hours. Here the diagnosis may be made of scarlet fever. The longer duration and the severity of the premonitory symptoms, the unusual location of the rash, the duller red color of the erythema and the absence of severe angina and enlarged cervical glands should enable the physician to at least lean toward smallpox. Erysipelas should be borne in mind, but its method of spreading and its peculiar glazed appearance do not offer serious difficulty in recognition.

In the papular form of initial rash, we have a certain similarity to measles. The catarrhal symptoms of measles are not prominent in smallpox. These prodromal rashes last only a few hours, and are not a serious obstacle to diagnosis.

The true eruption itself must now be considered. On the fourth day macules appear on the forehead, around the roots of the hair, and about the mouth, nose and eyes, the temperature drops to normal, and in mild cases may remain so until the end of the disease. I know of no other disease where the temperature curve acts like this. These macules become papules and indurated, and by the next day present to the touch a shotty feeling, due to the anatomical arrangement in the skin. These lesions by the next day or two appear on the trunk and extremities, the feet being the last part affected.

Then follow the vesicles, at first minute and then larger, then umbilication, and about the sixth day of the eruption pustules, suppuration, fever, and lastly dessication, taking place first in the centre of the pustule and finally the transformation into a dark brown or blackish crust.

This eruption may be discrete or confluent. It may also be hemorrhagic when ecchymoses appear in the skin and conjunctivæ in the prodromal stages and into the lesions themselves afterwards.

These are the so-called "textbook cases" and can be quickly passed over as the diagnosis is readily made, and we will consider the milder cases and with what diseases they may be confounded.

In so-called varioloid, called also modified smallpox and pseudo smallpox, occurring especially in the vaccinated, and in certain recent epidemics, the errors in diagnosis are frequent, and the fact that in many cases the services of a physician are not called for, does much to favor the spread of the disease. The erythematous initial eruption is mentioned as being more often met with in the milder epidemics, but in our experience it was seldom met with, or if present was of so transient a nature that it escaped observation. To add to the difficulty of diagnosis the eruption often is abortive, going no further than the papular stage; or it may progress to a small vesicle which soon shrinks; or may become seropurulent, stop there and dessicate. We had two cases that were surely smallpox, in which after some severe constitutional symptoms the eruption never developed at all.

There are many cases where there is no secondary fever, and the patient is convalescent after the appearance of the eruption, which may be extremely scanty.

I had the opportunity to see one case recently where with moderate prodromal symptoms the rash was limited to a few lesions on the face, perhaps half a dozen, only two of which became pustular. A few papules appeared on the chest on the following day. These lesions quickly dried up, but there was considerable induration, and knowing the exposure and history of the case there was no doubt that the disease was smallpox, occurring in a man who had been successfully vaccinated some eight years previously. Here, without the history, the diagnosis would have been extremely difficult.

What eruptions are liable to be confounded with smallpox?

*Pustular eczema.*—This may at first deceive the practitioner. The history of the case, includ-

ing absence of constitutional symptoms, the absence of throat symptoms, and the distribution of the rash, should enable the physician to make a diagnosis. There is also a lack of well-defined progressiveness to the lesions. The vesicles and pustules are small and arranged on an inflamed base which is larger than the papule of smallpox.

*Syphilis.*— The similarity is often so close as to deceive even the most experienced. There is an identity of anatomical forms and also of evolution through the stages of papule, vesicle and pustule. Hutchinson says: "The simulation of the variolous eruption by syphilis is the most marked example of syphilitic imitation. The papules are elevated, shotty to the finger, have depressed centres, affect the same regions as smallpox, and resemble it so absolutely that nothing but the history of the case can help the surgeon to a correct opinion."

Added to this often occur a high fever and well-marked umbilication. To distinguish this from smallpox we must rely upon the history of the disease and the presence of other signs of syphilis and the constitutional symptoms. In most cases of syphilitic eruption there are flat, copper-colored, scaly papules along with the vesicles, and the rapid changes which occur in the smallpox lesions are not present in syphilis. The temperature as a rule does not drop with the outbreak of the eruption.

*Impetigo.*— During the recent epidemic, many cases of impetigo were reported to our local health board. In some cases the diagnosis was made with difficulty, inasmuch as many of the smallpox cases assumed a bullous form of eruption.

The constitutional symptoms of smallpox are lacking, there is but little surrounding infiltration, the lesions rising abruptly from the surface much as in the blebs of pemphigus.

In impetigo contagiosa the lesions rarely exist in numbers, have more crusting than in smallpox, and the constitutional disturbance is slight.

While *Acne* should present no difficulty of diagnosis from smallpox, the writer desires to report a case where an error was made by attempting to make a snap diagnosis.

In January last, a man walked into the New Bedford Board of Health office stating that he had smallpox, and desired to be sent to the hospital. He added to his unusual statement that he had had smallpox twice before, once ten years and once six years previously. As an immune he had been nursing smallpox for the last month in a neighboring city, and left there two days before, and had come to New Bedford for employment. He gave no history of backache, fever or headache, but said for the last few days he had not felt well and knew he had the smallpox, pointing to his face as evidence. On the face were several characteristic lesions of acne, and in addition four small papules, two upon the forehead and two upon the cheek. These papules were not indurated. There was nothing else upon the body. There was nothing upon the mucous membrane of the throat. The temperature was 98.2°. Taking into consideration the man's statement of having had smallpox on two previous occasions, the absence of constitutional symptoms and the presence of acne, the writer considering he had to do with one of those persons who whenever he has been exposed to a disease thinks he has contracted it, flatly refused the man's request to be transferred. His address was, however, taken, and two days later the man was found sick with smallpox which proved to be of average intensity. The eruption when seen must have been only a few hours old.

In addition to the period of the prodromal rash already spoken of, measles are sometimes mistaken for smallpox; the lesions in measles differ from the early papules of smallpox in their lack of induration, their remaining papular, and their method of spreading, as they have a tendency to occur together and to arrange themselves in corymbic groups with alternating paler spaces.

In certain cases the diagnosis between hemorrhagic measles and hemorrhagic smallpox cannot be made at once.

These, with certain drug eruptions arising from iodide of potassium, copaiba, etc., comprise about all the diseases that can be confounded with smallpox, except one, and that is varicella, which often presents many difficulties. Hebra and Kaposi always maintained that the two diseases were identical, but although this is not sustained by authorities in general, it only proves that in many epidemics there is great similarity between them. Let us for a moment consider the pathology of the two diseases.

In smallpox the lesion is in the stratum mucosum, the localized edema giving the characteristic shot-like hardness to the papule, and then as the vesicle is formed the cell-remnants are pushed together, forming many septa, dividing the vesicles into pockets and forming the so-called multilocular vesicle which at a certain stage cannot be completely emptied by a single pin-prick.

In varicella the lesion is superficial, the delicate septa, even if formed at all, are rapidly destroyed, and the vesicle is unilocular and can be completely emptied.

Notice should be taken first of the prodromal symptoms, usually slight in chicken pox and of more significance in smallpox, the sudden drop of the temperature to normal in the latter simultaneous with the outbreak of the eruption, while in varicella the temperature is not increased until the rash appears, and then usually rises one or more degrees.

The location of the rash — on the skin in varicella, under the skin in smallpox, soft in one, indurated in the other, rapidly developing in the former into vesicles, passing more slowly through the macular, papular, into the vesicular stage in the latter. In varicella the eruption often comes out in successive crops in the same region, while in smallpox there is uniformity of appearance, that is, papules, vesicles and pustules not being

present at one time in the same locality. In smallpox the eruption appears almost always first upon the face, in varicella more often the trunk or chest. Umbilication is usually present at some stage in smallpox; in chicken pox if present is limited to a minute area at the top of the vesicle.

Such in brief are the differential points. Corlett, in his excellent work on "Acute Infectious Exanthemata," from whose plates and text the writer has received much aid, says: "During the early part of an epidemic or in sporadic cases there are few physicians who may not be thrown off their guard and fail to recognize a mild form of variola. Especially is this the case when mild initial symptoms are followed by an eruptive stage in which but two or three lesions are present or when the eruption, likewise following the mild initial stage, goes through the various stages of development in quick succession, the whole process being complete within ten days or a fortnight."

As we learn more from errors than from correct diagnosis, the following two cases may be of interest:

In the epidemic in Bristol County among the French-Canadians in 1900, the eruption took on a peculiar form. The first case reported in New Bedford was in a man who had been sick for about a week, who had called in no physician. He was found with a bullous eruption practically covering the whole body. Two children in the family were playing in the adjoining garden covered with superficial crusts. They had been a little "feverish" about two weeks before, and their mother said they had spots like the father. It seemed as if the children had had varicella, and as if the father was having smallpox. The service of a gentleman from out of town well posted in contagious diseases was secured, and he diagnosed this case as well as others which developed in the neighborhood, as chicken pox, for the following reasons: (1) The large size of the vesicopustules, many being the size of a two-cent piece or even larger; (2) the absence of marked induration around them; (3) the contents being seropurulent rather than purulent; (4) the utter collapse of the lesion on a pin-prick, showing them to be at this stage unilocular; and lastly the very mild constitutional symptoms present when the eruption was so universal.

This proved afterwards to be the usual form taken by the disease during this epidemic, and was true smallpox in a modified form. Out of 175 cases at this time, nearly all unvaccinated, there were only three deaths, and yet it was a common sight to find in many cases the eruption so universal and thickly scattered that there was scarcely an area of unaffected skin large enough to put the finger-tip upon. It seemed to the writer that the reason of the vesicle being unilocular was that in these cases the evolution from papule to vesicle, and again to vesicopustule, was so rapid that the usual septa did not have time to form, or if they did were so weak that they became almost immediately destroyed.

The writer was called in recently to see a case of a girl aged ten who had had an eruption for ten days. Her mother said the child had been vaccinated twice within the previous twelve months, though unsuccessfully. This was probably true, as the public schools demand such vaccination. About ten days before, the child had not felt well for a day or so, and had an eruption of little "blotches," as the mother expressed it. These had dried up, and there remained at the time of my visit a number of flat lesions about the size of a pea well distributed over the body, no one area especially being involved, and covered with slight scaling. There had been no smallpox in this section of the city for over a year, and no chance of contagion which could be traced. No one else in the family was affected. Taking into consideration the history of the case as far as could be ascertained, the writer diagnosed the case as one of probable chicken pox, and diagnosed it chiefly on the lack of induration of the fast-fading lesions. A fellow practitioner who has had considerable experience with smallpox saw the case independently on the same day, and decided the disease had been chicken pox, and based his diagnosis on the total lack of induration. Ten days later we were called to the same house, found two children with slight papular rash and a third with a well-defined case of smallpox. It is such a case as this that shows the importance of following up closely all cases where there may arise even suspicion that smallpox may have been present.

In conclusion, it has been a source of comfort to the writer, and may be to some of his fellow practitioners, to read Osler's words on smallpox, printed in his edition of 1901. He says: "There may be epidemics, so mild in character that it must be confessed that the recognition of the nature of the outbreak is sometimes only confirmed by the appearance of a genuine case of the confluent or of the hemorrhagic form."

### DISCUSSION.

DR. A. N. BROUGHTON of Jamaica Plain: There is one thing which has been emphasized as characteristic of smallpox about which I am in doubt. It has been stated that in any given area all the lesions are of the same type. For example, if on the forehead there is a papular eruption, they are all papules, and no pustules. In a case which I saw a few weeks ago, the patient had a temperature of 103°, and a universal eruption which would make a perfect picture of syphilis. This eruption in the mouth as well as in the body was entirely papular, with the exception of two distinct vesicles on the forehead, and these appeared to me to be umbilicated. On the following morning I saw the case with an officer of the Board of Health, who thought it was probably not variola, especially as there were several vesicles on the abdomen, back and forehead, and yet, everywhere else were still papules. That afternoon Dr. Shea sent him to the hospital as a case of variola. I would like to ask Dr. McCollom if that statement is correct — that the lesions in a given area are all uniform?

DR. J. H. MCCOLLOM: In reply to Dr. Broughton's question, I will say that sometimes we do see on the abdomen, or in the inguinal region, or in the axilla, a pustular eruption, when the rest of the eruption is

vesicular. There is a great difference between modified smallpox and the unmodified variety.

Dr. T. B. Shea of Roxbury: I think something might be said in regard to varicella. Dr. Bullard said that this is a disease occurring essentially in children. During the past week I have seen several cases of varicella in adults. The textbooks pass this disease over very lightly by saying that it is a disease of childhood. Varicella is not a light thing in adults. The history looks a good deal like smallpox. The eruption does not appear for twelve or fourteen hours, and sometimes it commences on the forehead, as does smallpox. Now, as to the question of the eruption of smallpox in the beginning always being found on the face. That statement is not borne out by the experience we have had this past winter. I have seen about 1,300 cases since last August. In the early cases I usually look for the eruption on the abdomen. Also another place where the eruption may be seen very early — on the arch of the foot. You will often find a few papules occurring there before they occur on the face. No matter how the disease has been modified by vaccination, I think something will always be found there.

## Clinical Department.

### POLYHYDRAMNIOS: ITS DIFFERENTIAL DIAGNOSIS AND TREATMENT, WITH REPORT OF CASES.

BY EDWARD P. DAVIS, A.M., M.D., PHILADELPHIA, PA.

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Case I. A multipara, much depressed in general health, with rapidly increasing distention of the abdomen, the cervix tightly closed, dilated by an elastic bag, the membranes ruptured artificially and compression made by a broad bandage held across the abdomen by assistants. Eleven quarts of amniotic fluid escaped. The fetus presented in a transverse position and was delivered by podalic version. The placenta was removed, the uterus douched with antiseptic solution and tamponed. Abdominal compression was continued, the mother making a good recovery. The fetus had but little tissue in cord and brain. Both were rudimentary in character. It was otherwise well developed and stillborn.

Case II. A multipara, sent for removal of cystic tumor, supposed to be ovarian. During previous pregnancies had been well, during present pregnancy had much nausea and rapidly increasing distention of the abdomen beginning at the fifth month. Urine practically normal; blood showed slight anemia. On examination abdomen greatly distended; no fetal parts nor heart sounds could be found. Finger passed through the cervix detected small fetal head floating in fluid. Diagnosis of polyhydramnios was made, membranes were ruptured, and about two gallons of fluid were allowed to escape. Labor followed with twins, one of which had normal chorion and amnion with sac unbroken; the other had polyhydramnios. The placenta was large and edematous; the veins of the cord of one twin greatly enlarged and tortuous, and the tissue of the placenta and cord was granular with areas of cystic degeneration. The mother recovered well.

Case III. Primipara, previously well. During early pregnancy excessively frightened by lightning. Was at the end of the ninth month. Came into tedious labor with excessive amniotic liquid. Male child, weighing five and a half pounds, delivered by forceps. It breathed feebly and lived ten minutes. Posterior portion of vertebral column and lower cervical and upper dorsal region deficient in development, meningocele present. Placenta thicker and larger than normal, quantity of amniotic liquid not much in excess, the cord very long and spiral. The mother made a good recovery.

Case IV. Primipara, white, aged eighteen. Mother died in confinement from cause not stated. Pelvis narrowed at the lower portion, expanded at the brim symmetrically; the urine normal, the patient fairly well nourished and suffered little during pregnancy. Complained of pain in the right upper portion of the abdomen, dyspnea and sleeplessness. On examination, abdominal distention marked; fetus could not be outlined nor could fetal heart sounds be distinctly heard; the patient's lower limbs were considerably swollen, her heart action labored. The patient complained of indefinite pains for several days when the os was found fully dilated. The patient was given tincture of nux vomica, the membranes were ruptured and compression applied to the abdomen. When the membranes ruptured, the head immediately engaged, the child descended and was allowed to emerge from the body of the mother gradually.

The placenta was removed, the uterus douched and packed with gauze. The mother made an uninterrupted recovery. The fetus gasped but did not breathe; its heart beat persisted for three-quarters of an hour in spite of respiratory failure. Upon autopsy, general dropsy was found, and in the abdomen and pericardium a large quantity of fluid. The lungs were edematous, the kidneys showed atrophy of the pyramids, and the liver was softened and enlarged. The cord was shorter than the average; the placenta boggy, light in color, large and friable. The decidua was much roughened, resembling a fibrinous exudate.

Case V. Multipara, with moderate quantity of fluid. Dilatation well advanced, but pains inefficient because of over-distention of the uterus. Made patient sit upon a bucket, punctured membranes and allowed several quarts of fluid to escape. Gave quinin and ergot. The child was speedily delivered; it failed to nourish properly and died in ten days with symptoms of intestinal obstruction.

By polyhydramnios is meant more than two pints of amniotic liquid at full term. As much as seven gallons has been seen in the human species; pathology of the condition not fully known. Many conditions accompany polyhydramnios. The placenta often large, dropsical and infiltrated, Jungbluth's vessels often enlarged, amnion and chorion may be thickened with extensive fissures in the epithelial layer of the amnion and fatty degeneration of cells. By experiment, seven times more fluid passes through veins than through arteries of cord into the placenta. Any fetal condition causing venous engorgement tends to produce polyhydramnios. Irritating substances formed in lymphatics may cause this condition. It does not result from increased renal action in the fetal kidneys. Excessive secretion from the cerebrospinal canal of the fetus may contribute to polyhydramnios. Polyhydramnios is normal at the fourth month and its persistence results from failure in normal development. By cryoscopy further information regarding the osmotic properties of maternal and fetal blood and of the liquor amnii may increase our knowledge. Bacteriology gives no information upon the subject.

The diagnosis is made by first diagnosticating pregnancy, then by observing that in polyhydramnios we can usually obtain evidence of faint uterine contraction, and can often insert the finger through the cervix and detect a presenting part. Ectopic gestation must be kept in mind as

polyhydramnios may complicate ectopic pregnancy. In ovarian cyst the illness is longer, the swelling at first unilateral. The intermittent hardening of the tumor is absent and the uterus can be found but little enlarged. In ascites the dulness changes when the position of the patient is altered.

When pregnancy is found, a second diagnosis must be made to recognize or eliminate the presence of pregnancy and ovarian cyst, pregnancy and ascites, plural pregnancy, an hydatid mole, a very large child or a malformed fetus. In hydatid mole the pear-shaped uterus has little fluctuation and there is repeated discharge of blood. In large or malformed fetus the heart can usually be heard and palpation reveals the child. While twin pregnancy can generally be recognized it may be completely mistaken for polyhydramnios. In exceptional cases, ovarian cyst complicating pregnancy may be difficult to diagnosticate and exploratory incision may be necessary.

Attention is called to misleading phenomena, the absence of such tension upon the membranes as would be expected from the quantity of amniotic liquid and also the absence of early shortening of the cervix.

Treatment by drugs is without value. When polyhydramnios is slight and not increasing, the patient's health remaining good, pregnancy should not be interrupted. When distention increases rapidly and the patient's health is impaired, under thorough antiseptic precautions the cervix should be dilated sufficiently to admit the finger. A pair of uterine dressing forceps, closed, should be inserted and the membranes ruptured, the forceps opened and a rent sufficiently large made to permit the introduction of the finger. Fluid should be allowed to escape very gradually until the presenting part descends firmly against the cervix. Firm pressure must be made over the abdomen by a many-tailed abdominal binder or broad bandage held by assistants. The patient must be watched as labor is often precipitate and the fetus may assume unfavorable positions. Labor should not be hurried in the interests of the child because the fetus is often deformed.

Polyhydramnios is dangerous to the mother from over-distention, relaxation, hemorrhage and increased danger of sepsis. The uterus must be completely emptied and made to contract. A hot intra-uterine douche of one per cent. lysol, tamponing with iodoform gauze, the hypodermatic use of strychnia and ergot and other stimulation are necessary.

Occasionally after abdominal section, the excess of amniotic liquid disappears by absorption.

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TRAIN employees of the Northwestern Road are to receive instruction in the science of medicine and the art of surgery, so that they shall be able to set a broken leg and bind up the wounds of the injured. W. A. Gardner, general manager, now has the plan under consideration, and, together with Dr. Owen, chief surgeon of the company, is arranging the details.— *Medical News.*

# Medical Progress.

## REPORT ON THE PROGRESS OF SURGERY.

BY HERBERT L. BURRELL, M.D., AND H. W. CUSHING, M.D., BOSTON.

### IMMEDIATE DEATH DUE TO SPINAL COCAINIZATION.

F. LEGUEU,[1] without intending to reopen the discussion as to the value of spinal cocainization, a method of anesthesia which he has hitherto practised and advocated, considers it to be his duty to report two recent cases in which death followed the injection of cocain into the spinal canal, within a few minutes. The technique, the dose and the cocain solution used were the same as were utilized with success in cases preceding and following those which were fatal. The cocain which caused death was analyzed and found to be unaltered. Operation was proposed in one of the two instances for rupture of the patellar ligament, and in the other for strangulated inguinal hernia.

### INTOXICATION WITH BISMUTH.

The general impression prevails that when symptoms of poisoning arise in connection with the administration of bismuth or its combinations, the manifestations are due to the presence of impurities, the most important of which is thought to be arsenic. Evidence is not wanting, however, tending to show that uncontaminated bismuth may give rise to toxic effects, which in some respects resemble those due to lead and mercury. A number of such instances are cited in a brief communication by Dr. Dreesmann,[2] who also reports a case under his own observation. Thus, following the dressing of wounds and wound cavities with bismuth subnitrate and other preparations of bismuth, as well as the internal administration of large amounts, there has been observed in the urine a white precipitate, becoming black, together with albumin and tube casts, stomatitis, pain in and loosening of the teeth, a metallic taste, with a blue line on the gums, and dark discoloration of the tongue, diarrhea, and pigmentation and ulceration of the intestinal tract, especially the large bowel. It has been shown experimentally that pure bismuth introduced into the pleural or peritoneal cavity is capable of exciting adhesive inflammation, and even perforation. The case of Dr. Dreesmann occurred in a man thirty years old, who had been quite severely burned and was treated with local applications twice daily of a 10% ointment of bismuth subnitrate. In the course of three weeks a black sediment was noted in the urine. In the course of three weeks more marked stomatitis developed, with pain and difficulty in swallowing. The teeth became loose and a bluish-black line appeared at the margin of the gums. Similar discolorations appeared also on the tongue. An area of ulceration resulting from the burn also exhibited black pigmentation, which

[1] La Presse méd., Nov. 9, 1901; Medical News, Dec. 14, 1901, p. 935.

[2] Berlin. klin. Woch., 1901, No. 36, p. 94; Journal of American Medical Association, Nov. 23, 1901.

disappeared but gradually. The preparation employed was free from contamination, particularly lead, and the symptoms could be attributed only to the bismuth. Improvement ensued as soon as a boric acid ointment was substituted for that of bismuth. From all of the evidence it would thus appear that bismuth, both applied topically and administered internally, is susceptible of absorption, and capable of giving rise to toxic manifestations, consisting principally in irritation of the digestive and the urinary tract; accordingly, some care should be exercised in the employment of this useful drug, which is generally considered entirely innocuous.

### IODOPHILIA.

Locke and Cabot[3] have presented a very interesting paper on this subject, based upon the examination of cases in the Out-Patient Department and wards of the Massachusetts General Hospital during four months. They state that the technique is simple. A cover-glass film is prepared in any of the usual ways, and allowed to dry in the air. Without fixation it is then pressed down upon a drop of the iodine solution on a slide and examined with an oil immersion lens. In making the preparation, it is well to use slightly more of the mixture than is necessary to cover the film, in order that the cells may all come freely in contact with the iodine, and then to squeeze out the excess by gentle pressure on the cover-glass lest the dense color of the fluid obscure the field. When such a slide of normal blood is examined the red cells are found to be uniformly colored a bright yellow upon a much fainter background, while the white corpuscles are stained of about the same tint, their nuclei being somewhat more refractile. This contrast between the nucleus and protoplasm is sufficiently distinct to permit one readily to differentiate the various forms of white cells.

The authors state that from their observations thus far they feel justified in the following conclusions:

The brown masses outside the corpuscles are present in small numbers in all blood both normal and abnormal, but frequently in such minute amounts as to be found only after long searching. Only an increase of these masses is to be considered pathological. We have found them uniformly and markedly increased in diabetes mellitus, variably in chronic or very severe acute suppurative diseases, and rarely in a few other conditions. In general it may be said, from our present knowledge, that the increase of extracellular iodophilia is of little significance.

In sharp contrast to the extra we have seen the intracellular granules in the blood of normal individuals, and believe its presence always pathological. Hence, by the terms positive or negative reaction, reference is made alone to the latter.

(1) Like leucocytosis, fever and the diazo reaction, iodophilia signifies not a special disease or condition, such as abscess, but a general toxemia such as might be produced by abscess, gangrene, uremia or malaria. Though more constantly positive in the presence of pus than with other conditions, we cannot make a diagnosis of sepsis, or of a purulent accumulation from the reaction alone.

(2) Iodophilia is not identical with, neither does it coincide in its indications with, any of the ordinary physical signs, as leucocytosis, fever, etc.

(3) It appears to be certain evidence that the patient is sick. We have never observed the sign in any but severe cases, and believe it to be more reliable in this respect than either leucocytosis or fever.

(4) A positive reaction occurs with considerable regularity in the following conditions: (*a*) Infection with pyogenic organisms, whether local or general; (*b*) toxemia of bacterial origin, as in diphtheria and typhoid; (*c*) non-bacterial toxemia, for example, uremia; (*d*) disturbances of respiration; (*e*) grave anemia, both primary and secondary.

(5) In our experience the sign has been absent in pleurisy, rheumatism, extra-uterine pregnancy, alcoholism, abscesses with free drainage, lead poisoning, early malignant disease, nervous conditions, tuberculosis if uncomplicated by secondary infection, and various other diseases.

(6) With the method of preparation described in this paper, one has a most convenient and rapid means of making a general blood examination. From a single slide any observer can not only determine the presence or absence of iodophilia and of malarial parasites, but can estimate after a little practice, with surprising accuracy, the number of leucocytes. Any considerable change in the size and shape of the red corpuscles, and the presence or absence of nucleated forms, is plainly evident, while the various types of leucocytes are sufficiently differentiated to permit of a reasonably accurate differential count. The specimens will keep for weeks.

### GELATIN AS A HEMOSTATIC.

H. Gebele (Munich)[4] has contributed the following facts relating to the use of gelatin as a hemostatic. After some clinical experience and extended experimentation he found that a marked diminution in the amount of blood was a condition for the prompt working of the gelatin. This loss must be from one-fifth to one-fourth of the total amount of the blood, hence the successful employment of this as a prophylactic treatment is out of the question, according to the opinion of the writer. Slight albuminuria, elevation of temperature, pruritus at the point of injection and general motor unrest, which may disappear within two to twenty-four hours, but which seldom fail to appear. Gebele maintains that the use of gelatin is contra-indicated in cases of renal disease. He has observed clinically in a severe case of hematuria from a large renal cystosarcoma, that the albuminuria after the subcutaneous injection

[3] Journal of Medical Research, January, 1902, vol. vii, No. 1, p. 25.

[4] Münch. Med. Woch., 1901, No. 24.

of the gelatin was increased without the bleeding being essentially checked.

### CEREBRAL PRESSURE FOLLOWING TRAUMA.

W. B. Cannon[5] gives the following summary on this subject:

At the moment of injury the intracranial pressure rises to a height sufficient to check the blood-flow into the brain.

Immediately after the injury the general blood pressure usually rises for a moment, then falls. Thereafter a gradual recovery of normal blood pressure occurs, with a simultaneous increase in the extent of the pulsations of the brain.

The paralysis of the respiratory centre following head injury may be recovered from if artificial respiration is persisted in and the heart action remains strong (Horsley, Polis, Kramer).

The primary loss of consciousness after a blow on the head is apparently due solely to circulatory disturbances, though minute changes in the nerve cells must also be considered.

The normal cerebral pressure is about 13 cm. of water; after injury the brain pressure may rise to an average of 25 cm. of water. Since this increase is not sufficient to account for the symptoms present in clinical cases, there must be other secondary processes causing increased pressure. The secondary increase in pressure is due mainly to three factors: Deprivation of normal nutrition in injured parts, passage of water into these parts with consequent swelling, and the rigid inclosure of the brain, causing the swelling in one region to affect markedly neighboring regions.

The thromboses, extravasations and hemorrhages, which accompany contusion, impair the blood supply of the injured region, especially since the nutrient arteries of the brain are terminal.

Brain tissue deprived of blood undergoes chemical changes resulting in greater internal osmotic pressure and the passage of water into the tissue. Brains placed in normal salt solution increase continuously in weight, even to 33%. The swelling which the tissue undergoes must cause it to compress neighboring regions, and thus further impair the circulation so that new regions are involved in the process. Thus a vicious circle is established.

The main force effective in causing swelling is probably osmotic pressure, which, in brain tissue, may attain a degree so much greater than blood pressure, that the blood would be really prevented from entering the cranium.

Recovery from head injuries after pressure symptoms, and the accumulation of fluid under the dura and in the ventricles, are possibly to be accounted for by diffusion of the products of destruction from the tissues.

### COVERING DEFECTS IN THE SKULL.

Absence of the bone-covering of the brain following accident or operation is a serious matter for the patient. For the covering of large defects of the skull through injury or operation, after the method of Müller-Kœnig, the following rules are emphasized by A. Dehler[6]: (1) They must be covered by secondary implantation, because the wound must be brought to a condition of absolute asepsis, so that the pus-processes so fatal to life and so damaging to a healing of the bone-flap may be avoided; (2) because the splinters of bone broken out by the injury cannot be replaced evenly and satisfactorily, as a rule, at the primary operation; (3) because if the granulations in the neighborhood of the wound have grown upward to a suitable distance, they will much better support and nourish the new bone-flap and fill up the whole cavity; (4) because by a secondary implantation an excellent opportunity is given the patient to recover from the first operation and gain strength enough to accept the new bone tissue.

A further technique is that all scar tissue be removed as fast as possible without damage to the brain over the area of implantation. The margins of the bone defect should be freshened and the flap consisting of periosteum and bone should be somewhat larger than the defect itself. In determining the place of this flap it is necessary to reckon with a later displacement by the contraction of the scars. The larger the flap the greater is the importance of a large artery in its base to secure full nourishment. It is not necessary to have in the base of the flap a thin layer of bone cortex with the periosteum attached. It is worth while to see that between the transplantation of this combined flap and a hairy skin-flap a sufficient time shall intervene so that the former shall be fully in place before it is disturbed at all, to accommodate the latter.

### MALIGNANT DISEASE OF THE TONSILS.

Heinleth[7] has collected records of 153 cases of malignant disease of the tonsils — 92 various forms of carcinoma and 61 various forms of sarcoma. The disease is usually characterized by the very slight initial change, rapid spreading to the surrounding parts, and therefore the diminished possibility of cure. Among the diseases with which they may be confused are parasitic ulcers produced by oidium albicans or the leptothrix, which are usually more superficial and often multiple; tuberculous infection; secondary forms of syphilis which are usually very superficial; chronic

| QUALITY. | CARCINOMA. | SARCOMA. |
|---|---|---|
| External appearance. | Tuberculous. | Tuberculous tumor. |
| Tendency to spread. | Considerable. | Slight. |
| Dissemination in the body. | Absent. | Moderate. |
| General subjective symptoms. | Pain on swallowing. | Difficulty in swallowing and dyspnea. |

[5] American Journal of Physiology, October, 1901.

[6] Arch. f. klin. Chir., 1901, Bd. lxv, H. 1; Medical News, Jan. 25, 1902, p. 163.

[7] Münch. Med. Woch., 1901, No. 35; Philadelphia Medical Journal, Nov. 23, 1901, p. 879.

inflammatory hyperplasia and various forms of suppuration of the tonsils, gumma, actinomycosis, etc. The differential diagnosis between carcinoma and sarcoma is difficult, but may sometimes be made by means of the foregoing table which was first devised by Honsel.

### THE TREATMENT OF GOITRE.

Kocher [8] states that he has performed excision in 1,000 cases, with the result of only four recurrences. The mortality in normal goitre has been 4%, which includes one death from chloroform and one from cachexia strumipriva. No cases became infected. The dangers of the operation may be distinctly lessened by avoiding general anesthesia and using Schleich's method of cocain anesthesia. As regards non-operative treatment of goitre, that by iodine still plays a useful part in spite of the highly praised and more recently introduced thyroid treatment. Iodide of potassium is to be given with caution, and the thyroid preparation even more so. The author has returned to the old treatment and advises the use of 6 to 8 gm. of sodium phosphate daily. The hyposecretion of the goitre is increased by sodium phosphate, and thus diminution in size takes place.

### CERVICAL RIBS.

Borchardt [9] states that in early fetal life rib elements exist along the entire vertebral column except the sacrum. As a rule only the thoracic ribs develop, yet rudiments of ribs are sometimes found upon the sixth and seventh cervical vertebræ. Out of 139 cases reported in 1895 but 28 were diagnosed during life, while but half of these showed symptoms, the others being discovered accidentally. The symptoms consist of the peculiar formation of the base of the neck, decided disturbances of the circulation, such as thrombosis or aneurysm of the subclavian artery or its branches, and nervous disturbances due to pressure upon the brachial plexus. The condition is often first noticed after an acute infectious disease. The prognosis is favorable, the symptoms gradually subsiding under rest, hot baths, compression, electricity, etc. But surgical intervention may become necessary on account of the pain. The case histories of four patients with cervical ribs follow, operation being performed upon two of them, with removal of the rudimentary ribs. Borchardt concludes that in the majority of cases in which cervical ribs occur they cause no symptoms. Operation is only indicated when a large subclavian aneurysm causes trouble, when pressure symptoms in the brachial plexus show no improvement after some months of electrical treatment, and when, though recurrent paralysis and sensory disturbances point to syringomyelia, the plexus symptoms are so serious as to demand surgical interference.

[8] Medical Press and Circular, May 8, 1901; American Journal of Medical Sciences, November, 1901.
[9] Berlin. klin. Woch., Dec. 23, 1901; Philadelphia Medical Journal, March 22, 1902, p. 526.

### THORACIC DUCT.

Allen and Briggs,[10] in the former portion of this article, described some theoretical and practical questions in regard to thoracic duct injuries and report a number of cases. In this article they give a more detailed study of these cases and offer the following as suggestions to which they have been led.

(1) The increasing frequency of extensive dissections in the neck makes it desirable to consider means of avoiding injury to the thoracic duct.

(2) It is desirable that if wounds of the thoracic duct or its branches occur, they should be recognized at the time of operation. The ingestion of four to six ounces of cream three hours before operation might be especially desirable in secondary operations undertaken for the purpose of locating the point of injury. The desirability of such a procedure may be further studied by observations made upon animals.

(3) That suture of the duct with fine silk or catgut be accomplished where possible; that all small discharging lymph radicles be ligated; that the ligating and clamping of lymphatic vessels of considerable size be avoided unless the integrity of the thoracic duct itself has been demonstrated; that where suture of the duct or large radicles is impossible, gauze packing, firmly and accurately applied, be used; that the head and neck be kept at rest, the use of morphin to a considerable degree being recommended if necessary.

(4) That until repair of the duct is thought to be complete, nutrition should be sustained on albuminous material, with possibly a small amount of carbohydrates, but with an absolute exclusion of fats.

### PERFORATIVE PERITONITIS.

Heineke [11] puts to himself the question why perforative peritonitis runs a more severe and fatal course than other forms of inflammation of the same membrane. In order to answer this question satisfactorily, he has performed a number of experiments upon rabbits in whom he produced perforative peritonitis by puncturing one of the coils of the small intestine through a minimal wound in the abdominal wall. Hemorrhage was always avoided as much as possible during this operation. The first symptoms usually appear after from six to eight hours. The animals become apathetic, the abdomen distended; sometimes there is diarrhea, and occasionally a purulent discharge from the eyes. Death usually occurred in from six to twelve hours after the operation. The temperature behaved variably. In some cases there was a rapid fall — as low as 30°, in others it rose to 40°. At the autopsy a considerable quantity of turbid bloody fluid was usually found in the abdominal cavity. An attempt was then made to find out which system of the body was primarily concerned in the

[10] American Medicine, Sept. 21, 1901; Journal American Medical Association, Oct. 5, 1901, p. 939.
[11] Philadelphia Medical Journal, Nov. 16, 1901; Deutsch. Arch. f. klin. Med., Bd. lix, H. 5 and 6.

causation of death; whether the heart or the vascular system. In the first hours after the perforation, blood pressure reacted normally to various forms of stimulation.

Even in the early stages of collapse the heart was able to do an excessive amount of work for a short time. In the late stages the heart was still in fair condition, but the vasomotors were paralyzed. It was impossible, therefore, to raise the blood pressure. The paralysis of the vasomotors was apparently central, not peripheral. Nevertheless, there is some reason to believe that the nutrition of the heart muscle is impaired as the result of a deficient supply of blood, for when more blood is supplied its activity is restored.

The effect upon respiration was very similar to that upon blood pressure. It gradually became more and more impaired, until finally it was arrested before the heart ceased to contract as a result of centric action. Heineke therefore concludes as follows:

(1) The cause of death in perforative peritonitis in rabbits is a paralysis of the centres of the medulla oblongata.

(2) This involves first the vasomotor centres, next the respiratory centres.

(3) Although the circulation is disturbed before the respiration, the latter ceases before the former.

(4) The paralysis of the vasomotor centres is the cause of the disturbance of circulation.

(5) The heart is not directly involved.

(6) The circulatory disturbances are entirely analogous to those of infectious diseases.

(7) The paralysis of the nervous centres is the result of the absorption of the products of bacteria from the peritoneum into the blood.

(8) The mere perforation of the abdominal organs produces in rabbits some disturbance of the circulation.

*(To be continued.)*

## Reports of Societies.

### AMERICAN CLIMATOLOGICAL ASSOCIATION.

NINETEENTH ANNUAL MEETING, HELD AT LOS ANGELES, CAL., JUNE 9, 10 AND 11, 1902.

(Continued from No. 7, p. 191.)

DR. J. O. COBB, Portland, Oregon, of the U. S. Marine Hospital Service, contributed a paper on the

POINT OF ELECTION IN PULMONARY TUBERCULOSIS.

He noted the fact that tuberculosis selects the apex of the lung as the most favorable site for infection, while pneumonia, another infectious disease, usually has its origin at the base. By the intake of tidal air in its various excursions up and down the trachea and bronchi and bronchioles the bacilli inevitably infringe on the ciliæ and mucous membrane, and it is doubtful if they ever actually reach the air sacs and are deposited there. In sixty bovine necropsies by Theobald Smith the thoracic glands were infected in twenty-seven without infection of the lungs. Dr. Cobb believes that all portions of our lungs are exposed alike to an equal degree of infection, and that bacilli of themselves have no selective power for any particular portion of the lung tissue, the deposits of tubercles being purely from mechanical causes; also that practically all infections are through the lungs, and that primary infection through the intestinal tract is extremely rare. Primary infection of the mesenteric glands is very rare in adults, even when they constantly swallow sputum, and the clinical experience of surgeons is that primary infections of the lymph glands of the neck is rarely followed by secondary infection of the lungs. It is doubtful if tubercle bacilli grow and multiply in any constantly moving body fluid. Tubercle bacilli are probably not saprophytic even to the extent of multiplying in the constantly shifting mucus of the air vesicles and bronchial tubes, and it is more than likely that tubercle bacilli, with an established specificity, do not revert to the saprophytic form, and they could not be disseminated and universally distributed in great numbers, as they seem to be, and survive for any long period of time. The author holds that it is doubtful if lung tissue is infected by means of bacilli gaining access through the tonsils, the nasal mucous membrane or kissing, or the introduction of bacilli in food or drink; and even if the bacilli entered the circulation through these routes, we would still have them screened out in the lungs and devoured, if in small numbers, by the bronchial glands, and it would take large and continued dosage to cause fatal pulmonary tuberculosis.

DR. ROLAND G. CURTIN of Philadelphia read a paper on

THE INFLUENCE OF STRYCHNIN ON THE HEART.

He is not in favor of such large doses of strychnin in cardiac disease as are so frequently employed in America at the present time. It would be folly to condemn unreservedly its use in tonic doses in selected cases or in full doses in emergencies, such as occur in the acute infectious diseases unaccompanied by changes in the endocardium or myocardium, or to help tide over such crises as occur in primary or operative shock. The primary stimulation of the vasomotor centres is soon followed by a fall of arterial pressure caused by vasomotor palsy, and if large doses are given, an immediate fall is produced by depression of the vasomotor centres, without their being primarily stimulated. He has seen several patients who have been thrown into convulsions by such treatment. Two of these were physicians. In one of these even slight pressure on the bed caused him to jump, and whenever he attempted to talk he had a spasm of the diaphragm.

The author recently made an experiment on a strong man to determine the action of strychnin upon muscles. The forearm of a strong, healthy

man was tested with a dynamometer, and it was found that he could squeeze eight pounds and hold it for three-quarters of a minute. He was then given strychnin up to its therapeutic limit and tested again. This time the dynamometer registered half a pound more, but the man could not hold the instrument. This is not the character of the contraction we desire to produce in the cardiac muscle. Strychnin increases the strength of the heart grasp, so to speak, but the grasp does not hold long enough to expel the blood. Dr. Curtin relies on digitalis and alcohol; he considers the latter, in addition to being a diffusible stimulant, a valuable tissue food. Strychnin fulfils neither of these important offices.

Dr. H. D. Arnold of Boston spoke as follows: It seems to me that strychnin as we use it today might be classed almost as one of the medical fads. It is especially useful to have a person of Dr. Curtin's experience call our attention to the dangers of such practice. We are too apt to consider the effect of drugs on the heart alone, whereas one of the greatest problems we have to deal with in this connection is the relation of the peripheral circulation to the power of the heart. Whatever the drug used,— strychnia, digitalis, or others,— this problem must always receive careful consideration in cardiotherapeutics.

Dr. Nammack of New York: I am quite in accord with Dr. Curtin's old friend, who believed that there was "too blank much strychnia" used. At the same time I do not know of any drug that I would be more loath to part with than strychnin. I think a great deal of abuse of it comes from the fact that some of us have a misconception of what it is or what it does. I have been using it in the cases in which I believed it to be indicated, with the idea that it is not a heart tonic *per se*, but believe that whatever effect it has upon the heart is obtained through the nervous apparatus of the heart, that it is a nerve tonic, and should be given in small doses frequently repeated. We were formerly taught in New York, and I believe the teaching is the same now, that in the use of a pure neurotic the effect of one dose is exhausted in the system in a short time. The effect of strychnia I think lasts between two and three hours, and therefore in such a condition as acute pneumonia, I do not think that one-fifth of a grain in twenty-four hours is too much, provided it be divided into a sufficient number of small doses. In my own practice the doses are given at two-hourly intervals, and I believe this drug acts as a nerve tonic.

I know of no better way to describe the condition we are speaking of than to use the simile suggested by Dr. Curtin's distinguished fellow townsman, Dr. Hare, who described the heart in pneumonia as comparable to a locomotive endeavoring to drive its wheels along a slippery track. Adding to the steam in the boiler will only help to rack out the machine in ineffectual efforts to turn the wheels, and the thing to do is to put sand on the track, that is, to increase the peripheral resistance and to give the heart something to work against. In cardiotherapeutics, I do not use strychnin with the view of strengthening the laboring heart which results from valvular disease. But in cases of myocarditis small doses of strychnin will have the effect of steadying the heart. Dr. Arnold has also brought up this question of the recognition of peripheral resistance. We must look to the capillary vessels for a decided effect when we have a laboring heart, no matter what its cause. If I were debarred the use of strychnin in pneumonia therefore, I would turn to that other group of remedies to which Dr. Curtin has alluded — alcohol, the nitrites, etc. Digitalis is again adding steam to the boiler without looking after the wheels of the machine; it is like putting the spur to a willing horse to induce him to go over an impassable wall, the effect is to make him dash his brains out against that wall.

Dr. S. E. Solly of Colorado Springs commended the paper, and agreed with the author with regard to the great abuse of strychnin; he agreed with Dr. Nammack in the use of it in myocarditis in small doses extending over twenty-four hours. He advocated rest in bed, and milk. In Colorado there is a tendency to use strychnia more frequently than in practice at sea-level, in heart cases complicated with pulmonary disease, and in small doses it acts admirably, especially where the pulmonary condition interferes with the action of the heart; in large doses it merely adds fuel to the flames.

Dr. Guy Hinsdale of Philadelphia read a paper on

CANADIAN CLIMATES AND HEALTH RESORTS.

After a general note on the winter and summer climate in Canada a short description was given of Prince Edward Island, Cape Breton, Nova Scotia, Newfoundland and New Brunswick. Mention was made of the Laurentian Sanatorium at St. Agathe des Monts. which was destroyed by fire a few days previous to the meeting; also of the Muskoka Sanatorium for Consumptives at Gravenhurst, Ontario. This sanatorium has recently opened a branch for those paying only $5.00 per week, the original building and cottages being reserved for more well-to-do patients. The Lake Superior region was characterized as affording a most invigorating summer climate and abounding in opportunities for sport and camp life, especially about Thunder Bay and the Nipigon river, where the trout fishing is unexcelled. It is a region especially suitable for young men. Banff, in the Canadian National Park in Alberta, is an attractive place, with excellent accommodations. The hotel is about two miles from the railroad and situated amid inspiring scenery. There is a large swimming-pool supplied with water from a hot sulphur spring that is efficacious in the treatment of rheumatism. The altitude of Banff is 4,500 feet and the adjacent park is 26 miles long by 10 miles wide, embracing parts of the valley of the Spray, Bow and Cascade rivers. Glacier, Field and Laggan are interesting stations for the tourist. The Arrow Lakes, reached via

Revelstoke, are among the most beautiful lakes in America. They have an elevation of 1,400 feet, and mountains from 5,000 to over 8,000 feet high rise from their shores. They extend for 125 miles and are destined to great usefulness as health resorts. They are never frozen to interfere with navigation, being expanses of the Columbia River. Kamloops, west of Revelstoke, was advocated as a suitable climate for the tuberculous.

Prof. ALEXANDER G. MCADIE of the Weather Bureau, San Francisco, contributed, by invitation, a paper on

THE CLIMATOLOGY OF CALIFORNIA.

The author showed that the coast line of nearly one thousand miles shows a difference of but 5° C. or 10° F. in the mean annual temperature of its northern and southern limits. At Eureka it is 11° C. (51° F.); at San Francisco, 13° C. (56° F.), and at San Diego, 16° C. (61° F.). It is subject to small variations between summer and winter. In January, if you go south on the Atlantic side, it becomes 1° F. warmer for every 40 miles; on the Pacific side it is 1° F. warmer every 115 miles. In no other portion of the United States are the rainfall periods so differentiated. There are well-marked seasons, the dry covering May, June, July, August and September, and the wet season covering the remainder of the year. The rainfall varies from less than one inch in the southeastern portion to over seventy-five inches in the northwestern portion. At Summit an annual snowfall of 697 inches has been recorded. The number of rainy days is probably the factor most frequently asked for by physicians in determining the climatic character of a place, a rainy day being defined as one on which .01 of an inch of rain or more falls. This is misleading. There should be a statement as to the general character of the precipitation — whether the rain falls in showers with intermittent sunshine or whether the rains are continuous and the sky is overcast. Except along the immediate coast few portions of the United States can equal California in sunshine. This is over 75% of possible sunshine in the interior and about 50% on the coast.

To sum up, then, the general climatic factors of this land are sunshine and fog, heavy rainfall and scant rainfall,— a land of contrasts. The temperatures are as a rule moderate and equable. On account of exceedingly diversified topography the climatic conditions are likewise very diversified; the prevailing easterly drift of the air brings a constant supply of fresh air, neither too hot nor too cold, to most of the state; owing to the general path of storm movements lying farther to the north, California escapes many of the disturbances so familiar elsewhere.

DR. C. A. SANBORN of Redlands read, by invitation, a paper on

THE CLIMATE OF THE EASTERN FOOTHILLS OF SOUTHERN CALIFORNIA.

Redlands is in the centre of this region; its altitude is 1,200 feet, and the valley is six miles wide at that point. The snow-capped San Bernardino mountains, ranging from 3,000 to 11,500 feet in altitude, are on the north, with openings through to the Mojave and Colorado deserts. Between the high mountains on the north, and the low ones on the south come the trade winds of summer, rushing into the vacuum caused by the intense heat on the desert during the day; the winds return over mountains sufficiently high to cool the air at night. The mean maxima for January and February are 62° and 69° respectively, and for July and August 95° and 91° F. The mean relative humidity is from 53% to 60%. Patients with pulmonary lesion, not far advanced, do well in this climate, especially in that part of the valley where orange growing and the consequent dampness from irrigation do not prevail. The use of commercial fertilizer on the extensive orange groves produces some irritation of the respiratory tract, tonsillitis and pharyngitis occurring at the time of the spreading of this necessary article. As to the nervous troubles which are notably increasing in both sexes in southern California there are various causes. North winds and altitude are not alone responsible. Continued eyestrain from a succession of bright days without proper protection for the eyes, causing headaches, predisposes not only invalids but healthy persons to nerve exhaustion. Nostalgia is probably the most important factor. However much the sun's rays may irritate the eyes and burn the skin, they do not relax the nervous system as much as the sultry summer atmosphere of the East. As conditions for contentment multiply, nervous troubles will be less prevalent.

DR. WALTER LINDLY of Los Angeles read a paper on

THE CLIMATOLOGY OF THE MOUNTAINS OF SOUTHERN CALIFORNIA.

He pointed out the beneficial qualities of the atmosphere of the altitudes adjacent to Los Angeles, San Bernardino and San Jacinto. A description was given of Idyllwild, a resort for tuberculous patients in the Strawberry valley, Riverside County, elevation, 5,250 feet. It is reached by a drive of twenty miles from Hemet, and is admirably adapted for sanatorium purposes, having a large main building with cottages and tents and every convenience. Fifty patients are now under treatment and good results are obtained. The institution is among the best equipped in the United States, and was visited by the association previous to the meeting.

*(To be continued.)*

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ACCORDING to the *Philadelphia Medical Journal* the committee of the school is making arrangements to enable Major Ronald Ross to proceed to Ismailia next September, to start an organized campaign against malaria, in consequence of an urgent request from the president of the Suez Canal Company that the Liverpool School of Tropical Medicine assist in a concerted effort to cope with the prevalence of malaria.

THE BOSTON

# Medical and Surgical Journal.

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## THE MARINE BIOLOGICAL LABORATORY AT WOODS HOLE.

During the comparatively few years of its existence the biological laboratory at Woods Hole has amply justified its foundation. This has been true not only because of the need of a laboratory of this character, but also on account of the able men who have from year to year prosecuted their researches there. As is usually the case in enterprises in which but few persons are deeply interested, the laboratory has suffered from want of adequate financial support. In spite of this fact, however, work of the most valuable sort has each year proceeded therefrom.

It is announced that at the annual meeting of the corporation of the laboratory the trustees reported that they had made formal application for aid to the Carnegie Institution. The special committee of the Carnegie Institution, to whom the matter was referred, is said to have signified its willingness to make a favorable report on the application, with the recommendation that through the institution's funds the laboratory should be placed on a permanent basis, new land be purchased, a new laboratory equipped, and provision made for permanent maintenance. The further suggestion was made by this committee that the Carnegie Institution should hereafter be in full financial control of the property of the laboratory. The corporation has agreed in this solution of the matter, and the control and management of the laboratory will hereafter rest with a board of managers to succeed the present board of trustees.

The growth of this biological work has been of very great and far-reaching interest and significance. In 1888, when the laboratory was started, its equipment consisted of a small building and a rowboat for collecting material. It has now one large and two small laboratory buildings and boats of various sorts for the purpose of collecting marine animals. The equipment and the work have grown hand in hand until now we naturally look to Woods Hole for scientific research of a special and increasingly valuable character. By turning over the control to the Carnegie Institution it is hoped and expected that a step will be taken which will render this marine biological laboratory one of the most useful in the world. It is expected that work may be done there throughout the year instead of merely in the summer, as is at present the case.

It is hard to conceive of a greater avenue of usefulness for a part of the bequest of Mr. Carnegie than this of aiding this somewhat unique laboratory scheme. The interest in applied biology is certainly growing with the years, and men of science are coming more and more to feel that the fundamental biological problems need a more thoroughgoing study than many of them have received in this country. Unquestionably the development of this laboratory will tend in every way to fill this need.

## THE SITUATION REGARDING SPECIALISM.

Our correspondent in this issue admirably expresses certain misgivings regarding practice which have apparently taken a firm hold on the professional mind. We are quite ready to share them, though possibly from a somewhat different point of view. That the "family adviser," the physician who stands in the most intimate possible relation to the family, should cease to exist is a fact we may well regret, but which nevertheless we are bound to face. To stem the tide which is turning toward more specialized fields of medical work is certainly futile. Our hope should rather be to turn the stream into useful channels, through which the greatest possible amelioration of human suffering, directly or indirectly, may come. Specialism must no doubt broaden itself to meet this demand.

We are in the fullest possible agreement with Dr. Robinson when he says that it is irrational to treat one organ without a knowledge of the interrelation of the various organs and parts of the body. This is knowledge which, of course, the specialist must have, and which the properly equipped and conscientious worker in a special field does have in far greater degree than is usually placed to his credit. The deeper a man goes into any branch of medicine, the more clearly he sees these very interrelations which are so often the keynote of successful treatment, and he sees them, we are inclined to think, at times more clearly than the physician who scans a broader field. That there are so-called specialists who do not

attain to this conception of their work is self-evident, and the sooner such men are made to feel their limitations the better it will be for the profession at large. The ideal specialist is he who goes deeply into a subject and then extends his knowledge into every related field. Such a man is hardly to be looked upon as narrow or bigoted, or even incapable of entering into the finer appreciation of the idiocyncrasies and temperaments of his patients. It might not be straining a point for him even to act occasionally as "family adviser."

As a matter of fact, the practitioner of internal medicine will doubtless long remain the family physician, in a modified sense, and if even here a change finally comes, it will be ushered in without a revolution. Our optimism is in fact so extreme that we are convinced that medical progress is moving along wholly salutary lines, and that much as the personal regret may be, the human race will not greatly suffer from the passing of the "family adviser," as our correspondent uses that phrase.

## PROPOSED NEW PROVISIONS FOR CONSUMPTIVES IN MASSACHUSETTS.

WE desire to call attention to the resolve printed in another column of this issue providing for an investigation and a report by the State Board of Charity as to new provisions for consumptives. The questions which are put are certainly worthy of the very closest consideration before any final action is taken, and we are glad to note that the various possibilities and contingencies are taken into account in this resolve as drawn up. Admitting the fact that further provision for the care and treatment of consumptives is desirable in this Commonwealth, it becomes a matter of the very greatest importance to determine whether the state shall become responsible for one large sanatorium or for several smaller ones, and if the latter plan be adopted, where these various institutions may be most advantageously placed. These matters and the various other points suggested, which may well give rise to a considerable legitimate difference of opinion, should receive the most earnest consideration, not only from those associated with the State Board of Charity, but also from all who are interested in social and hygienic questions in whatever walk of life they may happen to be. Particularly would it seem desirable to us that members of the medical profession, who through training and experience have made themselves competent to consider such questions, should be called into counsel. Massachusetts has taken a foremost place in the whole question of the sanatorium treatment of tuberculusis, largely through the efforts of a certain small band of devoted physicians who have given their time and energy to the solution of this difficult problem. If these men be also consulted with regard to this new movement against tuberculosis in the state, we need have no fear that a policy of wisdom and moderation will be adopted.

## MEDICAL NOTES.

ILLINOIS' MINIMUM REQUIREMENTS FOR MEDICAL COLLEGES TO BE DETERMINED IN "GOOD STANDING."—The Illinois State Board of Health has issued a schedule of minimum requirements for medical colleges to be determined in good standing, and requires that no graduate of any college not in good standing with the board will be admitted to examination or permitted to practice medicine in the State of Illinois. The conditions given in the schedule might in some states be regarded as exacting, but they unquestionably tend toward the elevation of medical practice and therefore are in general to be commended.

LEPROSY IN THE UNITED STATES.—It is reported through the Marine Hospital Service that there are 278 cases of leprosy in the United States, the greatest number being in Louisiana, which has 155. Of these lepers, 145 are said to be American born, 120 foreign born, and the remainder undetermined. In a large number of the cases the disease has been contracted in the United States, particularly in the states on the Gulf Coast. Many of the patients are at large, and but 72 are provided for by the states or cities in which they reside.

DEATH OF PROF. LEOPOLD SCHENK.—The death of Prof. Leopold Schenk is announced, which occurred at Schwanberg, Styria. He had recently gained a somewhat unenviable notoriety through his book entitled "Determination of Sex." At the time of the publication of his book he was professor at the University of Vienna, but his retirement was forced as the result of a demand by the Vienna medical faculty. Dr. Schenk had always been regarded as one of the leading scientists of Europe.

FREE STERILIZED MILK IN GERMANY.—The city authorities of Halle, Germany, have made an appropriation of 1,000 marks for a tentative experiment in furnishing sterilized milk in the tenement-house section at very low rates. Where the mothers of children needing milk are wholly without means, the milk will be furnished free of charge. This step will be taken with the hope of reducing the very high rate of mortality among infants.—*New York Medical Journal.*

BOSTON AND NEW ENGLAND.

Acute Infectious Diseases in Boston.— For the week ending at noon, Aug. 20, 1902, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: Diphtheria 23, scarlatina 19, measles 8, typhoid fever 14, smallpox 6.

Boston Mortality Statistics.— The number of children under one year who died during the week ending Aug. 16 was 54 as against 75 last year. The number who died under five years was 74 as against 103 a year ago. The total number of deaths reported to the Board of Health for the week was 195 as against 233 the corresponding week last year, showing a decrease of 38 deaths, and making the death-rate for the week 17.34. Of this number 92 were males and 103 were females; 188 were white and 7 colored; 133 were born in the United States, 61 in foreign countries, and one unknown; 40 were of American parentage, and 28 unknown. The number of cases and deaths from infectious diseases reported this week was as follows: Diphtheria, 22 cases and one death; scarlatina, 21 cases and 5 deaths; typhoid fever, 9 cases and 2 deaths; measles, 8 cases and no deaths; tuberculosis, 22 cases and 14 deaths; smallpox, 8 cases and 3 deaths. The deaths from pneumonia were 8, whooping cough 3, heart disease 12, bronchitis 4, and marasmus 4. There were 10 deaths from violent causes. The number of children who died under one year was 54; the number under 5 years 74. The number of persons who died over 60 years of age was 25. The deaths in public institutions were 73.

Bequests to Hospitals.— Through the will of the late Joseph B. Glover, a very large number of charitable institutions are benefited. Of the hospitals included in the bequests five thousand dollars each are given to the McLean Asylum, the Boston Lying-in-Hospital, the Massachusetts Eye and Ear Infirmary, and the Massachusetts Homeopathic Hospital. The reversion of a trust fund of $100,000 also goes after the death of the life tenant in equal shares to these institutions.

NEW YORK.

Mortality Statistics.— The condensed quarterly report of the Bureau of Records, Department of Health, for the quarter ending June 30, 1902, has just been issued. The number of deaths in the city exceeded that of the corresponding quarter of 1901 by 558, the increase, it is stated, being due entirely to an increased number of deaths of children under five years of age, principally from diarrheal diseases. This is somewhat perplexing in view of the fact that the weather was so much warmer in May and June in 1901 than in the present year. On account of the increase in population, however, the death-rate was very much the same in the two quarters, being 18.86 in 1901 and 18.97 in 1902. The corrected death-rates (excluding non-residents and infants under one week old) were respectively 18.04 and 18.07. The number of births reported was 18,624 in 1902, against 18,369 in 1901. There were 120 more deaths from measles and 195 more from the acute respiratory diseases than in the corresponding quarter of last year, and an increase was also noted in deaths from the following causes: Whooping cough, 117; cancer, 23; Bright's disease and nephritis, 53; suicides, 45. The noteworthy decreases were among the contagious and infectious diseases, namely, smallpox, 31; scarlet fever, 170; diphtheria and croup, 38; influenza, 76; pulmonary tuberculosis, 130. The largest number of deaths from any one disease was naturally from tuberculosis pulmonalis, 1,941, but pneumonia was a close second, with 1,629. If to this number are added 753 deaths from bronchopneumonia, the mortality from phthisis is exceeded by 441. The next largest number of deaths is from organic heart diseases, which amounted to 1,309.

Mortality from Malarial Dysentery.— Remarkable mortality from malarial dysentery is reported in the family of Edward E. Howe, a teacher of music, who came to New York from Hazleton, Penn., in the early part of July; since this time his three children have died of the disease. On July 3 the family went to reside with some relatives in the borough of the Bronx. On the 16th the youngest child, aged two years, was taken ill, and four days later died at the Lebanon Hospital. A few days after this the other two children, aged respectively eight and ten years, were attacked with the disease, and the parents, hoping the change would prove beneficial, removed with them to New Rochelle, on the Sound. The younger of the two, however, succumbed in a short time, and on Aug. 12 the older one, a girl, died. At the time of the latter's death it was stated that the mother also was dangerously ill with the same disease. It has been surmised that the malarial poison was contracted from excavations for a sewer in the vicinity of the Bronx residence, but if there has been any prevalence of such a disorder in the neighborhood it has not been made public.

Sanitary Conditions of Raines Law Hotels. — Numerous complaints having been received regarding the sanitary condition of some of the "Raines law hotels," and the proprietors of these establishments having denied the right of the Board of Health to hold jurisdiction over them, the president of the board some time since applied to the corporation counsel for an opinion in

regard to the matter. Under the present laws of the State, it will be remembered, these places are allowed special privileges in regard to the sale of liquors at times when the ordinary saloons are legally closed, on condition that they fulfil certain requirements, such as the maintenance of at least twelve rooms for the accommodation of lodgers and the serving of a so-called meal with each drink provided. It is stated that at the time when smallpox was prevalent a number of "guests" of lodging-houses moved into Raines law hotels, under the impression that they would by so doing remove themselves from the jurisdiction of the Health Department. The question has now been set at rest by the corporation counsel, who in his reply to the commissioner of health, says: "Whether or not the buildings specified may properly be regarded as hotels under the definition of the liquor tax law is immaterial. Even assuming that they conform in all respects to the provisions of the liquor tax law, they can, at the same time, be regarded as lodging-houses. The definition of a lodging-house under Section 1,306 of the charter is, in my opinion, broad enough to embrace the buildings described." In the section mentioned a lodging-house is stated to mean and include any building or portion thereof in which persons are harbored for hire for a single night or for any time less than a week.

A FORTUNE FROM SALE OF NEWSPAPERS IN BELLEVUE HOSPITAL.— John Mangles, a youth of twenty, asserts, according to the newspapers, that he has made a fortune of nearly $12,000 by selling papers in Bellevue Hospital. About eight years ago he succeeded an uncle as purveyor of news at the hospital, and for a time enjoyed a monopoly. Later, however, another boy also secured the privilege of selling papers there, and then every morning, it is said, there was a fierce battle of fists as to who should have the most lucrative wards. Finally the rivals decided that the best way out of the matter was to form a trust, and so they entered into partnership. Now Mangles announces his intention of selling out to his partner, and also of marrying and engaging in a more ambitious line of business.

BEQUEST TO HOSPITAL.— Among other charitable bequests left by the late William Clark of Newark, N. J., who recently died on his yacht while in English waters, is $6,000 to the Newark Eye and Ear Infirmary.

HOSPITAL FOR SARATOGA COUNTY.— It is announced that Gen. H. W. Carpenter of New York is to build a hospital for Saratoga County at a cost of $10,000. It will be located near the almshouses of the county and will be maintained by the Board of Supervisors.

## Miscellany.

### A PHYSICIAN'S CORNER FOR WESTMINSTER ABBEY.

THE *Medical Press* comments as follows upon the meagre honors bestowed upon medical men in England:

"The healing art is carried on in silence, and much necessarily in secrecy. Practitioners of medicine have always shunned mere meddling praise. Doctors, although valued in private life, have rarely taken a prominent part in public work. The profession has ever been jealous of its reticence, and always looks askance at any movement which seems to seek a success necessitating the gaining of public opinion. Court recognition or national approval until recently has been but exceptionally bestowed. In the press or on the platform medicine but rarely claims a place. Even now any attempt to lead popular opinion except through professional channels is often discouraged. The leaders of the profession have ever been slow to countenance efforts seeking to raise the status of practitioners and to accord to members of the profession national recognition. And this spirit of effacement has had its effect. The nation has been slow to recognize the value of the services of those who accounted their own services lightly. Divines, warriors, poets, musicians, and men of letters have ever been accorded a high place in the nation's esteem, but the representatives of medicine have until recently received scant honor. This is strikingly evidenced by a reference to such a work as that just published by Mrs. A. Murray Smith, "The Roll Call of Westminster Abbey." The Abbey is the revered shrine of England's honored dead. But among the illustrious dust there are but few who once might have exercised the divine right of healing. There is no Physicians' Corner at Westminster Abbey. Monuments to physicians are few and far between. In the south transept is a cenotaph to Sir John Pringle, the favored court doctor of George II. In the north choir aisle is a monument to John Plenderleath, who was physician to the forces in the field under Wellington. Edward Wetenhall, another medical man, lies by the side of his father, the Bishop of Kelmore and Ardagh. Dr. Woodward, whose name is kept in remembrance at Cambridge in connection with the Woodwardian Museum, lies buried in the nave close to the illustrious Newton. Thanks to the efforts of the lovable Frank Buckland, the remains of the great John Hunter sleep in the silence of the Abbey. In St. Andrew's Chapel is the bust of John Hunter's nephew, the great morbid anatomist, Matthew Baillie. Thomas Young, although chiefly remembered as a physicist, was also a physician, and Chantrey's beautiful medallion stands for his record. Mead, the great physician of George II., also rests in the Abbey. There is also a bust to Sir James Y. Simpson, the introducer of chloroform. And it must not be for-

gotten that Charles Darwin, the great biologist, lies near Herschel and Newton. We venture to think that both the profession and the public in the coming years will realize more clearly the duty and privilege of granting honor to those to whom honor is due."

### RESOLVE TO PROVIDE FOR AN INVESTIGATION AND A REPORT BY THE STATE BOARD OF CHARITY AS TO A NEW SANATORIUM FOR CONSUMPTIVES.

The following legislative action has been taken regarding tuberculosis:

*Resolved.*—That the state board of charity is hereby directed to investigate the following matters and to report thereon to the general court on or before Jan. 15, 1903, to wit:

(1) Is it necessary or expedient for the Commonwealth to make additional provision for the care and treatment of consumptives? If so, should such provision be made by establishing one large new sanatorium or by establishing several smaller institutions, and, if several, should these be located in different parts of the Commonwealth so as to provide for patients at sanatoriums comparatively near their places of residence?

(2) Should the patients be furnished board and treatment without charge, or should a moderate charge, not exceeding the actual cost, be made for board? And, if the patients should be unable to pay for their board, should the cities and towns in which they have a legal settlement be required to pay therefor?

(3) Where, in the opinion of the board, should a new sanatorium or new sanatoriums be established?

(4) What would the board recommend as to the material, plan, manner of construction and details of such sanatorium or sanatoriums?

If the board should conclude that it is advisable for the Commonwealth to establish a sanatorium or sanatoriums the board is authorized to prepare a general plan of a building or buildings therefor, together with an estimate of the cost of constructing them, and such plan and estimate shall form part of the report to be made by the board to the general court.

In carrying out the provisions of this resolve the board may expend, with the approval of the governor and council, a sum not exceeding two thousand dollars. [*Approved June 27, 1902.*]

## Correspondence.

### THE FAMILY ADVISER VERSUS THE SPECIALIST.

Westport, N. Y., Aug. 16, 1902.

Mr. Editor: I fully agree with much of what you write on "The Young Physician," but there are a few points about which I would like to be enlightened. No doubt it is theoretically correct to assume that anyone who with equal intelligence, opportunity and work, devotes the closest attention to a special line of work will achieve the largest amount of knowledge in that direction. Practically, however, the different parts of the body are interconnected to such a degree that they cannot be separated entirely except in rarest instances, without this fact being attested to our disadvantage in many ways. What is true in a mechanical aspect, is also true from the functional point of view. I for one, claim therefore that it is wholly irrational for any organ to be treated locally unless it be with the co-operation and knowledge frequently of the man who knows about the body in its entirety. No one does, no one can, to the same extent as the "general practitioner," or rather the physician who is the family adviser. Just so soon as this family adviser becomes the "specialist" by reason of elimination of very many things in practice, and assumes the so-called higher rôle of medical or surgical consultant, his sphere of usefulness to the family diminishes. He is no longer in touch with the daily routine of practice in every direction, and hence, when his advice is requested, he is not as well able as formerly to give it.

Who, under these circumstances, must be appealed to by the family to make the proper selection for them when special advice is considered necessary? Who again shall determine to what extent and in what direction it is wisdom for the specialist to interfere? The direction and extent of this interference requires, in my judgment, the *greatest* of all knowledge in the one appealed to. He is the one who must know well and thoroughly the personal equation, so various, so changeable, so different of each patient, and without this intimate knowledge is it not true in many, many instances that the advice given, or followed, is worthless or injurious? The laborious lives, the conscientious, painstaking work, the careful, clear insight into human disease and shortcomings, have made of the family adviser a demonstration of this to me and others. Alas! but there seems to be but one way out of it all, that is, to arrange to have a lay member in each family qualified as a "general practitioner," and this one to remain the family adviser so long as the family lasts. If not, when the family practitioner outgrows his former entity and becomes the honored medical consultant, the family is forced to take refuge with the latest graduate of the schools or the poor fellow who has grown gray in harness, but who has never become a "success" and who is consulted merely because no better man can be found.

I have my own solution, and I give it to you for what it is worth: Every time the family wish a consultation with a specialist let them have it, and if treatment be continued by the specialist, as it usually is, let him afterwards call upon the family practitioner whenever he *should need* knowledge, and it will be very frequently, and for these calls let it be understood that the family practitioner gets a consultant's fee. I warrant you the family practitioner will in that way get back his own, that is, prestige and money, both of which he of all men is most justly entitled to in the vast majority of cases.

If "specialism" continues to grow, one specialist, at least, will be required as resident in every family, that is, a heart specialist—for heart disease, or cardiac neurasthenia, will surely come to every one of us.

Yours truly,

Beverley Robinson, M.D.

### METEOROLOGICAL RECORD

For the week ending Aug. 9, in Boston, according to observations furnished by Sergeant J. W. Smith of the United States Signal Corps:

| Date | Barometer | Thermometer. | | | Relative humidity. | | | Direction of wind. | | Velocity of wind. | | Weth'r * | | Rainfall in inches. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Daily mean. | Daily mean. | Maximum. | Minimum. | 8.00 A.M. | 8.00 P.M. | Daily mean. | 8.00 A.M. | 8.00 P.M. | 8.00 A.M. | 8.00 P.M. | 8.00 A.M. | 8.00 P.M. | |
| S....3 | 29.88 | 76 | 84 | 67 | 76 | 78 | 77 | W | S W | 2 | 10 | F. | F. | |
| M...4 | 29.82 | 76 | 84 | 69 | 82 | 80 | 81 | W | N E | 10 | 9 | F. | F. | .03 |
| T...5 | 29.91 | 67 | 70 | 64 | 90 | 97 | 94 | N E | E. | 10 | 5 | O. | O. | T. |
| W..6 | 29.72 | 68 | 71 | 65 | 90 | 87 | 88 | S E | N W | 8 | 7 | R. | O. | .25 |
| T...7 | 29.68 | 70 | 78 | 63 | 75 | 56 | 66 | W | W | 12 | 12 | F. | C. | T. |
| F...8 | 29.76 | 71 | 80 | 62 | 90 | 66 | 78 | S E | W | 8 | 8 | R. | C. | .16 |
| S....9 | 30.02 | 70 | 80 | 60 | 75 | 59 | 67 | W | W | 9 | 4 | F. | C. | |
| ☞ | 29.83 | | 78 | 64 | | | 79 | | | | | | | .44 |

* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow. † Indicates trace of rainfall.
☞ Mean for week.

## RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, AUG. 9, 1902.

| CITIES. | Population Estimated, 1902. | Reported deaths in each. | Deaths under five years. | Percentage of deaths from | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | Infectious diseases. | Acute lung diseases. | Diphtheria and croup. | Cerebro-spinal meningitis. | Diarrheal diseases. |
| New York . . | 3,665,352 | 1,353 | 623 | 38.95 | 3.10 | 2.07 | .22 | 23.35 |
| Chicago . . | 1,852,828 | 555 | 200 | 45.36 | 5.76 | .90 | — | 26.82 |
| Philadelphia. | 1,349,624 | 413 | 143 | 24.93 | 5.56 | .73 | — | 10.16 |
| St. Louis . . | 603,717 | — | — | — | — | — | — | — |
| Baltimore . . | 525,330 | 238 | 108 | 44.10 | 3.78 | .84 | — | 27.72 |
| Cleveland . . | 411,826 | — | — | — | — | — | — | — |
| Buffalo . . . | 375,742 | — | — | — | — | — | — | — |
| Pittsburg . . | 341,401 | 170 | 85 | 41.75 | 6.47 | — | — | 24.70 |
| Cincinnati . | 332,032 | — | — | — | — | — | — | — |
| Milwaukee . | 304.975 | — | — | — | — | — | — | — |
| Washington . | 289,537 | — | — | — | — | — | — | — |
| Providence . | 185,870 | 71 | 28 | 45.05 | 5.63 | 1.40 | — | 33.79 |
| Boston . . . | 588,736 | 201 | 82 | 22.00 | 5.00 | 2.00 | 1.00 | 10.00 |
| Worcester. . | 127.337 | 44 | 22 | 43.16 | 2.27 | — | 2.27 | 31.80 |
| Fall River. . | 111.872 | 52 | 39 | 48.15 | 1.92 | — | — | 42.30 |
| Lowell . . . | 99,574 | 40 | 22 | 30.00 | — | — | — | 20.00 |
| Cambridge . | 96,334 | — | — | — | — | — | — | — |
| Lynn. . . . | 71,144 | 27 | 10 | 25.92 | — | 3.70 | 3.70 | 14.80 |
| Lawrence . . | 67,275 | 25 | 16 | 40.00 | 20.00 | — | — | 32.00 |
| Springfield . | 66,854 | — | — | — | — | — | — | — |
| Somerville . | 65,882 | 13 | 4 | 38.50 | — | — | — | 38.50 |
| New Bedford. | 65.574 | 32 | 19 | 46.87 | — | — | — | 34.37 |
| Holyoke . . | 48,065 | 17 | 6 | — | — | — | — | — |
| Brockton . . | 43,208 | 14 | 3 | 28.56 | — | — | — | — |
| Haverhill . . | 40,392 | 15 | 6 | 20.00 | 13.33 | — | — | 13.33 |
| Salem . . . | 36,567 | — | — | — | — | — | — | — |
| Newton. . . | 36,336 | 10 | 4 | 10.00 | — | — | — | 10.00 |
| Malden . . . | 35,390 | 10 | 5 | 40.00 | — | — | — | 30.00 |
| Chelsea. . . | 35,264 | 14 | 6 | 21,42 | — | — | — | 14.28 |
| Fitchburg. . | 33,848 | 12 | 4 | 8.33 | — | — | — | 8.33 |
| Taunton . . | 32,759 | 10 | 3 | 30.60 | — | — | — | 20.00 |
| Everett. . . | 27,114 | 13 | 7 | 15.40 | — | — | — | 7.70 |
| North Adams | 26,583 | 6 | 4 | 66.67 | — | — | — | 66.67 |
| Gloucester . | 26,121 | 9 | 1 | 22.22 | — | — | — | — |
| Quincy . . . | 25,307 | 10 | 6 | 70.00 | — | 10.00 | — | 50.00 |
| Waltham . . | 24,612 | 5 | — | 20.00 | — | — | — | — |
| Pittsfield . . | 22,311 | 15 | 5 | — | — | — | — | — |
| Brookline. . | 21,679 | — | — | — | — | — | — | — |
| Chicopee . . | 20,390 | 13 | 8 | 38.50 | — | 7.70 | — | 38.50 |
| Medford . . | 20,014 | 5 | 4 | — | — | — | — | — |
| Newburyport | 14,478 | 2 | — | — | — | — | — | — |
| Melrose . . | 13,384 | 2 | — | — | — | — | — | — |
| Westfield . . | 13,038 | 4 | 3 | 75.00 | — | — | — | 50.00 |
| Attleboro . . | 12,846 | — | — | — | — | — | — | — |
| Adams . . . | 12,813 | — | — | — | — | — | — | — |
| Milford . . | 12,516 | — | — | — | — | — | — | — |
| Framingham | 12,109 | 9 | — | 11.11 | — | — | — | 11.11 |
| Peabody . . | 11,957 | — | — | — | — | — | — | — |
| Revere . . . | 11,894 | 3 | 1 | 33.33 | — | — | — | — |
| Gardner . . | 11,544 | 2 | — | — | — | — | — | — |
| Weymouth . | 11,337 | 1 | — | — | — | — | — | — |
| Southbridge . | 10,838 | — | — | — | — | — | — | — |
| Watertown . | 10,600 | 4 | 2 | 25.00 | — | — | — | 25.00 |
| Plymouth . . | 10,336 | — | — | — | — | — | — | — |

Deaths reported 3,466; under five years of age, 1,492; principal infectious diseases (smallpox, measles, scarlet fever, cerebrospinal meningitis, diphtheria and croup, diarrheal diseases, whooping cough, erysipelas, fevers and consumption) 1,276, acute lung diseases 141, consumption 277, scarlet fever 27, whooping cough 46, cerebrospinal meningitis 8, smallpox 11, erysipelas 7, measles 14, typhoid fever 73, diarrheal diseases 721.

From whooping cough, New York 14, Chicago 12, Philadelphia 6, Baltimore 7, Pittsburg 3, Worcester, Fall River, Lawrence and Revere 1 each. From measles New York 8, Chicago 1, Philadelphia 1, Baltimore 1, Pittsburg 1, Lawrence 1, Gloucester 1. From erysipelas, New York 2, Chicago 1, Philadelphia 1, Pittsburg 2, Waltham 1. From smallpox New York 2, Philadelphia 1, Pittsburg 5, Boston, Lowell and Everett 1 each.

In the seventy-six great towns of England and Wales, with an estimated population of 14,862,456, for the week ending July 26, the death-rate was 13.9. Deaths reported 3,976: acute diseases of the respiratory organs (London) 128, whooping cough 112, diphtheria 83, measles 118, smallpox 7, scarlet fever 52.

The death-rate ranged from 3.2 in Hastings to 24.4 in Bootle; London 14.3, West Ham 9.1, Croydon 9.8, Brighton 10.5, Portsmouth 17.9, Southampton 11.1, Bristol 13.6, Birmingham 14.2, Leicester 8.7, Nottingham 14.8, Birkenhead 19.5, Liverpool 21.5, Manchester 14.6, Salford 15.4, Bradford 15.0, Leeds 11.6, Sheffield 14.7, Hull 14.2, Newcastle-on-Tyne 18.1, Cardiff 9.3.

## OFFICIAL LIST OF THE CHANGES OF STATION AND DUTIES OF COMMISSIONED AND NON-COMMISSIONED OFFICERS OF THE PUBLIC HEALTH AND MARINE HOSPITAL SERVICE FOR THE SEVEN DAYS ENDING JULY 24, 1902.

STONER, G. W., surgeon. Detailed as inspector of unserviceable property at the Purveying Depot, New York, N. Y. July 19, 1902.

BANKS, C. E., surgeon and medical purveyor. Granted leave of absence for four days from July 21 or 22. July 22, 1902.

PECKHAM, C. T., surgeon. Granted leave of absence for two days from July 10, 1902, under paragraph 181 of the regulations.

HEISER, V. G., assistant surgeon. Bureau order of July 17, 1902, relieving Assistant Surgeon Heiser from duty at Quebec, Canada, and directing him to proceed to Manila, P. I., for duty, amended so that he shall report at Washington, D. C., en route to Manila. July 21, 1902.

KING, W. W., assistant surgeon. Granted leave of absence for eighteen days from July 17. July 16, 1902.

MCLAUGHLIN, A. J., assistant surgeon. To proceed to Ocean City, Chincoteague and Watchapreague, Maryland, for the purpose of making physical examinations of keepers of surfmen of the Life Saving Service. July 19, 1902.

BURKHALTER, J. T., assistant surgeon. Relieved from duty at the Gulf Quarantine Station, and directed to proceed to the Brunswick Quarantine Station, assuming command. July 18, 1902.

MCCOY, G. W., assistant surgeon. Upon being relieved from duty at San Francisco, Cal., by Acting Assistant Surgeon W. C. Rucker, to proceed to Manila, P. I., and report to the chief quarantine officer for assignment to duty. July 10, 1902.

KENAN, SPALDING, acting assistant surgeon. Granted leave of absence for four days from July 22. July 19, 1902.

## CHANGES IN THE MEDICAL CORPS OF THE NAVY FOR THE WEEK ENDING AUG. 16, 1902.

F. L. PLEADWELL, passed assistant surgeon. Detached from the "Sylph," and ordered to the "Kearsarge."

R. O. MARCOUR, assistant surgeon. Detached from the "Abarenda," and ordered home to wait orders.

D. H. MORGAN, passed assistant surgeon. Detached from the "Philadelphia" and ordered to the "Boston."

H. D. WILSON, passed assistant surgeon. Detached from the Marine Brigade, Cavite, and ordered to duty at Olongapo, P. I.

H. A. DUNN, assistant surgeon. Detached from the Naval Hospital, Yokohama, Japan, and ordered to the Marine Brigade, Cavite, P. I.

H. E. ODELL, assistant surgeon. Detached from duty at Olongapo, P. I., and ordered to the "Solace."

T. M. LIPPITT, assistant surgeon. Detached from the Washington Navy Yard, Sept. 8, ordered to be examined for retirement, and thence home to wait orders.

R. B. WILLIAMS, assistant surgeon. Detached from the "Kearsarge" and ordered to the Naval Hospital, Newport, R. I., for treatment.

## SOCIETY NOTICE.

THE AMERICAN ELECTRO-THERAPEUTIC ASSOCIATION.—The American Electro-Therapeutic Association will hold its twelfth annual meeting on Sept. 2, 3 and 4, 1902, at Hotel Kaaterskill, Catskill Mountains, New York.

## RECENT DEATH.

DR. NICHOLAS WILLIAMSON, who was mayor of New Brunswick, N. J., from 1895 to the 1st of January last, died from typhoid fever at his home in New Brunswick on Aug. 15. He was born in New York in March, 1845, and was graduated from the College of Physicians and Surgeons in that city in 1871. He began practice in New Brunswick in partnership with Dr. Henry R. Baldwin, who died in February last.

## BOOKS AND PAMPHLETS RECEIVED.

A Physician's Practical Gynecology. By W. O. Henry, M.D. Illustrated. Lincoln, Neb.: The Review Press. 1902.

Transactions of the American Association of Obstetricians and Gynecologists. Vol. XIV for the year 1901. Illustrated. Philadelphia: William J. Dornan. 1902.

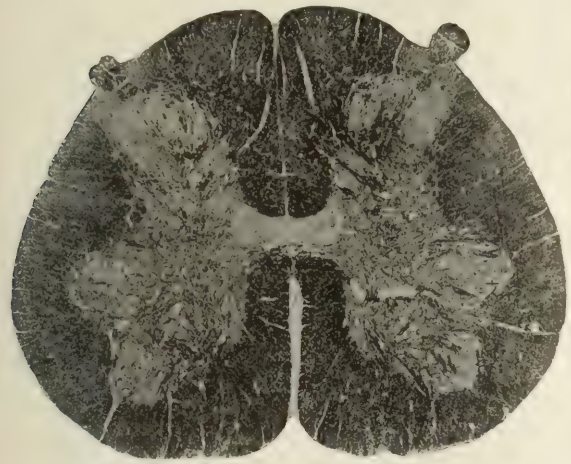
## Lecture.

### THE CHANGES IN THE SPINAL CORD AND MEDULLA IN PERNICIOUS ANEMIA.*

THE SHATTUCK LECTURE.

BY FRANK BILLINGS, M.D., CHICAGO, ILL.

I DESIRE to express my appreciation of the honor conferred upon me by the officers of The



CASE F. FIG. 1.—(Weigert-Pal.)
Fourth lumbar.
Degeneration of crossed pyramidal tracts.
Remainder of cord normal.

Massachusetts Medical Society in inviting me to deliver the Shattuck Lecture. Many eminent men have preceded me in this honorable position, and it was with profound trepidation that I accepted the responsibility which precedent had established in giving a high tone to this lectureship. At the time I accepted the invitation to deliver the lecture I was deeply interested in the subject which I chose for my paper. Pernicious anemia has been the subject of considerable research work in a clinical way for several years, and as I have had the opportunity of observing the nervous phenomena and lesions of the nervous apparatus which may occur in this disease, I felt that it would be a proper subject for further investigation and report upon this occasion.

Lichtheim was given the credit for recognizing, for the first time, the spinal cord changes which may occur in pernicious anemia. His report was based upon two cases, and was confined entirely to the changes of the cord in pernicious anemia. Soon after this his student, Walter Minnich, reported one case in an inaugural dissertation.

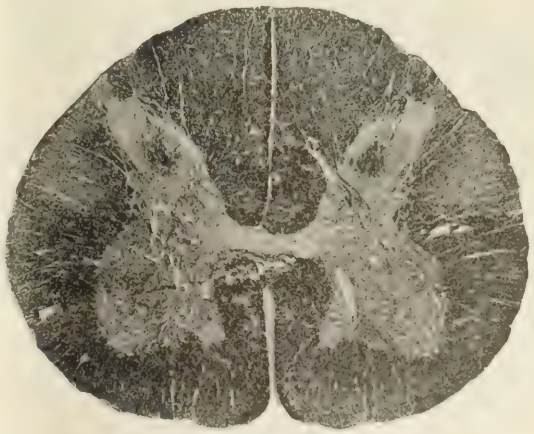
The next important contribution was made by James J. Putnam of Boston, who, in 1891, reported "A Group of Cases of Sclerosis of the Spinal Cord, Associated with Diffuse Collateral Degeneration Occurring in Enfeebled Persons Past Middle Life, and Especially in Women; Studied with Particular Reference to Etiology."

In this paper Putnam mentions Lichtheim's observations of cord changes in pernicious anemia, and notes the similarity of the cord changes as compared with those observed in his patients. He also mentions the fact that Lichtheim ascribed the cord changes to some blood-circulating toxin. Putnam apparently accepted the toxic theory as the chief etiologic factor in his cases, but he emphasized the fact that the age, the sex, the neuropathic inheritance, poor physical development, nutritional disorders, diarrhea, etc., were important contributory causes. Putnam's paper did not receive the attention which it merited in Europe. The title was perhaps misleading, in that no mention was made of pernicious anemia.

Since 1891 many contributions upon the subject of the spinal cord changes of pernicious anemia have been made abroad and in this country. Nonne, Minnich, Bastianelli, Burr, Russell, Batten, Collier, Lloyd, Taylor, von Voss, von Noorden and many others have reported cases and have described the clinical phenomena, the gross and histologic changes which have been found in conditions usually associated with pernicious anemia, and also in conditions in which the blood condition was not like that of pernicious anemia. Similar cord changes have also been noted and reported by some of the above-named authors, and by others in leukemia, lathyrism, pellagra, diabetes mellitus, diphtheria and associated with the degenerations incident to poisoning by phosphorus, lead and arsenic.

In 1902, Putnam made, with the collaboration of E. W. Taylor, a second report upon "Diffuse Degeneration of the Spinal Cord," in which a review and comparison of the views of many writers were noted. In this article Dr. Taylor made a most admirable report upon the pathologic anatomy of the nervous apparatus.

In view of these facts, I approach the subject with hesitancy, and proceed only with the hope that an additional report may be interesting, if it



CASE I. FIG. 2.—(Weigert-Pal.)
Second lumbar.
Crossed pyramidal tracts degenerated.
Remainder of cord normal.

does not add anything new to the subject. My observations have been limited to the diffuse degenerations of the spinal cord of pernicious anemia.

* Read before The Massachusetts Medical Society, June 10, 1902.

The similarity of the cord lesions of pernicious anemia and of the conditions enumerated by Putnam, by Russell, Batten and Collier and also by other reporters, is so striking that it must impress anyone who reviews the extensive literature of the subject. The similarity of the contributory etiologic factors of pernicious anemia and of other conditions in which diffuse degeneration of the spinal cord occurs, as reported by Putnam especially is notable. It is my object to present cases of pernicious anemia, with the now recognized characteristic changes in the spinal cord, and to discuss somewhat the similarity of the cord changes in pernicious anemia and in the other conditions above mentioned.



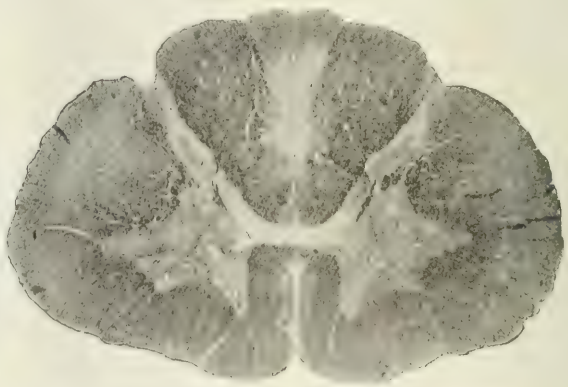
CASE I. FIG. 3.—(Weigert-Pal.)
Middle thoracic.
Goll moderately degenerated.
Lateral tracts more extensively involved.

It is possible that some of the earlier reported cases of diffuse degeneration of the spinal cord were not ascribed to an existing, but unrecognized, pernicious anemia. It is just as likely, however, that some of the cases reported as pernicious anemia, with cord changes, were not typical cases of that disease. This statement is based upon the fact that in some of the earlier cases reported the blood state is not noted sufficiently to enable one to recognize the case as one of a pernicious type of anemia; and, furthermore, at the time when the first reports were made, the means of recognition and differentiation of anemias were not as clear as now. In earlier times pernicious anemia was diagnosed upon the basis of a profound progressive anemia, associated with a tendency to subcutaneous, submucous and retinal hemorrhages. When to these symptoms was added the post-mortem finding of a characteristic, pale, anemic fatty state of the organs, and especially of the heart, with an increase of iron in the liver, as was noted by Quincke, and the presence of degenerated bone marrow, the diagnosis was certain. We now have a better knowledge of the morphology of the blood. We are able to separate the primary from the secondary anemias, and the blood of the pernicious type is characteristic and easily recognized. When we find a marked oligocythemia, with the presence of many poikilocytes, microcytes and macrocytes, with polychromatophilia and a relatively high percentage of hemoglobin, with a normal or a higher than normal color index, it affords a type of blood which is found in no other anemic state. If to this we add the presence of nucleated red cells, and especially of megaloblasts, the fetal type of red cell and of a few myelocytes which together indicate degeneration of bone marrow, the diagnosis is reasonably certain without a post-mortem examination.

*Cause.*— Our knowledge of the cause of pernicious anemia is not satisfactory. We recognize certain contributory factors and infer a condition of toxemia which has not been proved. We know that the disease may occur in certain conditions; that these conditions are so frequently present in individuals who do not develop the disease, that we must look upon them as accidental.

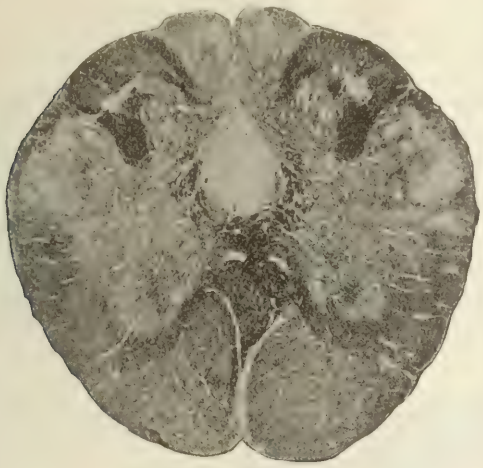
Pregnancy, associated with constant vomiting and malnutrition, has been followed by pernicious anemia. After repeated or severe hemorrhages, and in individuals who are poorly nourished, especially when the poor nutritional condition is associated with some error of physical development, a grave anemia may follow. It is associated with, or follows most frequently, disease of the digestive apparatus. It has been known to follow syphilis and malaria, and in a few instances typhoid fever and la grippe seemed to be associated causes. In one of my cases the patient suffered from scarlet fever, was not well thereafter, and two years later developed the typical disease. The disease so infrequently follows the infections, like syphilis, malaria, typhoid, la grippe, etc., that it is impossible to ascribe any specific relation to it.

In Berlin in ten years there were admitted to the hospital 148,000 patients, of whom 274 were diagnosed as pernicious anemia, that is about .2% of all of the hospital cases. It is also stated that 22.4% of the above cases showed evidences of syphilis. This indicates that a small percentage of syphilitic patients develop pernicious anemia. It is said that individuals of a weak constitution and poor development are especially liable to the dis-



CASE I. FIG. 4.—(Weigert-Pal.)
About fifth cervical.
Column of Goll degenerated and sclerosed in middle. Burdach, slightly degenerated in proximity of sclerosis of Goll.
Lateral tracts extensively involved.
Remainder of cord normal.

ease, yet the strong and full blooded may develop it. The disease occurs more frequently in women than in men. Of the 274 cases mentioned, 172 were women and 102 men. It may occur at any age, but it is more common in the fourth decade



Case I. Fig. 5.—(Weigert-Pal.) X 8.

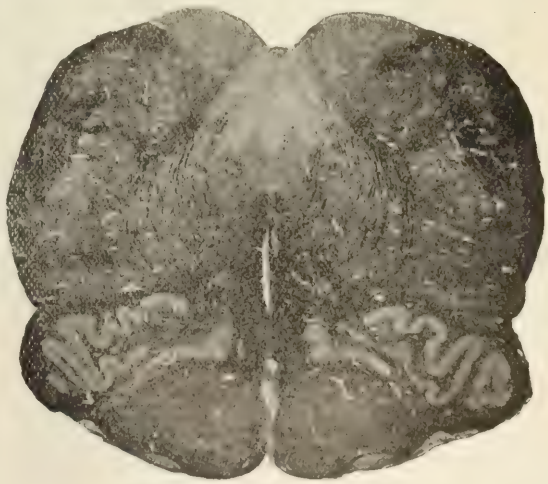
Near junction of cord and medulla.
Columns of Goll extensively degenerated, otherwise the section is normal.

than at any other time in life. It has long been observed that the disease is frequently associated with some disturbance of the digestive tract. This consists in many instances of an atrophic condition of the walls of the stomach and of the intestine, which may become much thinned. The glandular elements of the mucous membrane have been found much atrophied. Achylia gastrica exists in many instances. In carcinoma of the stomach and in chronic glandular gastritis the same atrophy of the stomach wall may occur without pernicious anemia. An atrophic condition is also found in other portions of the body, and it is not at all unlikely that the condition of the stomach and the intestinal wall has only a contributory etiologic relation to the disease. Intestinal parasites have been found present in the disease, especially the *bothriocephalus latus*, and the *ankylostoma duodenale*. The disease, however, does not develop in all cases in which these parasites are present. That they have some relation to the disease is shown by the fact that some patients, who present characteristic blood findings, get well when the parasite is discharged by the patient. The condition of profound anemia, with deformed red cells, the presence of fetal red cells in the circulating blood, the presence of an abnormal amount of iron in the liver, together with degenerative changes in the muscles and in the marrow of bone, is a reasonable hypothesis for the assumption of the presence of a circulating poison — a hemolytic toxin as the fundamental cause of the disease. The source of the poison has been the subject of many theories.

Schauman and Tallquist have brought forward the theory that in cases of pernicious anemia due to the *bothriocephalus latus*, the parasite was the source of a toxin because the worm itself was either sick or dead in the host. In this condition the worm was the source of the toxin which produced the anemia, and explained to these reporters the reason for the non-development of pernicious anemia in most cases of individuals affected with the *bothriocephalus latus*. They made the following experiment: The extract or bruised links of the *bothriocephalus latus* was fed to dogs. In one dog, after two weeks, marked anemia occurred, the red cells falling from 7,200,000 to 3,400,000.

The view has been advanced that the toxin is of bacterial origin, but no definite observations have been made which would establish this, with the exception of the research work done by Professor Adami and his pupils. In his studies upon hypertrophic cirrhosis of the liver and on hemochromatosis in pernicious anemia, Adami advances the opinion that many of the sclerotic processes of the body are due to acute and chronic infection through the presence in the tissues of bacteria or bacterial poisons, which may be derived from the intestines. The organism is successful in overcoming the general infection, but the tissue cells become exhausted through the specific infection, with resulting degeneration and connective tissue hyperplasia. He described diplococcoid forms of bacteria in the stomach and intestinal walls, and in the liver cells, which he believed to be altered colon bacilli. The suggestion of Adami is very pertinent, especially if one believes that pernicious anemia is due to a toxin.

More recently Hunter, who had confirmed the observations of Quincke and others as to the hemolytic effect of a possible toxin, suggested the origin of the poison in the intestinal canal from the altered anatomic condition of the stomach and bowel. Still later, Hunter has suggested the idea that the toxin and the condition of the gastro-intestinal canal have their source in a foul condition of the mouth of the patient, who suffers from



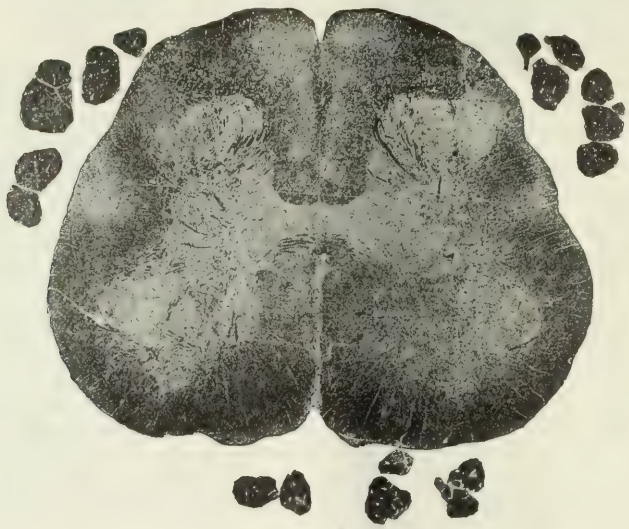
Case I. Fig. 6.—(Weigert-Pal.)
Medulla, normal.

pernicious anemia, and he notes the condition of carious teeth, gingivitis, etc., in many of his patients. It is not improbable that from the evi-

dence we have, pernicious anemia is due to some hemolytic toxin, but whether of bacterial or autogenetic origin we cannot at present definitely say.

*Symptoms.*— Symptoms of pernicious anemia are chiefly those due to a profound anemia manifested by weakness, lessened endurance, with dizziness, dyspnea, palpitation of the heart, etc. The disease is not necessarily steadily progressive, as it is interrupted by waves of improvement. It may be either very acute or chronic in its course, as cases are known to die within a few weeks and others to live for several years. In probably a large percentage of the cases the body weight is preserved, and in a few others there is a loss of weight, and in some emaciation. There is a tendency to subcutaneous, submucous, retinal and other hemorrhages. Gastro-intestinal disturbance is very commonly present, and especially diarrhea. The appetite is often poor or capricious. There may be a craving for acids, salts, or some other stances, with no perceptible spinal cord changes, there may be marked subjective paresthesias, and even slight ataxia and spasticity, while in other cases, with marked cord changes, the symptoms may be subjective only, and not in keeping with the marked changes in the cord. In the severer degrees of spinal cord lesions, when established, the course of the disease is usually rapid to a fatal ending.

Bastianelli divides the cases into two groups. One in which the pernicious anemia is the predominant factor, and the cord lesion developing late, with only slight clinical manifestations, or possibly with only subjective disturbances. The second, in which the nervous phenomena develop first or coincidently with the anemia, the nervous phenomena predominating and overshadowing the symptoms due to the anemia, and the case rapidly developing into one of paraplegia, with flaccid muscles, loss of sphincter control, bed sores, and



CASE II. FIG. 1.— (Weigert-Pal.)

Fourth lumbar.
Posterior column degenerated. Oval bundle of Fleschsig normal.
Lateral tracts unequally degenerated.
Remainder of cord and nerve roots normal.

thing with decisive taste. The disease is associated with nervous phenomena in the great majority of cases; usually, however, subjective in character. There is often paresthesia of the feet, sometimes of the hands. Cerebral disturbance in the form of lessened cerebration may occur, and Minnich has observed fixation of the pupils, while Bemis, Müller and Nonne report cases of slight facial paralysis, or of one-sided paresthesia, aphasia, etc.

The spinal cord lesions, which are now recognized as occurring in a small percentage of the cases, may appear as one of the earliest manifestations of the disease, or they may occur late, and may be manifested slightly or not at all up to the time of death. The spinal cord lesions, which will be discussed more fully later, do not always bear a direct ratio to the symptoms. In some in- death within a few weeks. This makes a fairly good division for clinical use, but not all cases can be placed within the two divisions.

During the last few years I have had under direct observation thirty-six cases of pernicious anemia.

ANALYSIS OF MY GROUP OF THIRTY-SIX CASES.

Of these, twenty were males and sixteen females. The preponderance of males over females is unusual. The ages were as follows: There were three in the second decennium, seven in the third, ten in the fourth, nine in the fifth, and seven in the sixth. The youngest was twenty-four years of age, and the oldest sixty-nine. In four cases tuberculosis existed in the family within two generations. In two patients carcinoma existed in the family within two generations. Three

of the patients had suffered from syphilis. In two a severe attack of grippe was apparently the cause of an illness which finally developed into pernicious anemia. One was overcome by smoke and gas at a fire in a large building. One

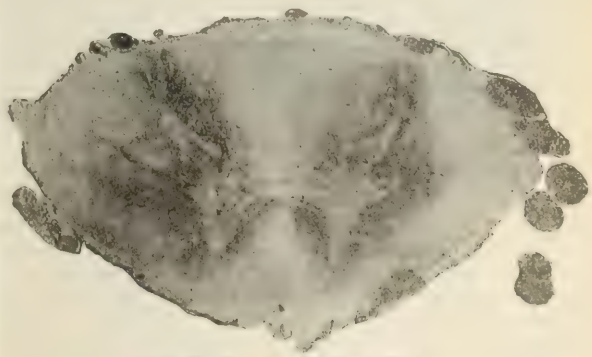


Case II. Fig. 2.—(Weigert-Pal.)

About level of twelfth thoracic.
Posterior degeneration more extensive and sclerosed.
Lateral more extensively and almost equally degenerated.
One direct pyramidal tract extensively degenerated.

suffered from exophthalmic goitre; fourteen had suffered from diarrhea as the first manifestation of the disease. Diarrhea had existed for three years as the longest time, and in one, after an acute attack of diarrhea, the disease suddenly developed. Constipation, obstinate in character, occurred in two. Nausea and vomiting were present in the majority of the patients at some time in the course of the early stage of the disease. Loss of appetite, amounting in some to complete anorexia, was present in all, and a capricious appetite existed in a few. In twelve, repeated examinations of the stomach contents were made after test meals, and disclosed the absence of hydrochloric acid in all. There was enteroptosis of a severe degree in three. The association of grippe with pernicious anemia has been noted by Bastianelli and by Putnam as a contributory factor in spinal cord lesions. In all patients two or more complete blood examinations were made which gave the characteristic blood condition of pernicious anemia. Retinal hemorrhages occurred in four; subcutaneous and submucous hemorrhages occurred in eight; epistaxis was a not uncommon factor, and in several bleeding of the gums was observed. Of the twenty male patients, in only three were the teeth bad, and in four only was the mouth in an unhealthy condition. Of the women, the condition of the mouth and teeth was notably bad. In two cases no note was made of the condition of the teeth and mouth; in the remaining fourteen women, either the teeth were decayed or the gums were infected in all. Of the thirty-six cases paresthesia occurred early in the history of the case. It appeared simultaneously in the feet and hands in all of these cases, with the exception that in one it was confined to the toes of one foot and to the ulnar border of one hand. In four female patients the anemia preceded the nervous phenomena by two years and four months, and in two men the nervous phenomena appeared one year and six months, respectively, after evidences of pernicious anemia were established. In twenty-four of the cases the nervous phenomena were confined to subjective disturbance only, manifested by tingling, numbness, coldness, heat, formication, etc., of the hands or feet, or of both, and in one instance involving the entire lower extremities. Hyperesthesia occurred in one. Disturbed temperature sense, inability to recognize quickly heat and cold, occurred in two, otherwise objectively the sensation of the feet and hands was normal. In these twenty-four cases the patients complained frequently of discomfort, of a sense of numbness and tingling which were most often present, and usually this condition remained, even when the patients were on a wave of improvement. In only one did it disappear during a wave of improvement, and it reappeared when a relapse occurred. In ten patients the subjective nervous disturbance was associated with a spastic, and usually with an ataxic condition, which grew steadily worse, and in three developed into complete flaccid paraplegia, with loss of knee jerk, loss of voluntary bowel and bladder control, and the development of edema and bed sores. One died while in a state of spastic paraplegia. Four are living with spastic ataxic paraplegia, and very troublesome subjective sensory disturbances. One case died with simple sensory disturbances only without ataxia, spasticity, or paraplegia, whose spinal cord showed dorsolateral sclerosis. One died with all the evidences of insanity, but a post-mortem was not obtainable.

Burr states that a girdle sensation is never present in the spinal cord lesions of pernicious anemia. Girdle sensation was present in all of the cases which developed spasticity in my group. As observed by Putnam, some of the patients complained of a peculiar paresthesia of the mouth. One complained of a sensation as if his mouth contained threads of hard cotton; another that his mouth had the sensation of dryness, al-



Case II. Fig. 3.—(Weigert-Pal.)

Middle thoracic level.
Degeneration very extensive—involving the whole periphery of the cord.
The gray matter of cord, the posterior root zone and Lissauer practically normal.

though saliva was present; another of a sense of burning which cold water did not allay. The sexual power of the males was uniformly dimin-

ished. Menstruation ceased, as a rule, in all of the younger women. Severe spinal cord lesions occurred in the female cases, in the relatively young. One was thirty-nine, one forty, one forty-seven, and one thirty-four years of age. In the males severe cord symptoms occurred in one individual of thirty-six, another of forty, in two of fifty-six, in one of twenty-six, and in one of sixty-two.

CASE I. Female, age sixty; a copyist; the mother of two children; was admitted to Cook County Hospital in my service on Sept. 8, 1899. The patient stated that for six months she had had great weakness, with faintness, shortness of breath, palpitation of the heart, cold extremities, and general nervousness. She had twice had severe nosebleed. There had been no loss of weight, but she had become so weak that she was finally obliged to remain in bed. She complained of numbness of the hands and feet, with a sense of burning.

Examination showed a lemon-yellow pallor, with pale mucous membranes, and some edema of the eyelids and of the ankles. The radial pulse was small, rapid, compressible and weak. There was a soft systolic murmur at the base of the heart, which was transmitted into the vessels of the neck. A venous hum was heard in the neck. The spleen was palpable, and the liver extended two fingers' breadth below the costal arch. The pelvis was negative. The urine was normal. The temperature was slightly elevated, and the patient stated that it had been so for two days following an attack of diarrhea. The stools were watery and loose, but contained no parasites. The blood showed 960,000 reds; 25% hemoglobin; 3,000 white cells; 36 nucleated cells were estimated per cubic millimeter, of which 12 were megaloblasts, 12 microblasts, and 12 normoblasts. The knee jerks were normal. There was no ankle clonus, and no objective sensory disturbance of the skin. The eye grounds were normal. The patient, with rest and simple food and restorative tonics, gradually improved and left the hospital after one month. She again came under my care at the Presbyterian Hospital on the 26th of March, 1901, and remained under observation constantly until the time of her death, on the 24th of July, 1901. Frequent examinations of the blood were made, which showed the typic condition of pernicious anemia, with waves of improvement and decline until the death of the patient. The stomach contents, examined on several occasions, showed always absence of hydrochloric acid. No bacteria were ever cultivated from the stomach contents. The stools showed no parasites at any time. The patient complained a great deal of a sense of numbness and tingling and burning in the feet, and of numbness and tingling in the fingers, but beyond this there was never any evidence of a disease of the nervous apparatus. She died after two days of unconsciousness, without fever, and without the occurrence of any acute infection.

A post-mortem was made by Professor LeCount of Rush Medical College nine hours after death. There was atheroma of the coronary arteries and of the aorta; parenchymatous degeneration of the myocardium, which was very pale; hydropericardium; edema of the lungs; hyperplasia of the spleen and liver; fatty degeneration of the liver; follicular enteritis and colitis; ascites; general anemia; icteroid pigmentation of the whole body, and sclerosis of the posterior and lateral columns of the spinal cord, which were examined histologically. A complete histologic examination was made of all of the organs of the body, which showed degenerative changes in the blood vessels, in the heart muscle, the liver, in which there was also an increase of the iron by Quincke's test, of the spleen, atrophy of the stomach and intestinal walls, with follicular degeneration of the mucous membrane of the intestine, and lymphoid degeneration of the marrow. The marrow contained red cells, normoblasts, and megaloblasts, and irregular and spindle-shaped cells. Histologic changes of other organs are unimportant, and are omitted for the sake of brevity.

Sections of the spinal cord were stained by Marchi, Van Gieson, toludin blue, and Weigert-Pal methods.



CASE II. FIG. 4.—(Weigert-Pal.)

Level of eighth cervical.
Posterior columns, and the pyramidal, direct cerebellar and Gower's tracts in the lateral columns and the direct pyramidal tracts extensively degenerated and sclerosed.
The gray matter, Clark's nucleus, Lissauer and the root zone free.

Slight sclerosis was observed in the lateral tracts in the lower lumbar, which increased gradually as one passed upward into the upper cervical region. Slight sclerosis was noted in the posterior median columns in the midthoracic region, which was increased to a maximum in the cervical swelling. Above this point the sclerosis gradually disappeared, and at the junction of the cord and the medulla had entirely disappeared, as is shown in the accompanying figures. In the thoracic cord the Nissl bodies of the anterior horn cells were normal. The blood vessels of the cord contained many lymphocytes, and many others leucocytes. The walls of the blood vessels were unchanged. In Clarke's nucleus the nuclei were centrally placed, and the Nissl bodies stained normally. In the cervical swelling there appeared to be a slight breaking up of the Nissl bodies in the anterior horn cells; otherwise the condition was the same as that in the thoracic cord. Spinal roots, ganglia, pia and vessels normal. (See cuts of Case I.)

The cerebral cortex showed normal cells and Nissl bodies.

This case is one which belongs to the group described by Lichtheim, Nonne and Minnich, and would belong to the first group, as classified

by Bastianelli. Contrary to the rule, the lateral tracts were more extensively involved than the posterior, although the process extended to a severer degree in the posterior than in the lateral tracts. The microscope showed very definitely in this case the cribriform result of a falling out of the degenerated nerve fibres in the lateral columns without a glia increase. In the cervical swelling the neuroglia increase is evident with resulting sclerosis.



Case II. Fig. 5.—(Weigert-Pal.)

Level of junction of cord and medulla.
Column of Goll entirely degenerated, except at gray commissure.
The medial and posterior parts of the columns of Burdach are completely degenerated, leaving the lateral portion normal.
Both direct cerebellar tracts are degenerated.
One pyramid is much degenerated; the other very slightly changed.
The spinal tract of the trigeminus is unaltered.

Case II. Female, age thirty-nine; American; has borne four children; was admitted to the Presbyterian Hospital on July 26, 1900. Her mother died of paralysis, the nature of which the patient does not know. Her father is still living, but has suffered from stomach trouble a great deal of his life. One maternal aunt died of cancer. One brother and seven sisters are living and in good health. The patient has worked hard, and has always been in good health until the birth of her last child. Two of her children are living and two are dead; one was stillborn. Her present illness began seven years ago, after the birth of her last child. She suffered from indigestion with gaseous eructations, acidity, with fulness in the epigastrium after eating. Occasionally there was vomiting, which had no relation to the meals. She never vomited blood. The appetite was variable; sometimes it was good. She had diarrhea, with watery stools, which often contained undigested food, for the first six weeks of her illness. She was weak, and a noticeable pallor occurred a year ago. She does not remember when her first nervous symptoms occurred, but states that recently she had had a sense of numbness about the hands and feet, with irritation of the bladder which required her to urinate frequently. There was also a sense of pressure in the rectum, and sometimes pain, especially if the bowels were constipated. Menstruation ceased four months ago. Her strength and endurance have been gradually lost. She noticed the legs were becoming weak during the fall of 1899, and after December, 1899, she was obliged to remain in bed. Her legs became gradually weaker, and she finally lost complete control of the bladder. Her bowels were usually constipated, and required a laxative or the injection of water to move them. The pallor, she states, increased, and there was a decidedly yellow tint to the skin.

Examination revealed a woman fairly well nourished; skin icteroid and pale; mucous membrane very pale; the tongue indented and furred; no carious teeth, and the gums healthy. The chest was negative; excepting for a soft systolic blowing murmur heard in the mitral and pulmonic areas. Pulse, 100 per minute, small and soft; the belly of pot form, with diastasis of the recti muscles. There was very palpable visceroptosis, including the liver, kidneys, spleen, intestines and stomach. The uterus was retroverted and moderately fixed. Rectum was normal; the eye grounds were normal. There were slight bedsores over the sacrum; the patient lay in bed with the thighs and legs flexed and closely approximated. There was some atrophy of the muscles of the lower extremities, chiefly of the extensor groups. The knee jerk was increased; there was slight ankle clonus, more of the left than of the right; Babinski's sign was present in the right, but not in the left. There was slight anesthesia of the feet and legs; muscular sense was absent; there was some disturbance of the temperature sense in certain areas, where both heat and cold were felt as touch only. There was a small area in the left inguinal region and upon the outer surface of the right thigh, where heat was felt as pain. There was a noticeable loss of power in the legs, and this was more marked in the right than in the left. The sphincters of the rectum and bladder were relaxed. The muscular power and sensation of the skin in the upper extremities seemed normal. The patient complained of a sense of constriction about the abdomen in the waist line. The eye grounds were normal. The stomach contents contained no hydrochloric acid. The urine was normal. The blood showed 610,000 red cells; 20% of hemoglobin, and 3,200 whites. Poikilocytosis was very marked, and there were many nucleated cells, the megaloblasts predominating. The patient remained in the hospital from that time until the date of death, Feb. 27, 1901. Repeated blood examinations confirmed the diagnosis of pernicious anemia. The spinal cord involvement increased; and finally resulted in flaccid paraplegia. The patient's mental condition remained fairly clear, although she did not apparently recognize the gravity



Case II. Fig. 6.—(Weigert-Pal.)

Level of inferior medulla.
The upper extremity of column of Goll is completely degenerated.
The column of Burdach, excepting a small area between the nucleus of Burdach and the posterior horn, is degenerated.
The direct cerebellar tracts are degenerated.
One pyramid is much, the other only very slightly altered.
Other portions of section, normal.

of her condition. The arms became finally ataxic, although the patient was, at all times, able to feed herself and to button her clothes; but there was a distinct loss of power in the upper extremities. The sensations objectively remained normal, which was a most curious phenomenon when one notes the condition of the



CASE II. FIG. 7.—(Weigert-Pal.)

The lower medulla.
Moderate diffuse degeneration of pyramids.
Columns of Burdach degenerated.
Direct cerebellar tracts degenerated.

cervical spinal cord. There was at no time any disturbance of the eye grounds, nor of the oculomotor muscles. The appetite remained fairly good; the patient vomited occasionally. The stomach contents showed no hydrochloric acid upon repeated examinations. During the latter part of the patient's illness she developed a cystitis, and later a pyonephrosis. As a result, there was an irregular type of fever, with a rapid pulse, until death closed the scene.

The post-mortem examination was made by Professor Hektoen of Rush Medical College at the Presbyterian Hospital two hours after death. There was general anemia; red marrow in the femur; splenic hyperplasia; ascending cysto-ureteropyelonephritis; bronchopneumonia; fatty liver; sclerosis of the aorta; chronic pelvic peritonitis, with tubo-ovarian adhesions; extensive sacral decubitus, edema of the feet, and degeneration of the posterolateral columns of the spinal cord. The microscope revealed the usual extensive atrophic and fatty degeneration of the organs of the body, and the liver an increase of iron by the Quincke test. For the sake of brevity I will omit a further histologic description of the organs, excepting of the spinal cord. Sections of the spinal cord were stained with toludin blue, Van Gieson and Marchi. The Weigert-Pal method showed degenerative changes, with absence of the myeline sheath from many of the tracts. At about the fourth lumbar, the posterior column was invaded, leaving, however, normal white tissue in proximity to the gray matter and presenting undegenerated the oval bundle of Flechsig. The lateral tracts showed degeneration in the right more than in the left. In the lower dorsal region the degeneration had become more extensive, involving almost completely the posterior columns, but leaving a narrow normal band of white tissue next to the gray commissure and posterior horn; the lateral tracts were almost equally involved, and one direct pyramidal tract, showing extensive degeneration. The posterior root zone and the column of Lissauer remained normal. In the middorsal region the sclerosis was very extensive, involving, to a greater or less extent, the complete periphery of the cord. The sclerosis still left a slight band of tissue next to the gray commissure, and a larger band along the posterior gray horns. The columns of Goll and Burdach were almost completely involved, while in the lateral column the pyramidal tract, the direct cerebellar tract and Gower's tract were sclerosed. Both direct pyramidal tracts were implicated. In the cervical swelling the posterior column, and in the lateral columns the pyramidal tracts, the direct cerebellar tract, and in the anterior column the direct pyramidal tracts, were extensively sclerosed. Here, again, the root zone and the column of Lissauer were practically free. At the junction of the cervical cord and the medulla one pyramid was extensively involved, while the other one but slightly degenerated. Both direct cerebellar tracts were degenerated. The column of Goll was entirely degenerated, except at the gray commissure. The medial and posterior parts of the column of Burdach were completely degenerated, while the lateral portion was unchanged. The spinal tract of the trigeminus was not affected. In the lower medulla one pyramid was much degenerated, the other slightly so. The upper extremity of Goll was completely degenerated. The column of Burdach, excepting a small triangular area, between the nucleus of Burdach and the posterior horn, was degenerated. The internal arcuate fibres, which go to the lemniscus, were normal. In the medulla the pyramids were practically normal, there being only a slight, if any, degeneration. The white matter around the spinal extremity of the olive was normal. The internal arcuate fibres and the interolivary layer of the lemniscus were normal; likewise the external arcuate fibres. In the upper medulla the white fibres of the hypoglossal nerve were normal. Both pyramids were slightly and diffusely degenerated, more upon one side than upon the other. The white cap of the olivary body was normal. The olivary fibres to the restiform bodies were normal. The restiform bodies were normal. The tractus solitarius was normal. A section through the lower pons showed a marked degeneration of both pyramids, one slightly more than the other. This is remarkable, because of the absence of degeneration in the pyramids of sections below. The posterior longitudinal bundle was normal. The middle cerebellar peduncle was normal. The upper pons in the dorsal region showed the normal stain; the posterior longitudinal bundle was well marked. The central tegmentary path appeared normal. The medial and lateral lemniscus were normal, as was also a section of the superior cerebellar peduncle. In the



CASE II. FIG. 8.—(Weigert-Pal.)

The middle medulla normal except for very slight degeneration of the pyramids.

ventral pons long fasciculi, includimg the fibres of the pyramidal tract, and those from the cerebrum to the pons, appeared normal. The transverse fibres of the pons stained intensely. This section showed a light line in its most ventral part, which may be an artefact.

In the thoracic cord the anterior horn cells and the Nissl bodies in the centre were round and granular, while in the periphery of the cell the Nissl bodies were spindle-shaped and stained normally. In Clarke's nucleus cells were small and much less in number. The cells of the lateral horn showed disintegration of the Nissl bodies. The blood vessels contained leucocytes, but in smaller number than in Case I. In the cervical region the Nissl bodies were in the same condition in the anterior horn as in the thoracic cord;

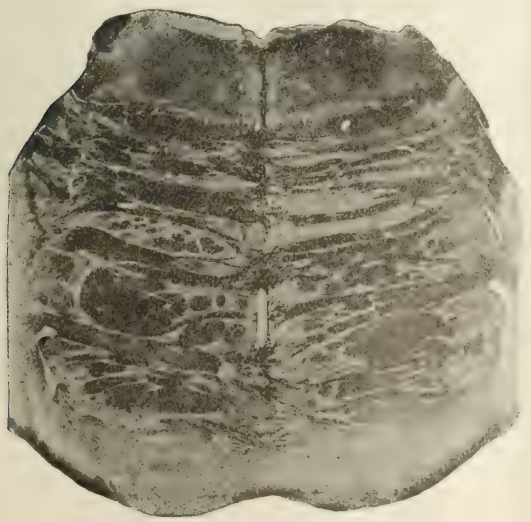


Case II. Fig. 9.—(Weigert-Pal.)

Section of lower pons.
Extensive and intense degeneration of both pyramids—one more than the other.
Otherwise normal tissue.

they were spherical and fairly granular instead of spindle-shaped. Lipochrome masses filled up the cells and pushed the Nissl bodies towards the periphery. The blood vessels were only slightly thickened. Section of the cortex showed that the pyramidal cells stain and have normal stainable Nissl bodies. (See cuts of Case II.)

The cells of the cerebral cortex were normal.



Case II. Fig. 10.—(Weigert-Pal.)

Section of upper pons, normal.
The ventrally located white border may be an artefact.

The accompanying microphotographs of sections of the entire cord, medulla and part of the pons speak more definitely than words of the extensive degenerative process which occurred. It is remarkable that the nervous symptoms, especially of the upper half of the body, were so mild, as compared with the lesions of the upper cord and medulla. The absence of any marked degeneration of the gray matter, of the root zone, of the root ganglia, and of the brain cortex, agrees with the reports of others and illustrates the fact that a whole neuron, either afferent or efferent, is not involved. It is further remarkable that the lesion varies so in its extent, both lateral and vertical, in the cord, that the degeneration, especially in the anterior pyramids, appears and disappears at different heights; that the degeneration is greatest in the upper and lower cervical regions, as in many of the cases reported by others. Still here, as elsewhere, in the cord, it is not confined entirely to any one of the different cord systems. A chronic degenerative process, manifested by nerve degeneration and glia increase, occurs in some part of the cord, while in other parts there is a rapid process of nerve fibre degeneration and destruction without much glia increase, leaving a cribriform-like appearance.

*(To be continued.)*

## CASES OF PROSTATECTOMY, WITH REMARKS ON THE OPERATION.[1]

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"Previous to 1888 the occasional publication of sporadic operations aiming at the removal of obstructing prostatic growths, comprised the literature of prostatectomy. It was not, however, until the publication of cases by Mr. Arthur McGill of Leeds, in 1888, and the communication of Mr. McGill and his colleagues of the Leeds Infirmary at the meeting of the British Medical Association in August, 1889, that the surgical world awoke to the possibility of attempting anything like a radical operation for the removal of obstructing prostatic masses. Since that time much has been written, a number of different operations have been described and advocated, and a few men have obtained operative experience enough to make their opinions of value to the world. The writer had the pleasure of spending some days with Mr. McGill in Leeds a few months after his first publications, and will never forget that gentleman's enthusiasm over the future possibilities of the operation which still bears his name. Up to very recently the writer has not been in a position to develop an operative experience which should entitle him to speak with authority, and he comes before you tonight with no masses of statistics to offer in support of any one operative procedure; nor has he any ambition to do more than to bring to your attention certain points connected with radical prostatic operating,

[1] Read before the Suffolk District Medical Society, April 26, 1902.

points which his own small experience seems to indicate as worthy of notice.

"What is the present situation regarding the treatment of prostatics? Briefly, it may be summed up as follows:

"The palliation of the condition by catheter so long as the patient can be kept comfortable by this means; and then attempts to alter the existing condition of obstruction by various operative procedures; the removal of one or both testes, the ligation of one or both vasa deferentia; the removal of parts of the prostatic growth by incision, enucleation, or electric heat; or finally by a complete enucleation of the prostatic growth by the suprapubic or perineal route, or by both combined. Of the value of the catheter and its well-nigh universal utility in the earlier troubles due to prostatic overgrowth, it is needless to speak. Of the operations other than the so-called complete prostatectomy we may briefly say that each has a limited application in individual cases and that brilliant cures are occasionally the result of all. Some are so easily performed that they are a source of danger because they are too frequently advocated and made by persons whose knowledge is incomplete and whose surgical experience is not beyond question. Others require a complicated apparatus and a special skill in its use, quite beyond the reach of the bulk of the surgical profession. All this is beyond the limits of these notes.

"Coming to the more radical operations we find the conditions today about as follows:

"On the one hand, the earnest advocacy of radical operations by a few men who have developed an experience large enough to teach them the feasibility of such operations as technical possibilities, and to give them a realization of their utility as measures of relief when properly employed and at the proper time; on the other hand, the still prevalent belief among the great mass of the profession that such operations have still to prove themselves. Many such men will subject their patients to months or years of pain and invalidism, long after the catheter has demonstrated its powerlessness to give relief, and they will allow patients to suffer and die with surgical kidneys, under catheter treatment, sooner than offer them the risks which prostatectomy offers. It is this exaggerated idea of the severity and mortality of radical operations upon the prostate, and the scepticism as to the possibilities of relief which such operations offer, which is responsible for the present status of the surgical treatment of prostatic disease in the minds of the medical public."[2]

It is the writer's desire tonight not to champion any one operative technique, but to call to your attention as forcibly as possible some more recent results of radical operations upon the prostate, and to offer his own winter's work for your consideration, as the basis upon which his opinions depend. Last August, when beginning a service at the Boston City Hospital, the writer determined to make an exploratory suprapubic incision in every prostatic whose condition could not be properly palliated after a sufficient interval of time. In every case such palliation was honestly and faithfully tried, and in no case was operation performed until it was quite evident that less radical measures were of no avail. Since that time nine operations have been performed as follows:

CASE I. A man fifty-seven years of age, looks older; bad case for operation. Previous suprapubic operation for the removal of two stones three years ago. Only slight temporary relief from that operation. Careful palliation for six weeks, and then suprapubic prostatectomy at a time when the bladder was still foul and could not be made clean, when the kidneys were extensively diseased. An uneventful convalescence for two weeks; sudden death in the night with no apparent cause. Autopsy showed a chronic, diffuse nephritis, with some edema of the lungs, but nothing wrong locally.

CASE II. A man forty-seven years old; several years symptoms; palliation of suffering impossible. Bladder foul; kidneys somewhat involved. Suprapubic prostatectomy with entire removal of the prostatic mass. Up in three weeks. Some dribbling of urine. Faradic electricity, with good result. Discharged well in five weeks, with less than half an ounce residual urine.

CASE III. A man sixty-one years; symptoms for one year; good kidneys; clean bladder; large amount of residual urine; great discomfort and loss of strength from nocturnal frequency of urination. Catheter life absolutely out of the question on account of the mental and physical condition of the patient, and because he is a pauper and has not proper facilities for such a catheter life. Suprapubic prostatectomy with entire enucleation of the prostate; long uneventful convalescence. Up and about every day at the end of four weeks; no trouble except from dribbling. Faradic electricity. Present condition excellent except that he dribbles at night and has to wear a urinal while asleep.

CASE IV. A man seventy-five years of age; symptoms for many years; several stones crushed during the last few years; foul bladder; bad kidneys. Catheter life for a long time past, but now the catheter is very difficult of insertion and has to be used many times each day. An unfavorable case for operation. Suprapubic prostatectomy. A number of stones removed from the bladder. Prostate found enormously enlarged and enucleated entire. Slow uneventful recovery. Two months after the operation he gets up only once at night, has less than an ounce residual urine, and passes his water as well as he ever did.

CASE V. A man sixty years of age; five years' symptoms. Many efforts at palliation. Several suprapubic operations, the last one about six months ago. Foul bladder; greatly thickened and contracted. Kidneys much involved. Very bad case for operation, but operation determined upon because of the great suffering of the patient. Suprapubic prostatectomy with removal of the whole prostate. The inside of the bladder is much trabeculated, and is covered with a crust of phosphatic deposit. Five weeks' uneventful convalescence. Discharged much relieved, but still with some frequency of urination, getting up three times at night. Comes back three months later in bad condition, with a small hard, contracted bladder and much frequency and distress. Is comfortable while in bed, but relapses whenever he tries to go to work.

CASE VI. A man sixty-nine years of age, many years' symptoms; marked atheroma; foul bladder; kidneys involved. Unfavorable case. Suprapubic prostatectomy with entire removal of the prostate. One month uneventful convalescence. Discharged in excellent condition.

CASE VII. A man sixty-one years of age; many months' distress from frequent and uncomfortable urin-

[2] Quotation from writer's paper, "Notes on Prostatectomy," read at Buffalo, N. Y., April, 1900.

ation. Good heart and good kidneys, clean bladder; much residual urine. No catheter up to the present time. Catheter life absolutely refused by the patient, and is impracticable because of his poor surroundings. Suprapubic prostatectomy and large prostate removed entire. Long uneventful convalescence. He now has no residual urine; he sleeps all night. He passes his urine easily and as well as ever. (Patient exhibited.)

Case VIII. A man fifty-five years of age; several years' symptoms; with two years catheter life. The use of the catheter very painful and necessarily frequent. No longer endurable. Suprapubic cystotomy and complete enucleation of a large prostate through a foul bladder. Four weeks uneventful convalescence. Perfect result with no residual urine; sleeps all night without getting up to urinate.

Case IX. A man sixty-nine years of age; several years' symptoms; six months catheter life, which is no longer endurable. Suprapubic prostatectomy through an infected but not foul bladder. Now six weeks since the operation. Perfect result; no residual urine; sleeps all night without getting up to urinate.

Here then are nine cases with but one death. Of the eight cases which survived the operation six were cured, a cure meaning the complete removal of all obstructing tissue, practically no residual urine, and comfort of the patient. The present condition of all of these six is known. Of the other two one was completely relieved, except that he has not entirely regained control of his urine, and he dribbles at night. During the day he is able to hold his urine until he can reach a urinal, and his calls to urinate are not unduly frequent. He has no residual urine and is in no further danger of injuring his kidneys from obstruction of his bladder outlet. The second case not cured is Case V, which, it must be remembered, was a last resort operation performed years too late, after both kidneys and bladder were extensively diseased, and after the bladder had contracted down to a small, hard and thick-walled pouch coated with phosphatic deposit. In this case the removal of the obstructing prostate came so late that the diseased conditions already existing, although bettered, could not be completely palliated. It will be noticed that the two unsuccessful cases, Case I, who died, and Case V, just described, were both patients which had undergone previous palliative operations unsuccessfully, and had suffered years of discomfort before the radical operation was performed. Both had diseased bladders and kidneys, and both were greatly worn by suffering and loss of sleep. In other words, both were operated upon several years too late. Aside from these two cases the other seven were cures, except in the one case which still dribbles at night, while asleep.

Now, gentlemen, these facts, honestly stated, are not such as should lead to the conclusion that prostatectomy is an operation so dangerous as to be offered only as a last resort. Prostatectomy as a last resort is very dangerous, but prostatectomy performed at the proper time is not unduly so. It will be noticed that in two of the cases, III and VII, the operation was performed with no previous attempt at the palliation of the existing conditions by a routine use of the catheter. In each case this was done because the surroundings of the patient were so bad that it was the writer's belief that six months of catheter life, as it would inevitably have existed in these two instances, would have resulted in an infection of the bladder and kidneys and a much greater danger to the subsequent well-being of the patient, than an immediate prostatectomy through a clean bladder offered. One of these patients is here tonight for your observation. These cases have all been done during the last year, and as to the permanence of the results obtained the writer has nothing to say except that, having completely removed the obstruction at the neck of the bladder in each case and having obtained relief of the symptoms directly and indirectly due to that obstruction, it would seem reasonable to believe that there will be no recurrence of these symptoms in the future. This paper is intended as a brief consideration of and plea for prostatectomy in general and not as an advocacy of any special form of operation or operative technique; but although the writer's procedures in this series of cases have differed in no essential regard from those of many other operators and are practically those detailed by Fuller of New York, it seems only proper to make a brief statement of them. The following is Fuller's description:

"The patient is placed flat on his back, neither the Trendelenburg position nor the Petersen bag being commonly found necessary. The bladder is carefully washed out and then left moderately distended to the extent of from eight to twelve ounces. The next step is to open the bladder suprapubically, the general directions which have been laid down by Keyes being followed. The forefinger of the left hand is then introduced into the bladder, the location and extent of the prostatic obstruction determined, and the vesical opening of the urethra located. In the right hand is grasped a pair of rough, serrated-edged scissors with a long handle. These scissors are slipped along the left forefinger to the urethral opening, and are made to cut through the bladder wall in that region. The cut extends from the lower margin of the internal vesical opening of the urethra backward for an inch to an inch and a half. The blades of the scissors being rough and serrated, make an incision which bleeds but little. Then one of the forefingers, whichever the operator may find the more convenient, is slipped through the vesical hole made by the serrated scissors, while at the same time the fist of the other hand makes firm counter-pressure against the perineum. By means of this counter-pressure the prostatic growth is brought well into the reach of the forefinger of the other hand, which is employed all this time in enucleating the prostatic obstruction *en masse*, or piece by piece, as the case may be. This enucleation can be easily and speedily accomplished in this manner, and should not be desisted in until all the lateral and median hypertrophies, as well as all hypertrophies along the line of the prostatic urethra, have been removed. The vesical walls at the base, as elsewhere, are very elastic and

dilatable, so that it will be found that the little cut made through the bottom of the bladder will be large enough to admit of the passage through it of the enucleated prostate."

After the enucleation is completed, it is the writer's custom to tie in a catheter through the urethra, and also a suprapubic drain of rubber, so that irrigation can be carried through one tube and out of the other, with ease and thoroughness. The bladder is packed with gauze strips for four hours or so after operation, to make sure that no severe hemorrhage shall take place. Constant watchfulness and frequent irrigations are the essentials of the after-treatment. The most noticeable thing in connection with the condition of these patients immediately after operation, has been the absence of severe operative shock. In no one of the cases has the enucleation resulted in any greater shock than is commonly present in old men upon whom a suprapubic cut has been made for stone. In fact, it is the writer's growing belief that the enucleation of the prostatic masses does not very materially increase the shock which the same patient would suffer from a suprapubic operation, without such enucleation. To sum up, the writer believes:

(1) That great relief can be given to all patients suffering from symptoms due to obstructing enlargement of the prostate, either by palliative or by operative means.

(2) That the time to resort to operative measures, is just as soon as palliative treatment carefully executed by competent hands, has failed to give relief.

(3) That complete prostatectomy is always the operation of choice, because it is the only operative procedure which cures or gives *uniformly* good results, when successfully performed in proper cases.

(4) That the best time for its performance is just as soon as palliative efforts have failed, or are manifestly impossible of execution, and before secondary changes in the bladder and kidneys, due to long-continued obstruction, have taken place.

(5) That in those cases which come for surgical relief so late in the development of the pathological conditions, that the bladders and kidneys are extensively diseased, and the patient is manifestly exhausted by long-continued suffering, other less certain and perhaps less severe measures may be advised, instead of a complete prostatectomy; but that such a decision can only be and must always be made by the surgeon for the individual case, and cannot be made the subject of a generalization. A consideration of these other methods of treatment cannot be entered upon in this paper.

UNIVERSITY OF VIENNA.— Carl Gussenbauer, professor of surgery, has been appointed rector, and Ernest Ludwig, professor of chemistry, dean of the university. — *American Medicine.*

## SMALLPOX: ITS MEDICAL TREATMENT.[1]

BY MICHAEL KELLY, M.D., FALL RIVER, MASS.

SMALLPOX is a disease which affects the entire system. The physician's duties in regard to it are many and varied. Its treatment is necessarily expectant and symptomatic. A self-limited disease, running a definite and regular course, no plan of treatment will abort or modify it when once developed. Perhaps its present extensive spread, giving opportunities for its study by numerous observers using modern scientific methods of research, will soon disclose the nature of the contagium, and thus rob it, in those who through ignorance or misfortune have escaped vaccination, of its loathsomeness and terrors.

As soon as the diagnosis is made, if not as soon as a competent observer has a reasonable suspicion that a case is variola, the patient should be isolated. It would be well, of course, to have some suitable place of detention for cases that are only reasonably suspicious. For the treatment of those in whom the disease is diagnosed, an isolation hospital is the proper place, and there they should be sent at once.

The isolation hospital, where patients are to be confined from two to three weeks in mild cases, and from four to five weeks or more in severe cases, should be in construction and equipment thoroughly on a par with the times. It should be a retreat in which the physician himself would elect to be confined, or to which he would willingly send members of his family or friends if necessary. Smallpox patients are not criminals nor outcasts, and should not be treated as such; they are truly today either the victims of unfortunate circumstances or of their own invincible ignorance; and in submitting to the quarantine lawfully imposed by the boards of health they are making a sacrifice of their feelings at least for the public good. They should have all the comforts which their unfortunate condition demands.

As these patients cannot have the physicians of their choice but only those selected by the city or state, the physicians so selected should be men about whose qualifications there can be no reasonable doubt — men willing to prescribe, superintend or nurse as occasion demands — men who will inspire assistants and subordinates to discharge their duties with incessant vigilance. The disease, besides being a danger and annoyance to the patient, is a source of greater danger, embarrassment and expense to the community, and the physician entrusted with the management of it should be fully able to sustain his combined grave responsibilities to patient and public.

Strong, ambitious, trained nurses, recently vaccinated and not afraid of the disease, should be secured when possible. There is considerable lifting, changing of position in bed, daily changing of bed clothing and bathing to be done for these patients, which would soon prove too much for delicate or timid nurses. The urgent need of keeping severe cases under unremitting observa-

[1] Read before The Massachusetts Medical Society, June 10, 1902.

tion, and the fact that death may occur suddenly at any time during the disease, even in cases apparently doing well, should be plainly taught the nurses from the start. Male nurses, when available, are better for men.

Physicians, nurses and all persons who may come in slightest contact with patients or their belongings, should be vaccinated, without regard to the time of previous vaccination, before beginning the discharge of their duties.

I believe it is within the province of this paper to say a word about prophylaxis. After the experience of a century we can declare without any hesitation that the head and front of the prophylaxis is vaccination. The disease would soon cease to exist if vaccination were universally practised.

An experience in managing an outbreak of the disease in Fall River, in 1899, proved conclusively a truth which theretofore I had accepted on the authority of teachers and textbooks. Of a family of fourteen persons under my care two did not contract the disease, and these two were the only members vaccinated. These two always mingled freely with the family, and were sent to the hospital for isolation only. In all the families, nineteen in number, were members who escaped the disease, and these were invariably persons previously vaccinated. An old lady fifty-five years of age, the last of a family of six to yield to the disease, had been vaccinated, one cicatrix only, thirty years before. Though in very feeble health, for which she was under a physician's care, she developed only a fairly severe varioloid, and made a rapid recovery. Two, who were vaccinated ten years previously, each showing only one shadowy cicatrix, had well-marked varioloid but were not seriously ill at any time. None of my cases of varioloid, vaccinated at a nearer date than ten years before, manifested the disease in anything like a severe form. I have seen no case of varioloid in which there was more than one cicatrix from a previous vaccination. From the history of these cases, and others which I might mention, it is evident that vaccination properly performed and repeated at suitable intervals is the cornerstone of the prophylaxis.

Varioloid would neither be very annoying to the patient, nor demand much attention from the physician, were it not for the position in which it places the patient in relation to the public. The fact that he who harbors varioloid is as apt to spread the disease in its worst form as he is who has variola vera, makes it as necessary to observe the strict laws of quarantine, disinfection and fumigation in the one case as in the other.

Only in rare cases do the subjects of varioloid require more than a day or two in bed. Owing to the effects of the preceding vaccination, remote though it may have been, as in the case just mentioned, in which it had been done thirty years previously, varioloid has no complications. After the fourth or fifth day of the eruption, the low temperature which may have existed returns to normal, the vesicles or abortive pustules dessicate without progressing into fully matured lesions, or their contents become absorbed, leaving only broken shells. From this out the patients with this mild form of the disease are difficult to control; it is difficult at any time to convince them that they have a disease which is a menace to the public; it is hard to keep them quarantined until by efficient disinfection and fumigation the dangers of their spreading the disease have passed. The difficulties and uncertainties attached possibly or necessarily to the proper performance of the needed disinfection and fumigation in private houses point directly to the imperative need of treatment of even these mild cases in a hospital.

In discrete and confluent smallpox the indications for treatment are to preserve the patient's strength by every possible means from beginning to end, and to render the manifestations in the skin as little annoying as possible.

No special treatment is indicated for the incubation period except to prevent patients from doing anything which might debilitate them for the disease about to develop. I made attempts in two cases, however, to modify the oncoming disease at this stage. Two patients, a young man aged twenty-two years and an infant of seven weeks, I vaccinated in what from the subsequent history proved to be the sixth and fourth days of this period respectively. Though the young man came down with the disease ten days later than a younger brother, both previously unvaccinated, he had the disease in a much milder form than his younger brother, and was discharged a week earlier. The infant developed a very abundant crop of discrete eruptions, had a high temperature, and skin very swollen and edematous, and though the textbooks inform us that it is the rule for children under one year with either discrete or confluent variola to die, this child was well at the end of twenty-one days, and had no pitting after five weeks. I will not say that these results were a consequence and not a coincidence of vaccination, or that the striking result in the case of the young man was not due to individual peculiarity of constitution. The cases are too few for a general conclusion. They are mentioned simply because they may assist in the discussion which is still *sub judice* of the benefits of vaccination in the incubation stage or at least in the early or middle period of that stage.

In the stage of invasion, occurring on the tenth to the fifteenth day of the incubation period, rest in bed is indicated. The rooms should have an abundance of pure fresh air. The absence of fresh air in the small, close rooms of tenement houses is more oppressive to these patients than it is to the subjects of typhoid fever or other febrile diseases. Twenty-five cases treated for a week in the eruptive period in tenement houses, and all then removed in one forenoon to a hospital where there was an abundance of fresh air of a suitable temperature, convinced the writer that fresh air is absolutely indispensable in keeping down the mortality. In these cases an imminent mortality of 7 to 10% was con-

verted into no mortality at all. The temperature of the room should not be above 70° F. nor much below 60° F.

Solar light should be excluded as completely as possible, since it is reasonably certain that its access to the face is largely productive of the pitting left after severe cases. Inexpensive dark window curtains will serve this purpose. The headache, backache and other distressing symptoms following the rigor of this stage yield readily to four or five grains of phenacetine guarded by a little sherry wine or brandy, and repeated every two or three hours according to indications. The same formula, supplemented by moderate doses of the bromides and chloral, is useful for the fever and delirium accompanying the period of pustulation and suppuration. Gastric irritability is relieved by sucking small pieces of ice or by taking small sips of iced lemonade. Poultices or rubber bags filled with hot water applied to the stomach or back to relieve the distressing symptoms in these parts are contra-indicated, as such applications make the effects of the oncoming eruptions more marked and permanent in the parts to which they are applied.

The disease is profoundly exhausting, and tonics are indicated at this stage and throughout its entire course. Only easily digestible and assimilable yet nutritious food should be offered. Milk, eggs, animal broths, and abundance of pure cold water or lemonade are very acceptable. Mild laxatives may be given in the early stage, and if continued at intervals with care throughout the disease may prevent the constipation which sooner or later may appear as a complication. Stimulants in the forms of sherry or port wines, whiskey or brandy, in free doses and repeated every two or three hours, especially in the afternoon and night, are useful and agreeable adjuvants to the sustaining treatment at any period of the disease. The general treatment adopted in this stage is continued to the end with but little essential change. Complications at any stage are successfully treated upon general principles.

Pain and tension in the skin, and the itching which develops as the eruption becomes vesicular and pustular, are relieved by the application to the parts of cloths wrung out of cold or hot water according to the patient's choice, and frequently changed. Evidently it is the moisture of the applications which produces the soothing effect. As this stage advances, the nose, mouth, soft palate and throat suffer from the eruption, and deglutition becomes difficult and painful. Gargles of chlorate of potash when the patient can use them are of benefit, but most marked relief is obtained from a careful rinsing of the mouth by the nurse with a piece of clean old linen wrapped around her finger and previously dipped in a 1 to 20% solution of boric acid. For the same purpose a saturated solution of boric acid in rose water may be used in an atomizer and sprayed frequently over the parts. This spray applied to any afflicted part of the surface of the body is most grateful through the rest of the disease. In sprays not to be used about the nose, mouth or eyes, a solution of corrosive sublimate is useful. Some patients prefer these solutions in the form of spray, and others prefer cloths saturated with them applied to the parts and frequently changed. The intense itching in the late pustular or suppurative stage is relieved by the mixture recommended by Dr. Hare: olive oil and lime water, equal parts, to which a little carbolic acid or thymoline is added. This can be applied with a large camel's-hair throat brush with a long twisted wire handle. These sprays and the oleaginous mixture can be used two or three times daily and in severe cases much oftener. As the disease advances they appear to hasten the falling of the crusts, exclude the air from the skin, and aid in the general work of disinfection. During the height of the secondary fever, the fever of suppuration, daily bichloride sponge baths only can be given, as the patients are too sore and too much swollen to make feasible the giving of immersion baths.

Rupture and dessication of the pustules begins on the thirteenth or fourteenth day of the eruption. This is the period at which death is most likely to occur from toxemia produced by absorption of some of the large quantity of pus upon the surface of the body. On account of the energetic efforts which have always been made to tide patients over this period, a treatment employed by me with apparent success in an unusually severe case of confluent smallpox may be worthy of mention. On the eleventh day of the eruption, and therefore two or three days before rupture and dessication of the pustules, patient had an evening temperature of 105.5° F. Face, arms, forearms, hands, legs and feet were intensely swollen and edematous. Patient profoundly apathetic. I injected subcutaneously under strict antiseptic conditions into the tissues of the back 10 cc. of antistreptococcus serum; two similar injections at intervals of twenty-four hours were made into the forearm and thigh respectively. In about twelve hours after the first injection the edema about the eyelids began to subside, patient could move his eyelashes; a similar change took place about the mouth, and the profound apathy rapidly abated. The breathing and pulse also improved. In a few hours after the last injection the morning temperature was normal. It was fully sixteen days later, however, before the patient ceased to have an afternoon temperature of a degree or a degree and a half. Patient made a good recovery, and developed no abscesses nor sores at any time. I had but one case seriously ill enough to indicate this treatment; nevertheless, I consider the improvement after injections rather more than a coincidence.

When suppuration and the secondary fever have subsided, and the crusts, or at least a crop or two of them, have fallen, the patient is given three thorough antiseptic baths at intervals of twenty-four hours. Then he gets a clean, fresh suit of clothes, is removed to an uninfected part

of the building or, if the weather will permit, to a tent outside the grounds, where the antiseptic bathing is continued for three days more. Then all his belongings which it is not deemed advisable to destroy by burning are placed in a large wooden receptacle, where they are exposed to formaldehyde vapor for twelve to fourteen hours, and then the patient is dismissed. Ambulance drivers, ambulances and their effects should all be disinfected and fumigated.

In the present visitation of the disease in the United States not much of the usually fatal hemorrhagic variety of the disease is seen. I have not seen a case. In an extensive survey of the literature of the subject, the few remedies concerning whose probable efficacy there is the greatest agreement among writers are turpentine and ergot in liberal doses, carbonate of ammonium, quinine and the practice of transfusion.

In country towns, or in the country in general, where there is no isolation hospital and the patients must be confined in a private house, the general course indicated should be pursued as nearly as possible. The room in which the patient is confined should be as far removed from the living rooms as possible. Cloths or sheets kept continually saturated with a disinfecting solution should be suspended in the doorway and at the windows, especially if the windows open upon a street or upon near neighboring houses.

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DISCUSSION.

Dr. F. I. Knight of Boston: I would like to ask about the use of the red light in the treatment of smallpox. We have heard a great deal about the extraordinary effect of the red light on lessening the severity of the local process going on in the skin.

Dr. C. J. White of Boston: In regard to the use of the red light, I will say, that so far it has not proved to be efficacious in the treatment of smallpox. No detailed statement about its use in Europe has, however, come to my notice, so perhaps we should not judge definitely about its success across the water; but Dr. Councilman of Boston does not believe in it, and says he has found no benefit resulting from its use.

Dr. Bancroft of Boston: In regard to the use of the red light, we fitted up two rooms with the red light. We did this by fixing up curtains. I suppose there were about 20 cases there in all, and we kept them there long enough to see what influence the red light might have on the pitting. One of these cases was very sick, and it was rather a surprise to us that the patient got well, but I have seen many such cases get well. I think from the experience we have had that we cannot claim any great benefit from the red light.

Dr. Durgin spoke about the use of serum. We tried this in eight or nine cases which had not been vaccinated, but from these few cases we cannot conclude anything. In two cases it was tried very early, and it seemed to me it might have had some effect. I think it should be tried only in unvaccinated cases, and those cases children.

GENERAL DISCUSSION.

Dr. E. C. Norton of Norwood: I think there is reason for not vaccinating in some cases, and would like to ask Dr. McCollom what kind of cases he would give as not suitable to vaccinate?

Dr. McCollom: Of course there are a few cases, as Dr. Norton says, where it might not be advisable to vaccinate, but they are very few. In answer to his question as to what kind of cases, I would say, if a child is in the last stages of tuberculosis, or, if in the active stage of a very severe attack of scarlet fever, I should not want to vaccinate, and it is a question when a child is having a very severe attack of whooping cough whether it is wise to vaccinate, although there are some men who claim that whooping cough has been modified by vaccination. I think, however, that this latter must be an error in observation, as I can hardly see how vaccination would modify whooping cough.

Dr. H. L. Chase of Brookline: I would like to say a word about the vaccination of pregnant women. In the town in which I live opinion is rather against vaccinating pregnant women. The late Dr. Henry Martin was always against doing this unless the woman was much exposed to smallpox. I should like an expression of opinion in regard to this point from Dr. McCollom.

Dr. McCollom: I have vaccinated a good many pregnant women. In a case of this kind I think it is well to tell the woman just how the matter stands. If she has been exposed to smallpox, tell her she has been exposed, and that there is danger of taking the disease, and many women, when they understand how it is, will be glad to be vaccinated. Of course there are some women who have made up their mind that they will not be vaccinated, and I do not believe in forcing them.

Dr. Nichols: I have never seen any harm from vaccinating pregnant women, and if there is any, certainly in this large assemblage of medical men of experience we ought to find out something about it.

Dr. Knight: I would like to ask Dr. McCollom if he thinks any child who is well enough to go to school should be exempt from vaccination.

Dr. McCollom: I should say if a child is able to go to school, it is able to be vaccinated. I will say right here that I believe the only time when a child should not be vaccinated is when the child is sick with some acute disease, and will succumb to it in a few days.

Dr. J. A. Douglass of Amesbury: I should like to ask Dr. McCollom how early in the development of smallpox it is communicable to those who have not been vaccinated. Professor Clark of New York stated that it is not communicable until it becomes characteristic, and he cited a number of cases that came into Bellevue Hospital without any history or symptoms of what was coming, except severe fever. They were placed in the fever ward and watched. A few days later, on coming into the ward, the characteristic eruption was observed, and the patients were immediately placed in the smallpox ward. None of the other patients in the fever ward contracted the disease.

I would also like to ask Dr. McCollom what precautions against spreading the disease he considers necessary for a doctor to take when he is attending a case of smallpox, and what he is in the habit of doing to satisfy his other patients, and the sentiment of the community in which he lives.

Dr. McCollom: In regard to the first question, I think smallpox is communicable from the commencement of the initial fever.

In regard to the second question — as far as the doctor himself is concerned, of course he should be vaccinated successfully, and after seeing a patient ill with smallpox he should change his clothes.

Dr. C. C. Foster of Cambridge: There is one class of cases that has been brought to my attention, and that is cases of chronic hip-joint or spine disease. Parents of children with these diseases are very loath to have their children vaccinated. These children do

not usually go to school, and of course they are not with other children much. I should think these would be doubtful cases. Where they are "walking cases" I usually advise vaccination, but the parents often refuse.

DR. MCCOLLOM: In regard to what Dr. Foster has said about these cases of hip-joint disease, I can see no reason why these patients should not be vaccinated. Of course if the children are very much debilitated that puts another light upon it.

DR. S. W. ABBOTT: I believe the words "This child has been successfully vaccinated" should be required on all certificates of vaccination.

I never saw a case that had been communicated from one person to another through the medium of an attending physician, but I did see this peculiar case: During the epidemic of 1872, I had in my stable a cow two or three years old. After seeing a case of smallpox I used to hang my coat up in the stable for the protection of other patients and my family, and that cow had the cow pox.

DR. S. HANSCOM of Somerville: I would like to ask Dr. McCollom how soon he would vaccinate an infant?

DR. MCCOLLOM: I would vaccinate a child forty-eight hours after birth if there was a case of smallpox in the family. I have vaccinated a child twenty-four hours after birth. Of course it is not necessary to make a large scarification.

DR. BROUGHTON: I just wish to call attention to one little trick which I found extremely useful in the preparation of the arm for vaccination. After soap and water and scrubbing, one or two strokes of a razor will clean the arm splendidly. Just shave a small spot on the arm. I did this in all my cases, saw no ill effects, and was able to do it rapidly.

DR. B. R. SYMONDS of Salem: We have had a number of cases of smallpox in Salem this winter, and I should like to briefly outline our method of dealing with it, and ask Dr. Durgin if we are using about the same methods that are used in Boston. When we hear of a case we go to the house and remove the patient to the smallpox hospital. We then vaccinate everyone in that house, and quarantine the house for two weeks. During that time we watch the house rigidly, allowing no one to go to or from the house, and we support and maintain the inmates while the quarantine is on. I would ask Dr. Durgin if he thinks this is necessary; if we could not just vaccinate everybody in the house, or all that have come in contact with the case, and then let them go, simply keeping an eye on them to see if they contract the disease, when they could be immediately removed to the hospital?

DR. DURGIN: In Boston we have not quarantined the house, but have immediately taken the patient away, cleaned up, and vaccinated the others. After this I see no reason of quarantining the house. I believe it is important to watch those who have been exposed for fifteen days, although you would not expect them to be ill for nine or ten days.

DR. SYMONDS: As a member of the Board of Health of the city of Salem, and appointed by the City Government, I wish to work for the city's good, and desire to keep the expenses down as much as possible, and do the work most satisfactorily. Being the only medical man on the board I did not want to take any chances. During the time a house has been quarantined we have fed all the inmates of the house, provided the quarantine officers. We have had seven cases of smallpox. I think we should vaccinate them, let them go and watch them, but so far we have vaccinated the people, quarantined and fed them, and have had but very few cases. Nearly, if not every case, has been imported from other places. Our general free vaccination helped us amazingly.

DR. DURGIN: I am very glad to hear this good report of Dr. Symonds. The remark has been made by Dr. McCollom, during the meeting, that it would be better to call the place for smallpox patients the "smallpox hospital," rather than the "pest house." Many persons in the community think that when one enters the pest house it means "good-bye forever." Great dread is associated with that word, and we are trying to do away with it, and are calling the place the "smallpox hospital," and we are succeeding, by making it as inviting and comfortable as possible to those who go there. While we take cases away from home to the hospital, I believe we should do everything in our power to overcome this natural dread by calling it an hospital, and making the people feel that every comfort will be provided for the sick person.

In regard to vaccinating children who are not very well, it has been the custom for many years to bring such children to the Board of Health office and try to get them into school without vaccination. I have always tried to persuade parents to have their children vaccinated, and have almost invariably succeeded. In this way hundreds of such children have been vaccinated, and I have never seen any bad effects from it. I believe that this can safely be done in ninety-nine out of every one hundred children whose parents want to get them into school without vaccination.

In regard to vaccination in pregnancy, I have vaccinated a very large number of cases in pregnancy, believing that the danger was trifling, and I have never seen a single instance where it proved of the slightest harm. I have had the misfortune to see more than fifty cases of death from smallpox in pregnant women. The most that you would fear from vaccination would be the loss of the child. That would almost always result if the mother contracted smallpox, and she herself is almost certain to die. Now, then, you have your choice between the chances of smallpox, in which you may well expect to lose both mother and child, and the chances of vaccinia, in which you have little reason to fear any bad result. It seems to me that the question reduces itself to a very plain conclusion.

DR. R. H. FERGUSON of Dorchester: Dr. Grinnell of the University of Vermont, told me of an instance in which a cadaver in the dissecting-room was found to have died of smallpox, and quite a number of students had been examining it and had been going about among people attending to their duties. When it was found to be so, he isolated as many of the students as he could get hold of, although many of them had gone home. He telegraphed to the demonstrator of anatomy who was in Washington at the time, and received reply saying that it was utterly impossible for a person to get smallpox from a cadaver with smallpox. Now, I have looked up the literature on the subject, and I have found nothing that would lead me to suppose that a person cannot get smallpox from a cadaver, and would like to hear what Dr. McCollom has to say on the subject.

DR. MCCOLLOM: It is perfectly possible for a person to take smallpox from a cadaver. I think the man who makes the statement that this is impossible is very much mistaken. The mere fact that the students who had been exposed did not have the smallpox was good luck, or they had been very well vaccinated.

DR. W. T. CLARK of Worcester: In my capacity as health officer I frequently receive notices from physicians who have vaccinated children several times without any effect. I either refer these children back and ask the doctor to try again, or do it myself. I would like to ask Dr. McCollom if he has ever seen a case that he never succeeded in vaccinating.

DR. MCCOLLOM: In answer to Dr. Clark's question, I will say that I have known of one instance where a person could not be vaccinated. That man was vaccinated fifteen times, but it was found that his mother had had smallpox when he was in utero. I think there are very few cases that cannot be successfully vaccinated if the physician will persist.

DR. E. F. GAGE of Winthrop: I would like to ask Dr. McCollom how long an attack of smallpox will confer immunity to the disease?

DR. MCCOLLOM: I do not know as I can quite answer that question, but I do think an efficient vaccination is just as effective. I think where there is an epidemic even if a person had smallpox ten or fifteen years before, it is well to vaccinate.

Dr. Chase: I would like to ask Dr. McCollom if vaccination of a woman in pregnancy would confer any immunity on the child?

Dr. McCollom: I do not think it would.

Dr. G. N. P. Mead of Winchester: I should like to ask what is considered a successful vaccination. As we all know, there are some cases where there is some redness, a little swelling, slight pain in axilla, and a very slight discharge. A crust forms, and in a few weeks there is no scar.

Dr. Durgin: I will say, that, as far as my observation is concerned, in primary cases especially, all the stages of vaccination should be well defined. There should be the well-defined vesicle, pustule, umbilication and crust, covering a period of time not less than three weeks. Of course in revaccinations we find the appearance of the arm falling short of typical characteristics of vaccination. I regard this as a very important question, and if we have not already wearied Dr. McCollom too much, I would like to hear from him.

Dr. McCollom: As far as primary vaccination is concerned, I think the appearance is very characteristic. Regarding the secondary vaccination it is sometimes very difficult to decide whether the vaccination has taken or not, but if the arm begins to show redness and slight irritation at the end of twenty-four hours, the vaccination is not a success. On the other hand, if in a secondary vaccination the patient in six days has a small vesicle surrounded by an areola, you may be sure that person has been successfully revaccinated.

## Medical Progress.

### REPORT ON THE PROGRESS OF SURGERY.

BY HERBERT L. BURRELL, M.D., AND H. W. CUSHING, M.D., BOSTON.

(Continued from No. 8, p. 216.)

#### TUBERCULAR PERITONITIS.

O. Berchgrevink,[12] after an exhaustive investigation of forty-two cases of tubercular peritonitis has published his results together with the histories of the individual cases. Although regarding this number too small to furnish data on which to base absolute conclusions, still he feels that the individual cases so carefully and exhaustively investigated furnish data deserving serious consideration and of greater value than a larger number of observations less carefully studied.

The writer has studied the subject by observation of the condition seen clinically and at time of operation. He has investigated histologically and by experimentation. His conclusions are a valuable contribution to the subject. He makes some interesting observations regarding the serous form, its apparent manner of cure, its duration, etc.; also in regard to the question of etiology.

Of the forty-two cases recorded thirteen died and twenty-eight are alive and are regarded as well. As regards treatment it appears from the conclusions of the writer that the process of spontaneous cure should be interfered with as little as possible. Laparotomy enables the removal of the exudate and makes conditions easier for the internal organs, a result which he claims can be accomplished by simple puncture. Operation has influence on the course of recovery in those cases where spontaneous cure has begun. It is detrimental in the unfavorable cases. In twenty-two laparotomies there were fourteen recoveries (63.6%) and eight deaths (36.4%). In another group of seventeen cases (non-operative) there were fourteen patients well at the end of two to three years. The investigator regards the serous type of tubercular peritonitis as a class which the surgeon should return to the care of the physician "with thanks for the exceptional opportunity which a misconception has afforded him to study in the great cavities of the body the tubercular process."

It is a question if the above opinion wholly coincides with that of many experienced surgeons, but nevertheless the article deserves careful study and contains much of interest.

A résumé of this article has been written by Hæckel (Stettin)[13] in which he calls attention to the interesting statement of Borchgrevink, who considers that the occurrence of a simple chronic peritonitis independent of tuberculosis was quite improbable. That the simple chronic, so called, idiopathic peritonitis with formation of small fibroid growths in which neither bacilli nor giant cells are found, are, notwithstanding the general opinion to the contrary, true tubercles.

#### CONCERNING THE COURSE AND CURABILITY OF TUBERCULAR PERITONITIS WITHOUT LAPAROTOMY.

M. Rose[14] has been interested in this subject and has tried to ascertain if the general opinion that tubercular peritonitis very rarely undergoes a spontaneous cure is the correct one. With the exception of the work of Borchgrevink he has found little accurate information in literature. This knowledge depends extensively on vague impressions of contribution to this subject and not upon exact statistical investigation.

He collected a series of sixty-nine cases observed during the past fourteen years. He described those treated surgically and those in which the end result was unknown. He found that of the 52 remaining two-thirds had died and one-third had recovered; thirteen well after two years, eight after five years, and the remainder after eight, nine and ten years. If Kœnig's statistics give as the result of operation only one-fourth recoveries, then are we forced to the opinion that more recover after conservative treatment than after laparotomy. This is more convincing when one considers that the surgical cases are more apt to be selected ones, while the other class includes all, even the most unfavorable, often complicated with marked pulmonary tuberculosis. In other words, cases with such advanced phthisis as well as tubercular peritonitis rarely come to the surgeon. R. concludes that the general idea of the value of operative treatment of this form of tuberculosis should be carefully revised.

[12] Bibliotheca Med., Abtte E., H. iv, 1901, Summary, Centrbl. f. Chir., 1901, Bd. xxviii, S. 587.

[13] Centrbl. f. Chir., 1901, Bd. xxviii, S. 783.

[14] Mitcheil. aus. d. Greuz gebieten d. Med. u. Chir., Bd. viii, H. 1 and 2.

### THE TREATMENT OF GANGRENOUS HERNIA.

A very interesting article by Petersen relating to this important subject has presented some valuable statistics. He has collected a series of 309 cases of strangulated hernia which have occurred in the interval from 1877 to 1900, a period during which the various methods of treatment have been well tested. These cases were treated at the hospital in Heidelberg.

In twenty-nine taxis succeeded; in 280 hemiotomy was done. The total mortality is reported as 18.5%. In 11% the intestine was replaced. Colotomy was performed in 67%, and in 33% there was primary resection of the intestine. Of fifty-two cases of gangrenous hernia twenty-six (48%) patients died. In two of these patients there was a double resection. If the cases are grouped in two periods, namely, those prior and those subsequent to 1898, the former group would show fifteen primary intestinal resections with eight deaths (60% mortality), and the latter 12 resections with one death (8% mortality), or 201 hemiotomies with sixteen resections, contrasted with seventy-four hemiotomies and twelve resections. The whole mortality in the first period was 19.5%; in the second 14%.

The results when studied are claimed to show that "primary" resection is to be preferred. These brilliant results are attributed to two things by the writer, namely, local anesthesia and the Murphy button. The former protects against collapse and "deglutition" pneumonia. A thorough evacuation of the stagnated contents of the gut is accomplished in a manner free from danger. Again it is recommended that the resection of the intestine should be extensive. Petersen does not hesitate to designate primary resection as the operation of election in case of certain intestinal gangrene. Only when it is certain that the intestine is intact should the intestine be replaced. Where there is a suspicion of gangrene the gut should either be fixed in the wound (vorlagem) or resected. Especially to be rejected is the method of "oversuturing" (Ubernähung) necrotic areas at points or furrows when the intestine has been constricted or small perforation. An "artificial anus" should be regarded as an operation of necessity, to be only employed in cases of marked collapse or extensive peri-intestinal phlegmen.

### MEDICO-LEGAL ASPECTS OF PENETRATING WOUNDS OF THE STOMACH.[15]

In view of the case of our late lamented president, the subject of perforating wounds of the stomach is worthy of special consideration. The medico-legal aspect has been considered in a communication by Dr. Glitsch [16] of Stuttgart. He says:

(1) If there be found in the topographical limits of the stomach a penetrating wound of the abdominal walls, we may be certain in a case of a gun-shot wound, that the stomach has been injured, and in the case of cut and stab wounds, there is, as a rule, but one wound in the stomach, whereas, in the case of a bullet wound, there are in the greater majority of cases two wounds.

(2) As penetrating wounds are followed by immediate death in the rarest cases only, vital reactionary symptoms will almost always render feasible the differentiation between vital and post-mortem lesions.

(3) Stomach wounds with suicidal intent are extremely rare; if they do occur, it is a question of a gunshot wound intended for the heart. In these cases the form and location of the wound, as well as the condition of the point of entrance will be helpful.

(4) Hematemesis, collapse and shock are not necessarily sequelæ of a perforating wound of the stomach; on the contrary, the latter may at the beginning present no symptoms at all, but generally, in the further course, alarming symptoms develop sooner or later. Of importance for the sequelæ of a wound of the stomach are the presence of food, a lesion of the larger blood-vessels and the affection of abdominal viscera.

(5) The prognosis of stomach wounds is favorable only in cases of immediate surgical interference; the forensic physician is to designate these wounds as lethal, and cases of spontaneous recovery cannot alter this decision. They are to be considered the exception, the fatal termination the rule.

(6) A successful therapy of a stomach perforation can consist only in laparotomy and stomach suture.

(7) If a case of perforation of the stomach comes under proper care and treatment at once, complete *restitutio ad integrum* may be accomplished anatomically as well as in regard to the faculty of work.

(8) Subcutaneous perforations of the stomach (ruptures) are generally immediately followed by the gravest symptoms. Their prognosis is much more unfavorable than that of penetrating wounds of the stomach; in all cases laparotomy offers the only prospect of recovery. From a medico-legal standpoint a subcutaneous laceration of the stomach is to be considered as simply fatal.

### TOTAL EXTIRPATION OF THE STOMACH.

v. Bardeleben [17] presented Dec. 8 a woman fifty-two years of age, from whom on Aug. 28, 1900, the entire stomach had been excised on account of carcinomatous disease. The technique was described as follows: The esophagus was drawn forward as far as possible, provisionally ligated, and separated below the ligature. The entire stomach with the affected glands was removed. The ends of the esophagus and duodenum were then closed by suture. The operation was then completed by making a lateral anastomosis between the esophagus and a loop of small intestine at a point about 35 cm. from the beginning of its mesentery. On the evening of the day of operation feeding by the mouth was commenced. Since time of operation the patient had gained in weight thirty-seven

[15] The Philadelphia Medical Journal, Sept. 28, 1901.
[16] Allg. Medic. Cent. Ztg., 1901, No. 30-37.
[17] Deutsch. Med. Woch. Schr., 1901, No. 15.

pounds. This method allows an easy approximation and restoration of the continuity of the digestive tube which is at times quite difficult when the attempt is made to unite the duodenum and esophagus.

TUMORS OF THE STOMACH FROM A MEDICAL AND SURGICAL POINT OF VIEW.

The subject was discussed at length at the annual autumn meeting of Swiss medical men at Olten on Oct. 25. Dr. Huber[18] of Zurich gave a résumé of fifty-seven cases which he had given over into the surgeon's hands for operation, thirty-four cases of cancer and twenty-three cases of gastric ulcer or its consequences (benign tumors). In the thirty-four cases of carcinoma gastrostomy was performed nine times with one casualty and gastro-enterostomy in twenty-five cases (twenty men and five women) with six deaths. The presence of the following symptoms, namely, motor insufficiency of the stomach (100%), absence of muriatic acid (76%), and presence of lactic acid (70%), generally decides the diagnosis, which in each case was verified by the surgeon. The rare occurrence of vomiting was remarkable (only five cases). Half the patients were between the ages of thirty and fifty years, and the ages of the other half ranged between fifty and seventy years. They had generally shown gastric symptoms for half a year or more prior to the operation. In twenty-six cases a tumor could be palpated; the other nine cases, however, proved to be rather more advanced than these, so that a very early diagnosis was often impossible. The twenty-three cases of ulcer and its consequences all had motor insufficiency of the stomach in a very severe degree, and some patients were very emaciated. Dr. Huber recommended these cases for operation after regular treatment, with lavage for six or eight weeks; has not alleviated the symptoms, thus appealing to the surgeons, "Cure our patients!" Professor Krönlein of Zurich, who had operated upon most of Dr. Huber's patients, spoke from a surgical point of view, and he thoroughly agreed with Dr. Huber's indications for operation. He had collected the reports of 744 consecutive cases operated upon by Rhydigier, Bilroth, Czerny, Mikulicz, Kocher, Roux and himself (156) in the last twenty years. The mortality when carcinoma was present was 39%, where gastrostomy was performed, and 30% where the palliative operation of gastro-enterostomy was performed, whereas in the case of benign tumors the mortality in 102 cases amounted to only 19.6%. But it must be considered that with increasing experience the operative result was continually improving; his own operations showed a total mortality of only 25% for cancer and 15% for benign tumors. In a minority of cases a radical cure was obtained, but the majority of patients generally succumbed after living for a year or two.

Professor Kocher of Bern wished the total of radical operations to increase and the numbers of palliative operations to decrease. He was all the more of this opinion as patients on whom gastro-enterostomy had been performed often lived for several years in apparently good health. Whereas the mortality of all his cases was 29%, the results were improving rapidly in latter years. Of the last fifty-two cases he only lost 15%; of the last twenty-two cases only 5.5% — these figures refer only to carcinoma. Out of the sixty patients operated for ulcer and benign tumors he only had five deaths, and could therefore sincerely recommend the physician to trust such patients to the surgeon's knife. After-examination of the stomach proved that the muscular and chemical forces returned and the digestive powers became normal.

FOREIGN BODIES ACCIDENTALLY LEFT IN THE ABDOMINAL CAVITY.

Schachner,[19] in a paper read before the Louisville Surgical Society, June 10, 1901, gives the summary of his views as follows, reporting 155 cases:

(1) So long as surgery continues an art, so long will foreign substances continue to be unintentionally left in the abdominal cavity.

(2) That the recorded cases are not representative of the true frequency of this accident.

(3) If the foreign body is of an aseptic character, nature endeavors to care for the same by encapsulating the foreign substance primarily in a fibrous exudate interspersed with leucocytes, and secondarily enclosing it by the contraction of adhesions between the different abdominal viscera or the viscera and abdominal wall.

(4) In the spontaneous expulsion of a foreign body from the abdominal cavity nature seeks exit through points of least resistance, which are either the alimentary tract or an imperfectly united wound, or less frequently through the reopening of an apparently well-organized cicatrix.

(5) A foreign substance may remain quiescent for years in the abdominal cavity.

(6) The disturbance which a foreign body creates in the abdominal cavity depends upon its sterility, size, character, for example, regularity of outline and presence of sharp or pointed surfaces; density, point of location, individual tolerance of the peritoneum and behavior of the individual.

(7) The symptoms of a foreign body in the abdominal cavity may vary from *nil* to that of the most violent intra-abdominal disturbance.

(8) The symptoms not infrequently suggest a low and protracted form of sepsis or ileus.

(9) Unexpected circumstances, unusual complications and diverted attention explain many of these accidents.

(10) While the counting and recounting of sponges and pads before and after an operation by one or more individuals should and always will be a most important feature in the prevention of this accident, yet the cases are numerous where the accident occurred notwithstanding this count by one and even two nurses or assistants.

[18] The Lancet, Nov. 9, 1901.

[19] Annals of Surgery, November, 1901, p. 678.

(11) The plan of attaching tapes or threads to pads and instruments has received the recommendation of many operators, but the fallibility of this is as clearly proven as the former.

(12) In restricting ourselves to the smallest number of pads, sponges and instruments, we adopt a system of simplicity that must appeal to all as one of the most important elements in the avoidance of this accident.

(13) We can only hope to reduce these accidents by the observance of the highest degree of simplicity, system and watchfulness.

(14) If the surgeon at the close of the operation asks for a count of sponges, and this is made, and an assurance given that all sponges and pads are present, his responsibility upon this point ceases; for it is neither prudent nor fair that he should leave his, the most important, part to do duty that justly belongs to the nurse.

(15) The real factors in the avoidance of this accident are the recognition of system, simplicity and watchfulness to the most exacting degree.

(16) At the bottom of most of these accidents we find a diverted attention, a defective system, or a dangerous degree of complexity.

(17) We are obliged to conclude that to a certain extent the surgeon is responsible for things about the operation, and after that the responsibility must rest elsewhere.

(18) No hard and fast rules can be made regulating the responsibility in every case, but each will be required to be decided upon its own merits, and the responsibility be fixed accordingly.

(19) There are risks that the patient must assume and that cannot rightfully be transferred to the operator (Sanger of Leipzig).

(20) In other vocations it is reasonable to assume that, unless properly prepared, one should not act; but in surgery, one is occasionally compelled to act, even though it is known that he is not prepared, and in these conditions to adopt any other course than that would be attended with the loss of more lives than if we did not make the best of the circumstances.

### ACUTE INTESTINAL OBSTRUCTION FOLLOWING APPENDICITIS.

Hotchkiss,[20] in a paper on this subject read at a meeting of the New York Surgical Society, May 8, 1901, in which he reports three cases successfully operated upon, states in briefly reviewing the cases that he feels he has shown the great value of certain procedures under given conditions.

(1) The great utility as well as necessity for the free use of the decinormal salt solution, whether into the subcutaneous tissues, the rectum, or the veins, both during as well as after operation, as a guard against extreme shock. The condition of depression in at least two of the cases was so extreme that the writer feels the patients could not have survived the operation without its free, or rather its almost continuous, use throughout.

[20] Annals of Surgery, November, 1901.

(2) The great value of free incision into overdistended coils of gut. (*a*) In order to relieve upward pressure upon the diaphragm, and the disturbance of respiration and circulation consequent upon it; (*b*) to relieve the congested intestinal vessels, and to diminish the size of the enormously distended coils so that they may be handled without injury, and the obstruction more easily located and dealt with, as well as at the same time to drain away from the interior of the gut a great quantity of stagnant fluid before it can reach the absorbing surfaces of the intestine below the obstruction.

(3) The practicability and desirability of closing the abdominal wound without attempting to drain the peritoneum, and the leaving within the cavity sufficient saline solution to float the intestines and assist, perhaps, in their re-arrangement.

The post-operative treatment of these cases, especially if they have been brought late to operation, is of vital importance, and upon its intelligent and diligent application the patient's fate depends.

The three measures which are essential are simple but generally effective. They are:

(1) The persistent and intelligent use of the stomach tube with lavage.

(2) The early and, if necessary, the repeated administration of saline purges in concentrated solution, and introduced through the stomach tube, if retained no other way.

(3) The use of the rectal tube for the relief of gas, and the patient and persistent use of high enemata.

These three measures intelligently, patiently and perseveringly employed, together with absolute abstention from the use of morphia, no matter what the temptation may be to use it, constitute the tripod upon which rational and effective treatment is based, and upon the intelligent use of which the life of the patient often absolutely depends.

### A CONTRIBUTION TO THE ETIOLOGY OF APPENDICITIS.

Patek,[21] in a paper on this subject read before the Milwaukee Medical Society, Dec. 10, 1901, summarizes his views as follows:

(1) Because of its anatomic characteristics and relations the appendix is an organ of lower vitality and less resistance than are other parts of the intestinal tract.

(2) Micro-organisms are normally present in the intestine, and await but an opportune moment when, in the presence of irritating secretions, they may excite an inflammatory reaction.

(3) While appendiceal inflammation may undoubtedly originate *de loco* there is no question but that

(4) In many cases the appendiceal inflammation is a secondary infection, the primary focus being in the intestine proper, the result of an acute indigestion or a catarrhal inflammation.

[21] American Medicine, April 5, 1902, p. 561.

(5) While we can rarely make the positive assertion that a disease has through our efforts been aborted, I believe that prophylaxis is the price of health, and that it may even be possible to do much toward the prevention of attacks of appendicitis, especially in the case of patients who have previously suffered, by careful attention to the regulation of diet and intestinal habit in health, no less than in securing good intestinal drainage and antisepsis in the various gastro-intestinal illnesses.

*(To be continued.)*

## Reports of Societies.

### SUFFOLK DISTRICT MEDICAL SOCIETY.

F. J. COTTON, M.D., SECRETARY.

Regular meeting, April 26, 1902, Dr. T. M. Rotch in the chair.

Dr. Paul Thorndike read a paper entitled

#### CASES OF PROSTATECTOMY, WITH REMARKS ON THE OPERATION.[1]

Dr. Watson: It is a great satisfaction to me to have heard the excellent paper by Dr. Thorndike, and especially because its conclusions accord, in the main, with the views and the practice which I have urged upon the profession since the year 1886, and which experience has strengthened, namely, of the value of radical operations upon the prostate in properly selected cases.

Dr. Gouley of New York should be credited with having kept the prostatic operations alive and in the sight of the profession in this country, at a time when but for him they might very likely have been lost. In the year 1888 they received fresh impulse from Belfield of Chicago, McGill of Leeds, England, and in the last six years or so have become well established, in spite of the opposition which they met from the heads of the English, French and German schools, in the persons of Sir Henry Thompson, Guyon and Socin, and although the less stringent measures of castration, ligation of the vas, and Bottini's electrolysis have been widely tried, the latter, however, not being a prostatectomy in the full sense of the term, in that it does not aim at the removal of the gland, but is merely an incision through its obstructing portions with a galvano-cautery blade. As Dr. Thorndike has rightly said, the objection to the less radical measures is that they do not remove the gland. They are incomplete operations. We are not in a position to assert positively, however, that the removal of portions of the gland may not be sufficient to secure a good result in certain cases, and as a matter of fact we cannot deny the excellent results of Bottini's operation, which are reported from various sources.

With regard to the mortality of prostatic operations, total or extensive removal of the gland is still attended by a death-rate of not much less than 8% in the hands of most surgeons. That of Bottini is somewhat less, but not so small as some of its advocates would have us believe.

With regard to final results in complete prostatectomies, they have been eminently satisfactory in my personal experience, which accords with that of other surgeons. In 85% of my own cases there has been *complete* restoration of the bladder function — spontaneous and entire emptying of the bladder, and the normal frequency of urination. Urinary incontinence has not occurred permanently in any instance; it was present for six and four months respectively in two patients, who thereafter regained entire control. A residual urine remained in about 15% of the cases, though it was very much reduced in amount in all of them, in comparison to what it had been prior to operation. In about 20% the urine failed to become wholly clear of mucus and pus, though there was great improvement in this respect in all of these.

With regard to selection of cases. Much less depends upon the size and form of the prostate than upon the sufficiency of the renal function; this is the most essential point of all, for, by far the larger number of deaths following these operations are due to renal insufficiency, and if we have good reason to suspect that condition, operation should be avoided. To determine this we have beside the ordinary urinary tests, of which the most significant is low specific gravity, to which I give much more heed than to casts and albumin.

There are two other interesting and perhaps valuable methods — chryoscopy, and the phloridzin test. The first consists in estimating the freezing point of the blood and of the urine of the patient, it being established that a *greater* degree of cold is required to freeze blood of individuals having renal insufficiency than is demanded to freeze it in health, while on the contrary the freezing point of urine in cases of renal insufficiency is reached with a *less* degree of cold than when the urine is normal, these phenomena being in accordance with the fact that the degree of cold required to freeze fluids is proportionate to their molecular condensation. The more molecules the fluid contains the greater the degree of cold required to freeze it, and vice versa. Consequently, when through defect of functional activity of the kidneys they fail to withdraw from the blood their normal quantity of molecules, the molecular density of the blood is, of course, increased, while that of the urine is diminished, and the blood's freezing point will be at a greater degree of cold and the urine's at a lesser one. This is for the estimation of the functional capacity of the kidneys, in all probability a very delicate and accurate test. The objections to it are that it is not practicable to go about bleeding people in order to make the test, and the freezing point of urine is too variable within normal limits to permit of its being of much value in itself.

The phloridzin test consists in the quantitive estimation of the amount of glucose which is elim-

[1] See page 233 of the Journal.

inated in a given time after a subcutaneous injection of a known quantity of phloridzin, from which the sugar is separated, as it is claimed by the action upon the phloridzin of the epithelial structure in the kidney. That is to say, the kidney in its epithelial cells function alone, is stated by some of those who have experimented with the view of determining the truth of the matter in this respect, to be the factory wherein this chemical process takes place. If the renal epithelium is performing its function in a normal manner, the sugar in certain quantities is eliminated within the first hour after the subcutaneous injection; when the renal function is insufficient to a very marked degree, sugar is either absent or greatly reduced in quantity.

I have been making a series of experiments during the past few months to determine, if possible, the value of this test, and am not as yet sufficiently far advanced in them to make a definite statement as to my own conclusions, and do not wish to do more than call attention to these two methods of determining the renal sufficiency, and trust the digression will be excused, because of the importance of examining these or any new methods which will allow us to judge more accurately than those now in vogue, of the ability of the kidneys to carry on their function sufficiently well after surgical operations on the genito-urinary tract, and among them, and among the most serious, these radical prostatic operations. Next to renal insufficiency as a cause of death in these cases is septic infection of the bladder following the operation, and, of course, already invited previous to operation if there is a septic cystitis present, as there so often is. Yet this is a far smaller danger than renal insufficiency, and it must be remembered that you are giving the best treatment for the diseased bladder by removing all obstruction to urination and giving free drainage. A prolonged period of drainage is indeed often desirable. One other cause of death is rather notably frequent in the minority mortality percentage. It is pulmonary embolism, whose origin is in thrombosis of the venous plexus about the prostate. Of the four fatal cases which I have had in my own experience, renal insufficiency was responsible for two, and pulmonary embolism for the other two.

One word as to the technique of total prostatectomies; with regard to this, experience has brought me some pretty firm convictions; the most definite of them is perhaps that the finger, and the finger alone, is the best and safest instrument with which to effect enucleation of the gland, in all cases in which this can be effected at all. The possibility of enucleation, in the proper sense of the word, depends entirely upon the relations of the gland and its surrounding capsule. If the latter is so intimately attached to the gland that its separation cannot be accomplished without tearing the capsule, enucleation *en masse* cannot be done, and *morcellement* becomes necessary, in the latter case a curette to be used.

Another point in the technique is to avoid injury to the capsule. Lastly, in any variety of operation for prostatectomy which involves suprapubic cystotomy, it is better to remove the gland through an opening in the mucous membrane of the bladder than to do it from the urethral surface below.

I agree with Dr. Thorndike with regard to the time to be selected for operation; its dangers are certainly lessened, generally speaking, in proportion to the younger age of the patient.

DR. MUNRO: I have not had enough experience except to corroborate all that Dr. Thorndike has said. It has been very interesting to watch his work. I have had only half a dozen cases myself. A point that has helped me out in several bad cases was doing the operation in two stages. The patients were in poor condition for complete prostatectomy at the first operation, and I preferred to drain suprapubically until the kidneys, so to speak, got their balance, then the prostatectomy was a simple thing and produced no shock. Very likely enucleation might have been done at the first operation, but one patient had had an overflow bladder for fifteen years, and it did not seem right to put him through prostatectomy without preliminary drainage. I think possibly, in some of these bad cases, that the kidney balance obtained by preliminary drainage may reduce the mortality. In these half-dozen cases the operation was very simple, and a very satisfactory one, and so far as I know the results have been satisfactory.

DR. H. W. CUSHING: The operation in a suitable case is a very satisfactory and brilliant one. What Dr. Munro has just spoken of in regard to operating in two stages is also, I think, quite important, and has been very satisfactory in my personal experience. I have noticed one point that Dr. Thorndike has mentioned in his paper, where, after an apparently successful operation, and without any apparent cause which could be attached to the operation, death of the patient has suddenly occurred. In the two cases of this character which I have in mind there was no satisfactory explanation for this unexpected result. This, I think, until it is explained, must be borne in mind as one of the possible results of such an operation. In suitable cases the operation has been followed frequently by quite satisfactory results. In a certain number of cases which I have happened to meet, the enucleation was not performed readily or easily, apparently for the reason that there were adhesions to the capsule which prevented the ready enucleation of the growth.

DR. THORNDIKE: Dr. Munro alluded to a double operation, opening the bladder first and then doing enucleation of the prostate later. I can imagine very well a case of long-continued overflow-bladder with impossible catheterization where that procedure might be necessary. I have had two cases of that sort, but fortunately I have succeeded in both cases, with the aid of two or three aspirations of the bladder, in inserting a

catheter, tying it in, draining the bladder in that way, and so avoiding a second etherization. The whole question, it seems to me, sums itself up in this. It is not a question of technique any longer. There are half a dozen techniques that are good enough. The technique of prostatectomy is within the reach of any surgeon of good experience. It seems to me the vital point connected with prostatectomy is no longer how to operate, it is when to operate. We know now pretty thoroughly that if we take our cases early enough we can cure most of them. By a cure I mean the removal of the cause. What we want to know is in how many of those other cases which are treated by a variety of so-called palliative operations we dare do a prostatectomy. In other words, we want to know how much more we can enlarge the field of prostatectomy over what it is now. It is my personal belief that the enucleation itself does not materially increase the risk of the operative procedure, and that we can in a great many cases do an enucleation of the prostatic mass just exactly as well as we can do a lesser operation.

## AMERICAN CLIMATOLOGICAL ASSOCIATION.

Nineteenth Annual Meeting, Held at Los Angeles, Cal., June 9, 10 and 11, 1902.

(Concluded from No. 8, p. 218.)

Dr. W. A. Edwards of San Diego read a paper on

### THE COAST RESORTS OF SOUTHERN CALIFORNIA.

He recommended the climate of the "California riviera" for scrofulous cases, and especially for nephritis. He described a case in which the kidneys were almost obliterated, resembling silver dollars in shape, and in which urea was formed in crystals on the skin and ounces were scraped away daily. He demonstrated the beneficial results obtained in a case of rheumatism with endopericarditis by residence at San Diego. He claimed that residents at Coronado feel colder in April, May and June than on Christmas Day, and he advocated Coronado as an excellent all-the-year-round climate. The temperature is remarkably equable.

Dr. C. A. Sanborn of Pasadena read a paper on

### THE CLIMATOLOGY OF THE EASTERN FOOTHILLS.

#### DISCUSSION OF CALIFORNIA CLIMATE.

Dr. Sewall of Denver: It is particularly hard for a dweller at a health resort to speak with absolute truthfulness of the climate in which he lives. It is a feeling of gratitude for the benefits he has derived that usually leads him to praise it, and he has to be a chronic kicker by nature if he would always tell the truth about it and expose the dark side. In Colorado we have gone about the matter in a rather brutal manner, and have exposed dangers to which health resorts for the tuberculous are exposed by showing in the report of our medical association of last year that tuberculosis is contracted right in Colorado. I believe that laymen throughout the country, wherever that report was sent, jumped to the conclusion that Colorado was a hot-bed of tuberculosis. Perhaps you do not know that we are told outside of this state that California is a hot-bed of this disease and that your State Board of Health is considering a quarantine against it. Your plain statements this morning, however, will not be misunderstood by those of us familiar with the subject, and their honesty will be heartily appreciated.

Dr. Fisk of Denver: There are certain things we must recognize; for instance, at sea level you do not have the effects of elevation, and you do not have the effects that you get at a distance from large bodies of water. Now in Colorado, by way of comparison only, we are 500 miles from the Missouri River and the climate is dry. In the winter it is not unusual for the nails to crack and the skin to get horny. You do not have that down here; it is impossible at sea level to have such dryness. We are told that you need water for your olive trees, your orange groves and other fruits, that things grow under water — perhaps the bacilli grow under water also. But there are other things than pulmonary tuberculosis, and this is not a society for the consideration of that subject only.

Dr. Edwards says this is a great climate for renal affections. There are many people in the world who have such diseases; they will do well here, and we are glad to know it. There are persons who have nervous affections, and we are glad to know that they are benefited here.

This is perhaps a moist climate. I know that on the 9th of February a year ago we sat awaiting the arrival of a noted violinist for an hour and quarter because of a washout between here and San Diego, and that in such a dry climate. I know that only a few mornings ago up at Riverside, a member of this association was going around with an umbrella because he thought it was going to rain. I notice that though we have been sitting here all the morning the sun has only come out a few minutes ago, but it would be called a clear day. As we went to the seashore yesterday afternoon we could see fog banks in the sky and it looked as though a shower was coming up. It is stated in this pamphlet which I hold ("Colorado Weather," 1901), that the relative humidity here ranges from 65 to 90%. Relative humidity doesn't give the actual number of grains of moisture in a cubic foot of air, and the air can hold more moisture at sea level than at a high altitude. We must bear these things in mind, and if it is not a place for pulmonary tuberculosis it is still a great place for other affections.

Dr. Solly inquired why there is more fog on the California coast than on the European Riviera. He thought that it is not so cold, and the wind not so trying as on the European Riviera, and gave the

preference to California. Dr. Solly advocated the climate of Phœnix, Arizona, for renal affections; he considered the climate of Southern California excellent for persons advanced in life.

DR. PHILLIPS of the Weather Bureau said that those best qualified to speak confess that they do not know why fogs prevail on the California coast more than at other points. Professor McAdie's opinion is that it is probably a radiation phenomenon due to the air cooling off more rapidly at night than the water surface. Those facts are known experimentally, and inasmuch as we have a warm current of air setting in from the ocean at night, when the prevailing winds from the west set in, we have this condensation by a process of mixture with the clear air of the shore.

DR. HENRY SEWALL of Denver read a paper entitled

ALTITUDE IN FACT AND FANCY.

He remarked that the clinician is forced to undertake the solution of some of the most complex problems in physiology and pathology, while at the same time he is almost completely deprived of the most valuable aid to scientific investigation,—that of experimental verification. There is a disposition among those living among or near mountains to consider every function of life as modified or determined by the influence of "thin air"; but the problem is more complex. Nothing is more obvious than the change, temporary at least, in the activity of the kidneys incident to change in altitude; yet evidence is altogether lacking as to the cause of this variation in secretion. It is important that we know what, if any, is the relation of altitude to the elimination of metabolites. According to observations of Dr. Webb of Colorado Springs, the quantity of urea excreted by a person living in that place (elevation 6,000 feet) is very much less than the normal as estimated at sea level. The clinical features which seem to indicate lack of reserve power on the part of the structurally normal heart, are abnormal increase in the rate of the beat with exertion or on assuming the erect position; the easy production of dyspnea with exertion; an increase toward the right of the area of cardiac dulness; undue prominence of the jugular veins in the recumbent position; and a wavering character of the first sound of the heart with a change in its quality which makes it resemble the second sound, accompanied by more or less abbreviation of the lesser pause. Tuberculous patients with these signs do not usually thrive well at even a moderately high altitude, but when sent, under proper conditions, to an elevation of less than 2,000 feet, they immediately improve. In this disease there is already thrown on the right side of the heart a more or less excessive burden, due to the restriction of the vascular area of the lungs. The author saw a case in which the right ventricle was just able to send its blood through lungs far advanced in cirrhotic contraction; the administration of fifteen grains of trional to produce sleep caused death in that case. When the physiologic relations of climate are better understood the climatic treatment of disease will give way to the climatic treatment of the patient. It is a fallacy that persons cured of pulmonary tuberculosis in high altitudes cannot so safely return to lower levels as patients who have recovered health near their homes. The prevailing opinion of those medical practitioners whose experience has included so-called "cures" in high as well as low altitudes, is that a re-infection or relapse is no more likely to occur in the one than in the other case when the patient has returned to the scene of his former life.

DR. SOLLY criticized the experiments of Prof. Angelo Mosso which Dr. Sewall had quoted, and particularly those dealing with the effect of altitude upon respiration and circulation, stating that the Italian experimenter did not discriminate between those patients that had recently arrived at high altitudes and those who had been there for some time. The first marked thing in the difference of pressure is the immediate increase of blood in the peripheral vessels with a corresponding diminution in the deeper ones; but the permanent effect is an equalization of the circulation. It is the permanent increase in the deeper as well as the peripheral vessels that has to be considered. Dr. Solly thought the speaker too timid about the heart at high altitudes. It is very largely a question of what people do there; rest in bed and a milk diet will generally put them on their feet.

DR. R. G. CURTIN of Philadelphia said that the reason why cardio-tubercular cases do not do very well at high altitudes is because of the influence of the nervous system, and some of the changes which Dr. Sewall spoke of are sometimes found at sea level in emotional people. He cited striking cases to prove this.

DR. SEWALL: My reference to the blood count as changed by altitude was simply in illustration of the complexity of these biologic problems, and I was using the simplest case I could think of. We know a great deal about heart physiology, but probably only a fraction of the truth, so I say that in a series of hearts which we call organically normal, there may be an infinite variety of power. Take two men that look alike and are of the same physique, and one will be able to make a long tramp at a high average number of miles per day, while the other will break down perhaps on the third or fourth day. What I wanted to urge upon my colleagues is this, that when patients at a high altitude do not do as well as we think they ought to, we should suspect the heart, and by paying attention to this I think we may save some lives.

DR. SOLLY made an address on

SANATORIUM TREATMENT IN COLORADO,

and exhibited drawings of an institution which he hopes to see erected near Colorado Springs. A gift of $50,000 and 100 acres of land has been made, and further contributions are expected. He thinks that an institution for one hundred

pay patients should support an institution for fifty poor people, out-of-door treatment, sleeping out of doors the year round. The plans provide for a large central building of five stories with two wings. All the rooms are on the south side of the building and are of about 12 by 14 feet, with a porch of 8 by 12 feet where the patient can sleep and, if desirable, pass the entire day. The porches are separated from each other by walls. One bathroom is provided for two patients' rooms. The kitchen and laundry are in detached buildings. The site will be 300 feet above the town, under the bluff, in a protected location.

DISCUSSION OF DR. SOLLY'S PAPER.

Dr. V. Y. Bowditch of Boston: I would like to express my appreciation of the paper and my sincere hope that the plan may be carried through without delay. I would like incidentally to touch upon the allusions to the words "sanatorium" and "sanitaria." Not to be a purist, I have been horrified to notice how many physicians spell the word "sanitaria."

Dr. Sewall: It seems to me that in considering plans of this sort, the first thing one should do is to consider what he wants to accomplish. As I look at it, there are two points of view in the consideration of the tuberculous patient. A patient with a normal temperature and normal heart, no matter how severe his lesion, can, relatively speaking, take care of himself, and only wants fresh air day and night, but the patient for whom the doctor is responsible is that one who has a daily rise of temperature, and if I may talk from personal standpoint, I should say that is the patient that needs rest, and there is not, so far as I know, in Colorado any institution for such patients. He should be kept in his bed, which can be pushed out of doors, and only brought into his room for toilet purposes.

Dr. Fisk: The work that Dr. Solly has pointed out will be done more largely in the future, and my attention has just been called to the fact that we are to have a tent sanatorium in Denver which has been amply endowed. The sanatorium which Dr. Solly has been dreaming of is going through.

Dr. Solly: Dr. Sewall's idea that it is necessary for the patient to have only a dressing-room is a good one. In the midst of our enthusiasm for open-air treatment we have to consider those that are thin blooded and catarrhal. The air bath, however, is a good one for some patients. I know of one institution where they have a shower bath in each room, and there is no doubt that the close proximity of the bathroom to the sleeping-room is an important feature.

Dr. Will H. Swan of Colorado Springs read a paper entitled

IMPRESSIONS OF DIFFERENCES IN PRACTICE AT LOW AND HIGH ALTITUDES.

It consisted of a synopsis of 199 replies to a circular letter addressed to physicians in Colorado, New Mexico, Arizona, Utah, Idaho, Wyoming and Montana at various altitudes from 3,000 to 10,000 feet; most of them at from 4,000 to 7,000 feet. Pneumonia was found to have a mortality of 21.1% against an average of 26.5% under fairly similar conditions at Philadelphia, New Orleans, Montreal and London, but varied from 18% at Cripple Creek to 28.5% at Denver. Typhoid was thought to run a shorter course and milder than at the seaboard. The replies indicated a rather general impression of a more frequent occurrence and more intractable nature of the functional nervous disorders at high altitudes, with the exception of migraine.

The author believes that people who are inherently nervous and had previously unstable nervous systems, often are made more nervous in high altitudes supposing that they have the same causes for nervous fatigue and worry that they previously had. Separation from home, worry over financial burdens and running expenses, homesickness and some stock trading tend to increase nervousness independent of a question of altitude. The late Dr. Eskridge believed that chorea was comparatively infrequent and of short duration in Colorado. Dr. Pershing, in refuting the belief that functional nervous disorders are more common in high altitudes, calls attention to the recognized belief that the favorable effects of high climates on pulmonary and other tuberculosis are principally due to an improvement in the nutrition of the body as a whole; the climatic influence which strengthens the resistance of the whole body to tuberculosis reacts favorably on the nervous system.

Anemic, overworked people sleep better on coming to a high altitude, while the full blooded, high-strung, nervous person sleeps better at sea-level. There is more rheumatism, gout, lithemia or uric acid diathesis than at the seaboard. There are influences in high altitudes which tend to diminish elimination, but this may be overcome by drinking more water and bathing more frequently. Dr. Swan insisted on instructing invalids, before sending them to high altitudes, to rest and keep quiet until some one competent to do so considers it safe to begin exercise. There is a capacity for doing rather more work, physical and mental, in a short time, and without more fatigue, if the effort is not too long continued.

Dr. F. Savary Pearce of Philadelphia contributed a paper on

THE NERVOUS CARDIAC SYMPTOMS OF HIGH ALTITUDES.

He considered first the effect of altitude upon the heart of normal persons and the functional nervous diseases. Regarding irritable heart the conclusion was drawn that an altitude of over 2,000 feet is unsuitable for the neurasthenically disposed or convalescent patient. Any very stimulating climate should be avoided, and any districts having high winds and frequent fogs; likewise cloudy, saturated atmospheres with but slight movement of air; low country with continuous,

non-varying, although moderate heat. The author considers the Bermuda Islands and Florida enervating localities. Ideal conditions for the neurasthenic include sea air in a well-wooded country far enough from the coast to avoid its fogs. The sea voyage is, as a rule, an excellent preliminary to other climatic measures, provided it be not stormy.

The author cited a case of a young lady who was sent to Las Cruces, N. M., elevation 3,730 feet. She developed an irritable condition of the normal heart muscle in about one week, and it took about ten weeks to become acclimated, when she was advised to continue her residence there, as the general effect of the climate was good. The conclusion arrived at is that a simple case of neurasthenia with irritable heart, cardiac distress and palpitation will be experienced at altitudes over 2,000 feet; but if high winds do not prevail the patient will be ultimately benefited if the general nutrition improves, as shown by gain of weight taken in actual week-to-week records. The pine regions of Georgia and North Carolina were recommended. Emphysema, particularly if associated with asthma, will often be benefited by the high, dry altitudes; the blood is better oxygenated by the more rapid respiration, thereby relieving the overacting heart muscle.

DR. HOWARD S. ANDERS of Philadelphia contributed a paper entitled

ATMOSPHERIC PRESSURE AND EPIDEMIC INFLUENZA IN PHILADELPHIA.

This is a sequel to the author's papers on "Local Meteorological Conditions in Relation to the Influenza Epidemic in Philadelphia, 1898-1899," and "The Relation of Sunshine to the Prevalence of Influenza," read at previous meetings. He showed by tables of mean monthly barometric pressures that there is nothing distinctive whatever in years as a whole when comparison is made of twelve years preceding the epidemic and twelve subsequent years in which influenza prevailed. A study of the mean maxima and minima for the same groups of months and years shows uniformly lower maxima and higher minima of recorded means for the epidemic, as compared with the non-epidemic group of years.

It was noticed in the Weather Bureau records that the greater monthly absolute range was a marked feature of severe influenzal periods as compared with mild or sporadic years, the difference amounting to as much as $\frac{4}{10}$ inch higher for the epidemic months. Any relation between meteorologic conditions and the prevalence of influenza that may exist will probably be found in the sudden, frequent, rapid and extreme variations and alternations of phenomena occurring on certain days just before or simultaneous with the influenzal outbursts, and not in data of the means of large groups of monthly and annual recordings. Thus, as in the case of the investigation of sunshine percentage, the behavior of atmospheric pressure in relation to epidemic influenza is characteristic in the marked lack of equability; in the absolute (sometimes almost hourly) extremes, and not in the monthly or yearly averages or means.

ELECTION OF OFFICERS.

At the business session the following officers were elected for the ensuing year: President, Dr. Norman Bridge of Los Angeles, Cal.; Vice-Presidents, Dr. James C. Wilson of Philadelphia and Dr. H. S. Orme of Los Angeles; Secretary and Treasurer, Dr. Guy Hinsdale of Philadelphia; Member of the Committee of Arrangements for the Sixth Triennial Congress of American Physicians and Surgeons, Dr. W. F. R. Phillips of Washington, D.C.; Delegate to the Fourteenth International Medical Congress to be held April 23-30, 1903, at Madrid, Spain, Dr. Charles E. Nammack of New York.

The next meeting of the association will be held at Washington, D. C., in May, 1903.

## Recent Literature.

*Minor Surgery and Bandaging.* Including the Treatment of Fractures and Dislocations, the Ligation of Arteries, Amputations, Excisions, and Resections, Intestinal Anastomosis, Operations upon Nerves and Tendons, Tracheotomy, Intubation of the Larynx, etc. By HENRY R. WHARTON, M.D. Fifth edition, enlarged and thoroughly revised. Illustrated. Philadelphia and New York: Lea Brothers & Co. 1902.

The repeated demands for new editions of this work indicate its extended use and apparent popularity. The present edition shows that the volume has increased in size from 594 to 621 pages. This is in part due to the articles on surgical technique and a description of some of the atypical operations of modern surgery, such as appendectomy, cholecystotomy, etc. The author's explanation of this apparent expansion is the great attention now paid in medical schools to operative procedures on the cadaver.

Expansion by the sacrifice of thorough consideration of a subject results usually in superficial work, and certain portions of this edition create this impression. A student reading the first portion of the book must study the text carefully to understand the illustrations, while in the concluding pages the reverse is true. The description of the "Kocher" and "Halsted" operations for the amputation of the breast and dissection of the axilla for malignant disease is given in four lines and without illustrations. At other times, although the description of methods or technique presents all the essential facts, still it is often so arranged as to convey to a student approaching the subject for the first time erroneous ideas.

After reading the description of intravenous injections of saline solutions it required considerable search to find the formula recommended by the author, the cross reference having been omitted.

The chapter on bandaging requires very careful reading of the text and some actual experience to understand the cuts. The student would be rendered much assistance if the direction of the turns and the "initial" and "terminal" ends of the bandage were indicated by some of the "graphic" methods in use for this purpose.

The above characteristics noted from time to time during the perusal of the volume lead one to question if the author's attempt to condense the subjects of bandaging, minor surgery, fractures and dislocations, ligation of arteries, amputations, resections and many of the most important abdominal operations, into the limited space of a student's manual, has not resulted in making his work more superficial than thorough.

The book, with its clear type, distinct paragraph headings and many striking illustrations, on casual examination, makes a favorable impression; but to the careful reader, or the student seeking a thorough knowledge of his subject, it will, we fear, be disappointing.

*General Surgery.* By John B. Murphy, M.D., Professor of Surgery, Northwestern University Medical School. Chicago: The Year Book Publishers. 1901.

This book, an octavo of 515 pages, is Vol. II of a series of ten published at monthly intervals, and entitled "The Practical Medicine Series of Year Books." The series aims to present to the reader the year's progress in medicine and surgery. The author of this volume has been chosen to compile and condense the essential and important contributions to surgical literature during this year under consideration. The task has been well done and the general ground well covered. It is a considerable task to select with judgment and discretion from the present flood of surgical literature those articles having real value and representing real progress. Dr. Murphy has not only endeavored to make this selection, but has also presented the subjects chosen as their authors viewed them without alteration or criticism, a plan which permits the reader to form his own opinion as to their intrinsic value. In some instances the subjects have been treated in a critical manner to emphasize certain points rather than to change their original purpose. Dr. Murphy calls attention to the effort to establish efficient treatment as well as to perfect accurate diagnosis. The subjects are well classified and the field of surgical work for 1901 has apparently been well harvested.

Crusade Against Dirty Money.— According to the *Medical Record* Health Officer Friedrich of Cleveland has begun a crusade against the use of dirty money in that city, asserting that many cases of contagious disease can be traced to its circulation. Many of the banks have agreed to gather in what they can of the worst-appearing of the paper money now in circulation and replace it with new bills.

THE BOSTON

# Medical and Surgical Journal.

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## THE LOWER LIMIT OF AGE FOR SCHOOL ATTENDANCE.

In most of the states of the union the lower limit of compulsory school attendance is either seven or eight years, and not many children under five years of age are to be found in the public schools, with the exception of the few who are in attendance at public or private kindergartens. The subject has recently been discussed in some of the English medical societies, and Dr. Newsholme, one of the leading English health authorities, contributes some excellent suggestions upon this subject[1] which are applicable to many localities in this country. He shows that out of a total of about 5¾ millions of children whose names are borne upon the school registers, no less than 627,739 were less than five years of age, or eleven per cent. of all who were enrolled.[2]

The causes which he adduces for this tendency of crowding the school work into early years of life are the following:

> The younger children sometimes like to attend school with their older brothers and sisters; mothers are often glad to be released from the charge of them for four or five hours a day, and many teachers and school authorities may labor under the belief that the earlier the habit of school attendance is formed, and school education begun, the better for the child. Of these reasons the most generally operative is the desire of the mothers of the working classes to have their younger children cared for while they are helping to earn a portion of the family income, and the corresponding desire of school authorities to secure the attendance of these children, knowing as they do, that if children under five are kept away from school, their elder sisters will often also be kept at home to take charge of them when the mothers leave home to engage in certain occupations.

He then inquires as to the educational advantages to be secured by school attendance under

[1] A Plea for the Exclusion of Children under five from Public Elementary Schools, by A. Newsholme, M.D. Public Health, July, 1902, p. 570.

[2] Report of Board of Education, London, 1900-1901, ii, 368.

five. The Board of Education had published the following list of what children between three and five years of age can do: Games with music; games without music; recitations, nursery rhymes, etc.; picture lessons (learning to answer in complete sentences as to what they can see in a picture); paper folding; mosaic with colored tablets; drawing; matching colors; plaiting paper; working patterns with needle and worsted; threading beads in twos, threes, etc.; arranging shells in twos, threes, etc.; arranging "pictures of number," with cubes; word-building.

The board further stated that "it is the experience of many good teachers that by the adoption of such methods (treating reading as a kindergarten lesson through pictures, word-building, etc.), it is found to be unnecessary, before the sixth year is passed, to employ books for reading, except occasionally for a change of occupation, or perform any exercise in writing, except the elements of letters, or to do any formal arithmetic work on slates."

Dr. Newsholme makes the following intelligent comment upon the foregoing:

> This experience of many good teachers is in accord with everything that is known of mental hygiene, and we may hope that the formal teaching of reading, writing and arithmetic will ere long be forbidden in public schools before the sixth year of life. At present a large amount of teaching is done before the age of five in these elementary subjects, when the brain is not sufficiently developed to benefit by it. . . . There are strong hygienic objections to putting children of such tender years to word-building, or working patterns with needle and worsted, or, in fact, to any occupation involving trained movements of the muscles of the eye and hand. Excessive strain of vision, resulting in permanent defects of eye-sight, often occurs when an attempt is made at these early ages to secure accurate manipulations on a small scale involving focusing of the eyes on near objects. Near-sightedness much more commonly occurs among such children than among those who do not encounter the eye-strain of school life until they are five or six years old.

In support of the proposition that children beginning at a later age soon overtake those who begin school attendance at three years of age, he quotes the comparative experience of England and Scotland. In the former, the ratio of children under five years of age in the elementary schools is about 11%, while the same class in Scotland is only 2.2% of the whole number enrolled; but according to the Royal Commission on Elementary Education, 26% of the scholars over seven years of age in Scottish elementary schools passed in specific subjects as compared with only 2.3% of such scholars in English schools. The Scottish population is better educated than the English, although its education is begun several years later. It is a law of growth that premature elaboration of tissue caused by excessive functional activity at an early age is commonly followed by deficient development of that tissue at a more mature age. The brain-cells form no exception to this rule, and mental precocity does not usually forecast a normal and complete mental life in later years.

Dr. Newsholme states the following as the chief disadvantages of premature school attendance:

(1) It constitutes a waste of public money, both of local and national funds, owing to the necessity for the provision of school accommodation, teachers and appliances.

(2) Such premature school attendance tends to "force" children's minds, and to deteriorate their mental and physical condition.

(3) A large loss of human life is caused by the aggregation of classes of fifty to seventy children at ages when they are prone to be attacked by infectious diseases, and when these attacks are more fatal than at any later ages.

In support of this last proposition the author shows that the death-rate from the principal infectious diseases (measles, scarlet-fever, diphtheria, and whooping cough) the fatality per thousand persons attacked, and the liability to attack, are much greater in children under five, than among persons at later ages. For example, the death-rate from measles, among children under five, is 313 per 100,000, while that of children between five and ten years is only 27 per 100,000, that of the former being nearly twelve times greater than that of the latter. In the case of whooping cough, the death-rate under five is twenty-six times as great as that of children between five and ten years. The author's experience leads him to believe that "school attendance under five is a chief cause of the most fatal attacks of the common infectious diseases."

He therefore concludes that "if no educational advantages arise from the attendance at elementary schools, of children under five; if nearly a million sterling is annually spent on this unnecessary and educationally useless attendance; if it is injurious to the mental and physical welfare of such children; if it causes a heavy annual death-roll and a large mass of sickness, often leaving behind it permanent weakness and ill health, then the administrative difficulties in preventing the attendance at school of children under five should not be allowed to impede this reform."

## NOISE, AN ELEMENT OF DAMAGE.

A TEST case, long pending against the Boston Elevated Railway Company, regarding noise as an element of damage, has finally been ruled upon by Chief Justice Mason of the Superior Court. The finding holds that the company is liable for

damages occasioned by the noise as well as other nuisances in the operation of the overhead structure. The decision has been appealed to a higher court, but the full significance of the ruling is not lessened by this fact. It has been generally maintained, and judging from personal experience we have no doubt, with truth, that owing to its construction the Boston road is particularly noisy, as compared, for example, with similar structures in New York or Chicago. Whether or not this be so, the fact remains that a nuisance of a most positive sort has been added to the other discomforts of a large city through the operation of this road. To many minds this is more than compensated for by the increase in convenience which such a railway brings, but it likewise cannot be disputed that certain persons living along the line of the road, suffer out of all proportion to any possible gain that may come to them personally. The court with great reason holds the company liable for this annoyance.

In general, one of the problems of the future in large cities appears to be the regulation and minimizing of noise. The incessant noises of a city unquestionably must have a certain effect upon the nervous systems of the residents, depending, no doubt, upon individual susceptibilities. Many persons can, at least for a time, escape from this weariness incident upon incessant sounds, but for those unfortunates who must live with it year in and year out, a certain protection would seem to be demanded. The genius apparently remains to be discovered who can successfully subdue our city noises; but we have strong hopes that he may soon be found, to help us out of the difficulties in which we are becoming more and more deeply involved.

## MEDICAL NOTES.

Sight and Hearing of School Children.— At a meeting of the State Board of Health of Illinois in July, 1900, Dr. Frank Allport of Chicago presented a plan for a systematic examination of the vision and hearing of school children and urged its adoption in the schools of the State. This plan was introduced by him and has since been in use in the schools of Chicago. An extension of this good work is being attempted and a new circular has been submitted for consideration, with the intention of sending it to all school superintendents throughout the State. The circular suggests that certain simple examinations of the eyes and ears be made, and certain facts ascertained in the case of each school child, to the end that radical measures may finally be adopted to check what appears to be a growing evil.

Typhoid Fever in Chicago.— An interesting problem regarding typhoid fever has appeared in Chicago. In an area furnished with the best water and containing less than one-fifth of the total population of the city, 73, or nearly 57%, of the 129 deaths from typhoid fever in August have occurred. In other areas, supplied with what is considered poor water, there has been a very small number of deaths.

A Memorial to Priessnitz.— It is said that a memorial to Vincenz Priessnitz, the founder of hydrotherapy, is to be erected in Berlin upon the occasion of the celebration of his one hundredth birthday.

### BOSTON AND NEW ENGLAND.

Acute Infectious Diseases in Boston.— For the week ending at noon, Aug. 27, 1902, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: Diphtheria 31, scarlatina 29, measles 5, typhoid fever 19, smallpox 8.

No More Smallpox in Cambridge, Mass.— It is now believed that smallpox has entirely disappeared from Cambridge, Mass., where a considerable number of cases occurred early in the summer. There are practically no cases now at the detention hospital.

### NEW YORK.

Feet as a Substitute for Hands.— On Aug. 22 there died at Binghampton, of diphtheria, a boy named Russell Brown who was born without arms. He was thirteen years old, and from the time that he was a baby had been accustomed to use his feet and toes as substitute for hands. Consequently he had acquired wonderful dexterity with them, always wearing light shoes which extended only to the ball of the foot, leaving the toes exposed. In this way he was able to write, to "handle" a knife and fork, drive, ride a bicycle, and do almost anything that other boys did. It is also said that he was an admirable performer on the violin. At school he was popular, and except that he occupied a seat and desk especially constructed for him, so that he could use his feet with facility, fared just as the other scholars did. Although offered large sums to allow the boy to be placed on exhibition, his mother, who is a widow, always refused.

Permanent Public Baths.— Plans have just been filed at the Bureau of Buildings for three new permanent public baths, to be erected by the city: one on 109th Street, near Second Avenue, on a plot 60 by 48 feet, and the other two in the East-side tenement district, down town, on plots of 50 by 48 feet. The buildings will be two stories in height. On the first floor there will be separate waiting-rooms for men and women. The

men's baths on this floor will comprise thirty-four showers and two tubs, and the women's twenty-nine showers and six tubs. The entire second floor will be devoted to men's baths, with thirty-eight showers and two tubs. The uptown building will cost $80,000 and the other two $75,000 and $70,000 respectively.

DEATH FROM PEMPHIGUS VULGARIS.—A case of great rarity is reported from New Brunswick, N. J., one of death from pemphigus vulgaris in an adult. The patient was forty-six years of age and was attacked in May last with the disease, which, in spite of the most active treatment, spread over the entire body. He was seen in consultation from time to time by specialists from New York, who were much interested in the case. Except in young children, and more especially syphilitic infants, pemphigus is a very rare affection. Out of 16,863 cases of diseases of the skin collected a number of years ago by the American Dermatological Association, there were only fourteen cases.

## Miscellany.

### A CONCESSION TO THE PATHOLOGIST.

DR. R. M. PEARCE of Philadelphia makes the following suggestions in a recent number of *American Medicine*: In the midst of a fruitless discussion concerning the practical value of laboratory methods of diagnosis as applied to clinical medicine and surgery, it is refreshing to find at least one surgeon who honestly and fearlessly admits a failure which might have been prevented had the opinion of an expert pathologist been obtained at the proper moment. Such a case was reported at a recent meeting of the Pathological Society in a certain large city in the United States, and both the case and the moral are worthy of careful consideration.

Following the exhibition of a set of necropsy specimens of gangrenous pancreatitis and disseminated fat necrosis by the resident pathologist of the hospital, the attending surgeon arose and stated that a mistake in diagnosis had been made which precluded appropriate surgical treatment of this case. The trouble was diagnosed intestinal obstruction instead of pancreatitis. An exploratory laparotomy was done by the attending surgeon in consultation with another prominent surgeon. At the operation the omentum protruded and was found to be studded with opaque foci. The attending surgeon admitted he did not know what these foci were; the prominent surgeon insisted they were flakes of fibrinous exudate, although it was protested to him that the foci were deeply seated in the fat. A portion of the omentum was excised and ultimately submitted to the expert pathologist, who at once recognized the lesion as fat necrosis. By this time it was too late to give the patient the benefit of an appropriate laparotomy, exposing and draining the lesser peritoneal cavity with its gangrenous pancreas.

In the discussion of this frank and admiration-compelling confession by the attending surgeon another instance was cited where two prominent surgeons in the same large city had failed to recognize fat necrosis during an exploratory laparotomy on a case which subsequently proved to be one of pancreatitis, the suspicious foci in the omental fat being passed as healed tuberculosis.

For fear the moral is not sufficiently obvious, permit us to suggest that the expert pathologist be hereafter called in consultation (along with the prominent surgeon if need be) so that his knowledge may be turned to account during the life of the patient. It would surely be quite as satisfactory to the patient if the anatomic diagnosis of the expert pathologist was made ante-mortem instead of post-mortem. It would also be more comfortable for the attending surgeon, and the expert pathologist could have no reasonable objection to having his skill adequately recognized and his special knowledge turned to useful account.

## Correspondence.

### A PLEA FOR THE GENERAL PRACTITIONER.

DORCHESTER, Aug. 23, 1902.

MR. EDITOR: You have summed up the case of the general practitioner, found him guilty, and pronounced sentence.

Before the final penalty is carried out may he not claim the privilege usually accorded the criminal, to say a word in his own justification, or at least defence?

I wish to wear my badge of general practitioner even to the scaffold. I do not care for the title of family physician. I never claimed it, for I have seen it too closely associated with rivalries, jealousies and spites. If I ever bore it, I regard it as a kind of *emeritus* honor, to be contemplated mainly in private, not kept on exhibition.

I am a general practitioner, not because I "attempt to cover all the fields," but because, being grounded, as my degree of M.D. implies, in the *general principles* of medicine, I hang out my sign and ask my *general public* to apply to me for their *general medical needs*. I may have at the very beginning, or only later after a few years' experience, a preference for some special line; but I may fail to identify myself with that in the eyes of my public, and that same public may settle the point without consulting me.

I cannot refuse to answer calls. Perhaps I prefer surgery, but I may be called to a man fallen into a comatose state, diagnosticate malaria, cure with quinin and forthwith be dubbed a brain doctor. Again, I may incline to the study and care of zymotic diseases; but if I am called to a dislocated hip which has been unsuccessfully worked over for an hour, and reduce it by a fortunate Bigelow twist as soon as I take hold of the limb, I am a surgeon in spite of myself.

Similarly, successive experiences or personal traits even may determine, without my volition becoming a controlling factor, whether I shall be popularly regarded as a "women's doctor" or as "especially good with babies."

As I said before I cannot refuse calls; I cannot afford to. If I did both reputation and pocket would suffer; and, besides, my particular handful of the

general public does not require any particular kind of specialist.

But to be truthful, even if truth-telling lead me to my doom, I must admit that I am an all too willing victim of these entangling circumstances. My tastes lead me (whether from a discursive and volatile habit hostile to profoundness, or from an overfondness for the human side in medical problems, I will not here attempt to set down) — my tastes, I say, lead me more and more strongly to follow the ins and outs of the human individual in disease more than the variations of a particular disease among an endless procession of people known perhaps only by the number on their respective tickets.

Now there is no longer any question of *me*; my fate is sealed. I want to plead with you about the status of my successor. If he chance to have my tastes as well as to get aligned to my street or section, and if he have besides, what I may lack, a consciousness of some authoritative faculty or gift for the securing of willing obedience from his patients (a gift which will naturally increase his partiality for the personal equation), is he not then a general practitioner, licensed by necessity, which transcends law, to be continually attending his individual patient up and down and across the territory of many specialties, sometimes asking co-operative guidance, sometimes turning over his charge to another guide when he himself feels doubtful of the way, but never shirking his proper responsibility for his traveler's safe arrival at the goal?

This is not to say that he shall claim all regions as his own, nor that he shall know them all alike; but his knowledge shall not wholly lack breadth nor depth if it enable him, by the intersecting lines thrown, as our autocrat showed us, into the regions which he knows imperfectly or not at all, to decide sagaciously whether a given special region shall be traversed with his aid by any particular traveler.

It is not only a question of life or a living, but also a question of deserts. It aggrieves us, as we are bowed off the stage, to hear spoken after us such adjectives as *superficial*, *unethical*, *dignity-lacking*. Your second article on the subject in review is happily of more merciful tone than the first.

Mr. Editor, I, too, am extremely optimistic. As I look along the lines of the practice and precept (mine and yours) of the last forty years, during all which time you have been my inseparable, and most of the time my valued weekly companion, I see a steady development along lines of necessary division and subdivision, but no revolution present nor in sight.

I see the specialist more and more in evidence, and the general practitioner proportionally less prominent, but still of that ilk, giving more time to the specialty of internal medicine or to some of its subspecialties than to some other special lines because there is more need, but yet knowing no other bounds to his field of labor than those mainly self-imposed, his consciousness of qualification and his sense of duty towards, and interest in, his patient.

I see work ahead for him to do in friendly juxtaposition with the specialist, enough to keep his faculties alert and his powers strengthening for the next forty years at the least.

When at last all fields are allotted and fenced apart may there not still be to the scattered few that are left of their kind an unclaimed residuum of general practice to be erected into a specialty for their exclusive use — the specialty of old age, or second childhood, and its diseases? Yours truly,

James S. Greene, M.D.

[We are glad to publish the above letter, with the sentiments of which we, in great measure, agree. We clearly recognize the fact that medicine has reached its present state of development largely through the services of the general practitioner. The point we attempted to make was merely that the young physician of today has a different situation to face from that presented to the men of a previous generation. This means no reflection whatever on the past, but it does, to our mind, mean a certain change of attitude toward medical problems and medical progress. — Ed.]

## METEOROLOGICAL RECORD

For the week ending Aug. 16, in Boston, according to observations furnished by Sergeant J. W. Smith of the United States Signal Corps:

| Date | Barometer | Thermometer. | | | Relative humidity. | | | Direction of wind. | | Velocity of wind. | | We'th'r * | | Rainfall in inches. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Daily mean. | Daily mean. | Maximum. | Minimum. | 8.00 A.M. | 8.00 P.M. | Daily mean. | 8.00 A.M. | 8.00 P.M. | 8.00 A.M. | 8.00 P.M. | 8.00 A.M. | 8.00 P.M. | |
| S...10 | 30.14 | 68 | 73 | 62 | 64 | 57 | 60 | N W | S E | 3 | 14 | C. | O. | |
| M..11 | 29.88 | 72 | 80 | 63 | 95 | 86 | 90 | S | S | 12 | 17 | O. | O. | 1.02 |
| T..12 | 29.96 | 66 | 76 | 57 | 71 | 58 | 64 | W | N W | 12 | 15 | C. | C. | .25 |
| W.13 | 30.10 | 63 | 73 | 53 | 58 | 46 | 52 | N W | N W | 13 | 7 | C. | C. | |
| T..14 | 30.04 | 66 | 78 | 55 | 61 | 55 | 58 | W | S W | 6 | 8 | C. | F. | |
| F..15 | 29.87 | 70 | 82 | 59 | 65 | 64 | 64 | W | N | 5 | 14 | C. | F. | |
| S...16 | 29.82 | 62 | 68 | 57 | 58 | 50 | 54 | N | N W | 12 | 7 | F. | C. | |
| ☞ | 29.97 | | 76 | 58 | | | 63 | | | | | | | 1.27 |

* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow. † Indicates trace of rainfall.
☞ Mean for week.

## RECORD OF MORTALITY

For the Week ending Saturday, Aug. 16, 1902.

| Cities. | Population Estimated, 1902. | Reported deaths in each. | Deaths under five years. | Percentage of deaths from | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | Infectious diseases. | Acute lung diseases. | Diphtheria and croup. | Typhoid fever. | Diarrheal diseases. |
| New York . . | 3,665,352 | 1,298 | 620 | 38.21 | 5.60 | 1.54 | 1.23 | 24.34 |
| Chicago . . | 1,852,828 | 511 | 198 | 47.55 | 4.50 | 1.37 | 8.80 | 25.63 |
| Philadelphia. | 1,349,624 | 446 | 150 | 22.87 | 6.27 | — | 2.46 | 8.74 |
| St. Louis . . | 603,717 | — | — | — | — | — | — | — |
| Baltimore . . | 525,330 | 217 | 100 | 41.47 | 1.38 | .92 | 4.14 | 24.88 |
| Cleveland . . | 411,826 | — | — | — | — | — | — | — |
| Buffalo . . . | 375,742 | — | — | — | — | — | — | — |
| Pittsburg . . | 341,401 | 130 | 62 | 46.91 | 4.61 | 4.61 | 6.92 | 29.22 |
| Cincinnati . | 332,032 | — | — | — | — | — | — | — |
| Milwaukee . | 304.975 | — | — | — | — | — | — | — |
| Washington . | 289,537 | — | — | — | — | — | — | — |
| Providence . | 185,870 | 82 | 36 | 45.14 | 1.22 | 1.22 | 1.22 | 30.50 |
| Boston . . . | 588,730 | 195 | 74 | 36.41 | 6.15 | .51 | 1.02 | 17.45 |
| Worcester. . | 127,337 | 25 | 16 | 40.00 | 4.00 | — | — | 24.00 |
| Fall River. . | 111.872 | 60 | 48 | 58.33 | 6.67 | 3.33 | — | 40.00 |
| Lowell . . . | 99,574 | 34 | 17 | 35.29 | 11.76 | — | 2.94 | 23.53 |
| Cambridge . | 96,334 | 30 | 12 | 43.33 | 10.00 | 3.33 | — | 23.33 |
| Lynn. . . . | 71,144 | 16 | 5 | 25.00 | — | — | — | 25.00 |
| Lawrence . . | 67,275 | 23 | 17 | 39.13 | 4.35 | — | — | 34.78 |
| Springfield . | 66,854 | 9 | 4 | 11.11 | 11.11 | — | — | 11.11 |
| Somerville . | 65,882 | 31 | 10 | 35.48 | 16.13 | 3.22 | — | 19.35 |
| New Bedford. | 65,574 | 28 | 15 | 57.13 | 3.57 | — | 3.57 | 46.42 |
| Holyoke . . | 48,065 | — | — | — | — | — | — | — |
| Brockton . . | 43,208 | 12 | 1 | 16.67 | — | — | — | — |
| Haverhill . . | 40,392 | 14 | 6 | 50.00 | — | — | — | 28.56 |
| Salem . . . | 36,567 | 22 | 12 | 18.18 | — | — | — | 18.18 |
| Newton. . . | 36,336 | 16 | 8 | 18.75 | — | — | — | 18.75 |
| Malden . . . | 35,390 | 8 | 5 | 12.50 | — | — | — | 12.50 |
| Chelsea. . . | 35,264 | — | — | — | — | — | — | — |
| Fitchburg. . | 33,848 | 10 | 8 | 10.00 | — | — | — | — |
| Taunton . . | 32,759 | 8 | 4 | 37.50 | — | — | — | 37.50 |
| Everett. . . | 27,114 | 6 | 5 | 33.33 | — | — | — | 33.33 |
| North Adams | 26,583 | 14 | 9 | 28.56 | — | — | — | 21.42 |
| Gloucester . | 26,121 | — | — | — | — | — | — | — |
| Quincy . . . | 25,307 | — | — | — | — | — | — | — |
| Waltham . . | 24,612 | 7 | 1 | — | 14.30 | — | — | — |
| Pittsfield . . | 22,311 | 9 | — | 11.11 | 11.11 | — | — | — |
| Brookline. . | 21,679 | 4 | 2 | 25.00 | — | — | — | — |
| Chicopee . . | 20,390 | 9 | 6 | 33.33 | — | — | — | 33.33 |
| Medford . . | 20,014 | 5 | 3 | 40.00 | — | — | — | 40.00 |
| Newburyport | 14,478 | 8 | 5 | 50.00 | — | — | 12.50 | 37.50 |
| Melrose . . | 13,384 | 1 | — | 100.00 | — | — | — | 100.00 |
| Westfield . . | 13,038 | 5 | 1 | 20.00 | — | — | — | — |
| Attleboro . . | 12,846 | — | — | — | — | — | — | — |
| Adams . . . | 12,813 | — | — | — | — | — | — | — |
| Milford . . | 12,516 | — | — | — | — | — | — | — |
| Framingham | 12,109 | 2 | — | 50.00 | — | — | — | 50.00 |
| Peabody . . | 11,957 | — | — | — | — | — | — | — |
| Revere . . . | 11,894 | 5 | 3 | — | — | — | — | — |
| Gardner . . | 11,544 | 2 | — | — | — | — | — | — |
| Weymouth . | 11,337 | — | — | — | — | — | — | — |
| Southbridge . | 10,838 | 2 | 2 | — | — | — | — | — |
| Watertown . | 10,600 | 5 | 1 | — | — | — | — | — |
| Plymouth . . | 10,336 | — | — | — | — | — | — | — |

Deaths reported 3,319; under five years of age, 1,470; principal infectious diseases (smallpox, measles, scarlet fever, cerebrospinal meningitis, diphtheria and croup, diarrheal diseases, whooping cough, erysipelas, fevers and consumption) 1,255, acute lung diseases 170, consumption 278, scarlet fever 21, whooping cough 44, cerebrospinal meningitis 8, smallpox 6, erysipelas 2, measles 8, typhoid fever 96, diarrheal diseases 746.

From whooping cough, New York 10, Chicago 12, Philadelphia 5, Baltimore 4, Pittsburg 2, Providence 4, Boston 3, Fall River 4. From measles New York 4, Chicago, Baltimore, Pittsburg and Clinton 1 each. From erysipelas, New York 2. From smallpox New York 1, Philadelphia 1, Boston 3, Cambridge 1.

In the seventy-six great towns of England and Wales, with an estimated population of 14,862,456, for the week ending Aug. 2, the death-rate was 14.1. Deaths reported 4,018; acute diseases of the respiratory organs (London) 135, whooping cough 89, diphtheria 75, measles 118, smallpox 11, scarlet fever 49.

The death-rate ranged from 4.8 in Hornsey to 25.3 in West Brunswick; London 13.3, West Ham 12.9, Croydon 6.8, Brighton 15.9, Portsmouth 13.0, Southampton 10.6, Bristol 20.4, Birmingham 18.2, Leicester 9.2, Nottingham 13.5, Birkenhead 13.5, Liverpool 19.7, Manchester 17.2, Salford 14.2, Bradford 14.4, Leeds 15.6, Sheffield 14.6, Hull 14.4, Newcastle-on-Tyne 16.0, Cardiff 15.4.

## CHANGES IN THE MEDICAL CORPS OF THE NAVY FOR THE WEEK ENDING AUG. 23, 1902.

E. O. HUNTINGTON, passed assistant surgeon. Granted sick leave for three months.

GEORGE A. LUNG, surgeon. Ordered to the Bureau of Medicine and Surgery, Navy Department.

## OFFICIAL LIST OF THE CHANGES OF STATION AND DUTIES OF COMMISSIONED AND NON-COMMISSIONED OFFICERS OF THE PUBLIC HEALTH AND MARINE HOSPITAL SERVICE FOR THE SEVEN DAYS ENDING AUG. 14, 1902.

GLENNAN, A. H., surgeon. Granted leave of absence for one month from Sept. 1. Aug. 12, 1902.

WILLIAMS, L. L., assistant surgeon general. Granted leave of absence for fifteen days from Sept. 1. Aug. 13, 1902.

SMITH, A. C., passed assistant surgeon. Bureau letter of June 9, 1902, granting Passed Assistant Surgeon Smith leave of absence for thirty days from July 10, 1902, amended so that said leave shall be for twenty-seven days only from July 10. Aug. 8, 1902.

HASTINGS, HILL, passed assistant surgeon. Granted leave of absence for one month from Sept. 3. Aug. 11, 1902.

HAMILTON, H. J., acting assistant surgeon. Granted leave of absence for three days. Aug. 8, 1902.

BOARD CONVENED.

Board convened to meet at Washington, D. C., Aug. 11, 1902, for the physical examination of an officer of the Revenue Cutter Service. Detail for the Board: Assistant Surgeon General G. T. Vaughan, chairman; Assistant Surgeon B. S. Warren, recorder.

FOR SEVEN DAYS ENDING AUG. 21, 1902.

IRWIN, FAIRFAX, surgeon. Granted leave of absence for one month from Sept. 1. Aug. 18, 1902.

KALLOCH, P. C., surgeon. Granted leave of absence for three days from Aug. 27. Aug. 20, 1902.

GLENNAN, A. H., surgeon. To report at Washington, D. C., for special temporary duty. Aug. 19, 1902.

BROOKS, S. D., surgeon. To assume temporary command of the Portland, Me., quarantine, during absence on leave of Surgeon P. C. Kalloch. Aug. 20, 1902.

GRUBBS, S. B., passed assistant surgeon. Granted leave of absence for fourteen days from Aug. 19. Aug. 18, 1902.

FRICKS, L. D., assistant surgeon. Relieved from duty at Boston, Mass., and directed to proceed to Savannah, Ga., quarantine, and assume temporary command during absence on sick leave of Acting Assistant Surgeon W. J. Linley. Aug. 19, 1902.

HEISER, V. G., assistant surgeon. To proceed to Immigration Depot, New York, N. Y., for special temporary duty. Aug. 16, 1902.

BERRY, T. D., assistant surgeon. Granted fifteen days' extension of leave of absence, on account of sickness, from Aug. 17. Aug. 14, 1902.

TRASK, J. W., assistant surgeon. Relieved from duty at Detroit, Mich., and directed to proceed to Fort Stanton, N. M., and report to medical officer in command for duty and assignment to quarters. Aug. 20, 1902.

KIMMET, W. A., acting assistant surgeon. Granted leave of absence for thirty days from Aug. 10. Aug. 14, 1902.

O'REILLY, W. J., acting assistant surgeon. Granted leave of absence for eight days from Aug. 18. Aug. 14, 1902.

HAHN, HENRY, pharmacist and chemist. Granted leave of absence for twelve days from Aug. 18. Aug. 14, 1902.

MILLER, CHARLES, senior pharmacist. Granted leave of absence for thirty days from Sept. 9. Aug. 14, 1902.

LAGRANGE, J. V., senior pharmacist. Granted leave of absence for thirty days from Sept. 2. Aug. 16, 1902.

WATTERS, M. H., junior pharmacist, Granted leave of absence for thirty days from Aug. 18. Aug. 14, 1902.

APPOINTMENT.

John William Trask of Michigan commissioned (recess) as assistant surgeon. Aug. 16, 1902.

BOARDS CONVENED.

Board convened to meet at Southport, N. C., Aug. 21, 1902, for the physical examination of an officer of the Revenue Cutter Service. Detail for the Board: Surgeon John Godfrey, chairman; Assistant Surgeon T. B. McClintic, recorder.

Board convened to meet at the U. S. Marine Hospital, Stapleton, N. Y., Aug. 25, 1902, for the physical examination of officers of the Revenue Cutter Service. Detail for the Board: Surgeon Preston H. Bailhache, chairman; Passed Assistant Surgeon A. C. Smith, recorder.

## SOCIETY NOTICE.

AMERICAN DERMATOLOGICAL ASSOCIATION.— The twenty-sixth annual meeting of the American Dermatological Association will be held at Hotel Bellevue, Boston, Mass., Sept. 18, 19, 20, 1902.

## RECENT DEATHS.

FRANCIS WATTS CHADBOURNE, M.D., M.M.S.S., died in Lowell, Aug. 21, 1902, aged fifty-eight years.

DR. JOHN HENRY LONGNECKER, a retired physician of New York, died at his home in Islip, Long Island, on Aug. 19, at the age of eighty. He was a native of Lancaster, Penn., and a graduate of the Jefferson Medical College, Philadelphia. During his professional career he practised at Hudson, Mass., and both in Brooklyn and New York. During the Civil War he was for a time surgeon of a Pennsylvania regiment and was also assistant surgeon at the Government Hospital at Annapolis, Md.

## BOOKS AND PAMPHLETS RECEIVED.

The Methods which Make for Success in Medicine in the Twentieth Century. By T. Gaillard Thomas, M.D., New York. Reprint. 1902.

The Climate of New England, also Some Analogous European and American Mineral Springs. By Guy Hinsdale, M.D., Philadelphia. Reprint. 1902.

Psychopathological Researches, Studies in Mental Dissociations, with Text Figures and ten Plates. By Boris Sidis, M.A., Ph.D. New York, London, Leipzig, Paris: G. E. Stechert. 1902.

Applied Surgical Anatomy, Regionally Presented for the Use of Students and Practitioners of Medicine. By George Woolsey, A.B., M.D. Illustrated. New York and Philadelphia: Lea Brothers & Co. 1902.

Massage and the Original Swedish Movements, their Application to Various Diseases of the Body. By Kurre W. Ostrom. Fifth edition, revised and enlarged. Illustrated. Philadelphia: P. Blakiston's Son & Co. 1902.

Caries of the Spine, being an Advance Chapter of the Spine, its Deformities, Debilities and Deficiencies. (Third edition now in the Press.) By Heather Bigg, F.R.C.S. (Edin.) Philadelphia: P. Blakiston's Son & Co. 1902.

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# Lecture.

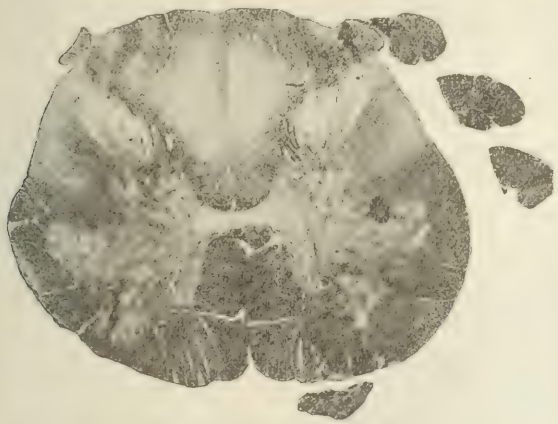
## THE CHANGES IN THE SPINAL CORD AND MEDULLA IN PERNICIOUS ANEMIA.[1]

### The Shattuck Lecture.

BY FRANK BILLINGS, M.D., CHICAGO, ILL.

[Concluded from No. 9, p. 233.]

Case III. Was admitted to the Presbyterian Hospital, Chicago, April 12, 1902, in the service of Prof. James B. Herrick, who very kindly permitted me to report it. Female, age forty-seven; married; mother of one child, has had one miscarriage which she says was caused by overwork. Her mother died at sixty-two of Bright's disease. Her father is living, at the age of seventy-four. Ten of the eleven children of her parents' family are living, and all in good health except herself. One brother died as the result of a severe injury; one uncle died of tuberculosis, and two uncles died of kidney disease. The patient suffered from the usual diseases at childhood. Her menses were established at thirteen, and were always regular. She was married at the age of thirty. Her health has always been good. She had some stomach trouble six years ago for about three months, and from which she recovered and remained well until a year ago, at which time she observed a numb feeling in the finger-tips, which increased and has remained until now. Three months later there appeared a sense of burning in the lower extremities, and the feet and ankles swelled slightly. During the last summer she noticed she was losing strength and had a poor appetite. She became pale, although she states that she has never had a good color. Six months ago her skin became yellowish. For a year she has had a sense of fulness in the stomach after meals, but never pain. No nausea or vomiting. The bowels have been constipated. She has grown steadily weaker, and especially during the last six or seven weeks has been unable to go about. During the last year the patient says she has lost forty-five pounds. She complains at this time of numbness and tingling in the hands and forearms, and her fingers feel like sticks of wood when she strikes them against objects. She has lost all power in the lower extremities, with a sense of pressure and tenderness in both groins. The legs are flexed on the thighs, the thighs upon the abdomen, and the knees are held closely together. There is some cramp-like pain in the thighs, periodic in character. There is a sense of numbness in the lower extremities. She cannot tell the position of the limbs without looking at them.

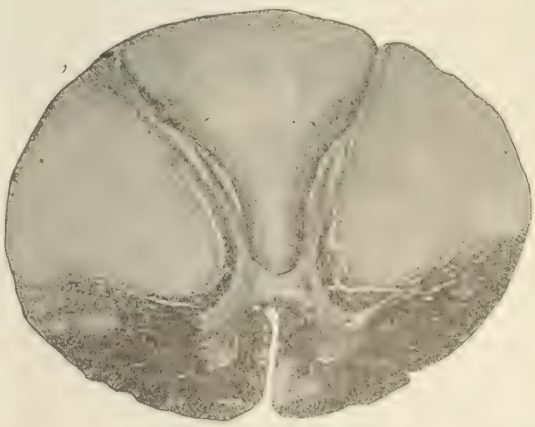


Case III. Fig. 1.—(Weigert-Pal.)

Section at level of first lumbar.
Degeneration of Burdach in middle zone chiefly.
Root zone and Lissauer free.
Crossed pyramidal tracts degenerated.
Spinal gray, remainder of white, cord and spinal roots normal.

*Examination.*— The patient is fairly well nourished. There seems to be but little loss of subcutaneous fat; the skin is yellowish-white; the skin of the lower extremities appears waxy. There is a considerable edema of the feet and ankles. The mucous membranes are very pale; the teeth are in bad condition; the gums are sore. The chest is negative, excepting for a hemic murmur over the base of the heart. There is considerable tenderness on pressure in the middle of the sternum. The abdomen is tender upon pressure everywhere. The lower extremities show considerable atrophy of the muscles; the flexors are soft and flabby, while the adductors and extensors are contracted. The knee jerks are increased; ankle clonus is present; Babinski's sign is absent. The sense of touch is everywhere acute. Temperature sense of the feet and legs is impaired; pain sense is acute over the skin of the lower extremities. The muscle sense is impaired in both the upper and lower extremities. There is apparently no loss of strength in the upper extremities, but the patient cannot tell the nature of objects placed in her hands, and they are often dropped to the floor. Patient is unable to stand or walk. The pupillary reflexes are normal; the eye grounds are unchanged. Stomach contents show absence of hydrochloric acid. The urine is normal, excepting for a trace of albumin. The patient was very weak, with a temperature ranging from 99½° to 101°, and pulse from 100 to 112. There was no appetite. Patient was able to digest without great discomfort the food that was given her.

On April 25 a blood examination showed 1,248,000 reds; 30% hemoglobin, and 4,400 whites; many nucleated cells were found, including a preponderance of megaloblasts. Practically the same blood condition was found on May 7. The final blood examination, on May 17, showed 912,000 reds; 29% hemoglobin, and 4,200 whites. The patient's general condition became gradually worse; the lower extremities, while practically paralyzed, were never entirely flaccid. The patient did not lose control of the bowels or of the bladder, although it was necessary to catheterize the bladder at times. She suffered from considerable pain in the lower extremities, and there was a gradual loss of power in the arms and hands. She died on the 20th of May. An autopsy was held one-half hour after death by Dr. Bassoe, the resident pathologist of the hospital.



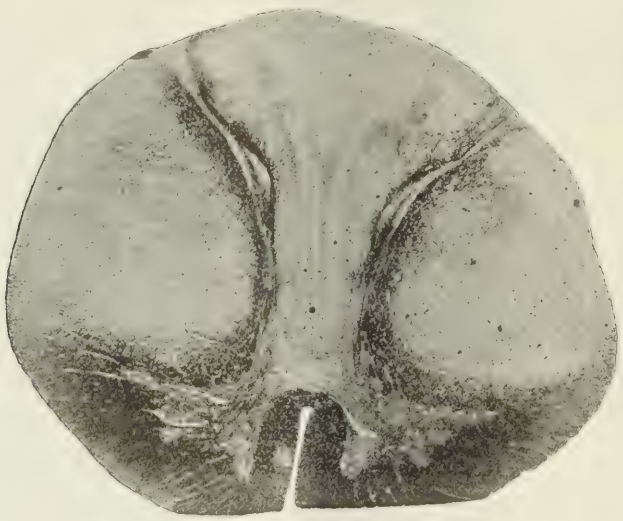
Case III. Fig. 2.—(Weigert-Pal.)

Level of second thoracic.
Extensive degeneration of columns of Goll and Burdach, excepting the border of white at gray commissure and posterior horns.
The lateral tracts invaded extensively.
The direct pyramidal tracts unequally degenerated in a small area.
The gray matter, the root zone, Lissauer and nucleus of Clark remain practically free.

[1] Read before The Massachusetts Medical Society, June 10, 1902.

There was general anemia, with edema and atalectasis of lower lobes of both lungs; fatty liver and heart; chronic interstitial nephritis; atrophy of the mucosa of the small and large intestines; atheroma of the aorta; ecchymoses of the dura mater; edema of the lung, and degeneration of the posterior and lateral columns of the spinal cord.

Sections of the spinal cord stained with Weigert-Pal, Marchi, van Gieson, and toluidin blue showed extensive sclerosis of the posterior columns of characteristic outline. In the upper lumbar the process involved the middle portion of the posterior column and left normal white tissue along the gray commissure and posterior horn, and in the lateral columns involved the crossed pyramidal tracts. The column of Lissauer and the root zone were, as usual, free. The spinal gray, including the column of Clarke, was free. At the level of the second thoracic the process was very extensive in the posterior columns, but left a narrow band of apparently normal white tissue next to the gray commissure and along the posterior horn. The sclerotic process was dense about midway between the commissure and the periphery, and on each side next to the septum. The sclerotic process involved also the greater portion of the lateral tract, extending forward as far as the gray commissure. There was apparently slight degeneration, also, in the anterior pyramids, more upon one



CASE III. FIG. 3.—(Weigert-Pal.)

Level of fourth cervical.
Extensive degeneration with marked sclerosis of Goll. Extensive, but less sclerotic degeneration of Burdach. A narrow band of almost normal white tissue persists at the gray commissure and bordering the posterior horns.
The root zone and Lissauer are practically free.
Extensive degeneration of the lateral tracts, old and recent, as indicated by the dense whiteness and the cribriform appearance, respectively.
Slight degeneration in one direct pyramidal tract.
The gray matter, cells in anterior horns, Clark's nucleus, normal.

than the other side. At the level of the fourth cervical the sclerotic process was about the same as at the second thoracic, but was more extensive in the posterior columns, with a greater amount of sclerosis. A narrow band of white normal tissue was still left along the posterior horns and the gray commissure. The column of Lissauer and the root zone were free. The direct pyramidal tracts were apparently slightly implicated. The process in the lateral tract was not quite as extensive as at the lower level, but involved the crossed pyramidal, the direct cerebellar, Gowers' tract, and extended diffusely into other portions of the lateral tract. There was no thickening of the blood vessels; no hemorrhages were found, and there were no evidences of meningitis. The ganglia and the posterior roots were normal. The degenerative process in this cord does not differ histologically from that of Case II, or from that described by Taylor and others. The two processes so often mentioned are typically seen: The one a cribriform-like arrangement, as if a degenerated nerve and sheath had dropped out, leaving a sieve-like neuroglia meshwork, while in other portions an evident glia increase is noted, with a sclerosis corresponding to it. (See cuts of Case III.)

The cells of the cerebral cortex were normal.

### GENERAL REMARKS UPON THE CORD LESIONS OF PERNICIOUS ANEMIA.

These three reported cases illustrate very typically the sclerosis of the spinal cord which has been described by so many writers as characteristic of pernicious anemia. This consists of a sclerosis of the posterior columns, either alone or associated with a like change in the lateral tracts of the cord. The lesions in the posterior and lateral tracts are most marked, as a rule, in the upper thoracic and lower cervical regions. From this point the degeneration usually diminishes, as one passes downward in the cord, to disappear in the lower lumbar region. It also diminishes as one passes upward into the medulla. The sclerosis is not confined, however, to these two systems. In the lateral tract it may not involve the whole of the crossed pyramidal, and may invade at the same time other portions of the lateral tract wholly or partly. The crossed pyramidal tract may be free. It is not always diffuse, but may occur in focal areas, not necessarily symmetrically distributed. The anterior pyramids may be involved at different heights, not always symmetrically. Case II is a good example of the focal distribution, as the

degenerative areas are seen to appear and disappear at different heights in the anterior pyramids. The case is also a good example of the diffuse type of the disease, inasmuch as in certain areas, at certain heights, it is very diffuse, and in others it involves the whole or part of a tract. The process is thus characterized by the fact that it does not involve apparently a whole system centrifugally or centripetally, at all levels of the spinal cord. It is apt to diffuse itself from one tract into another, especially where it is most extensive, as in the upper thoracic region. The spinal gray is usually not involved, although in a few cases reported a note is made of slight hemorrhages into the gray matter and of thickening of the walls of the blood vessels. At most, there has been found some overpigmentation of the Nissl bodies, and a diminution in the cells in the column of Clarke.

Another characteristic of the sclerosis is the fact that the whole neuron is not involved. In the reports made by most writers the posterior ganglia have been found unaltered, and the posterior root zone is practically always free. The cells in the anterior gray horns are practically unchanged. Mott reports two cases in which he states he found degeneration of the cells of the cortex, associated with descending degeneration downward through the pyramids, but the great majority of reporters have found the cells of the cortex practically normal. The process is usually not attended with degeneration of the peripheral nerves, although a few individual cases have shown slight changes in the axis cylinders. The process is, therefore, one in which certain systems are partly involved, with a tendency for the degenerative process to diffuse itself through other tracts at certain levels. It cannot be called systemic, because an entire system is not involved, nor is a whole neuron implicated in the degenerative process.

E. W. Taylor, in a paper by Putnam and Taylor (loc. cit.), has given a most classic description of the pathologic histology of the spinal cord in pernicious anemia and other conditions which have been referred to. I would, therefore, refer those who desire an extended description of the cord in these conditions, to that paper. For the reasons given by Taylor I have adopted the term diffuse degeneration of the spinal cord for the lesions under discussion. It is sufficient to say here that all reporters describe the degenerative process as apparently of two kinds, one of which seems to be more acute, consisting apparently of a process in which the nerve sheath becomes swollen, stretched, and filled with debris, consisting chiefly of fat droplets. This process is not usually attended with an increase of neuroglia, and in consequence the degenerated nerve sheath and fibre and its products are absorbed, leaving a vacuolated appearance, in which sometimes a normal or relatively normal axon may be seen. This process is beautifully shown in Case I, in most of the figures, and in many figures of Cases II and III.

Another more chronic process occurs, apparently coincidentally, in which there is an associated glia increase, with sclerosis, although contraction does not occur apparently, as in some other sclerotic processes of the cord. These two processes are often seen side by side, the one apparently chronic, with a tendency to neuroglia proliferation; the other acute, and sometimes very extensive. The more active process may explain the sudden occurrence of severe symptoms which sometimes takes place in the course of the disease. Bastianelli has maintained that the sclerosis in pernicious anemia is not as compact as in the diffuse degeneration due to other conditions. In Case I of my series this sclerotic process was very dense in the upper thoracic and lower cervical regions in the column of Goll (see figure), and in the other two cases that were typical examples of pernicious anemia, in which both processes were present, the sclerosis at some levels was very dense.

### CAUSES OF SPINAL CORD DEGENERATION.

The lesion in the spinal cord has been generally attributed by different writers to the following causes:

(1) To multiple hemorrhages, such as may occur under the skin and elsewhere in pernicious anemia. This is not supported by the conditions found, for the reason that in many instances the lesion is diffuse, and does not extend upward from a possible hemorrhagic focus of degeneration in one tract, and downward in another, as it would necessarily do if the degeneration started from such a hemorrhagic point.

(2) To thickening of the walls of the blood vessels. This cause of the degeneration has been especially advanced by Nonne and by Minnich. They have reported hyaline degeneration and thickening of the walls of the blood vessels, with an exudate into the perivascular space. Most reporters have not found any marked thickening of the blood vessels, certainly not sufficient to be the cause of the degenerative process; and, furthermore, the process is usually not as diffuse and not as often focal as it would be if the primary cause of the disease was due to an arteriosclerosis. With thickening of the walls of the blood vessels, as found, it is just as probable that it is a part of the general sclerotic process.

(3) To acute myelitis, which has been ascribed by Leyden as the cause of the disease in its earliest stage. No round-cell infiltration is found, the distribution is too irregular, and the spinal gray practically always free, which would rationally exclude myelitis.

(4) To a primary change in the gray matter of the cord, of the brain, and of the ganglia. As stated, Mott has reported two cases in which he found degeneration of the large cells of the cortex, but the majority of reporters have not found complete neuron degeneration, and in the great majority of cases the spinal ganglia, the brain cortex and the spinal gray have been found healthy.

(5) To anemia. Poverty of blood alone is probably not the cause, for the reason that similar lesions do not occur in grave secondary anemias. So far as any experimental work regarding secondary anemias is concerned, chronic degenerative cord lesions have not been produced, and Mott states that chronic spinal cord changes cannot be produced experimentally. Furthermore, Bastianelli states that he and his colleagues have never found changes in the spinal cord in many cases of grave secondary anemias due to malaria, although careful examinations, both macroscopic and microscopic, of the cord and brain, have been made.

(6) To a toxic agent. The consensus of opinion is that the nervous lesions are due to a toxic agent, which is also responsible for the anemia when it is present. The fact that the lesion does not involve, as a rule, a whole neuron or system, that the trophic cell is usually not disturbed in either the cortex, the spinal gray, or the posterior ganglion, and that the ultimate primary change is one of degeneration of the nerve fibre itself, speaks for the effect of some blood-circulating toxin. The fact, too, that the brunt of the lesion occurs in that part of tracts involved farthest removed from the trophic center, where the nerve fibre is the least protected by its nutritive cell, is evidence of a toxic cause.

THE DEGENERATIVE PROCESSES OF THE SPINAL CORD IN OTHER CONDITIONS THAN PERNICIOUS ANEMIA.

As stated above, diffuse spinal cord lesions similar to those of pernicious anemia have been reported by Putnam, by Dana, by Russell, Batten and Collier, and by others. Indeed, the now classic ataxic paraplegia of Gowers does not differ essentially, as one notes his description of it, from the reported condition of the cord of many of the writers upon the subject of this paper. Gowers says that the posterior and lateral columns are both affected, but usually less intensely in the lumbar than in the thoracic cord. He notes that the root zone is not as often affected as in tabes; that the degeneration does not reach the posterior periphery of the cord, and that the degeneration of the lateral columns is not often systemic in character. In many cases reported by Putnam in his first paper, and by Dana, the degenerative process is so similar to that described, especially in the severer degrees of degeneration found in pernicious anemia, that one could rationally say the processes were the same. Putnam noted degeneration in the spinal gray in some cases in his first paper, but in his second paper with Taylor emphasis is placed upon the fact that the gray matter, the spinal ganglion, and the superficial nerves are usually not involved. In thirty-eight of Putnam and Taylor's fifty cases, six only were noted to have pernicious anemia. Of the nine cases reported by Russell, Batten and Collier, two only had pernicious anemia, and in the nine cases reported by Burr, two did not suffer from pernicious anemia. In all of these cases the spinal cord changes were practically the same, differing only in the degree of the spinal cord involvement. Indeed, Russell, Batten and Collier divide the cases clinically into three stages. The first, in which the patient is paresthetic, with possibly slight ataxia and spasticity; the second stage, in which is added an increased ataxia and spasticity, with increased knee jerks and slight paraplegia; and a third stage of flaccid paraplegia, with absent knee jerks, loss of sphincter control, bed sores, emaciation, etc. A patient dying in the first stage of the disease would show usually less marked degenerative lesions than would one of the second or of the third stage.

This division of the cases clinically, while practical for study, is one which cannot be fully maintained, for the reason that all cases do not pass to the stage of even spastic paraplegia. Case I of my series died with symptoms only of subjective paresthesia, and yet the spinal cord changes were sufficiently marked to have produced marked spastic, if not paraplegic, symptoms. Case III, too, did not show flaccid paraplegia at the time of death, although the spinal cord changes, as shown by the figures, were very marked.

Spinal cord degenerative changes have been noted also in other conditions than those reported above. Williamson reports two cases of diabetes mellitus in which there was sclerosis of the nerve fibres in the posterior columns, especially in the column of Goll, with a moderate increase of neuroglia. Nonne quotes Tuczek on sclerosis of the posterior and lateral tracts in pellagra poisoning. This occurs as a symmetrical degeneration, and includes usually the column of Clarke, but the membranes of the cord remain free. It is a chronic disease, with remissions and exacerbations, and may be mistaken for amyotrophic lateral sclerosis, ataxic paraplegia, or hysteria. Nonne reports two cases of leukemia in which there was sclerosis in the middle column of Goll and Burdach, greatest in the dorso-cervical region but for a few small areas in the lateral and in the right pyramidal tract. There was no change in the spinal gray, in Clarke's column, in the root zone, in Lissauer's tract, or in the blood vessels. Nonne calls attention to the fact that this differs from the changes of pernicious anemia, in that in the latter he has always found disease of the vessels of the spinal cord. Nonne also quotes Walter Müller, who reports a case of leukemia, with spinal cord changes similar to those described by him. E. Bloch and H. Hirschfield report a case of myelogenous leukemia, in which the cord showed moderate sclerosis of the posterior and lateral columns, greatest in the cervical region, and diminished from above downward. They quote a case by Kast of myelogenous leukemia in which there was some sclerosis in the medulla, but none in the cord. They also quote Minnich, who reported a case of myelogenous leukemia, with cord changes of a degenerative character, which he attributed to

edema consequent upon the anemia. Similar cord changes have been found in diphtheria, lathyrism, and in certain metallic poisoning, like phosphorus, lead and arsenic.

It must be evident to one who has had experience with pernicious anemia, and who is familiar with the literature of the subject of diffuse degeneration of the spinal cord as it occurs in pernicious anemia and other conditions, that there is a marked similarity of the contributory causes of pernicious anemia and of the conditions which are mentioned as causative in the production of the spinal cord lesions of other conditions. For example, in Putnam's first report he notes the age, the sex, the nutritional condition, the general feebleness and lack of vigor, the pre-existence of infectious disease, like la grippe and typhoid, the developmental fault, the neuropathic history of epilepsy, goitre, etc., and the existence of chronic gastro-intestinal disease as important factors in his cases. These very conditions are prominent elements in many of the cases of pernicious anemia. The consensus of opinion, as stated, is that pernicious anemia is due to a hemolytic toxin, and it is the universal belief, too, that the degenerative changes of the spinal cord in these different conditions are due to a toxin. It is suggestive, therefore, that possibly a toxin, which has its origin perhaps in the way suggested by Adami, may be one which may have in certain individuals a predilection for hemolysis; in another for degeneration and sclerosis of tissue which, by election, affects the liver in one case, the kidney in another, and certain parts of the spinal cord in another. We recognize tabes as a parasyphilitic disease, and believe that the toxin associated with syphilis has a predilection for the posterior columns. It affects but a small percentage of syphilitic cases. Our want of knowledge of the nature of the toxin or toxins makes a discussion of this part of the subject purely theoretic, and of no value, although perhaps interesting. It is clear, however, that the future study of these degenerative processes must lie in the direction of an attempt at discovering the source and nature of the probable toxin, not only of pernicious anemia, but of the degenerative changes of the cord in other conditions.

## CONCLUSIONS.

The conclusions which one may draw from a study of the subject are:

(1) That there is a well-established relation of diffuse cord degeneration with pernicious anemia.

(2) It seems highly probable that the hemolysis and the cord changes are due to the same toxin.

(3) While the source of the toxin is unknown, the fact that gastro-intestinal disturbance is so common in the disease would lead one to suppose that it is of intestinal origin.

Note.— I desire to here express my appreciation of the aid afforded me by Prof. L. F. Barker of the University of Chicago, in examining sections of the spinal cord; to Dr. J. F. Smith of the house staff of the Presbyterian Hospital, and to Drs. Robinson and Bassoe for aid in preparing sections of the cord.

(4) The diffuse degenerations of the spinal cord which occur in conditions without pernicious anemia do not appear to differ essentially from those of pernicious anemia.

(5) It is possible that a common blood circulating poison exists which may expend its force upon the blood in one individual, upon the nervous apparatus in another, and coincidently upon the blood and spinal cord in others.

## APPENDIX.

Case IV. Female, age thirty-four; American; married; has borne one child. Had a miscarriage at one time, but cause unknown. Patient comes from a neurotic family, but there is no history of any grave inherited disease, either nervous, malignant or tubercular. There is an uncertain history of acquired syphilis.

The patient was first seen May, 1898. She complained of a feeling of weakness, which had begun about a year previously. Her endurance was very much less. There was some gastro-intestinal disturbance, but apparently this was of no importance and depended somewhat upon the nervous condition of the patient. She had had considerable worry and fret concerning domestic affairs, and was neurasthenic.

A blood examination revealed 2,800,000 red cells; 40% hemoglobin, and 8,000 white cells per cubic millimeter. This represented a rather severe secondary anemia. No plasmodia malariæ were found. The spleen was palpable. There was a slight eczematous eruption in the axilla and about the pubic region. The urine was light in weight, but contained no abnormal ingredients. There were no subjective or objective nervous disturbances referable to the spinal cord. No definite diagnosis was made. Patient was placed upon arsenic and iron and general hygienic treatment.

She was seen again in the fall in 1898, and at that time complained of weakness of the lower extremities, associated with paresthesia. There was tenderness over the anterior crural nerve and some branches of the sciatic. The knee jerks were present, but not increased. Patient had good control of the bladder and the bowels. Tactile, temperature, and pain sense were objectively normal. The anemia was of practically the same grade as when seen in the preceding May. The patient was not seen again until August, 1899, when she presented marked evidences of paraparesis, associated with paresthesia of the skin of the lower extremities. There was marked diminution of the tactile, temperature, and pain sense, and partial loss of control of the bladder. Marked ataxia of station and locomotion was present. Knee jerk was entirely lost; the Argyll-Robertson pupil was not present; the fundi were normal. The temperature was subfebrile, ranging to about 100° in the evening; pulse from 90 to 100. From the middle of August the patient grew worse, with rapidly diminishing power in the lower extremities, until complete flaccid paraplegia resulted, with loss of control of both the bladder and bowels.

On Aug. 31 a blood count showed 34% hemoglobin; 1,010,000 red cells; 6,000 white cells, with 228 nucleated cells per cubic millimeter, of which 189 were megaloblasts. Poikilocytosis and polychromatophilia were present. The paralysis extended upwards, involving successive segments of the cord, with the corresponding nerves, and she died in September, 1899, with involvement apparently of the respiratory and cardiac centres.

Unfortunately, a post-mortem examination could not be obtained. But the history is one of characteristic spinal cord degeneration occurring in pernicious anemia, and the case would naturally fall into the second group of Bastianelli's cases. The anemia for the first year or more was certainly not of a pernicious type, although it was grave. But preceding death the blood find was typical of pernicious anemia. Like other cases reported, the progress was very rapid, when the

nervous symptoms became marked by the paraparesis, and in the later stage the whole appearance of the patient, together with the blood find, was that of a rapidly progressing pernicious anemia, with paralysis.

CASE V. Male, age 56; laborer; was first seen and examined on Dec. 2, 1901. The family history was good, and the patient's habits were unexceptional. He denied venereal disease. Had always been well, and worked hard up to the beginning of his last illness. For eighteen months he stated he had grown gradually weaker in all the muscles of the body, but especially in the lower extremities. Ten months before he had noticed tingling and numbness in the left hand, and though he had frozen the fingers, the right hand soon became affected in the same way. The disturbance did not extend above the wrist. Five months ago the same sensation of numbness and tingling in the feet, legs and thighs, and a constricting band was felt about the waist. In August, 1901, Dr. F. A. Stephens of Belmond, Iowa, made an examination of the blood, which showed 2,000,000 red cells, and 65% of hemoglobin. About the middle of December the doctor found 4,120,000 red cells, 85% hemoglobin and 7,500 white cells. Color index in both of these examinations was higher than normal. The patient has been taking arsenic for four months. For the last two or three months the patient has noticed some difficulty in walking. His gait is uncertain, but he can control it by close attention to the feet, and he has never fallen. He has no more difficulty in getting about in the dark than in the light. He has good control of the sphincters of the bladder and bowels, but there is, he says, not the normal feeling during micturition and defecation. There has been no disturbance of the gastro-intestinal tract. His weight is 135 pounds, the average normal. Examination showed a man of rather aged appearance, with a slightly icteroid pallor. The gastro-intestinal tract negative; the chest negative, excepting for a faint systolic blow at the apex, which was not transmitted. The liver dulness began above the fifth interspace in the mammillary line, and extended two fingers' breadth below the ribs, where the edge could be felt distinctly indurated, sharp and somewhat tender. The spleen was not palpable. There was rather marked pigmentation in the axillæ, perineum, scrotum and along the vertebræ. There was no increased pigmentation of the face or of the hands, and the nipples were not pigmented. The skin showed an urticarial rash when irritated by scratching. There was hyperesthesia, and pain from the waist downward. Temperature and touch sense appeared normal. Muscular sense normal; a slightly ataxic and spastic gait; the knee and plantar reflexes increased, and ankle clonus was present. Cremasteric reflex was diminished. The eye reflexes and eye grounds were normal; urine normal. Blood count showed 3,600,000 reds; 84% of hemoglobin; 4,500 whites, and a few normoblasts and megaloblasts. The color index in this examination was 1.3. The nervous symptoms in this patient steadily progressed, and, when last heard from, he was almost helpless with a spastic paraplegia, and the evidences of pernicious anemia still very marked.

CASE VI. Male, age sixty-two; merchant; resident of Wyoming; appeared Feb. 28, 1902. He had typhoid fever during the war of the Rebellion. He went to Wyoming twenty-five years ago because of asthma. In September, 1901, his appetite failed for meats and it was noticed that he was pale. He visited West Baden, Indiana, and his general condition seemed to improve. He still complained of anorexia and of general weakness. About Jan. 1, 1902, he noticed constant numbness in the fingers and toes; at that time he had considerable eructation of gas, and his bowels became constipated. He had slight shortness of breath.

Examination showed an icteroid pallor; mucous membranes pale; lungs negative. Outline of heart dulness normal; a soft, systolic blowing murmur heard at the apex; no venous hum in the neck, no petechiæ of the skin or of the mucous membranes; the skin sensations subjectively normal. Knee jerks increased; slight ankle clonus; slight ataxia and slight spasticity when walking. The eye grounds were normal. Liver palpable under the border of the ribs; abdomen flat; blood: red cells, 1,490,000; hemoglobin, 47%; whites, 6,700. Differential count of whites: polymorphonuclears, 69%; small mononuclears, 20%; large mononuclears, 9%, and basophiles, 1%. Both normoblasts and megaloblasts were found. The stomach contents, after a test meal, disclosed achylia gastrica.

The patient was placed in the Presbyterian Hospital, where many examinations of his blood and his stomach contents confirmed the findings of the first examination, and established definitely the diagnosis of pernicious anemia. The urine showed nothing abnormal after repeated examinations. The nervous phenomena increased in severity. The patient complained daily of discomfort, of numbness, tingling, and usually of severe burning of the feet, and of numbness and tingling in both hands. The ataxia and spasticity increased; knee jerks and ankle clonus gradually increased, although during that time his blood condition improved over 50%, and the patient finally felt so much better that he left for his home in Wyoming on May 13. There can be no question that this case will relapse, and that the spinal cord phenomena and lesions will grow rapidly worse.

CASE VII. Female, age thirty; has borne two children; German by birth. Family history is entirely negative. The patient was robust, with rosy cheeks, when a girl; was also well until after her first child was born, eight years ago. There was general edema of the body eight months after the first childbirth, which lasted two or three months. Then, there was apparent recovery, and a second child was born six years ago. General weakness followed the second childbirth, so that the patient was hardly able to work. Her present trouble began about three years ago, when she felt very weak, and it was noticed that she was very pale. She had nausea and vomiting, with frequent attacks of diarrhea, but without pain. The nausea and vomiting persisted until the present time. Her friends noticed that her skin was not only pale, but slightly yellowish. One year ago the patient noticed that the finger tips of both hands were numb. A girdle sensation appeared about the waist and lower abdomen six months ago. Numbness of the feet occurred about the same time. Gradually she became weaker, the lower extremities finally becoming so weak that she was unable to walk, and for nine weeks she has been confined to her bed. She has had some fever during the past six months, which has been irregular in its occurrence, lasting three or four days at a time. She says that three years ago her tongue and gums were sore; that the upper teeth rapidly decayed, and were finally all extracted. The lower teeth remained good.

She was admitted to the Presbyterian Hospital on April 30, 1902, complaining of great weakness. There was a sense of a girdle about the waist and abdomen, and a band-like feeling about the calves of both legs. She had no appetite, and there were nausea and vomiting frequently after an attempt to take a meal or any liquid food. The bowels moved from three to five times a day; she was very pale; icteroid hue; mucous membrane of the mouth pale; lower teeth in good condition; she wore an upper plate, and the gums were healthy. The chest was negative, excepting for a systolic bruit, which was heard loudest over the pulmonary area, but could be heard over the whole precordia. The abdomen was negative. The pelvis was negative. The patient was unable to stand because of weakness of the lower extremities. There was no alteration objectively of sensation; the knee jerks were greatly increased; ankle clonus was present. The patient had good control of the bowels and of the bladder. The eye reflex was normal to accommodation and light. The eye grounds were normal. Urine contained nothing abnormal, but was scant. On May 1 the blood showed 1,614,000 reds; 33% of hemoglobin, and 5,600 whites. A differential count gave polymorphonuclears, 21.3%; myelocytes, 1.4%; small mononuclears, 74%; large mononuclears, 3%, and eosinophiles, .3 of 1%. A large number of normoblasts and megaloblasts were

present. The stomach contents, after a meal, showed the absence of hydrochloric acid, and no bacteria in the smears.

This case, from the history, was clearly one of pernicious anemia of more than one year's standing, which began with severe gastro-intestinal disturbance, while the nervous phenomena occurred much later, were progressive, and reached the stage of spastic paraparesis at the time of her admission to the hospital. During May the patient improved steadily in her general condition, with simple abundant food, iron and arsenic. The blood state at the last examination showed an improvement of 10% in red cells, and 5% in hemoglobin. Nausea and vomiting had ceased entirely, and the patient was able to stand with the aid of a chair and to take a few steps. The spastic condition of ataxia and paresis, while less, was still very marked. The patient is still under observation.

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## Original Articles.

### LEGISLATION WITH REFERENCE TO SMALLPOX AND VACCINATION.[1]

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For more than thirty centuries the necessity of requiring mankind, by means of legal enactments, to observe certain rules of health, has been recognized by every civilized government.

This necessity has found expression in those statutes which have had for their object the prevention of disease, and the result has been that those people who have most carefully protected themselves by strict legislation, and who have most rigidly enforced the observance of health laws, have enjoyed the greatest immunity from the ravages of plagues and pestilence; while a neglect of proper precautionary measures has usually resulted in periodical decimation of the population by the scourge of communicable disease.[2]

[1] Read before The Massachusetts Medical Society, June 10, 1902.

[2] Parker and Worthington: The Law of Public Health and Safety.

The foregoing extract forms a fitting introductory to the observations which I shall present, relating to the subject of legislation in its relation to smallpox and vaccination. Froude says of legislation in general: "Our human laws are but the copies, more or less imperfect, of the eternal laws, so far as we can read them, and either succeed or promote our welfare, or fail, and bring confusion and disorder, according as the legislator's insight has detected the true principle, or has been distorted by ignorance and selfishness."

In the early history of the Province of Massachusetts, smallpox was the one disease which caused, among the people, the greatest degree of anxiety and alarm. Notwithstanding the sparsely settled condition of the population, its appearance was frequent, spasmodic and alarming. It had a way of swooping down upon the population like a destroying angel at frequent intervals, attacking nearly every man, woman and child who did not already bear upon their own bodies the scars of a previous epidemic.

In 1721, 6,006 persons in Boston were ill with smallpox, or more than half the entire population, and 850 of these died. In 1792, 8,346 had the disease. In this latter epidemic, it is stated that, out of a population of 19,484, 10,655 had already had smallpox, and that only 221 persons escaped having the disease, the remainder having moved out of town.[3]

So virulent did it at times become as to compel the legislature to hold its sessions in some other town.[4]

There can be little wonder, then, that legislatures should have sought relief from this unfortunate condition by enacting such legislation as seemed necessary for the protection of the people. Many of the statutes of Massachusetts, now in existence, bearing upon this subject, date from 1701, 1776, 1792 and 1797, and are the outcome of serious epidemics. Then came the fortunate discovery of vaccination, with further legislation of 1809, and later enactments upon this same subject.

Let us now briefly review the existing legislation of Massachusetts and see what has been accomplished for the protection of the community. How does this legislation affect the management of epidemics of smallpox?

I shall treat the subject under two general heads: Laws relating to Smallpox, and Laws relating to Vaccination.

#### SMALLPOX.

(1) *Notification.*— First, and most important, is the law requiring the attending physician to give notice of a case occurring in his practice ("a person whom he is called to visit") *immediately*, to the local board of health. (Revised Laws, Chap. 75, § 50.) This notice must be "in writing, over his own signature"—a mere verbal

[3] Report of State Sanitary Commission of 1850, p. 70.

[4] Loc. cit., p. 64. See also Stone's Life of Sir William Johnson, vol. i.

statement, delivered upon the sidewalk, or over his carriage wheel, is not sufficient in the eye of the law. It may be urged that the young and inexperienced physician, sometimes also older and more experienced men, may not be able at the first, or even at a later visit, to distinguish between smallpox and some other disease; for example, chicken pox or measles. In such cases, where there is even a suspicion of smallpox, it is best to give the community the benefit of the doubt, and to call in an expert who has had a large experience in the diagnosis of smallpox. During epidemic prevalence of smallpox, as at the present time, the presumption in each doubtful case (of its being smallpox) is greater than at other times. The English Notification Law differs from most American statutes upon the subject, in allowing the general practitioner a fee of 2s. 6d. for each legal notice of a case of infectious disease.

(2) The same duty of notification is also incumbent upon the householder (Revised Laws, Chap. 75, § 49), but, except in flagrant cases, it has not been the custom to enforce this law to the same extent as the former, chiefly from the fact that laymen cannot be expected to be as familiar with diagnosis as the trained physician. In all cases, however, of willful concealment, when there can be no doubt as to the knowledge of the householder, it would seem proper to take legal action.

(3) The local board of health is also required to give "*immediate* information of each case to the school committee." (Revised Laws, Chap. 75, § 51.)

(4) When the local board is informed of the existence of a case of smallpox, it must also, "*within twenty-four hours*, give notice of the same to the State Board of Health." (Chap. 75, § 52.)

(5) The State Board of Health must then "*forthwith* transmit a copy of the foregoing notice of the local board to the State Board of Charity." (Chap. 75, § 52.)

Here, then, are five separate kinds of notice required by law in each case of smallpox: (1) By the physician to the local board of health; (2) by the householder to the local board of health; (3) by the local board of health to the local school committee; (4) by the local board of health to the State Board of Health; (5) by the State Board of Health to the State Board of Charity.

The first four are sanitary measures intended for the protection of the public health, and the fifth is for the protection of the public treasury. Each of these forms of notice applies with equal force to other dangerous diseases as well as to smallpox.[3]

[3] The English law has a certain degree of elasticity by allowing local option, by which a district may include, for the purposes of notification, certain other infectious diseases of minor importance not embraced in the general act, such, for example, as measles and whooping cough. The German law (1893) requires notification of cases and deaths of Asiatic cholera, typhus, yellow fever, plague and smallpox, and of cases only of typhoid fever, diphtheria, croup, recurrent fever, dysentery and scarlet fever. (Hime, Practical Guide to the Public Health Acts, 1901, p. 156.)

What is the next provision of the law, the case having been properly notified?

(6) If circumstances require it, the patient may be removed from his dwelling by the board of health "within the limits of the town." (Revised Laws, Chap. 75, § 86.)

(7) The board of health is required "to provide a hospital or place of reception, and such nurses and other assistance and necessaries as is judged best for his accommodation and for the safety of the inhabitants." (Revised Laws, Chap. 75, § 42.)

If the patient lives in a spacious house, with large apartments, and especially if the house is in an isolated position, there can be no objection to his being treated in his own dwelling, provided that the health of the community is not likely to be endangered thereby. In a densely settled locality, and in small and crowded tenements, however, the public safety demands removal to a hospital. It is quite plain, moreover, that such conveyances should be used and such precautions taken in the removal as shall also least endanger the community.

The following decisions will be found useful for reference in connection with this law:

Springfield *vs.* Worcester, 2 Cushing, 52.
Spring *vs.* Hyde Park, 137 Mass., 554.
Brown *vs.* Murdock, 140 Mass., 314.
Hersey *vs.* Chapin, 162 Mass., 176.

The following rules for the guidance of local boards of health in dealing with cases of disease dangerous to the public health may be deduced from the foregoing decisions:

In case it is desired to isolate the sick person, he should be removed to a hospital to be provided by the board, except in the case where he cannot be so removed without danger to his health.

Even where the condition of the sick person is such that he cannot be removed without danger to his health, the board has no authority to establish the place where the sick person is as a hospital, without the consent of the owner thereof.

In case the board desires to provide a hospital to which to remove such cases, or to establish as a hospital the place where the sick person is, and is unable to hire the building for that purpose, it should procure the issuance of a warrant under Sec. 46, Revised Laws, Chap. 75.

(8) By an old law there is also provision for the retention of the patient where he is, "if he cannot be removed without danger to his health," and the "persons in the neighborhood" may be removed. (Revised Laws, Chap. 75, § 42.)

(9) In addition to the foregoing provisions of the statutes, there are still remaining a half-dozen sections relating to smallpox enacted in 1797, providing methods of a more or less clumsy character for removing sick persons, securing infected articles, impressing men to act as guards, etc. The unusual safeguards contained in these laws are provided in order that private property may not be appropriated to public uses without the consent of the owner, except by due process of law prescribed by the statutes.

(10) When a dangerous disease "exists in a town" it becomes the duty of the board of health to "use all possible care to prevent the spreading of the infection, and to give public notice of infected places to travelers by displaying red flags at proper distances, and by all other means which in their judgment shall be most effectual for the common safety." (Revised Laws, Chap. 75, § 43.) This latter clause is sufficiently broad and liberal in its terms to allow all reasonable methods to be employed which the circumstances of each individual case may require. A penalty makes it possible to enforce this law against anyone who wilfully interferes with its operation.

(11) *Hospitals.*— Several provisions now exist in the statutes of Massachusetts for the establishment of hospitals either temporary or permanent, for the reception of persons ill with smallpox. The emergency has arisen more urgently in the present epidemic, than ever before, in consequence of the increasing density of the population. These laws date from a period as early as 1701, when towns were authorized to establish and keep themselves constantly provided with such hospitals "subject to the regulations and orders of the board of health." (Revised Laws, Chap. 75, § 35.) A law of 1764, providing that "no such hospital shall be established within 100 rods of an inhabited dwelling-house, situated in an adjoining town, without the consent of such town" (Revised Laws, Chap. 75, § 37), if strictly applied at the present day, would in certain densely settled cities of small area prove a hardship, since it would limit the position of the hospital to a very small space in the centre and populous portions of such city.

By an act of 1870, the use of a building as a hospital may be prevented by a penalty, if "prohibited by the mayor and aldermen or selectmen." (Revised Laws, Chap. 75, § 38.)

A hospital of this character, once being established, "the physician, nurses, attendants, the persons sick therein, and all persons approaching or coming within the limits thereof, and all furniture, and other articles used or brought there, must be subject to such regulations as may be made by the board of health." (Revised Laws, Chap. 75, § 36.)

By a law enacted last year (Chap. 171 of the Acts of 1901) it was provided that "every city in the Commonwealth shall establish within its limits, and keep itself constantly provided with, one or more isolation hospitals for the reception of persons having smallpox, or any other disease dangerous to the public health." Such hospitals are to be subject to the orders and regulations of the board of health. (Revised Laws, Chap. 75, § 40.)

By further provision the city is liable to a penalty of $500 if it refuses to provide such a hospital "after having been requested so to do by the State Board of Health." (Chap. 75, § 40.) There are in Massachusetts at the present time about fifty cities and towns, each having over 10,000 inhabitants. By a report of the State Board of Health of 1899, it appears that about half of these places only had any provisions whatever for the reception of persons ill with smallpox, and of these several were merely old-time "pesthouses," so called, which were inadequate to fulfill the demands of an epidemic of such proportions as the past season has witnessed. This epidemic has stimulated a few more cities to make provisions of this character, but there are still several cities and large towns which are entirely unprovided for such an emergency. The principle of waiting for an epidemic before taking action, is too much like that of waiting till a great conflagration has burned up several houses, before adequate fire apparatus is purchased by a city or town.

In the case of several of the crowded cities and towns of the metropolitan district, having a very small area, an arrangement could be made, such as is permitted in English towns, whereby two or three small contiguous cities or towns might unite in erecting and maintaining a hospital to be used in common by such municipalities.

(12) The only statute in Massachusetts having reference to the treatment of the body of a person who has died of smallpox is that which forbids the transportation of such bodies by railway corporations or others, until these bodies have been "so encased and prepared as to preclude any danger of communicating the disease to others, by its transportation." (Revised Laws, Chap. 78, § 43.)

Stringent laws relating to the methods of conducting funerals and to the transportation of dead bodies or persons who have died of infectious diseases, exist in some states. I am inclined, however, to agree with Dr. Chapin,[6] who says: "The danger to be apprehended from such bodies has been much exaggerated." Such a body, however, having once been placed in its casket or coffin and the lid closed, the coffin should not again be opened for any purpose.

The real danger in public funerals is not so much the corpse lying still in its casket, as the lingering infection transmitted by the living person to the rooms which he has occupied before his death. As a "living dog is better than a dead lion," so one live man, sick with an infectious disease, living and breathing and reproducing the *materies morbi* of such disease, is, under ordinary circumstances, a far greater danger to the community than the dead body of one who has died of the same disease.

The following notes relating to court decisions upon the foregoing topics may be found useful. While some of them relate to laws of other states, many of these laws have been copied from Massachusetts laws, and are of similar character and phraseology.

Indigent sick persons, suffering from infectious diseases, may be sent to a public or private hospital to be treated at the public expense.

State *vs.* New Orleans, 27 La. Ann., 521.
Tucker *vs.* City of Virginia, 4 Nev., 20.

[6] Municipal Hygiene, p. 470.

A person sick with an infectious disease in his own house, or in suitable apartments at a hotel or boarding-house, cannot be removed without his consent, under the authority conferred by a city charter "to abate and remove nuisances."

Brown *vs.* Utica, 2 Barb., 104.

For further decisions relative to taking possession of houses and furniture without consent of owner, for use as a hospital, etc., see

Spring *vs.* Hyde Park, 137 Mass., 554.
Brown *vs.* Murdock, 140 Mass., 314.
Lynde *vs.* Rockland, 66 Maine, 309.

Health authorities can decide on propriety of removal.

Haverty *vs.* Bass, 66 Maine, 71.

"In order to carry out the law relating to the isolation of persons suffering with smallpox, and for the protection of the community, it may become necessary to convert private houses into hospitals and make them subject to hospital regulations, to seize and destroy infected articles, and to do many other things, which under ordinary circumstances would be considered a gross outrage upon the rights of persons and property. This is allowed, on the same principle that houses are allowed to be torn down to stop a conflagration. *Salus populi est suprema lex* is the governing law in such cases. When the public health and human life are concerned the law requires the highest degree of care. It will not allow of experiments to see if a less degree of care will not answer." (Parker & Worthington, p. 134.)

Seavey *vs.* Preble, 64 Maine, 120.
Labrie *vs.* Manchester, 59 N. H., 120.
Farmington *vs.* Jones, 36 N. H., 271.
Kennebunk *vs.* Inhabitants of Alfred, 19 Me., 221.

"Notwithstanding this privilege, it does not appear that a house may be seized and occupied against the will of the owner. The consent of the owner must be obtained to the use and appropriation of his property by the board of health, and provision made for his compensation, by means of a regular contract. Otherwise the property must be appropriated to the use of the board of health by proceedings regularly had for its impressment to the public use, as is provided for in the statutes of several states, accompanied by suitable safeguards in each case."

Lynde *vs.* Rockland, 66 Maine, 309.
Spring *vs.* Hyde Park, 137 Mass., 554.

In the matter of disinfection after smallpox the law of this State (Revised Laws, Chap. 75, § 49) states: "Upon the death, recovery or removal of such person, such of the rooms of said house, and such of the articles therein, as, in the opinion of the board of health, have been subjected to infection or contagion, shall be disinfected by the householder, to the satisfaction of the board of health."

Practically this work is done by the board of health, but strict compliance with the law would at least in all such instances make it advisable to give the owner timely notice that such rooms and articles are to be disinfected within a certain time, and if the owner fails to comply within the specified time, the board is fully justified in doing the work at the householder's expense. (Parker & Worthington, p. 139.)

VACCINATION.

In nearly all states, as well as in civilized countries generally, laws exist providing for the vaccination of the population, and particularly for that portion which attends the public schools.

Abeel *vs.* Clark, 84 Cal., 226.

This requirement, of submission to vaccination, is a constitutional exercise of the police power of the State, which can be sustained as a precautionary measure in the interest of the public health. (Parker & Worthington, p. 139.)

The Massachusetts laws relating to vaccination require:

(1) "A parent or guardian who neglects to cause his child or ward to be vaccinated before the child or ward attains the age of two years, except as provided in Revised Laws, Chap. 75, § 139, shall forfeit $5.00 for every year during which such neglect continues."

(2) By an act of 1855, the local board of health must "require and enforce the vaccination and revaccination of all the inhabitants," if, in the opinion of the board, it is necessary for the public health and safety. Every person over twenty-one years old, not under guardianship, who refuses or neglects to comply with this requirement, is liable to a penalty (Chap. 75, §137).

The chief defect in this law, as also in the laws of other states, is that it recognizes a false principle in sanitation. The ideal community, so far as vaccination is concerned, is not that population in which "the public health and safety" requires vaccination at irregular times and seasons, on the eve of, or in the midst of, great epidemics, but a community in which vaccination and revaccination are constantly and uniformly practiced year by year upon all young children and upon older children at the end of a definite period, say, of ten or twelve years. In such a community there are no epidemics of smallpox, because there is no virgin soil in which it can take root and flourish.

A law, then, which only requires vaccination when smallpox is prevailing or is epidemic in the state or district, is defective, and wrong in principle, and a community living under such conditions and with such laws may, as I have already said, be likened to one which waits for a great fire before purchasing its fire apparatus. The only correct sanitary principle in regard to vaccination is that of complete and permanent immunity, and not that of partial and temporary immunity of the people.

(3) By a further provision of the same law (Revised Laws, Chap. 75, § 137), as amended in 1894, the local board of health is required "to provide the inhabitants with free vaccination," if, "in the opinion of said board," the public safety requires it. Here, again, the law, unfortunately,

recognizes a wrong principle of waiting until "in the opinion" of a local board of health "the public safety requires" vaccination. As an illustration of the defective character of this principle during the present epidemic, several instances have occurred in which local boards of health have, unfortunately, been composed (at least partially) of men who were opposed to vaccination. In several instances the presence of one antivaccinationist upon a local board of health has so influenced the action of the board as to result in serious harm to the community, by delaying public vaccination, until the common sense of the community compelled them to act.

Possibly, the framers of such laws recognized this defect, but also recognized the common but often fallacious principle of local self-government, which allows those municipalities which do not act for the common safety of their population to suffer the consequences of such neglect. But, unfortunately, smallpox is a contagious disease, and is not confined to the boundary lines of cities or towns. The neglect of one town or one state may prove also a serious menace to the people of another town or state. Again, the non-voting part of the community, the women and, especially, the unprotected children, may become the victims of the neglect of the voting portion.

(4) For many years a beneficent law existed in this State as well as in many others, providing that the school committee "shall not allow a child who has not been duly vaccinated to be admitted to or connected with the public schools." The law was absolute, and wherever this provision has existed and has been thoroughly enforced, it has proved to be a helpful aid in protecting the community. But, unfortunately, in consequence of unwise opposition, this law was so amended in 1894 as to admit to school any child who was, in the opinion of a "regular practicing physician," "an unfit subject for vaccination" (Revised Laws, Chap. 75, § 139). The intent of this law was to admit such children as might be temporarily unfit for vaccination, in consequence of some ailment which might possibly make it improper to vaccinate the child for the time being. The serious blunder of enacting such a statute has been illustrated in the experience of the present epidemic, wherein it has appeared that the law has been frequently misapplied, by using it as a means of exemption for *any* child, without regard to its condition of health, on the ground that the certifying physician believed that all children were unfit subjects for vaccination. Worse than this, such certificates became for a time the subject of further abuse, since physicians advertised that they would, for a small fee, send certificates by mail to parties at a distance, without personal examination of the child. This mode of abuse has now been corrected by a law of this year, requiring that the certifying physician "at the time of giving the certificate shall have personally examined the child, and that he is of the opinion that its physical condition is such that its health will be endangered by vaccination." This exemption is in force, according to statutes, "while such condition continues." The law is still defective, since it allows a physician to apply it to any child whom he may consider an unfit subject, and may hence apply it to all children, if he happens to be an opponent of vaccination in general. To remedy this defect, the local board of health, through its medical officer, should have discretionary power to revise the certificate upon similar personal examination.

The direct consequences of this unwise legislation are seen in the present epidemic, wherein it appears that during the twelve months ended Dec. 31, 1901, 64 unvaccinated school children, between the ages of five and fifteen years, had been attacked with smallpox. The records of 1902 have not yet been tabulated, since the year is now but half completed. But an examination of all the records for the past fourteen years shows that during that time 389 children under fifteen years of age had been attacked with smallpox, of whom 66 were vaccinated and 323 were unvaccinated. The most significant fact, however, in regard to these 389 cases is, that out of the 66 vaccinated children there were *no* deaths, and among the 323 unvaccinated children there were 37 deaths, or 11.4% of the whole.

(5) Another statute requires that the "inmates" of all incorporated manufacturing companies, and those of public institutions, shall be vaccinated when the local board of health requires it (Revised Laws, Chap. 75, § 138). As a general rule, the superintendents of public institutions are careful to keep their inmates vaccinated, and, as a consequence, but few cases of smallpox have occurred among them during the present epidemic. Such, however, is not the invariable rule with manufacturing corporations. In several small manufacturing villages in the state, through neglect of this precaution, serious outbreaks have occurred.

The superintendents of the paper mills in Holyoke and in other western towns of the state, where paper is largely made, have been careful in requiring their employees to be vaccinated, so that the serious outbreaks among such persons, which once prevailed in consequence of the handling of infected rags, have, in this epidemic, been notably absent.

In the brief summary which I have here presented, I have only touched upon some of the most important points in the legislation relative to smallpox and vaccination. Other and important questions of a legal character have arisen and may continue to arise in the future. Two points, however, are very clear:

(1) The necessity of sufficient laws in all countries, relative to infectious disease prevention.

(2) The necessity of careful enforcement of such laws. We may choose between two courses. By fulfilling these two conditions, law[7] and its enforcement, the state may be rid of smallpox, with the exception of such single cases as may be imported. On the other hand, in the absence of law,

[7] By the term "law" here, an adequate law requiring the vaccination and revaccination of the entire population above a certain age is intended.

or if existing and not enforced, smallpox will run riot at intervals among the people.

In illustration of this point, I will call your attention to the condition of two countries, which afford examples of careful study:

In England, vaccination laws have existed for nearly a century, but these laws are defective and limited in character, the force of the legislation having been expended upon primary vaccination, to the serious neglect of revaccination. Added to this, opposition to vaccination has been more vigorously agitated there than in any other country in the world. So great was this opposition, that a parliamentary commission spent nearly eight years in considering the subject, and published a report of several thousand pages, the final result of which was the enactment of a blundering amendment, usually known as the "Conscientious Objector" Act, the weakness of which was shown upon the first occasion of a trial at court under this law. (See Hime's "Practical Guide to the Public Health Acts," Appendix, p. 53.)

As a consequence of the opposition prevailing in England, the exemptions from vaccination existing in different cities among children subject to vaccination, have varied from as low as 3.8% in Liverpool and 6.4% in Manchester, to 79.9% in Leicester and 23.9% in London, in recent years; and what is the result of this wholesale neglect? Smallpox is prevailing in London this year to a greater extent than at any time since the serious outbreak of 1871-1872. From the 1st of last January until now, the new cases of smallpox reported in London have averaged over 300 per week.

Contrast with this the splendid condition of Germany today. That country, with its fifty millions of population, may be likened to a city surrounded with a solid and impenetrable rampart or wall, and a picket line of well-drilled soldiers outside of the wall. This wall and picket line are the well-enforced vaccination laws of the country. The men, women and children are the well-protected army of soldiers. Smallpox may occasionally break through the outer picket line in the shape of some wretched, unvaccinated immigrant from Russia, Austria, Italy, France or Belgium, but the great mass of the well-protected population inside the fortification suffers no damage. This condition was effected by the enactment of a law in 1874, providing for the vaccination of every infant and every pupil in the schools at definite ages. As might be expected, with the existence of such a law, smallpox would gradually become extinct. In the first year only a small part of the population would be vaccinated: (1) Primaries, that is, children under two years of age, and (2) revaccinations, or children in their twelfth year; but the work of each succeeding year would add proportionally to the vaccinated population. This has been the result, and at the present day no cases of smallpox occur in that country which are not imported from neighboring lands, outside the limits of Germany. Such might be the case with any State or nation which adopts a similar course; and if all countries were to adopt it, smallpox would become a thing of the past. It is sometimes argued that smallpox is a filth disease, and only prevails among filthy people. But Paris and Vienna are as clean as Berlin, and yet these cities are very often visited by smallpox, while Berlin has none.

In one important point our own laws, as well as those of most American states, are defective, and that is in the absence of any definite provision requiring a record of vaccination to be made, at least in the case of all vaccinations performed under public authority. Boards of health often make wholesale vaccinations upon the population of large districts, institutions, schools, the employees of corporations, etc., without even a slight record of the names only of those who have been vaccinated. The laws, or at least the regulations, of other countries are very explicit in this matter, and require not only a record of the date, name, age and sex of each person vaccinated, but also a record of the result of the subsequent inspection, which should always be made at the end of about a week. Such a record is often of very great value in settling disputed cases. To meet this objection, the State Board of Health has furnished to every local board in the State suitable record books for this purpose. These books are modeled upon the forms supplied by the Local Government Board of England to the public vaccinators.

In this paper I have purposely avoided allusion to those vexing questions relating to the economic side of this question which invariably arise in every epidemic of smallpox. I have omitted discussion of this phase of the subject, both for want of time and because the valuable time of a scientific body can be better employed than by the discussion of financial matters, which can quite as well be submitted to the lay members of boards of health.

Those health officers, however, who desire to consult the various statutes and decisions relating to the expenses of caring for smallpox patients, the salaries of attending physicians, nurses, attendants, liability for destruction and injury of houses, furniture, bedding, etc., etc., may find abundant reference in the legal works upon the subject. See Parker and Worthington, Law of Public Health and Safety, and the following Supreme Court decisions:

Spring *vs.* Hyde Park, Mass., 137, 554.
Brown *vs.* Murdock, 140 Mass., 314.
Orono *vs.* Peavey, 66 Me., 60.
Hampden *vs.* Newburgh, 67 Me., 370.
Farnsworth *vs.* Kalkaska Co., 56 Mich., 640.
Rae *vs.* Flint, 51 Mich., 526.
Wilkinson *vs.* Long Rapids, 74 Mich., 63.
Clinton *vs.* Clinton Co., 61 Iowa, 205.
Kellog *vs.* St. George, 28 Me., 255.
Miller *vs.* Somerset, 14 Mass., 396.
Mitchell *vs.* Cornville, 12 Mass., 333.
Childs *vs.* Phillips, 45 Me., 408.
Gill *vs.* Appanoose Co., 68 Iowa, 20.
McIntire *vs.* Pembrooke, 53 N. H., 462.
Albany *vs.* Wilkinson, 28 N. H., 9.
Fort Wayne *vs.* Rosenthal, 75 Ind., 156.
Staples *vs.* Plymouth Co., 62 Iowa, 364.
Elliott *vs.* Supervisors, 58 Mich., 452.

People *vs.* Macomb. Co., 3 Mich., 475.
Schmidt *vs.* Stearns Co., 34 Minn., 112.
Labrie *vs.* Manchester, 59 N. H., 120.
Farmington *vs.* Jones, 36 N. H., 271.
Kennebunk *vs.* Alfred, 19 Me., 221.

One of the unfortunate circumstances connected with sanitary legislation at the present day is the absence of medical men in the legislature. On this account, public health committees must necessarily be composed either wholly or almost wholly of laymen. Medical questions are constantly arising at every session, and it is important that a committee which is called to discuss and present to the legislature many medical and sanitary questions should have at least one medical member. Laymen do not appreciate the value of legislation intended for the prevention of disease so keenly as men who are trained for this special purpose. Hence it is important that this want should be supplied, in order that the efficiency of sanitary legislation may not be impaired.

DISCUSSION.

Dr. G. A. Miles of Somerville: I would like to speak of one thing to which Dr. Abbott refers, and that is with reference to children getting into our schools unvaccinated, not only by certificates given by physicians, certifying that the child is an unfit subject to be vaccinated, but also those children who have been vaccinated, but no inspection of them afterward to see the effect. Since this outbreak in Somerville I have been surprised to find the number of children in school holding certificates of vaccination, although the operation was entirely unsuccessful. This has brought very forcibly to my mind the great importance of examining every case before a certificate is given, not only to see that the patient is protected, but also that it is being properly cared for and doing well.

Dr. S. H. Durgin of Boston: I think for a physician to give a certificate before he knows that the vaccination has taken is both stupid and illegal, and it should be denounced from one end of the land to the other.

## VACCINATION ERUPTIONS.

BY HARVEY P. TOWLE, M.D., BOSTON,

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During the past winter I saw several cases of eruptions which occurred during the course of vaccinations and which were apparently the direct result. This led me to look up the literature on the subject of vaccination eruptions. I found surprisingly few references. This scarcity may be accounted for in two ways. Either the eruptions which occur during the course of a vaccination are rare, or the profession has been indifferent to the subject and has not reported what cases it may have had. My belief that both propositions are true is my excuse for presenting the subject.

I found in the literature a difference of opinion as to what should be called a vaccination eruption. Some authors include under this head any eruption which occurs during or even after the course of the vaccinal lesion. Others use the term for those eruptions only which occur during the course of the vaccinal lesion and which have no other obvious cause than the vaccination. Sobel has defined what I mean by a vaccination eruption so well that I will quote his definition: "We must not confound eruptions pure and simple (in which it may be reasonably assumed that the course of the vaccination has been instrumental in the production and development) with those produced by extraneous infection (which would in all likelihood have occurred without the inoculation of the virus), impetigo contagiosa, erysipelas, abscess, furunculosis, etc. I should reluctantly attribute any generalized eruption to vaccination once the seat of inoculation has become thoroughly healed. So long as the sore remains open, so long as there is a chance for absorption, generalized vaccination rashes may occur." It is in accordance with this definition that I shall consider the subject. I shall not touch upon the eruptions due to extraneous infection nor upon vaccination itself.

Crocker has given a classification of vaccination eruptions modified from one proposed by Morris in an introduction to a discussion on vaccination at the Dermatological Section of the British Medical Association in 1890. Crocker's classification is as follows:

Group I. *Eruptions resulting from pure vaccine inoculation.*— (1) Secondary local inoculation of vaccine. (2) Eruptions within the first three days, before the vesicles form, which include urticaria, erythema multiforme, vesicular and bullous eruptions. (3) Eruptions following the development of the vesicle, due to the absorption of the virus, which include (*a*) morbilliform, scarlatiniform and diffuse erythema, erythema multiforme, vaccine lichen and purpura; (*b*) generalized vaccinia, vaccine généralisée of French authors; (4) sequelæ of vaccination, eczema, psoriasis, urticaria, etc.

Group II. *Eruptions due to vaccine virus plus some other virus.*— This group, which deals, according to the definition of vaccination rashes given above, with accidents rather than with true vaccination eruptions, we shall not consider here.

A brief description of some of the classes included under Group I may aid us in the understanding of the cases which follow. The secondary local inoculation of vaccine may be dismissed in very few words. After inoculation with the vaccine virus, according to Jeanselme, there is in all cases a period when one can be reinoculated; that is, a period between the time of inoculation and the time when protection has been attained. This period has been variously estimated at from seven to seventeen days.

The secondary local inoculation may arise, by accident, when the original site is being inoculated, or the fingers of the patient may carry the virus and by scratching reinoculate it. Supernumerary vesicles may develop around the site of the original inoculation, which develop rapidly and mature at the same time as the original vesicle.

Urticaria, erythema multiforme, etc., which occur before the vesicle has developed, need no especial description. As to their origin, first, as we see skin rashes follow the use of enemata or the injection of antitoxin, as manifestations of a general irritation, so we may see these eruptions follow on the irritation produced by the vaccination.

Of the eruptions following the development of the vesicle the most common, according to Crocker, is vaccine lichen. This may be either papular, papulo-vesicular or pustular and, rarely, bullous. It appears from the fourth to the eighteenth day after inoculation. It begins generally on the arms, but sometimes on the neck, the trunk or the face. It may then spread in crops over the rest of the body. The papules are acuminate, pin's point in size and bright red. These in many cases persist unchanged, but in others the papules may bear a vesicle or pustule and be surrounded by an areola. Usually itching is only moderate, but occasionally it is severe. Constitutional disturbance is slight. The eruption may last from a few days to a week or two.

According to Sobel, the most common generalized eruption is urticaria, occurring from the fifth to the fifteenth day. This may be confined to the vaccinated arm.

The vesicular eruptions are often very puzzling. These occur from eleven to fifteen days after inoculation. They may involve mainly the trunk, which is the usual form, or they may involve the extremities, or they may be confined to the vaccinated arm. Some of Sobel's cases simulated chicken pox closely. He says that it will be seen, however, that these cases, when examined carefully, never show *all* the characteristics of varicella; the lesions do not come out in stages, they lack grouping in twos or threes or fours, the oral mucous membrane is not involved, usually, and the vesicular contents are darker and not lactescent.

In the "vaccine généralisée" of the French the eruption may be widespread and may occur anywhere on the body. These widespread eruptions mature like the secondary local inoculations described above. It is still a matter of discussion as to whether such eruptions are due to autoinoculation or to a real generalization of the eruption. Many authors maintain that excluding all possible cases of auto-inoculation, there are still many cases left unexplained. One author gives as causes for this generalized eruption: absorption by the digestive tract, as in children fed on vaccine matter; maternal milk from a vaccinated mother; suckling a vaccination lesion; absorption of the virus into the circulatory or lymphatic systems from the seat of vaccination. Some authors call the supernumerary vesicles around the seat of vaccination, due to auto-inoculation, vaccine généralisée, but the majority exclude these. Jeanselme quotes such a curious case of vaccine généralisée, reported by Richard in 1809, that I give it here. The case was that of a child of four who sucked his vaccination pustule or crust on the seventh day. Four days later he had an eruption generalized, of fifty-three "buttons" whose aspect was that of vaccination pustules. The virus of these, inoculated on seventeen infants of varying ages, produced a regular vaccination.

Hutchinson reports two cases of a vaccination eruption which resembled closely variola. Both occurred in children who had had no known exposure to variola. There was no spreading from them to others. The spots, in the first instance, were hard and shotty. Next, there developed upon them large, round, umbilicated vesicles which would have been regarded as typical in a smallpox eruption. These were scattered, sparingly, over trunk and limbs.

Dr. J. T. Bowen reported six cases of a bullous dermatitis which followed vaccination. As to the exact connection between the vaccinations and the eruptions, however, he was uncertain. Three of the cases developed within two weeks after the vaccination; one within a week and two after a month. They had, in common, a course varying from several months to several years; a uniformly vesicular or bullous character; an almost complete exemption of the trunk; a characteristic grouping about the mouth, nose, ears, wrists, ankles and feet; of itching or other subjective symptoms, very slight prominence beyond what is common to any interference with the integrity of the skin.

Passing now to the sequelæ of vaccination, which include eczema, psoriasis, urticaria, etc., it may be said that these occur only in predisposed subjects. The diseases themselves need no description here.

As regards the frequency of these vaccination eruptions it is stated by Sobel that in 4,160 vaccinated children 14% presented complications or sequelæ and 2% presented general eruptions. Out of 204,866 cases reported to the American Dermatological Association up to 1893, there were but forty-two of vaccinia. The vaccine généralisée of the French is rare. Jeanselme states that out of an annual average of three to five hundred thousand vaccinations at the Academie de Medicine, there are not more than seven to eight cases in a year. Huddleston was able to find but fifty cases reported during the last century.

The cause of the vaccination eruptions is still in dispute. Whether or not they result from some specific poison is not known. The most probable origin would seem to be the absorption of some toxin from the vaccination sore. Numerous investigators have endeavored to find the specific agent of vaccine, but without success. Copeland and others have found various micrococci, but nothing which they were willing to call the specific agent. Funck, in 1901, announced that, for the first time in history, he was able to give the experimental demonstration of the cause of vaccine and variola. His conclusions were: (1) Vaccine is not a bacterial disease; (2) vaccine is a protozoön infection; (3) the inoculation of

this parasite in sterile emulsion in animals shows all the classic appearances of vaccine; (4) the inoculation of this emulsion renders the animal immune against further vaccine inoculation; (5) the pustule of variola contains a protozoön which is morphologically similar to that of vaccine; (6) it is determined by these experiments that variola and vaccine are two similar affections, that vaccination is only a mild form of variola and that the immunity conferred by vaccination against variola is in complete harmony with the general laws of specific immunity. These experiments would seem to settle the question if it were not for similar experiments by Pedwyscozki and Mankowski, who, immediately upon the publication of Funck's work, began investigations to verify his experiments. They reported: "On the ground of detailed microscopic and microchemical researches of these sporoblasts, we are forced to declare that this protozoa-like element corresponds entirely to fatty epithelial cells, that is, cells of the sebaceous glands, and that which was described as a spore corresponds to a single fat corpuscle." We cannot, therefore, regard the search as closed.

I have seen five cases of vaccination eruptions during the past six months whose histories in brief I will give.

Case I. Boy, age four. Has an old small dry patch of eczema on upper lip, another on leg. Three weeks ago was vaccinated upon the left arm. Result, a success. Two or three days after the vaccination began to take, the boy scratched the lesion. Simultaneously various lesions began to appear upon the left arm and on the face and leg, on the sites of the old patches of eczema. These lesions had an appearance similar to the original vaccination lesion, varied in size, and pursued a course similar to that of the original sore.

Case II. Woman. Vaccinated three weeks ago upon the left arm. Vaccination took on the eleventh day. Between the thirteenth and fifteenth day after inoculation left arm and hand swelled and were red and slightly tender. At the same time round, red, itching areas appeared on the fronts of both knees and on the right thigh. Was seen on twenty-first day. Vaccination sore was still moist. Some redness of left arm and hand still remained, with slight tenderness. On the right, just below the knee, one in front and one toward the inner side, were two roundish areas, with ill-defined edges, slightly raised above the surface, somewhat tender, in color reminding one of an old bruise. On the front of the left knee were four similar areas, on the thigh another. In size they were about as large as a silver dollar. In a few days, except for some staining, they had disappeared.

Case III. Boy, age two. Was vaccinated seven days ago. Vaccination began to take on the second day. On the evening of the sixth day after inoculation his mother noticed upon one buttock a red spot about the size of a silver dollar. In every other way the boy seemed perfectly well and slept well all that night. In the morning, however, it was noticed that there were red patches upon other parts of the body, and also that when the boy was put upon his feet he did not remain standing, but his legs collapsed under him. His mother thought him paralyzed. The patient was seen upon the seventh day after inoculation. He was found sitting comfortably upon the bed, playing with his toys. Upon the left arm was a typical vaccination lesion. Upon each buttock was an irregularly rounded area, slightly raised above the surrounding skin, red, slightly tender and surrounded by a pale areola, one-quarter of an inch in width. The redness did not disappear entirely on pressure. There were similar lesions over the scapulæ and on top of the left shoulder. On the front of both knees were reddened areas which covered the patellæ and which extended in all directions for a distance of about two inches from the patella edges. These areas presented appearances similar to those already described, but in these the tenderness was more marked. Any movement of the knees called forth a cry of pain. The popliteal spaces were free. Temperature and pulse were normal. Two days later the eruption had completely disappeared except for a slight staining.

Case IV. Girl, age six. Vaccinated ten days ago. Took on the seventh day. On the evening of the eighth day after vaccination her mother noticed upon the back of the neck a red spot, of small size. On the morning of the ninth day there were twenty or more similar spots on the back, chest, abdomen and forehead. The child complained of feeling tired and that the eruption itched. Patient was seen on the tenth day. Examination showed a healthy child, bright, and in no apparent discomfort. There was an eruption scattered, not grouped, chiefly over the body, front and back, with two or three lesions on the forehead and one or two on the arms. Face and hands were free. The spots varied somewhat in appearance. The most recent were papular, pin's point in size, surmounted by a minute vesicle and situated on a reddened, slightly raised area, with sloping edges, which was surrounded by a narrow pale areola. A few papulo-vesicles, without this raised area, were seen. There were also a few larger lesions bearing in the centre of the reddened area a dry crust, evidently due to the rupture of the vesicle by scratching. Factitious urticaria present. Throat and oral mucous membrane were clear. That itching was present was shown by the fact that when she was uncovered the child immediately began to scratch. On the leg was a profusely secreting vaccination lesion as large as a one-cent piece. Temperature and pulse were normal. On the following day the eruption had begun to disappear, especially that on the forehead, and in two days she was apparently well.

Case V. A man, who had had a psoriasis for several years, but who had continued faithfully under treatment until the eruption had disappeared, except for a little in the scalp. Two weeks after vaccination, while the sore was still moist and oozing, he had an eruption of psoriasis which was more widely spread than any he had had before.

We have, then, in these five cases one of secondary local inoculation; three which appeared from the sixth to the thirteenth day, in patients whose vaccination lesions were still secreting,— having in common, redness, slight induration, lesions of a rounded character, a short duration and no marked constitutional disturbance. In two there was some pain. In one there were vesicles. In the fifth case, while it is clear that the vaccination was not the cause of the eruption itself, it is a question if the vaccination did not so upset the equilibrium of the skin as to cause a rapid and widespread recurrence. It is for this reason only that I report it.

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Smallpox in Barbados.— It is reported in cable despatches that smallpox is epidemic on the Island of Barbados, and is spreading rapidly in spite of the efforts of the health authorities to check it. Vaccination is being urged, but many of the negroes oppose it, and a panicky feeling is growing among them. Most of the neighboring islands have declared quarantine against Barbados.— *Medical Record.*

# APPENDICITIS COMPLICATING PREGNANCY, WITH REPORT OF CASE; REMOVAL OF GANGRENOUS APPENDIX AT THREE AND ONE-HALF MONTHS, DELIVERY AT TERM.*

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THE treatment of a pregnant woman suffering from an attack of any acute disease is full of care and responsibility, more especially because of the fact that temperatures over 104° F. invariably prove fatal to the child in utero,[1] while suppurative conditions with much lower temperatures may lead to fetal death.

There seems to be no reason why appendicitis should not frequently complicate pregnancy, because the ages of eighteen to forty cover most of the child-bearing period, as well as being the ages during which 75% of uncomplicated cases of appendicitis occur. Another important reason arises from the fact that continued and obstinate constipation usually accompanies pregnancy, and we have in addition mechanical disturbances resulting from the rapidly growing uterus, with congestion of all the pelvic blood vessels.

The case I have to report affords an opportunity of going over a few important points in the diagnosis and treatment of appendicitis complicating pregnancy. The happy result to both mother and child in this case is directly attributable to the early recognition of danger signals followed by prompt action. The case is as follows:

Mrs. L. W., age thirty-six, married three years. In October, 1900, gave birth to a son; labor tedious, but aside from this there was nothing abnormal noted about the pregnancy or the puerpium. She became pregnant again in May, 1901. On Aug. 9, 1901, about 11 P.M., she was seized with a severe pain in epigastrium, accompanied by nausea and vomiting; the bowels were and had been constipated; symptoms continuing through the night. Dr. H. W. Dudley of Abington was called on the morning of the 10th. Found patient with a temperature of 100°, pulse 90. Pain was unremittent, and vomiting continued. There was marked rigidity of the abdominal muscles, especially on right side, and the pain worse at first in the epigastrium, had localized at McBurney's point. Hot fomentations were applied, and the same afternoon I saw her in consultation with Drs. Dudley, Wheatley of North Abington and Osgood of Rockland, the two latter afterwards assisting at the operation. At 5 P.M., when I saw her for the first time, the pain of which she had been complaining had in great measure ceased and there had been no nausea for some hours. Temperature was 100.5°, pulse 110. Rigidity of abdominal muscles was very marked, especially of the right rectus, and even moderate pressure over location of the appendix gave rise to pain. Believing that the cessation of pain without amelioration of local signs was not a favorable symptom, and not willing to temporize on account of the existing pregnancy, operation was advised.

The usual preparations for an operation in a private house were made.[1,2] Under ether a two-inch incision, afterwards enlarged to three, was made through the outer border of the right rectus muscle. Upon opening the peritoneum the appendix was found directly under the incision; it was dark colored, full of concretions, surrounded by purulent serum which was partially walled off by fresh adhesions of the omentum. Cloudy serum also welled up from the direction of the pelvis. This was carefully sponged out. The appendix was removed in the usual way, one strip of gauze packing was passed down to the stump and another strip passed down to drain pelvis. Incision was closed by through-and-through sutures of silkworm gut, except for about an inch at lower angle of incision, through which the gauze drains were brought out. From the time of operation until the gauze was removed, four days later, there was nothing out of the ordinary to report. After the packing was removed the patient had two or three attacks of syncope which seemed quite threatening, accompanied by regular rhythmical pains, threatening abortion, but the pain was easily controlled by morphin sulphate subcutaneously, and the syncope was treated by alcoholic stimulation. Recovery from this point was uneventful, and the patient was up in three weeks, the abdominal incision being entirely closed. Pregnancy continued until Feb. 26, 1902, when patient was delivered of an eight-pound daughter.

Labor was easy. There was no pain or bulging in cicatrix from operation. In fact, there has been at no time during the pregnancy or puerpium any bulging of the scar.

The report upon the specimens by Dr. Timothy Leary of Tufts College Medical School is as follows:

Received in Zenker's fluid a greatly swollen appendix which had been fixed in gross. The organ measures about 8 cm. long and 1.5 cm. in its greatest diameter, measured at about the mid-point of its length. There is a large fat mesentery running to the tip. The color picture is destroyed, owing to staining with Zenker's fluid. On section the wall of appendix is thinned, and the cavity greatly dilated and filled with soft solid material. Tissue for section taken from along mesenteric attachment at point of greatest swelling.

Examination shows mucosa eroded in good part but showing no evidences of active ulceration, nor indeed much leucocytic invasion. The wall, including submucosa and muscle layers, is deeply infiltrated with polynuclear cells, which in the muscle lie in rows between the bundles of muscle fibres. The portion of mesentery attached to specimen shows similar purulent infiltration, and there is a collection of pus cells along peritoneal surface.

Sections stained by Gram's method show no organisms, but considerable fibrin in delicate fibrillæ along peritoneal surface. (The failure to obtain positive results by this method may have been due to the long fixation of specimen in Zenker's fluid.)

The portion of appendix examined shows diffuse interstitial purulent appendicitis and peri-appendicitis. Fresh examination of mucosa would probably have shown ulceration at some point.

In 1890 Hirst read to the Obstetrical Society of Philadelphia a paper on symptoms during pregnancy simulating appendicitis.[3] Mixter, in 1891, reported a case of operation on an appendiceal abscess following premature delivery of a dead child at seven months.[4]

Munde, in 1894, reported the case of premature delivery of a dead child induced by acute appendicitis, with remarks on appendicitis in women.[2] These cases served to call the attention of the profession to the occurrence, not only of appendicitis in women, but to its danger as a complication of pregnancy. The number of cases reported since that time have been so few as to give the idea that the disease must be a very unusual complication of this condition, while the

* Read by invitation before the Obstetrical Society of Boston, April 15, 1902.

mortalities both fetal and maternal, in reported cases, are so high that it appears to be the most fatal extra-uterine complication of pregnancy with which we have to deal. The maternal mortality in this condition is given by Bouillier (twenty-two cases) as 30.4%.[5] Abrahams (fifteen cases) gives 46%,[6] and Hlawacek (thirteen cases) 85%,[7] and the fetal mortality varies from 49% to 90%. These mortalities are in cases operated upon previous to 1898. A few cases reported since that date show better results, due principally to early operative treatment. Many explanations for the high mortality in these cases as compared with appendicitis in general have been given, based mostly upon the relation which necessarily exists between the pregnant uterus and the appendix.

Clado,[8] who has especially studied the anatomy of this region, in describing the relations and course of the appendicular lymphatics, proves an intimate relation existing between the appendicular lymphatics and those of the broad ligament.

These lymphatics are transmitted by a peritoneal fold named by Clado, the appendiculo-ovarian ligament. This is a fold of peritoneum which is prolonged outward from the infundibulo-pelvic ligament to the meso-appendix, and in some cases, according to Lockwood,[9] even to the cecum and mesentery. Dr. Dwight (personal communication), in a description of the peritoneum, notes this as "a secondary fold of peritoneum sometimes seen springing from the base of the meso-appendix and connecting with the broad ligament. It is said to contain a lymphatic gland which we have rarely seen." In an examination of twenty-four female cadavers which I had the opportunity of making through the kindness of Dr. Dwight of the Harvard Medical School and Dr. Charles P. Thayer of Tufts Medical School, I was able to demonstrate without difficulty the presence of this fold in eighteen cases, while in the remainder demonstration without drawing on the imagination was somewhat difficult.

That this is important in cases of inflammation in and around the appendix, there can be no question. Lockwood reports a case (Case 69)[9] in which the broad ligament was inflamed and swollen during an attack of appendicitis, and Clado also describes two cases in which he saw infection pass from the appendicular lymphatics to the utero-ovarian. It seems, however, that the importance of this lymphatic connection can be easily exaggerated, as the cases of utero-ovarian-lymphatic infection must be very much less common than the involvement of the glands lying along the inner side of the right colon behind the ascending mesocolon.

The diagnosis of appendicitis complicating pregnancy should ordinarily be easy, not differing materially from an uncomplicated case. The most important diagnostic signs are localizing pain, muscular rigidity, and the elevation of pulse or temperature.

Vomiting of pregnancy gives rise to pain localized at the diaphragmatic attachments, while acceleration of the pulse and elevation of the temperature are exceptional.[10]

An extra-uterine pregnancy, situated on the right side, might be confounded with appendicitis, as might a small ovarian cyst, with twisted pedicle, but a differential diagnosis is not important.

The death of an intra-uterine fetus has given symptoms which have led to laparotomy, and this condition as well as the possibilities of miscarriage should be considered in making a diagnosis.

Pains supposed to be characteristic of appendicitis in the right iliac fossa may be mistaken for the uterine contractions such as not rarely occur in primiparæ.[11]

The examination of the blood in suspected cases for a leucocytosis will give valuable information, especially as "the blood is normal during the first six or seven months of uncomplicated pregnancy. The occurrence of leucocytosis during this period, if associated with local signs in the right iliac fossa, would favor the diagnosis of suppuration in that region. During the latter months of pregnancy a leucocytosis has been reported by various of the older writers, but there are no satisfactory or recent data bearing upon this point." (Dr. R. C. Cabot, personal communication.)

The importance of this fact is shown when we consider that in at least 80% of reported cases the acute attack of appendicitis has occurred during the first six months of pregnancy. The treatment of this condition should be operation as soon as diagnosis is made, as the danger not only to mother but to fetus increases rapidly with the increase in sepsis.

Pregnancy adds little, if any, danger to the performance of a capital operation (as shown by the many successful ovariotomies, myomectomies, etc., reported), while almost the slightest amount of suppuration will be fatal to the child and may lead to a fatal termination for the mother from the extension of sepsis to the uterus.

In operating I believe thoroughly in the rectus incision. It is fully as easy to reach the appendix in this way; the incision is easy to enlarge without cutting muscle fibre, and in healing there is a constant tendency of the rectus fibres to close the opening. If this incision is used and properly closed, there will be little danger of rupture before, during or after delivery.

In conclusion, I would suggest for your consideration that in view of the serious nature of the condition which we have considered, are we not justified, not only in insisting upon immediate operation, if the attack occurs during pregnancy, but also upon operation in all cases where appendicitis has occurred in women who are susceptible of becoming pregnant?

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# Medical Progress.

## REPORT ON THE PROGRESS OF SURGERY.

BY HERBERT L. BURRELL, M.D., AND H. W. CUSHING, M.D., BOSTON.

(Continued from No. 9, p. 216.)

### LEUCOCYTOSIS AS A POINT OF PROGNOSIS IN APPENDICITIS.

Joy and Wright,[22] in a paper on this subject, state that their general principle is this: The degree of leucocytosis is an index of the severity of the case; a high stationary or an increasing leucocytosis indicates a progressively serious case which demands immediate intervention; a decreasing leucocytosis, save in some exceptional cases, very few in number, to which special reference will be made, points to a case of decreasing severity in which operation *may* be safely delayed if for any reason it be so desired.

This cardinal principle is the result of their observations in 124 cases of which they have hospital records, and probably as many more externe cases of which no records are at hand. It is the result of this experience alone. The authors state that given the dictum to start with, they have worked out its truth for themselves, with certain modifications and additions. They can cite no principles in its support, but base their belief in its correctness, as they confidently do, solely on experience.

They summarize their views as follows:

(1) The leucocyte count is a valuable aid to prognosis in appendicitis.

(2) This is distinct from its diagnostic value.

(3) A high stationary or an increasing count indicates a morbid condition of increasing severity which demands operation, no matter what the clinical symptoms may be.

(4) A low stationary or decreasing count indicates that the severity of the case is abating and that operation may be safely postponed. Cases in which a falling count is accompanied by unmistakable signs of a generally bad condition, form the rare exception to this second principle, and in them there is no chance of error.

(5) No arbitrary set of prognostic values to be assigned to various degrees of leucocytosis can be constructed. The important point is to follow any scheme in which one learns to have confidence, provided the essential principle be preserved.

(6) The count indicates when operation should be performed for the best interests of the patient.

(7) Circumstances often render it desirable to postpone operation in appendicitis. Study of the blood-count enables it to be determined whether this may be done with safety, and often renders such postponement permissible.

### COURVOISIER'S LAW.

Cabot, R. C.,[23] in an article on this subject, states that his material consists of thirty autopsies and fifty-six cases which did not come to an autopsy, but in which the condition of the gall bladder and of the common bile-duct was seen and felt at operation. Among these eighty-six cases were fifty-seven of obstruction of the common duct by gallstones, and twenty-nine in which the obstruction was due to other causes, almost invariably cancer of the pancreas. Out of the whole eighty-six cases there were but four which violate Courvoisier's rule. The gall bladder was atrophied in forty-seven cases of obstruction by stone, normal in eight and enlarged in two. In one of these two cases the record states that the gall bladder was "moderately distended," but gives no figures regarding its size. In the other cases six ounces of bile were evacuated from the distended gall bladder. These two cases form the only exceptions to Courvoisier's rule out of the total of fifty-seven cases of stone in the common duct.

On the other hand, out of twenty-nine cases of obstruction by cancer of the pancreas or other cause not stone, there were but two in which dilatation of the gall bladder was *not* found. In one of these the gall bladder was empty; in the other it was contracted around three gallstones. With the exception of these four cases, which constitute only 5% of the total number examined, every record of the Massachusetts Hospital series in which definite statements are to be found concerning the points at issue goes to confirm Courvoisier's rule.

### GALL BLADDER WOUNDS.

Enderlen and Justi,[24] owing to the familiar difficulty with which wounds of the gall bladder sometimes heal, were inspired to undertake experiments on dogs directed toward filling defects in the gall bladder by means of omentum. Their results are interesting and as follows:

(1) Wounds of the gall bladder heal with complete restoration of the mucous membrane.

(2) Copious suppuration and hindered outflow of necrotic masses check the healing.

(3) The new epithelium shows at first low forms which change on developing into the high cylindrical epithelium.

(4) The regeneration of the muscular coat is somewhat incomplete.

(5) A tendency of the epithelium to grow along the holes made by silk threads is present in only a few cases.

(6) The transplanted omentum is absolutely adapted to replace defects in the gall bladder.

[22] Medical News, April 5, 1902, p. [illegible]

[23] Medical News, Nov. 30, 1901, p. 844.

[24] Deutsch. Zeitsch. f. Chir., October, 1901; Medical News, Dec. 14, 1901, p. 940.

(7) In the omentum there is first a development of the connective tissue followed by much shrinking.

(8) On the transplanted omentum there is well spread out a covering of epithelium, beneath which the new mucous membrane soon appears.

(9) The original defect gradually grows smaller on account of the shrinking in the omentum and the contraction of the muscular coat. Practical obstacles against the transplanting of the omentum rarely occur.

(10) In the dog the gall bladder may be opened and spread out upon the liver. Soon, however, with the aid of the liver-substance a cavity is formed which tends to carry out the functions of the gall bladder.

CONCERNING THE POISONOUS EFFECT OF PURE SODIUM CHLORIDE SOLUTIONS UPON THE NERVE-MUSCLE PREPARATION.

Harvey Cushing[25] gives the following conclusions on this subject:

The pure sodium chloride solutions are injurious to the nerve-muscle preparation.

The effect is in a measure related to the percentage of this salt in solution.

Inasmuch as the response from indirect stimulation fails, while that from direct stimulation may persist, the result primarily affects the nerve ends.

The injurious effect may be promptly counteracted by the blood or serum of certain animals or by the proper "physiologically balanced salt solution."

By varying the percentage of the calcium ion in the solution, with certain limitations, proportionately beneficial effects may be produced.

An excess of the calcium ion in certain cases of fatigued muscle may lead *intra vitam* to a permanent contraction of the muscle resembling rigor mortis.

OSTEITIS DEFORMANS.

Frederick A. Packard, M.D., J. Dutton Steele, M.D., and Thomas S. Kirkbridge, Jr., M.D., in an article on this subject[26] offer the following conclusions from their study of a case and the literature on the subject:

(*A*) *From the Clinical Standpoint.*

(1) Beside our own case sixty-six true cases of osteitis deformans are to be found in the literature.

(2) Osteitis deformans is a distinct disease of obscure etiology, but possibly allied to, although not identical with, osteomalacia, fragilitas ossium and acromegaly.

(3) The disease is one especially of later adult life, although its onset has been noted at as early a period as the twenty-first year. Of the sixty-seven cases, 61% occurred in males and 35% in females. In a small number of cases trauma has seemed to play a part in the etiology. There is very little evidence of a family tendency to the disease, although there are a few examples in the literature.

(4) The subjects of the disease bear a striking resemblance to each other in their general characteristics, the most noteworthy features of which are enlargement and forward projection of the head, dorsocervical kyphosis, the prominence of the clavicles, the spreading of the base of the thorax, the diamond-shaped abdomen crossed by a deep sulcus, the relative increase in the width of the hips, and the outward and forward bowing of the legs.

(5) The bones most frequently affected are those of the cranium, the tibia and the femurs, in the two former of which the deformity was usually first noted. There is a curious preponderance of cases wherein the left side was either first or most involved, although at times it was noted that the enlargement was crossed so that the lower extremities of one side and the upper extremities of the other were involved to the greatest degree.

(6) The association with malignant disease, while present in our case, would seem to be not quite so frequent as is usually stated.

(*B*) *From the Pathological Standpoint.*

(1) Osteitis deformans is a disease affecting the skull, vertebræ, and certain of the long bones. Its essential pathological characteristics are: (*a*) Absorption of the compact substance, causing enlargement and confluence of the Haversian canals. (*b*) Formation of new bone, which runs diffusely through the affected and the adjacent healthy portions. This new bone remains uncalcified, and is in turn reabsorbed. (*c*) The conversion of the medullary substance into a vascular connective tissue, containing fat cells, giant cells and leucocytes. In a small proportion of the reported cases cysts filled with gelatinous material and giant-celled sarcomata occur in the medulla. (*d*) As a consequence of these three processes, the ordinary relations of the compact substance and medulla are destroyed. The bones become exceedingly thickened and asymmetrical, but since the new bone tissue remains uncalcified, its elasticity permits of great deformity of the long bones from the weight of the body, and fractures do not occur.

(2) The whole picture of osteitis deformans from its pathological aspect is so very characteristic that it must be considered a distinct disease, and its pathological diagnosis is correspondingly easy.

(3) The etiology of the condition is as obscure as when Paget first described it. Some predisposing tendency, probably trophic, must be assumed, and the exciting cause may be mechanical; in the skull, extremes of heat and cold, and in the vertebræ and long bones the ordinary traumata to which these bones are exposed. Lesions of the nervous system are inconstant and rare, and are probably not a causal factor.

[25] American Journal of Physiology, October, 1901.
[26] Journal American Medical Association, November, 1901.

RECOVERY FROM SPINAL SARCOMA.

Sick [27] reports a case of inoperable sarcoma, in which recovery followed treatment by exposure to the Rœntgen ray. The patient was aged forty-two. The duration of the disease was two and one-half years. Its location the lumbar spine. An attempt at removal (by operation) was abandoned, and after a partial extirpation by curetting the patient was discharged in an apparently hopeless condition. For a time treatment by arsenical injection was followed. Finally a complete recovery was obtained by the x-ray treatment.

THE RATE OF GROWTH OF EPITHELIUM OF ULCERS; OBSERVATION OF ONE HUNDRED CASES AT THE VANDERBILT CLINIC, NEW YORK.

Deutsch,[28] in a paper on this subject, gives the following summary. The observation of these cases has shown that:

(1) The rate of the growth of epithelium is in direct proportion to the size of the ulcer.

(2) In the majority of cases the average growth of epithelium is from two to three and one-half mm. per week; the range is 1.4 to 10.5 mm. (traumatic ulcers not included).

(3) The time required to heal an ulcer is in no proportion to the duration of the ulcer; an ulcer of four months' standing does not heal quicker than one of four years' standing, other conditions being equal..

(4) The rate of growth of epithelium in traumatic ulcers is extremely irregular; it is in no relation to the size or duration of the ulcer; the average growth per week is about 5 mm.; the range is from 1.4 to 8 mm.

AN EXPERIMENTAL AND CLINICAL RESEARCH ON THE TEMPORARY CLOSURE OF THE CAROTID ARTERIES.

Crile [29] gives the following clinical summary of his article on the above subject:

One or more carotid arteries were closed in eighteen patients. Both common carotids were closed in ten; one common carotid in five; one external carotid in three. In all there were twenty-eight closures of individual vessels. These were performed between the years 1897 to 1901.

The ages of the patients ranged from seven months to sixty-nine years. There were no deaths attributable to the temporary closure of the arteries.

In every instance the circulation was resumed immediately upon releasing the clamps. There were no appreciably late effects upon the vessel wall at the point of clamping and none upon the circulation in the closed arteries and their branches.

There were no later cerebral effects. Less anesthetic was necessary with closed arteries, especially in the cases in which common carotids were closed. In the latter case there may be embarrassed respiration, especially later. Wholly or partially releasing one or both carotids gave material and immediate assistance to the respiration.

The operating time was much diminished, since the field of operation was quite free from blood.

The amount of blood loss was strikingly less, as was also the difficulty in keeping blood from the respiratory tract.

The application of the clamp may be accomplished through a very small incision and in several minutes. The proper interpretation of a slowed or of an accelerated pulse, or of an inhibited respiration, the prevention of either direct or reflex inhibition of the heart from mechanical stimulation of the vagus or its branches by the use of atropine and cocain, the safe and absolute control of hemorrhage by temporarily closing the carotid arteries, render operative procedures of the head and neck so much safer as to greatly increase surgical possibilities.

(*To be continued.*)

[27] Deutsch. Med. Woch., 1901, No. 12.
[28] Medical News, March 15, 1902, p. 504.
[29] Annals of Surgery, April, 1902, p. 441.

## Reports of Societies.

### THE OBSTETRICAL SOCIETY OF BOSTON.

MALCOLM STORER, M.D., SECRETARY.

MEETING of April 15, 1902.

DR. F. D. DONOGHUE, by invitation, read a paper entitled

APPENDICITIS COMPLICATING PREGNANCY, WITH REPORT OF A CASE; REMOVAL OF GANGRENOUS APPENDIX AT THREE AND ONE-HALF MONTHS; DELIVERY AT TERM.[1]

DR. ENGELMANN: This practical paper opens many interesting points for discussion. The connection of disease of the appendix with the physiological and pathological conditions of the sexual organs has recently been brought forward, but more especially in the non-pregnant state. I should be glad to hear from any gentlemen who have seen such connection in the pregnant state.

DR. EDWARD REYNOLDS: I have seen three such cases. The first was one of an ordinary attack of appendicitis intervening upon a pregnancy, with subsequent attacks and removal of the organ some years later.

The second was seen with Drs. Perry and Fitz. The woman was obviously septic, but no cause could be made out. The autopsy showed a large retroperitoneal abscess originating in the appendix.

The third case I saw a year ago. The woman had a history of constant nausea with always vomiting at the menstrual period. When seen she was four months pregnant and in a pretty weak condition from exaggerated vomiting of pregnancy. Some slight resistance could be made out bimanually on the right side. At six months the vomiting stopped, but she had a sudden attack at the eighth month, with premature labor. Three months afterward the uterus was found

[1] See page 272 of the Journal.

drawn to the right with tenderness and resistance but no mass.

In view of the history and digestive symptomatology I decided upon operation, but while the patient was preparing for one she became pregnant again. At two and one-half months she was vomiting so badly that I performed appendectomy, removing a chronically inflamed appendix. There was no more vomiting for two weeks. Another attack occurring then was due, I think, to my having been unwilling to expose the appendix sufficiently to tie it off completely. I left a quarter of an inch or so and invaginated it into the gut. At this time there was some local tenderness due probably to the sloughing of this tip, which suddenly ceased, the ligature having probably separated. After that there was no more vomiting. I have seen many cases of involvement of chronic appendix with the appendages on the right side. This is doubtless a cause of retroversion, and should be borne in mind.

Dr. Engelmann: This most important relationship has been ignored too much. Eight years ago I published a case examined post-mortem, in which the appendix lit up every month with menstruation.

Dr. J. L. Hildreth: I have a case in point. A woman of thirty had seven months ago an attack of appendicitis, and an interval operation was advised. Before operation she became pregnant and the question of removal of the appendix came up. As it was her first pregnancy after seven years of marriage it was decided in the interest of the child not to interfere. She is now four months pregnant. Yesterday she developed another attack of appendicitis. I have not yet made up my mind whether or not to operate, and would welcome suggestions.

Dr. Harrington: I would disregard the pregnancy and treat the appendicitis as an ordinary one.

Dr. Engelmann: May not the increasing congestion and traction on the uterus be an added danger?

Dr. Donoghue: As I went over the literature of the subject it was apparent that in several cases the uterus emptied as a result of septic poisoning from the appendix and then the contractions of the uterus ruptured the appendicular abscess, with fatal result. It seems more essential to interfere in the pregnant state than in the non-pregnant. If the operation can be done in the first three months of pregnancy the chance of miscarriage is less. A woman who has had attacks of appendicitis should have the appendix removed as a preliminary to marriage.

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Pasteur Institute, Baltimore.— According to the *Philadelphia Medical Journal* three hundred and twenty-two cases came under treatment for rabies at the Pasteur Institute in the City Hospital, up to June, 1902. Two hundred and nine of these had been bitten by animals which were proved to have been mad.

THE BOSTON

# Medical and Surgical Journal.

THURSDAY, SEPTEMBER 4, 1902.

*A Journal of Medicine, Surgery and Allied Sciences, published at Boston, weekly, by the undersigned.*

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## DIPHTHERIA BACILLI IN WELL PERSONS.

We beg leave to call the attention of our readers to what must certainly be considered a very important piece of work relative to the significance of diphtheria bacilli under various conditions, an abstract of which is published in another part of this issue. It is a natural and valuable tendency of the human mind to attach possibly undue significance to certain agencies known to be deleterious. This has been shown to a remarkable degree in relation to diphtheria. Having determined beyond question the cause of the disease, the tendency has been to regard the bacilli wherever found as a menace to the health of the individual, and secondarily to the community at large.

This excellent work under the auspices of the Massachusetts Association of Boards of Health tends at least to set us right regarding the conditions under which the diphtheria bacilli should be regarded as virulent and dangerous. It is a manifest duty on the part of those concerned with the public health to take every possible precaution against the spread of infectious disease. This principle has been generally adopted, with the result that our large communities are freer than ever before from infectious disease. In the pursuance of this duty it is clear that certain unnecessary precautions may at times be taken leading to a greater or less degree of discomfort and inconvenience. Recognizing the end to be gained, the community at large is apparently good-natured and reasonable enough to accept these inconveniences. It is, however, hardly less the duty of our boards of health to study by every means in their power where the danger point lies and beyond which it is unnecessary and therefore undesirable to go in their precautionary measures. We recall, for example, a somewhat indignant protest from a citizen of a neighboring city who was

quarantined for a considerable period of time at his home because diphtheria bacilli were found in his throat, although at the time he was in the enjoyment of his usual health. No doubt this individual was unnecessarily indignant and possibly a little narrow minded in his point of view; at the same time we have a certain sympathy for him, inasmuch as to him at least his detention appeared altogether unnecessary and arbitrary.

The work to which this committee of the Massachusetts Association of Boards of Health has devoted itself, with more or less positive results, will do much towards rendering the possibility of such occurrences in the future unlikely. Mistakes will no doubt continue to be made, and we trust such mistakes will always be on the side of over-precaution. Nevertheless it is desirable, both from the view of the individual and of the community, that such errors should be reduced to an absolute minimum. In connection with the particular disease, diphtheria, to the study of which we are drawing attention, this will no doubt soon be possible.

## FEMALE AS SUBSTITUTES FOR MALE NURSES.

IN his second quarterly report the New York Commissioner of Public Charities states that he is replacing male nurses by female nurses in the male wards of the City Hospital on Blackwell's Island and other hospitals in charge of the department. He refers to the fact that women nurses are employed in such wards in all the leading private hospitals, and reports that there has been an improvement in the care of patients so far as the change has as yet been made. The various classes at present in the training school at the City Hospital are to be permitted to finish their courses, and as each class is graduated its place will be taken by female nurses.

Since the advent of women nurses it has become more and more apparent that they are far better fitted for the work of caring for the sick than men, and also that there are very few conditions in which their services may not be commanded. This experience of the New York hospitals is coming to be a common one, and so far as we are aware, the change from male to female nurses has nowhere led to regrets. Apart from the fact that in general a more intelligent and better class of women enter nursing as a profession than men, it has come to be generally recognized that a much larger proportion of women are adapted for the work than men. We recall the difficulties and marked difference of opinion regarding the employment of women as nurses in time of war at hospitals near the front. Even here we are induced to think that an element approaching sentimentalism enters into the question, which had better be left aside in regard to the whole question of nursing. However this may be, it seems to be established that there are few situations of illness which for any reason whatever preclude the presence of women as nurses. The sights and experiences of the sickroom, whether the occupants be men or women, certainly should not, and for the most part do not, disturb the equanimity of the nurse of proper poise and character. Nursing at best is not esthetic, and cannot be made so in practice by any stretch of the sentimental imagination. The disagreeable facts of disease must be faced, or if for any reason they cannot be, a speedy retirement from the work should be insisted upon. We are, therefore, strongly of the opinion that women should be taught and should be expected to do essentially all the nursing work of the hospital wards. We have small sympathy with the occasional protests made against such services as bathing male patients, for example, in a disease like typhoid fever.

On the whole, with certain relapses from time to time the tendency toward a more sensible and rational attitude toward the proper function of the female nurse is coming to be recognized. No stronger evidence of this could be furnished than this action taken by the New York Commissioner of Public Charities in his substitution of female for male nurses.

## EARLY TRAINING AS A MEDICAL MEASURE.

THERE is a certain rather strongly marked tendency among physicians to look upon the dark side of the various difficulties they may be called upon to treat. This attitude arises, no doubt, partly from temperament and partly from a training which demands that nothing be overlooked in the critical estimate of a patient's condition. Imbued perhaps with the conviction, forced upon them by experience, that nature has a somewhat inexorable way of working out her own conclusions, regardless of outside interference, there grows up a fatalistic attitude which sometimes precludes an absolutely fair and just point of view. This is perhaps particularly true in relation to the dispositions and tendencies of patients. We are apt to accept people as they are, without very much question as to what they might be.

However justifiable this may appear to be with adults, it has absolutely no place in our treatment of children. Dr. Graeme Hammond, writing in the *New York Medical Journal*, makes the following pertinent remarks at the close of an article on "The Education and Development of Neurotic Children":

I believe that the neurotic predisposition can be effectually eradicated by a proper course of physical

training, conjoined with proper hygienic surroundings. With careful attention to the diet, sleep, various bodily functions, fresh air and proper clothing, in addition to systematic, well regulated, and long continued physical culture, there should be no remains of a neurotic predisposition as the child enters into manhood. The physical culture of such children should be carefully conducted; where a moderate amount of exercise builds up, too much exercise breaks down. The age and physical condition of each child must be taken into consideration, and such exercises, preferably outdoor, should be followed as circumstances permit. Whatever those exercises may be, the proper point is their continuance with regularity for years. Practical experience has shown me that by the methods just suggested children of undoubted neuropathic tendencies may without the shadow of a doubt develop into perfectly healthy men and women.

With these sentiments we are in entire accord. A wider recognition of them on the part of physicians would doubtless lead to a decided amelioration of conditions which we see everywhere about us.

## MEDICAL NOTES.

Hospitals of American Steel Company.— The *Journal of the American Medical Association* is responsible for the following statement: The success and value of its hospital at Allentown, Pa., leads the American Steel and Wire Company to plan the establishment of a hospital for the treatment of emergency cases on the grounds of each of its twenty-two plants. The buildings will be as nearly uniform as conditions will permit, and the total cost to the company of buildings and equipment will not fall short of $300,000. Each hospital will be of plain brick construction, two stories in height, with baths, sitting-rooms, library, dining-room and sleeping apartments for the nurses, and will have quarters for six beds, that number being figured as the maximum of cases that may need attention at the same time.

Site for the King's Sanatorium.— According to the *Medical News* a site of 120 acres at Lords Common, near Midhurst, Sussex, has been selected for the King's sanatorium, the erection of which was made possible by the munificence of Sir Edward Cassel. It would be difficult to find a more healthy place. The elevation ranges from 500 to 600 feet above the sea level, in the midst of charming scenery and a pine forest, and it makes an ideal site for a sanatorium. The contract for the water supply has been intrusted to Messrs. Duke and Ockenden, of Littlehampton and London, who are to commence operations immediately. The plans for the sanatorium itself have not yet been selected. It is intended that it shall be the most scientifically constructed and equipped building for its purpose in existence.

Cholera.— The epidemic of cholera is reaching alarming proportions in the East. It extends from the Island of Java to Japan, and almost every city on the coast and many in the interior are affected. Europeans are victims as well as natives. In Hong Kong, from the first of the outbreak to Aug. 6 there were reported 523 cases, six of the patients being Europeans, and 511 deaths, of whom four were Europeans. In Tien-Tsin, the last report placed the number of cases for the year at 1,049 and 764 deaths within the city walls, and 1,015 cases and 593 deaths outside the city walls.

Fourteenth International Medical Congress.— It is announced by those in charge of the coming International Medical Congress at Madrid that the preliminary program of the congress may be had either from individual international committees or from the secretary-general at Madrid. It is requested that the titles of all communications which are to appear in the final program be given to the secretary-general before the 1st of January, 1903.

Professor Virchow, Honorary President of a New German Society.— Close upon the renewed report of the illness of Professor Virchow, the statement comes that he has accepted the honorary presidency of the new German Society for the Exploration of Anatolia. Such an office is no doubt not onerous, but it at least implies a continued interest in a subject which formerly occupied a large share of his attention.

An Address on William Beaumont.— Dr. William Osler of Johns Hopkins University, Baltimore, will deliver a memorial address on "William Beaumont, the First and Greatest American Physiologist," under the auspices of the St. Louis Medical Society of Missouri, in St. Louis Oct. 4.

### BOSTON AND NEW ENGLAND.

Acute Infectious Diseases in Boston.— For the week ending at noon, Sept. 3, 1902, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: Diphtheria 26, scarlatina 7, measles 8, typhoid fever 16, smallpox 3.

An Addition to the Waltham (Mass.) Hospital.— It is expected that an important addition will be made to the Waltham Hospital this fall in the shape of an additional ward building, which it is hoped will be completed early in the spring. The building will cost about $20,000, and is the gift of a person whose name is withheld. The first floor will contain a maternity and children's ward, and the second floor private rooms. There will be accommodations for twenty patients.

BOGUS MEDICAL DIPLOMAS.— It is reported that two arrests have recently been made in Boston on a charge of forging names on a diploma purporting to be from Tufts College Medical School. Whether the object was to sell bogus diplomas in number does not as yet appear. One of the perpetrators is said to have practiced as a qualified physician.

DISSATISFIED NURSES AT WORCESTER INSANE HOSPITAL.— For apparently wholly insufficient reasons, a large number of female nurses recently became insubordinate at the Worcester Insane Hospital. Their complaints were many, among them, the length of their hours of work. They were discharged.

SMALLPOX.— It is finally reported that the last case of smallpox has been dismissed from the detention hospital in Cambridge, Mass. In general the situation regarding the disease in and about Boston seems to be favorable, only three cases having been reported to the Board of Health for the week ending Sept. 3.

### NEW YORK.

A DEPLORABLE ACCIDENT.— An extraordinary and deplorable accident, resulting in her instant death, occurred on Aug. 28 to a young woman, twenty-three years of age, who was a patient in a private hospital on West 34th Street. She had been etherized on the fourth floor and was being conducted by a nurse in an electric elevator to the fifth floor, where she was to have an operation performed, when in some manner she slipped from the car and was precipitated down the shaft to its bottom, five stories below. The autopsy showed that the skull had been crushed in and that there were fractures of the vertebral column both in the cervical and dorsal regions. The nurse has been held in $1,500 bail, pending the coroner's inquest, although she was probably not to blame in the matter. The trouble was unquestionably in the elevator, which in the first place was entirely too small for the purpose used, being only five feet long and three feet wide. It was also a new one, which had not as yet been provided with doors or lighting apparatus, and for the running of which no license had been secured, as required by law. It passed through a shaft reached from the various floors by an aperture in a wall sixteen inches thick, and between the floors it is said there was a vacant space of this width between the car and the side of the shaft. It is thought that the wheeled carriage upon which the patient lay upon a stretcher must have started from its position, which the darkness prevented the nurse from observing, and that the handles of the stretcher, thus projecting from the doorway, caught upon the under edge of the fifth floor, with the result of tipping it (the stretcher) upward. In consequence, the patient's body must have slipped from it and through the sixteen-inch space mentioned, and, striking upon the upper side of the fourth floor, bounded outward into the shaft. The hospital is one established by a former head nurse at the training school for nurses of Mount Sinai Hospital, for the treatment of private patients by their own medical attendants.

DECISION BEARING ON THE IMMIGRATION LAW. — Judge Lacombe of the United States Circuit Court has handed down an important decision, in which he admits to this country, as an American citizen, a woman whose deportation had previously been ordered by the Commission of Immigration. Salvatore Burgio, an Italian, came to America some time ago, and having prospered and become a citizen, he recently sent to Italy for his betrothed. On her arrival at the port of New York she was found to be suffering from a contagious eye disease, and was detained in custody and ordered to be sent back; whereupon Burgio hired a lawyer, who conceived the idea of having the couple promptly married, as a way out of the difficulty. Accordingly he drew up a civil marriage contract, which, having been duly signed by both, made them legally man and wife. A writ of *habeas corpus* was obtained and argued before Judge Lacombe on Aug. 20, and on the 29th the papers were returned with the following endorsement by him: "When this writ was sued out the prisoner was and now is an American citizen; she is discharged from custody. The Immigration Acts cease to apply to her after her marriage." The immigration authorities fear that this decision will open the doors to a large number of undesirable female immigrants, and it is said that an appeal may perhaps be taken to the Circuit Court of Appeals.

LITIGATION OVER A HOSPITAL.— On Aug. 28 Dr. John D. McGill, a member of the Jersey City Board of Health, obtained from Justice Gilbert Collins, through counsel, a rule to show cause why a writ of certiorari should not issue, restraining Mayor Fagan and the Board of City Hospital Trustees from taking possession of the City Hospital, under an act passed by the legislature at its last session. The City Hospital has always been under control of the Health Board, which is also the Police Board, of Jersey City. The new act created a special board of trustees for the institution, and authorized these trustees, who were to be appointed by the mayor, to take possession of the hospital, and also of the funds appropriated for its maintenance. Dr. McGill opposed the transfer on the ground that the act

was unconstitutional, because it applied only to Jersey City. The rule is returnable on Sept. 16, when the Supreme Court of the State is expected to announce an opinion on the constitutionality of the legislature's action.

New Hospital at Dobb's Ferry.— On Aug. 29 Governor Odell laid the corner stone of a new hospital at Dobb's Ferry, on the Hudson, towards the erection of which many wealthy summer residents of the vicinity have subscribed. In the course of his remarks he referred particularly to the advantage of hospitals to medical science. "The experience thus gained," he said, "gives to the physician and surgeon greater knowledge and increased ability to minister to the wants of all the people. The result has been that through these institutions has come about an improvement in surgery and medicine that has tended toward the prolongation of human life. If there were no other benefits to be derived, this alone would compensate for the great expenditure that has been entailed through these benefactions."

An Outbreak of Typhoid Fever.— An outbreak of typhoid fever in which more than twenty cases have thus far occurred, at Bayside, Long Island, Borough of Queens, has been directly traced to the milk supplied by a local dairyman whose daughter had suffered from the disease. The circumstances are peculiarly aggravating, as it was found that his cans and bottles were washed every day in tubs in which the family linen was also washed, and that the well from which the water was obtained was contaminated, while the whole premises were in bad sanitary condition.

A Colossal Infant.— A child of remarkable size was recently reported born in the lower part of the city, being 26 inches in length and weighing no less than 30 pounds. Some of the other measurements of the infant are given as follows: Circumference of head at the forehead and around the cheeks, 16 and 17½ inches respectively; of arm, 7 inches; of thigh, 11½ inches; of chest, 22½ inches. This is the ninth child of the mother, who is herself a large specimen of humanity, weighing 230 pounds.

The Possibilities of the Human Race.— There died on Aug. 28, in a town in New Jersey, an infant of five months, whose father is eighty-seven years old, while its mother is not yet seventeen. Another curious instance of contrasted ages has recently come to light in the borough of Brooklyn, where there are said to be living in one house no less than five successive generations of a family, in the female line. The youngest member of the series is two years old and her great-great-grandmother, eighty-four.

## Miscellany.

### SOME ADVANTAGES OF A RAINY SEASON.

The *Lancet*, discussing the weather situation in England, finds the following scant consolation: The summer of 1902 so far has been horrible. It is the more unfortunate that it has been so, as it was the year set apart for great national rejoicings. To the majority it may be a source of satisfaction that grumbling is justifiable, and he who can cast about for and find a few redeeming features in regard to the excessively unpropitious weather which we are experiencing, proves the possession of virtuous content.

One fact may prove a solatium, and that is that it was impossible to run away from the weather by leaving England, for equally bad, and in some cases a good deal worse, weather has been the rule apparently over the whole world. Certainly in many places where highly favorable weather so often obtains, the conditions have been worse than those prevailing in the British Isles. Italy, for example, has been visited with snowstorms, and a cold season has been recorded which for its bitterness appears to be without precedent. Other countries reported to be commonly blessed with sunny skies have shared the same experience. In this fact, perhaps, may lie a crumb of consolation, but it is small. Greater consolation surely may be found in the fact that in London, at any rate, and in many other big manufacturing towns, the almost torrential rain which has been experienced during the last few days has provided us with a wonderfully clean and clear air. The freshness and transparency of the air of London are well-known effects of a sharp rainstorm. The continual bombardment of the air by millions of pure water-drops exerts a mechanical effect, a physical effect and a chemical effect, all of which play a part in a hygienic purpose. There is the mechanical effect of removing suspended particles — dirt, dust, smoke, micro-organisms — and carrying them to earth; there is the physical effect of a difference of electric potential being relieved, removing a stress responsible perhaps for headache and a depressed feeling; and finally, there is a very important chemical effect by which the air is freshened.

There is no doubt that the rapid passage of water-drops through air exerts a bracing effect upon it, which is probably due to the formation of peroxide of hydrogen, which gives invigorating properties to the air, and, as is well known, will easily destroy unseen impurities. These interesting facts, though affording, perhaps, feeble consolation to those who have gone to seaside and other places where the air is naturally pure, are probably of the greatest moment to those busy workers compelled to remain in the industrial hives of the towns, for by abundant rain a close, grimy, stifling atmosphere is thoroughly washed and freed from all impurities and made healthy, bracing and bright.

## ABSTRACT OF REPORT ON DIPHTHERIA BACILLI IN WELL PERSONS.[1]

BY A COMMITTEE OF THE MASSACHUSETTS ASSOCIATION OF BOARDS OF HEALTH.

THIS committee is composed of the following physicians: Charles V. Chapin, Providence, R. I.; Hibbert Winslow Hill, Boston; Samuel W. Abbott, Boston; F. H. Baker, Worcester, Mass.; Francis P. Denny, Brookline, Mass.; Frederic P. Gorham, Providence, R. I.; William H. Gove, Salem, Mass.; Arthur Hudson, Newton, Mass.; Thomas B. Shea, Boston, Mass.; Theobald Smith, Boston; F. F. Wesbrook, Minnesota.

The committee, when first appointed, July, 1900, attempted by a circular letter to learn what was being done in different American cities with well persons infected with diphtheria bacilli, and what were the views of the health officers as to the proper methods of controlling such cases.

It was found that few data were available concerning the occurrence of diphtheria bacilli in well persons; and it was deemed advisable to institute, on a co-operative basis, an extended series of observations which would give more accurate knowledge on this point.

A number of laboratory workers were asked to examine separate cultures from the nose and throat of healthy persons, to record, according to Wesbrook's classification, all the diphtheria-like bacilli which were found, to state whether or not they would report the cultures containing such forms as positive or negative if the cultures were taken for release, and finally to isolate these forms in pure culture and to test their virulence on guinea pigs.

The number of persons which have been examined and so recorded that they could be classified on the basis intended, is 3,953.

The use of Wesbrook's classification* has made possible a comparison of results which could not have been accomplished in any other way. The difficulty in comparing the results hitherto obtained by different investigators has been that they have not classed as diphtheria bacilli the same types of bacilli.

The Providence results show particularly well how varied the numbers reported as "positive" may be according to the types regarded as important. Thus on the basis of the committee's belief that A, C, D should be considered chiefly or solely, Providence would show 43% positives. If all granular and barred but not solid forms be included, as Professor Gorham of Providence states, there would be about 3% positives. If all forms be included there would be about 25%. The number actually reported makes about 9%. In Washington the positives formed 9% on the committee's standard; but 22% were actually reported positive. In Boston, on the committee's standard, 3.02% were positive, but only 1% were so reported.

By this method of recording the types present, irrespective of personal views as to the propriety of classing the forms as true diphtheria bacilli, the question of what forms to consider as *B. diphtheriæ* is left to those who may make use of the results. The personal equation may thus be eliminated to a great extent.

This method has also given an opportunity to compare the relative frequency of the different forms of bacilli in different localities. The differences in some instances have been striking. The most marked are found between the results obtained in Minnesota and those in the laboratories in the east. While almost all the forms were more prevalent in Minnesota, the contrast is especially marked in the granular forms, A, C and D, which are nine to ten times as frequent there as they are in the east.

As a further illustration of this variation of types in different localities, the results of the examinations of throat cultures by the New York City Board of Health show even a higher percentage of infection with the more generally recognized types of *B. Diphtheriæ* (C, D and A) than Minnesota. There had been more or less exposure in this case also. Further examples are afforded by three observations along somewhat different lines. (1) Gorham found that the types present in Providence in clinical diphtheria ran very considerably smaller than those in Boston (Hill) when actual comparison was made under similar conditions. (2) Wilson of Minnesota found branching forms of *B. Diphtheriæ* in abundance in Boston, although they have been seen only three times in Minnesota. (3) Amyot of Ontario states that the types vary with the locality, to some extent, since, in studying clinical cases bacteriologically, he was able to distinguish between two specific localities by the types present.

*What types should be regarded as diphtheria bacilli?* — The committee believes that the question of the relation of these types to clinical diphtheria requires more investigation. The following statements, however, seem justified from the available evidence.

The large granular types are the ones most commonly present in cases of clinical diphtheria. They are found in about 1 to 2% of well persons in Eastern Massachusetts. The solid forms are very seldom present alone in cases of diphtheria, while they were found in about 20 to 25% of all healthy persons. It is evident, therefore, that the granular types are the most important ones in the causation of diphtheria.

Whatever the relation of the solid types to diphtheria, whether they be true diphtheria bacilli or not, it is very obvious that they can be of little diagnostic value, being present as they are in so large a percentage of all healthy persons. Any attempt to base isolation on the presence of such types would be an injustice. Certainly, no restrictions whatever should be put upon a healthy person unless there are present in his nose or throat the forms of bacilli morphologically identical with those commonly seen in cases of diphtheria. In healthy persons, therefore, usually

[1] Published in full in the Journal of the Massachusetts Association of Boards of Health, July, 1902.

* Transactions American Association of Physicians, 1900; Journal American Public Health Association, 1900; Report Minnesota State Board of Health, 1899-1900.

only the granular types, A, C and D, should be recognized as diphtheria bacilli. We believe that the persons in whom these three forms are present represent almost all the individuals who are capable of infecting others.

It seems probable, in view of the results obtained by such reliable observers as Wesbrook and Gorham, that sometimes the solid forms, even when present alone, are true diphtheria bacilli; but we believe that this is so seldom the case that the number of persons who might be overlooked by neglecting these types would be very small.

### CONCLUSIONS.

In the conclusions it is recognized that there are two classes of persons carrying diphtheria bacilli to be considered.

There are scattered among the general public a considerable number of persons, not recently and directly exposed to the disease of diphtheria, who have typical diphtheria bacilli in their throats. Our observations show the average, for all places reporting, to be nearly as high as 3%, or in the east 1.39%. This would mean in Boston, if the smaller figure be used, about 8,000 such cases. The mere statement of this fact shows how entirely futile it is to attempt to seek out and isolate the whole of this number. If this cannot be done, it is useless and unjust to isolate the small number that it may be possible to discover. The committee is therefore led to adopt the following as its first conclusion:

Conclusion I. *It is impracticable to isolate well persons infected with diphtheria bacilli, if such persons have not, so far as known, been recently exposed to the disease.*— If it happens that such cases come to the knowledge of the health officer, it would, however, be wise to give instructions in regard to caring for the secretions, thus placing a part of the responsibility of the case upon the infected person himself.

Since the number of persons among the general public who are infected with diphtheria bacilli and who pass unrecognized and unrestrained may at any one time be greater than the number of infected persons in diphtheria families, it does not seem to be expedient to place restrictions upon the latter except when it can be done without causing much friction or hardship, or unless the danger in any particular instance can be shown to be very considerable.

The committee is therefore led to its second conclusion.

Conclusion II. *It is not advisable as a matter of routine to isolate from the public all the well persons in infected families, schools and institutions.*— It is advisable to keep the children in infected families away from day-school, Sunday-school, and all public places, and that they should remain on their own premises, if possible.

Wage-earners may usually be allowed to continue their work; but teachers, nurses, and others who are brought in close contact with children should not be allowed to do so. Milkmen should not be allowed to continue their business.

When it is proposed to remove a well person from an infected family, it is not advisable to make the removal if diphtheria bacilli are present in such person.

In schools and institutions it is usually advisable, if the infection is not too widespread, to separate from the others all infected persons, sick or well.

When diphtheria appears in a community which has for some time been free from it, it is advisable to isolate all persons who have been brought in contact with the patient until it shall have been shown that they are free from diphtheria bacilli.

While believing that it is not possible in the majority of cases to isolate well persons infected with diphtheria bacilli, we believe that the attempt should be made to educate the public to care for their persons and their secretions, so as to avoid, as much as possible, the danger of infecting themselves or others.

## RECORD OF MORTALITY

For the Week ending Saturday, Aug. 23, 1902.

| Cities. | Population Estimated, 1902. | Reported deaths in each. | Deaths under five years. | Percentage of deaths from | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | Infectious diseases. | Acute lung diseases. | Diphtheria and croup. | Typhoid Fever. | Diarrheal diseases. |
| New York | 3,665,352 | 1,250 | 550 | 38.16 | 5.36 | 2.00 | 1.60 | 20.48 |
| Chicago | 1,852,828 | 524 | 207 | 49.22 | 4.30 | 1.90 | 10.11 | 26.51 |
| Philadelphia | 1,349,624 | 379 | 129 | 21.89 | 6.86 | .52 | 2.64 | 7.12 |
| St. Louis | 603,717 | — | — | — | — | — | — | — |
| Baltimore | 525,330 | 188 | 76 | 36.24 | 3.19 | 1.60 | 3.19 | 18.62 |
| Cleveland | 411,826 | — | — | — | — | — | — | — |
| Buffalo | 375,742 | — | — | — | — | — | — | — |
| Pittsburg | 341,401 | 147 | 73 | 42.17 | 6.80 | 1.26 | 7.48 | 18.36 |
| Cincinnati | 332,032 | — | — | — | — | — | — | — |
| Milwaukee | 304,975 | — | — | — | — | — | — | — |
| Washington | 289,537 | — | — | — | — | — | — | — |
| Providence | 185,870 | 75 | 31 | 49.33 | 1.33 | 1.33 | — | 33.33 |
| Boston | 588,736 | 220 | 104 | 42.27 | 6.82 | .45 | .90 | 24.54 |
| Worcester | 127,337 | 31 | 14 | 22.58 | 6.45 | — | — | 16.13 |
| Fall River | 111,872 | 59 | 41 | 57.60 | 8.47 | — | — | 50.82 |
| Lowell | 99,574 | 30 | 19 | 46.67 | 6.67 | 3.33 | — | 33.33 |
| Cambridge | 96,334 | 28 | 13 | 46.42 | — | — | — | 32.13 |
| Lynn | 71,144 | 30 | 5 | — | 16.67 | — | — | — |
| Lawrence | 67,275 | 29 | 21 | 48.28 | 6.90 | — | — | 41.38 |
| Springfield | 66,854 | 4 | 3 | 25.00 | — | — | — | — |
| Somerville | 65,882 | 11 | 4 | 18.18 | 9.09 | — | — | 9.09 |
| New Bedford | 65,574 | 36 | 20 | 50.00 | 2.77 | 2.77 | 2.77 | 33.33 |
| Holyoke | 48,065 | 14 | 7 | 50.00 | — | — | — | 28.56 |
| Brockton | 43,208 | 13 | 3 | 30.80 | — | — | — | — |
| Haverhill | 40,392 | 8 | 1 | 12.50 | — | — | — | — |
| Salem | 36,567 | 15 | 8 | 33.33 | — | — | — | 33.33 |
| Newton | 36,336 | 8 | 4 | 50.00 | — | — | — | 50.00 |
| Malden | 35,390 | 4 | 2 | 25.00 | — | — | — | 25.00 |
| Chelsea | 35,264 | 13 | — | 23.10 | — | — | — | 23.10 |
| Fitchburg | 33,848 | — | — | — | — | — | — | — |
| Taunton | 32,759 | — | — | — | — | — | — | — |
| Everett | 27,114 | 12 | 5 | 50.00 | — | — | — | 33.33 |
| North Adams | 26,583 | 8 | 3 | 50.00 | — | 12.50 | — | 25.00 |
| Gloucester | 26,121 | 10 | 4 | 40.00 | — | 10.00 | — | — |
| Quincy | 25,307 | 9 | 4 | 44.45 | — | — | — | 33.33 |
| Waltham | 24,612 | 6 | 2 | 50.00 | — | 16.67 | 16.67 | — |
| Pittsfield | 22,311 | 11 | 3 | 18.18 | 18.18 | — | 9.09 | — |
| Brookline | 21,679 | 4 | 2 | 25.00 | — | — | — | — |
| Chicopee | 20,390 | 11 | 7 | 27.27 | — | 9.09 | — | 18.18 |
| Medford | 20,014 | 2 | 2 | 50.00 | — | — | — | 50.00 |
| Newburyport | 14,478 | 4 | 2 | 50.00 | — | — | — | 50.00 |
| Melrose | 13,384 | — | — | — | — | — | — | — |
| Westfield | 13,038 | 5 | 1 | — | — | — | — | — |
| Attleboro | 12,846 | — | — | — | — | — | — | — |
| Adams | 12,813 | — | — | — | — | — | — | — |
| Milford | 12,516 | — | — | — | — | — | — | — |
| Framingham | 12,109 | 3 | — | — | — | — | — | — |
| Peabody | 11,957 | — | — | — | — | — | — | — |
| Revere | 11,894 | 11 | 5 | 18.18 | — | — | — | 9.09 |
| Gardner | 11,544 | 6 | — | 66.67 | — | — | — | 66.67 |
| Weymouth | 11,337 | 5 | 1 | — | — | — | — | — |
| Southbridge | 10,838 | 2 | 1 | 50.00 | — | — | — | 50.00 |
| Watertown | 10,600 | — | — | — | — | — | — | — |
| Plymouth | 10,336 | — | — | — | — | — | — | — |

Deaths reported 3,234; under five years of age, 1,386; principal infectious diseases (smallpox, measles, scarlet fever, cerebrospinal meningitis, diphtheria and croup, diarrheal diseases, whooping cough, erysipelas, fevers and consumption) 1,251, acute lung diseases 167, consumption 303, scarlet fever 20, whooping cough 49, cerebrospinal meningitis 10, smallpox 6, erysipelas 10, measles 7, typhoid fever 105, diarrheal diseases 684.

From whooping cough, New York 22, Chicago 5, Philadelphia 7, Pittsburg 5, Providence 3, Boston 4, Fall River 2, Cambridge 1. From measles New York 2, Pittsburg 3, Boston 1, Lawrence 1. From erysipelas, New York 2, Chicago 7, Boston 1. From smallpox New York 1, Pittsburg 1, Boston 3, Cambridge 1.

In the seventy-six great towns of England and Wales, with an estimated population of 14,862,456, for the week ending Aug. 9, the death-rate was 13.6. Deaths reported 3,883; acute diseases of the respiratory organs (London) 131, whooping cough 113, diphtheria 42, measles 107, smallpox 6, scarlet fever 81.

The death-rate ranged from .9 in Southwick to 23.7 in Wigan; London 13.4, West Ham 12.5, Croydon 9.8, Brighton 17.2, Portsmouth 16.3, Southampton 14.5, Bristol 14.8, Birmingham 15.1, Leicester 8.2, Nottingham 11.1, Birkenhead 9.3, Liverpool 20.2, Manchester 15.0, Salford 16.5, Bradford 14.4, Leeds 14.7, Sheffield 13.8, Hull 11.3, Newcastle-on-Tyne 16.7, Cardiff 14.8.

## METEOROLOGICAL RECORD

For the week ending Aug. 23, in Boston, according to observations furnished by Sergeant J. W. Smith of the United States Signal Corps:

| Date | Barometer | Thermometer. | | | Relative humidity. | | | Direction of wind. | | Velocity of wind. | | We'th'r * | | Rainfall in inches. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Daily mean. | Daily mean. | Maximum. | Minimum. | 8.00 A.M. | 8.00 P.M. | Daily mean. | 8.00 A.M. | 8.00 P.M. | 8.00 A.M. | 8.00 P.M. | 8.00 A.M. | 8.00 P.M. | |
| S...17 | 29.80 | 63 | 72 | 54 | 60 | 60 | 60 | N W | N | 10 | 4 | C. | C. | |
| M..18 | 29.83 | 63 | 72 | 54 | 61 | 71 | 66 | W | W | 12 | 10 | F. | O. | |
| T..19 | 29.84 | 60 | 64 | 57 | 72 | 94 | 83 | N W | W | 3 | 5 | R. | F. | .29 |
| W..20 | 30.00 | 63 | 70 | 56 | 70 | 69 | 70 | N W | S | 5 | 7 | C. | F. | |
| T..21 | 29.96 | 66 | 72 | 61 | 75 | 79 | 77 | S | S | 6 | 12 | F. | O. | .01 |
| F..22 | 29.82 | 66 | 72 | 60 | 72 | 95 | 88 | S W | E | 7 | 3 | C. | F. | T. |
| S...23 | 29.86 | 64 | 71 | 56 | 89 | 86 | 88 | N W | N | 19 | 5 | F. | C. | .14 |
| ☞ | 29.87 | | 70 | 57 | | | 76 | | | | | | | .44 |

* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow. † Indicates trace of rainfall. ☞ Mean for week.

## CHANGES IN THE MEDICAL CORPS OF THE NAVY FOR THE WEEK ENDING AUG. 30, 1902.

W. H. BELL, passed assistant surgeon. Detached from "Chesapeake" and ordered to duty as a member and recorder of a Board of Medical Officers, Naval Academy, Annapolis, Md., and thence home to wait orders.

F. L. BENTON, passed assistant surgeon. Part of order of May 27, detaching from "Columbia" revoked.

## RECENT DEATH.

DR. LUCRETIUS D. ROSS of Poultney, Vt., died Aug. 25, aged seventy-five years. Dr. Ross was, with one or two exceptions, the oldest practicing physician in Rutland County. He was a graduate of Middlebury College, class of 1852, afterwards studied medicine and graduated from Castleton Medical College, class of 1857, beginning practice immediately after, and was in continuous service almost up to the time of his death. He served as surgeon in the army during the Civil War, and was a member of many associations and societies.

## BOOKS AND PAMPHLETS RECEIVED.

Taste and the Fifth Nerve. By Sir W. R. Gowers, M.D., F.R.S. Reprint. 1902.

The Etiology of Puerperal Toxemia. By A. Ernest Gallant, M.D., of New York. Reprint. 1902.

Proceedings of the Orleans Parish Medical Society. Published monthly by the Society. New Orleans, La.: The L. Graham Co. 1902.

The Conservative Treatment of Appendicitis and Fallacy of the Starvation Cure. By J. H. Carstens, M.D., Detroit, Mich. Reprint. 1901.

The Diseases of the Nose, Throat and Ear. By Charles Prevost Grayson, A.M., M.D. Illustrated. Philadelphia and New York: Lea Brothers & Co. 1902.

An Anencephalic, Hemisoid Monster. By A. Ernest Gallant, M.D., Professor of Gynecology, New York School of Clinical Medicine, etc. Illustrated. Reprint. 1902.

Report on Diphtheria Bacilli in Well Persons, by a Committee of the Massachusetts Association of Boards of Health. Reprint. Boston: Geo. H. Ellis Co. 1902.

The Denver and Gross College of Medicine. Medical Department of the University of Denver. Twenty-second Annual Announcement. Session of 1902-1903. Illustrated.

The Twelfth Annual Report of the Eye, Ear, Nose and Throat Hospital of New Orleans, La. Jan. 1, 1901, to Dec. 31, 1901. Illustrated. New Orleans: The L. Graham Co. 1902.

Annual Report of the Essex County Hospitals for the Insane, Newark, N. J., for the Year Ending April 30, 1902. Illustrated. Newark, N. J.: Press of Groebe-McGovern Co. 1902.

Die Röntgenstrahlen im Dienste der Chirurgie. von Dr. Carl Beck, Professor der Chirurgie, New York. München: Verlagsbuchhandlung Seitz & Schauer. 1902. I Tiel (Text) II Tiel (Tafeln).

The Differentiation and Diagnosis of Tuberculosis and Phthisis. By M. J. Brooks, M.D., New Canaan, Conn., Physician-in-Charge New Canaan Pulmonary Sanatorium, Member Connecticut State Medical Society, etc., etc. Reprint. 1902.

The Rational Treatment of Movable Kidney and Associated Ptoses. By A. Ernest Gallant, M.D., Professor of Gynecology, New York School for Clinical Medicine; Attending Gynecologist McDonough Memorial Hospital, etc., New York. Illustrated. Reprint. 1902.

Observations on the Treatment of Epilepsy. By A. N. Williamson, M.D., Member of the American Medical Association; formerly Chief of the Medical Clinique in the Medical Department of the University of New York. Dobbs Ferry, N. Y.: Press Dobbs Ferry Register. 1902.

The Purin Bodies of Food Stuffs, their Estimation, Action and Significance. By I. Walker Hall, M.D., Assistant Lecturer and Demonstrator in Pathology, the Owens College; formerly Senior Demonstrator in Physiology at the Owens College, Victoria University. Illustrated. Manchester: Sherratt & Hughes; London: H. K. Lewis. 1902.

Epistaxis; Its Causation and Treatment. By Gordon King, M.D., Professor of Diseases of the Ear, Nose and Throat in the New Orleans Polyclinic; Surgeon-in-Charge of the Ear, Nose and Throat Department, Eye, Ear, Nose and Throat Hospital; Member of the American Laryngological Association, etc., New Orleans. Reprint. 1902.

Acute Emphysematous Gangrene Originating in the Mastoid Process. By Gordon King, M.D., of New Orleans, La., Professor of Laryngology, Rhinology and Otology, New Orleans Polyclinic Surgeon in Charge of the Ear, Nose and Throat Department of the Eye, Ear, Nose and Throat Hospital; Fellow of the American Laryngological Association, etc.

Note on the Use of the Electro-Magnet for the Extraction of Paramagnetic Foreign Bodies from the Air Passages. By A. W. De Roaldes, M.D., Surgeon-in-Chief Eye, Ear, Nose and Throat Hospital; Emeritus Professor Laryngology, Rhinology and Otology, New Orleans Polyclinic; Fellow American Laryngological Association, etc., etc. Illustrated. Reprint. 1901.

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A Study of the Pathological Substratum of Epilepsy. By S. Grover Burnett, A.M., M.D., Kansas City, Mo., Professor Physiological Anatomy of the Central Nervous System and Clinical Neurology in the University Medical College; Alienist and Neurologist to St. Margaret's Hospital; formerly Assistant Superintendent of the Long Island Home of New York for Mental and Nervous Diseases and Inebriates. Reprint. 1902.

## Original Articles.

### THE SYMPTOMS AND TREATMENT OF HEPATIC CIRRHOSIS IN THE LIGHT OF SEVENTY-EIGHT AUTOPSIES.

BY GEORGE G. SEARS, M.D., AND FREDERICK T. LORD, M.D., BOSTON.

The cases which form the basis of this paper comprise practically all in which a histological diagnosis of hepatic cirrhosis has been made at the Boston City Hospital since Jan. 1, 1896, and at the Massachusetts since Oct. 19 of the same year. Some have been omitted, in which the connective tissue formation was undoubtedly due to the passive congestion of cardiac disease, as well as a few in which it was local and associated with evidence of active syphilis. While other points have been incidentally considered, the special object of this analysis was to determine how far the most marked symptoms which have been attributed to hepatic cirrhosis were due to the anatomical condition of the liver *per se*, and how far they were dependent on associated changes in other organs. As a corollary to this the attempt has been made to determine in what class of cases, if any, surgical interference, whose only object is to overcome the portal obstruction, was most likely to prove successful. As they include all grades of cirrhosis from its earliest to its most developed forms, these seventy-eight cases have been grouped for analysis into four classes according to the amount of connective tissue formation as shown by the microscope, Class I having the least. Although not free from criticism, this seemed a fairer means of estimating the extent of the process than to rely on the size of the liver, since large and small livers were found indiscriminately distributed among our four classes, irrespective of the extent of the fibrotic changes. We are indebted to Dr. F. B. Mallory for his careful examination of each case with this end in view, and to the Staff of the Massachusetts General Hospital for the privilege of using their material.

Etiologically, alcohol was the most important factor, for only nine denied its abuse to whom the question was specifically put, and in several of these there was reason to doubt the accuracy of their statement. Malaria was recorded in the histories of ten patients, and syphilis was either acknowledged or undoubted evidence of its presence was found at autopsy in nine. Seven of the former and five of the latter were also alcoholic. Syphilis appeared as the only cause mentioned in four and malaria in three, but no characteristic malarial lesions were present in any. Gallstones were found in eight cases, in three of whom they were in the common duct. In the others there was no reason to consider that they had offered more than temporary obstruction to the passage of bile. Omitting the cases from consideration of whom the records were silent as to the use of alcohol, either from the moribund state of the patient at entrance or from inadvertence, there remain but two in whom one or more of the conditions just mentioned did not appear. In these no etiological factors could be found. Fifty-two of the patients were males, twenty-six females. The youngest was sixteen and the oldest sixty-eight.

The accompanying table shows the large number of processes of a chronic degenerative nature which were present in other organs. They were as frequent in the early as in the more advanced cases, and in the former had often made the greater progress. Numerically the most important were arteriosclerosis and renal disease. The former was noted forty-nine times; often, however, confined to a small patch in the aorta. Chronic nephritis, either diffuse or interstitial, occurred in twenty-three cases (29.4%). This proportion is but slightly larger than that given by the combined statistics of Cheadle, Rolleston[1] and Foxwell,[2] which showed that the kidneys were affected in 114 of 488 cases (25.4%). Some chronic affection of the myocardium, other than simple hypertrophy, or of the valves was found thirty-seven times (47%) against 66% found by Cheadle[3] in 36 cases.

| Chronic changes in other organs. | Class I | Class II | Class III | Class IV | Total. |
|---|---|---|---|---|---|
| Number of cases used | 4 | 16 | 35 | 23 | 78 |
| Arterio-sclerosis | 3 | 12 | 21 | 13 | 49 |
| Aortic Aneurism | | | | 1 | 1 |
| Heart. Simple hypertrophy | 1 | 2 | 2 | 3 | 8 |
| " Hypertrophy; Dilatation | 1 | | 2 | 3 | 6 |
| " Fatty Degeneration | | 2 | 11 | 6 | 19 |
| " Myocarditis | | | 2 | | 2 |
| " Chr. Endocarditis | | 5 | 5 | 3 | 13 |
| " Chr. Pericarditis, General | | 1 | 1 | 1 | 3 |
| Lungs. Tuberculosis, Healed | | 3 | 2 | 3 | 8 |
| " " Active | | 2 | 2 | 1 | 5 |
| Tuberculosis elsewhere | | 1 | 1 | | 2 |
| Emphysema and Bronchitis | | 2 | 1 | 1 | 4 |
| Bronchiectasis | | | 2 | | 2 |
| Pleurisy, Adhesive | 2 | 8 | 19 | 11 | 40 |
| Kidneys. Passive Congestion | | 1 | 1 | 1 | 3 |
| " Chronic Nephritis | 2 | 4 | 11 | 6 | 23 |
| " Fatty Degeneration | | 3 | 6 | 6 | 15 |
| " Amyloid | | 1 | 1 | | 2 |
| " Hydronephrosis | | 1 | | | 1 |
| Peritonitis, General | | 4 | 7 | 4 | 15 |
| Perihepatitis, General | 1 | 5 | 3 | 4 | 13 |
| " Local | 3 | 1 | 9 | 5 | 18 |
| Perisplenitis | 2 | 3 | 11 | 7 | 23 |
| Pancreatitis | | | 1 | 1 | 2 |
| Gallstone | | 2 | 4 | 2 | 8 |
| Gastro-Intestinal Tract Pass Cong. | 1 | 4 | 10 | 4 | 19 |
| Gastro-Duodenal Catarrh | | | | 1 | 1 |
| Gastric Ulcer | | | | 1 | 1 |
| Dilated Stomach | | 1 | | | 1 |
| Dilated Colon | | | 1 | 1 | 2 |
| Dilated Intestines | | | 1 | 1 | 2 |
| Brain Atrophy | | 1 | | 1 | 2 |
| Brain Septo and Pachymenigitis | | 2 | 1 | | 3 |
| Orchitis | 1 | | 2 | | 3 |
| Cancer | | | 2 | | 2 |
| Dilated Veins | 1 | 4 | 9 | 15 | 29 |

A diagnosis of hepatic cirrhosis is therefore often no more complete than one of cardiac disease in the presence of a general arteriosclerosis, although emphasizing the most striking feature, since it ignores the fact that the complications may result from the same causes producing the hepatic condition, and be, in part at least, responsible for some of the symptoms. In seven-

[1] Diseases of the Liver, Encyclopædia Medica, vol. vi, 1900.
[2] The Enlarged Cirrhotic Liver, Birmingham Medical Review, March, p. 129; April, p. 215, vol. xxxix, 1896.
[3] W. B. Cheadle: The Lumleian Lectures on Some Cirrhoses of the Liver, London Lancet, 1900, pp. 903, 985, 1045.

teen instances, however, they were either absent or were so slight as to be of no importance. Three belonged in Class II, four in Class III and ten in Class IV. They are of interest in showing that a high degree of fibrosis may be found in the liver without marked interference with its functions, and without producing characteristic symptoms. Eight of these cases, four of which were in Class IV, died of incidental causes not associated with hepatic cirrhosis which the patient had had no reason to suspect.

Splenic enlargement was fairly constant, being present in sixty-five of the cases, but its increased size in twenty-seven was probably due, in part at least, to an acute process. Chronic passive congestion was undoubtedly an important factor in producing the enlargement of many of the other thirty-eight, but it would not account for the increase in size not infrequently found where the hepatic process was but slight, nor could a close relation between the size of the spleen and the presence of the ascites be detected. The largest spleens were found in Classes III and IV, yet some of the biggest were present in cases without ascites, and some of normal size were found with marked ascites. It therefore appears that the size of the spleen may depend as well on the action of the same irritant which produced the fibrous changes in the liver as on the passive congestion resulting from them.

Chronic peritonitis, more or less general, in distinction from a few local adhesions, was found in fifteen[4] of these cases, in three of which it was associated with perihepatitis and perisplenitis, and in one with perihepatitis alone. Two others were complicated by perisplenitis and chronic pericarditis. One was complicated by pericarditis alone. In thirteen, ascites had been present during some period of their illness.

There were also two cases of acute peritonitis, both accompanied by ascites.

Local adhesions between the liver and neighboring organs were of frequent occurrence, and served, in a number of instances, as channels for the formation of a new vascular outlet, as was shown by the development in them of blood vessels, at times, of large size, but in a considerable proportion the veins described were so minute as to have been of little if any service, or else no mention of them is made.

A general perihepatitis, surrounding large portions, if not all of the liver, and associated at times with a general thickening of its capsule, and in one instance leading to considerable hepatic deformity, was found in thirteen cases.[5] They formed 25% of the cases in Class I, 31.2% of those in Class II, 8% of those in Class III and 17.4% of those in Class IV. In two, at least, syphilis was a possible cause. Five were complicated by chronic nephritis, and one by adhesive pericarditis. Ascites was a feature in all but one. In eight, however, it had not been present for six years, its disappearance dating in one from a single aspiration, in the other from an exploratory laparotomy.

Perisplenitis occurred twenty-three times, four times in connection with general perihepatitis. Seventeen of these cases were associated with ascites.

Dilatation of the veins having portal connections was noted but twenty-nine times. A slight dilatation of the superficial veins might easily fail to be noted in the clinical examination, and a like condition of the internal vessels, even when more marked, might from their collapse after death, escape detection, if it were not particularly looked for. This may account in part for the comparatively small proportion in which evidence of any attempt at the establishment of a collateral circulation was found. It was noted in almost exactly one-fourth of the cases in the first three classes ($\frac{1}{4}$, $\frac{4}{16}$, $\frac{9}{35}$, respectively), but in Class IV, where the obstruction was greatest, the proportion rose to nearly two-thirds ($\frac{15}{23}$). Although portal obstruction is unquestionably the important factor and the most obvious explanation of its development, it is difficult to account for its presence when the fibrotic process is slight unless some weakness in the walls of the vessels co-exist. Such weakness is shown by the frequent occurrence of dilated cutaneous veins which have no connection with the portal system, and was demonstrated as well in the internal vessels of one of our cases, probably of syphilitic origin, in which although the liver was but slightly affected (Class I) and no other obstruction could be found, the azygos, post-mediastinal and esophageal veins were markedly dilated and the patient died of hemorrhage.

Hawkins[6] says that as "dilated veins form a compensatory mechanism for the relief of the overcharged portal system, it may be surmised that when they are much developed and likely to give rise to severe hemorrhage there is not much tendency to ascites, and that clinical evidence agrees with this anticipation." This is not borne out by our figures, which indicate a very small value in such a mechanism, which either must have been originally inadequate or have become so later, since ascites and dilated veins with portal connections were associated in twenty-two of the twenty-nine cases. The presence of enlarged vessels in the other seven may have had some influence in preventing ascites, as all but one were found among the more advanced cases (Classes III and IV). Moreover, ascites and hemorrhage from the digestive tract were associated in seven of the nine cases, in which dilatation of the collateral veins was described in the autopsy record as the source of hemorrhage.

Ascites was present in forty-seven cases.[7] The direct effect of hepatic obstruction in its produc-

[4] Cheadle found five instances among fifty-three cases. The Lumleian Lectures on Some Cirrhoses of the Liver, London Lancet, 1900, pp. 1, 903, 985, 1045.

[5] This is a decidedly smaller proportion than that given by Cheadle, fifteen out of fifty three, and probably depends on a question of definition of a general perihepatitis. The Lumleian Lectures on Some Cirrhoses of the Liver, London Lancet, 1900, pp. 1, 903, 985, 1045.

[6] Allbutt's System, iv, 179.

[7] Dr. Price: Guy's Hospital Report, Series 3, xxvii, 1883-1884, 295; among 142 cases ascites occurred in 72 (50.7%).

tion is apparent, but unless other causes co-operate it is difficult to explain the almost constant proportion in which it appeared in the various classes, for it was found in 50% of the cases in Class I, in 62.5% of those in Class II, and 60% of those in both Classes III and IV.

Weakness of the intra-abdominal vessels is probably an important factor in permitting the transudation of the blood serum. This may be due to the influence of the toxic agent of the disease as well as to the increased tension from portal obstruction. Hydremia is also not unlikely as an accessory factor, and while any one of these three causes alone may not be sufficient in the individual case, their combination, often in association with degenerative changes in other organs, may determine the presence of ascites and explain the absence of edema in regions where these different factors do not work in conjunction.

Chronic renal disease in the absence of general anasarca may be ruled out as a possible chief factor in producing ascites, though it may have acted as an accessory cause by producing hydremia. It occurred, however, in almost the same proportion among those with and without ascites, 28% and 29% respectively. The influence of cardiac disease was apparently quite marked, at least among the earlier cases, in some of which it was probably the chief cause, since it was present in 50% of those with that symptom in Classes I and II and less than 25% of those without. This ratio was not preserved in the later cases, the proportions in them being 46% and 48% respectively.

The very large proportion of cases of peritonitis, perihepatitis and perisplenitis, especially the two former, which presented ascites as a symptom, strongly suggest that they take an active part in its production,[8] but the evidence furnished by our cases as to the role played by some form of chronic peritonitis is somewhat ambiguous, as the autopsy gave reason to believe that in a few it had been the most active factor in its disappearance. The recognition of the relative importance of the part which either of these two factors, hepatic cirrhosis or chronic peritonitis and perihepatitis, play, may in a particular instance be difficult if not impossible. We may allude, however, to the poor nutrition which should accompany the pure hepatic cases, and to the fact that fever was practically absent in them unless due to some complication. A history of febrile attacks and pain might therefore have considerable weight in suggesting the occurrence of previous attacks of peritoneal inflammation, while the nearer the aspirated fluid approaches the character of a typical exudate with its high specific gravity and large amount of albumin, the greater is the likelihood of its presence. Hale White's observation that where ascites is due to cirrhosis alone the patients rarely live long and seldom require more than one or two tappings at most, has a decided practical value in diagnosis if supported by sufficient evidence. It is corroborated in the main by our cases, but exceptions must be noted. The length of life after the onset of ascites could be determined in only twenty-five; fourteen lived less than five months, only two of whom showed sufficient peritonitis or perihepatitis to be a factor in its production. Eight lived two months or less, in one of whom there was general peritonitis and perihepatitis. Nine lived between six months and two years, in all but three of whom one or both of these processes was well marked. The three exceptional cases survived seven, twelve and thirteen months respectively. One patient lived six years after its appearance, and proved to have a general peritonitis at autopsy. The ascites had been cured by one aspiration. Another who lived the same length of time is later recorded as a successful case of laparotomy. General peritonitis and perihepatitis were found at autopsy, but were not mentioned in the account of the operation. It seems possible in view of the exceptional nature of the case, that the surgeon's investigations stopped short of the liver, or that a peritonitis was not noted owing to a lapse in the records.

Omitting from consideration the last two cases, from the difficulty of classifying them, a history of aspiration was obtained in fifteen, in ten of whom it was done but once. Only four had either peritonitis or perihepatitis, while four of the five cases where it was required three times or more showed one or both of these conditions.

Extravasation of blood into or from various organs either as a clinical manifestation or as an autopsy finding was a fairly common event during the last stages of the disease, and occurred as a result of a terminal infection or toxemia. Hemorrhage from the gastro-intestinal tract sufficient to be clinically apparent was recorded but fifteen times, twelve from the mouth, with or without melena, and three from the anus alone. This may understate the true proportion in which this symptom occurred, as a number of histories were incomplete, either as a result of the notorious reticence of hospital records on important subjects, or because the patients entered too ill to give any account of themselves. The close relationship between the occurrence of hemorrhage and the stage of development of the cirrhotic process seems clear, as in every case but two the formation of connective tissue was well advanced (Classes III and IV). It is a noteworthy fact that some gross lesion to which hemorrhage could be attributed was present in all but four cases. In three of the latter its occurrence was entirely a matter of history, dating back six years in one instance, and no mention was made of the condition of the veins. In the fourth it was impossible to be sure from the patient's description that it came from the stomach. The source of the blood in the remaining eight cases with hematemesis was from dilated veins near the lower end of the esophagus in seven, in five of whom it was the immediate cause of death.[9] A gastric ulcer

[8] Compare W. Hale White: Guy's Hospital Report, 1892, xlix, 1.

[9] R. B. Preble: American Journal Medical Society, Philadelphia, 1900, pp. 119, 263-280, in an analysis of sixty cases of fatal gastro-intestinal hemorrhage due to cirrhosis, says that carices were present in 35 of 42 cases in which esophageus was mentioned.

was present in the other. An esophageal varix was found in one of the three cases of simple melena, and in a second this was combined with another less extensive varix near the pyloric end of the stomach. Hemorrhoids were noted in the other case.

Jaundice occurred in thirty-one cases,[10] in three of which the presence of a stone in the common duct was a sufficient cause, while duodenitis with plugging of the common duct was found in a fourth. In the remaining twenty-seven it was closely associated with the amount of connective tissue increase in the liver, as only one (5%) of the twenty cases in Classes I and II presented this symptom, while it was found in 37% of those in Class III and 56% of those in Class IV. It was usually a late and grave symptom, for while transient attacks extending over several years were mentioned in the history of a few patients, it became permanent in only one as early as one year before death. In fourteen others in whom it was possible to approximate its onset it preceded death between four and eight months in four. In the remaining ten it had existed two months or less.

Carrington's[11] statement that fever not infrequently occurs as a result of hepatic cirrhosis finds little support in our cases, for a continuous elevation of temperature was never observed unless some acute process was present, but a sudden rise lasting for a few hours was occasionally recorded on the charts of patients who were under observation for a number of weeks. It rarely exceeded 100°, yet in one instance it touched 103.4°. It occasionally happened that the temperature remained normal or subnormal up to the day of death in spite of some acute complication like pneumonia or acute endocarditis, yet a high temperature during the last few days of life was not uncommon as the result of a terminal infection.

The determination of the cause of death was beset with many difficulties, owing to the large number of pathological conditions, both chronic and acute, which were found at the autopsy. Even with the assistance of the histories, it was often impossible to tell whether the chronic complications had not so far outstripped the so-called primary disease as to have been the chief lethal factor, while in others death seemed rather attributable to a general degeneration than to a single cause. It was equally difficult to fix the relative importance of the acute complications, for while some undoubtedly were the direct cause of death, and some were with equal certainty only a mode of dying, others remained whose influence in terminating life could not be estimated. Nor could assistance always be obtained either from the size or microscopical appearance of the liver. Cases were found, as has already been mentioned, which showed a high degree of fibrosis and yet had apparently suffered no discomfort from it, and extreme changes in weight occurred in both directions without producing symptoms of which the patient had complained. In one such case it weighed over 3,000 gm., and in another, a man of forty-one, only 980 gm. On a most liberal construction, death occurred in forty-one as a direct result of the progress of the disease, including five due to esophageal hemorrhage. Seven died from what may be called the general effect of the toxic agent, as shown by degenerative changes in a number of organs, while thirty deaths were caused by incidental causes, four following operation for the relief of conditions not induced by cirrhosis. Eleven of the remaining twenty-six were due to other chronic diseases, and fifteen to acute. Among the former, tuberculosis was found three times, while among the latter, acute endocarditis, which occurred four times, and pneumonia, which was found twice, were conspicuous. Erysipelas, to which cirrhotic patients have been said to be particularly liable, occurred twice as the direct cause of death, and once as an accessory, beside appearing in the previous histories of three other patients.

Fagge,[12] in a series of 130 cases, found that the average age of persons in whose bodies cirrhosis of the liver was discovered, without the presence of marked symptoms during life, was higher by about five years than that of persons who actually died of the disease, and argues that if this should be confirmed by a wider experience, it would prove that cirrhosis is not always a progressive disease, but may remain stationary after reaching a certain degree of development. Rolleston and Fenton's statistics,[13] however, make the ages of patients dying with latent cirrhosis slightly younger than those who die of the disease. Our figures give the latent cases about two years more of life (47.5 to 45.7), but this difference is too slight to be convincing.

The only important point in treatment, on which a study of these cases can throw any light, concerns the best method of relieving the ascites. In the enthusiasm which has followed the occasional success of a laparotomy, the good results which have at times followed paracentesis, which was advocated forty years ago by Austin Flint,[14] seem to have been overlooked, yet a very considerable number are scattered through the literature in which relief of symptoms has been obtained for many years by simple aspiration. It is so frequently done, solely as a measure of relief, without thought of affecting a cure, that a comparison of statistics of the two methods is impossible. The latest figures giving the results of surgical treatment with which we are familiar, are those of Brewer,[15] and are based on sixty cases, two of which are included in our series. We are able to add three others to this list, in two of which only an exploratory laparotomy was done. One died as the direct result of the operation, while a

[10] The combined statistics of Price, Series 3, 1883-1884, xxvii, 295, and Fagge, Guy's Hospital Report, series 3, 1875, p. 155, show that of 267 cases jaundice was present in 64.

[11] Guy's Hospital Report, 1883-1884, xxvii, 337.

[12] Guy's Hospital Report, 1883, 1884, xxvii, 337.

[13] Birmingham Medical Review, 1896, i, 193.

[14] British Medical Journal, 1883, ii, 565. Flint confirms a statement made in 1863.

[15] Medical News, Feb. 8, 1902.

second died three weeks later, from the progress of the disease. The third entered six years before her death, and was tapped six times. She returned four years later and the abdomen was opened, but as no abnormality was seen the wound was closed after the exploration. The ascites disappeared. Twelve were cured; that is, they lived from three months to about two years. One other required five tappings, subsequent to operation, before the ascites disappeared. Seven others were "improved," which, in the cases where this term is explained, meant less frequent tappings. Twenty-three died. Brewer admits that the operation is still in its experimental stage, and regrets that high mortality, which he attributes to the unwillingness of the majority of physicians to advise this method of treatment until it remains as the only hope of cure. A consideration of our cases, which tally well in their proportion of complications with similar series already published, may explain this unwillingness, for they show, as has already been brought out, that cirrhosis of the liver in a majority of cases is only one expression of the effects of some toxic substance on the general economy, and at the time when pronounced symptoms have appeared, other important organs are usually already affected, often to such a degree that the cause of death is difficult to determine, or, in their rare absence, the glandular structure of the liver has been so far destroyed as to cut off all expectation of recovery. Furthermore, ascites, which has been the determining factor for operation in almost every case, is, with rare exceptions, when due to the liver alone, a late symptom.

The conclusion seems reasonable that operation measures are never justified in the presence of jaundice, and rarely with a history of hemorrhage from the digestive tract, since the fibrotic changes in the liver are probably so far advanced as to cut off expectation of greatly prolonging life, but where, with practically a sound heart and kidneys, the general nutrition is so well maintained as to show that sufficient glandular structure still remains in the liver to maintain its functions, and where competent medical treatment has failed, operation may be considered. Yet the proportion of favorable cases must be very small, and Nature's failure to secure results, save in exceptional instances, by methods which the surgeon imitates, does not diminish the difficulty of proving that the operation is a justifiable one. The cases in which surgical treatment has been effectual are, with few exceptions, so incompletely reported as to leave great doubt as to the importance of the part played by the liver in the production of ascites. The most that can be said is that certain cases of ascites are cured by the surgeon, either by a simple laparotomy or by a more complicated operation, and that in some of them hepatic cirrhosis existed.

Although dangerous symptoms have followed paracentesis, none were recorded among our cases, but we would refer to an experience of one of the writers, which is interesting from the enormous amount of fluid which was obtained. The patient's condition was hopeless, and at his earnest solicitation the abdomen was emptied on each occasion. During the last two months of his life, between sixty and seventy-two quarts were three times withdrawn. Death took place three days after the last tapping, from cerebral anemia.

The more important conclusions drawn from the analysis of these cases may be summarized as follows:

Hepatic cirrhosis is, in a majority of instances, but one expression of the effect of a systemic poisoning. The degenerative changes in other organs are to be regarded as part of this general process, rather than as complications.

The splenic tumor and dilated veins are due in part to portal obstruction, but also seem dependent on the underlying toxic cause, since they are occasionally associated with slight hepatic changes.

Dilatation of the vessels may have some effect as a compensatory mechanism, but is rarely adequate to prevent ascites.

Persistent jaundice and hemorrhage from the digestive tract seldom occur until the connective tissue formation is well advanced.

Hemorrhage was found to be almost invariably due, when a full pathological description was given, to some gross lesion, which in most cases was an esophageal varix.

Ascites occurred in practically the same proportion of cases in all four classes, and was a late symptom. Its early appearance was, with rare exceptions, associated with some form of peritoneal inflammation.

Continuous fever was never found, except in the presence of complications. A brief elevation of temperature occasionally occurred, for which no cause could be discovered.

No evidence was found to show that the course of the disease was not always progressive, but a high grade of cirrhosis was sometimes reached without incapacitating the patients.

Surgical treatment may be indicated in a very small proportion of cases, but conclusive evidence is still lacking to show that the ascites in the cases successfully operated upon was due to hepatic cirrhosis and not to coincident conditions.

## THE CLINICAL VALUE OF THE IODINE REACTION IN THE LEUCOCYTES OF THE BLOOD.

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In a recent article by Dr. R. C. Cabot and the writer,[1] this reaction was described and figured in plates, but at that time too few cases had been studied to warrant definite general conclusions. Moreover, the results of other observers have been so varied, and in certain cases so contradictory, that I even questioned if the appearances

[1] Journal Medical Research, 1902, vol. vii, No. 1.

could be shown to be sufficiently constant to be of any material assistance in diagnosis or prognosis.

The continued use of this test in the wards of the Massachusetts General Hospital during a period of nearly a year has, however, convinced me of its worth, and from a study of over eight hundred cases certain general deductions seem justified. Even in this number of examinations it has of course been impossible to make a thorough study of all diseases, as only the more common medical and surgical conditions were available in sufficient numbers to establish definitely the constant presence or absence of the reaction.

For a detailed description of the technique and appearances of the reaction, the reader is referred to the above-mentioned previous article. Here I need only emphasize a few points.

(1) The appearance of the brown coloration or granules is instantaneous, making it possible to examine the preparation as soon as it is made, yet I have repeatedly mounted smears which have been kept unfixed for many months and have always found the power to react but little changed. In some cases it has seemed less striking than in fresh specimens.

(2) The preparation once made, though not as permanent as is the case with smears stained by any of the differential stains and mounted in balsam, will be found to be fairly well preserved even after six to eight months.

(3) A strong illumination of the field, preferably by daylight, is essential, the contrast between the uniform yellow color of all the corpuscles and the brownish-yellow granules being much more striking.

(4) As previously stated, the reaction is present in two forms; namely: (I) Extracellular and (II) intracellular. Of the intracellular form, three distinct varieties are found: (*a*) a diffuse brownish-yellow coloration of the protoplasm; (*b*) brownish granules of various sizes, scattered throughout the protoplasm of the leucocytes, and (*c*) relatively large, irregular, pale brownish masses about the periphery of the cell, the protoplasm of which always appears very pale and usually swollen.

A faint extracellular iodophilia is present in all individuals, and from its increase alone I have been unable to determine any especial significance.

(5) Repeated and careful comparisons of preparations of blood made with Wright's stain and those with the iodine solution have convinced me of the identity of the blood plates and the small masses of protoplasm in which the extracellular reaction is found.

An exact scale to accurately describe the intensity and character of the reaction has been found impossible. I have, therefore, used the very indefinite terms, "faint," "fair," "good," "marked," etc., according to the number of neutrophiles affected and the degree of reaction in the individual cells. The term "faint" reaction is applied to those cases in which only a few leucocytes are diffusely colored or show a very slight granulation.

In judging a case positive or negative the intracellular reaction alone has been considered.

In the following summary I have included only those affections in the diagnosis of which the presence or absence of iodophilia seems to me to be of assistance.

### SEPTICEMIA.

In an examination of ten cases of this condition I have invariably found a very striking reaction. In most cases nearly all the neutrophiles showed the presence of the brown granules, or coloration. More commonly than in any other disease, one finds neutrophiles which are very pale, and which have large, pale brownish areas in the cytoplasm.

In two of these septicemic cases there were no definite or characteristic symptoms, and the leucocyte count was normal, so that the marked positive iodine reaction was of the greatest assistance in diagnosis.

### ABSCESS AND LOCAL SEPSIS (NON-TUBERCULAR).

Of twenty-five cases, twenty-two were positive, the intensity varying considerably. Cavities containing only a small amount of pus, but associated with marked constitutional symptoms, gave in a few instances a much more intense reaction than larger cavities with only moderate symptoms. Of the three negative cases, one was a small, superficial stitch abscess, with normal temperature, 7,000 leucocytes and no symptoms; the other two were examples of early local inflammation, without pus or general symptoms, and with a normal leucocyte count.

In several of these twenty-two cases I examined the blood at short intervals, following operation and free drainage, and found that the reaction noticeably diminished after from eight to twenty-four hours, while after forty-eight hours only a few slightly colored neutrophiles could be seen. In a considerable number of freely draining abscesses of bone or superficial tissue I have never found a positive iodine reaction.

### APPENDICITIS AND GENERAL PERITONITIS.

The results in the sixty-one cases tabulated below show a striking uniformity. In every instance, so far as possible, the blood was examined for the glycogen reaction without any knowledge of the patient's condition or symptoms, the clinical facts being obtained later from the records of the case.

In Table I are collected those cases of appendicitis in which there were found at operation no signs of active inflammation, and in which there were no marked symptoms at the time of the blood examination. An intracellular reaction was uniformly negative.

Table II comprises those cases of acute appendicitis which were found at operation not to have progressed to the stage of abscess formation or

noticeable involvement of the peritoneum. Cases 5 and 6, which show negative results, were very early, and before the development of severe symptoms. In general, the intensity of the reaction appears to show a close relation to the severity and duration of the process in the appendix.

In the cases included in Table III the process was of a more severe type, and produced in each case a local accumulation of pus. The iodophilia was correspondingly increased. The presence of only a faint reaction in Case 1 is probably accounted for by the small amount of pus thoroughly walled off. It will be noted that the leucocyte count in Cases 11, 14 and 19 is not increased above the normal, notwithstanding the advanced stage of sepsis.

With the few exceptions noted in the table (Cases 7, 18, 20 and 21), the cases in Table IV were all secondary to inflammation in the appendix. We note, as in Table III, that the degree of leucocytosis is not in any way parallel with the degree of reaction to iodine. The leucocyte count

TABLE I.

Interval Appendicitis.

| No. | Intracellular. | Extracellular. | Whites. | Remarks. |
|---|---|---|---|---|
| 1 | Absent | Slightly increased | 9,000 | Temperature 98.8°. No inflammation. Adhesions. |
| 2 | " | Slightly increased | 11,000 | Numerous adhesions. No inflammation. |
| 3 | " | Normal | 12,000 | Few adhesions. No inflammation. |
| 4 | " | " | 7,000 | Temperature 98.8°. Many adhesions. |
| 5 | " | Slightly increased | 8,000 | Temperature 99°. Many adhesions. No inflammation. |
| 6 | " | Slightly increased | 10,500 | Old adhesions and moderate inflammation. |
| 7 | " | Slightly increased | 12,000 | Appendix thickened and adherent. |
| 8 | " | Normal | 12,000 | Chronic inflammation. |

TABLE II.

Acute Appendicitis without General Peritonitis or Local Abscess.

| No. | Intracellular | Extracellular | Whites. | Duration. | Remarks. |
|---|---|---|---|---|---|
| 1 | Faint | Increased | 22,000 | 3 days | Temp. 101.1°. |
| 2 | " | " | 24,000 | — | Temp. 101.6°. Appendix much inflamed. |
| 3 | " | Normal | 14,000 | — | Small, red appendix, with adhesions. |
| 4 | " | " | 20,000 | — | Appendix moderately inflamed. |
| 5 | Slight coloration | Increased | 15,000 | 8 hrs. | Temp. 100°. Appendix considerably inflamed. |
| 6 | Absent | " | 12,000 | 12 hrs. | Slight inflammation of appendix. |
| 7 | Fair | Normal | 23,000 | 24 hrs. | Temp. 103°. Large, red appendix. |
| 8 | " | Increased | 20,000 | 3 days | Temp. 99°. "Red appendix." |
| 9 | " | " | 20,000 | 4 days | Appendix gangrenous. |
| 10 | Good | Normal | 20,000 | — | Temp. 100.6°. |
| 11 | " | " | 16,800 | 36 hrs. | Big gangrenous appendix. |
| 12 | Marked | Increased | 16,000 | 3 days | Temp. 100.2°. Considerable local inflammation. |
| 13 | " | Normal | 26,000 | 36 hrs. | Large gangrenous appendix. |

TABLE III.

Appendicitis with Local Abscess, but without General Peritonitis.

| No | Intracellular. | Extracellular. | Whites. | Duration. | Remarks. |
|---|---|---|---|---|---|
| 1 | Faint | Increased | 14,000 | 4 days | Few drops pus walled off. |
| 2 | Fair | Normal | 17,000 | — | Gangrenous appendix; small abscess. |
| 3 | " | Increased | 15,000 | — | Temp. 101°. Big abscess. |
| 4 | " | Normal | 27,000 | — | Temp. 101.6°. Few drops pus. |
| 5 | " | Increased | — | — | Perforated appendix. Small amount of pus. |
| 6 | Good | " | 20,000 | 4 days | Temp. 104°. Appendix gangrenous. Small abscess. |
| 7 | " | Normal | 14,000 | — | About 1 oz. pus. |
| 8 | " | Increased | 18,000 | — | Small abscess well walled off. |
| 9 | " | " | — | — | Gangrenous appendix. Small abscess. |
| 10 | " | " | 24,000 | 4 days | Temp. 102°. Pus burrowing beneath the mesentery. |
| 11 | Marked | " | 7,400 | — | Enormous abscess. Death in few hours. |
| 12 | " | " | 20,000 | — | Perforated, local peritonitis. |
| 13 | " | Normal | 16,000 | 6 days | Small pocket of pus. Temp. 102.9°. |
| 14 | " | Increased | 10,000 | 24 hrs. | Temp. 105°. Small abscess. |
| 15 | " | " | 21,000 | 3 wks. | Temp. 101°. Large abscess. |
| 16 | " | " | 36,000 | — | Small amount of pus not walled off. |
| 17 | " | Normal | 30,000 | — | Gangrenous appendix. Little free pus. |
| 18 | " | " | 25,000 | 3 wks. | Small abscess walled off. |
| 19 | " | Increased | 8,000 | 3 days | Temp. 102.5°. Pus not walled off. |
| 20 | " | " | 20,000 | 6 days | Temp. 99°. Pus partially walled off. |

TABLE IV.

General Peritonitis.

| No. | Intracellular. | Extracellular. | Whites. | Remarks. |
|---|---|---|---|---|
| 1 | Very marked | Much increased | 40,000 | Much free pus. |
| 2 | Very marked | — | 24,000 | Perforated appendix and mild general peritonitis. |
| 3 | Marked | Much increased | 20,000 | Temp. 101°. Streptococcus infection. |
| 4 | " | Normal | 28,000 | Considerable free pus. |
| 5 | " | Increased | 27,000 | Perforated appendix. Much free pus. |
| 6 | " | " | 13,400 | Perforated appendix. Little free pus. |
| 7 | " | " | 14,000 | Temp. 105.5°. Traumatic origin. |
| 8 | " | Normal | 16,000 | General infection of peritoneum. No pus. |
| 9 | " | Increased | 4,800 | Abdomen full of pus. |
| 10 | " | Greatly increased | 8,000 | " " " |
| 11 | " | Greatly increased | 13,000 | " " " |
| 12 | Moderate | Normal | — | Appendix abscess. Not walled off |
| 13 | Good | " | 19,000<br>15,000 | Perforated appendix. Early peritonitis. |
| 14 | " | Increased | 52,000 | No free pus |
| 15 | " | " | 33,000 | Temp. 103.6°. Extensive inflammation. |
| 16 | " | " | 25,000 | Temp. 99.7°. No pus. |
| 17 | " | Normal | 18,000 | Temp. 103°. |
| 18 | " | — | 12,000 | Typhoid perforation. No pus. Six hours' duration. |
| 19 | Fair | Increased | 17,000 | Temp. 102.8°. Free fluid. Culture sterile |
| 20 | " | " | 30,000 | Bullet wound of abdomen. At autopsy some general inflammation, but no pus. |
| 21 | Faint | — | 12,000 | Temp. 98°, nine hours after perforation of gastric ulcer. Mild inflammation. No pus. |

was entirely normal in Cases 9 and 10, and Case 11 showed only 13,000 white cells per cubic millimetre, though in all these cases the abdominal cavity was filled with pus.

In the presence of pus in the peritoneal cavity, as a careful examination of the table will show, the reaction to the iodine solution is very striking.

EMPYEMA.

| No. | Intracellular. | Extracellular. | Whites. | Remarks. |
|---|---|---|---|---|
| 1 | Very marked | Increased | 45,000 | Temp. 101°. 50 oz. streptococcus pus. |
| 2 | Marked | Normal | 32,000 | Large cavity of pus found. |
| 3 | " | " | 14,000 | 1 pint pneumococcus pus. |
| 4 | " | " | 10,000 | 1 pint pus. |
| 5 | " | " | — | Small cavity of pus found. |
| 6 | Good | " | 20,000 | Large amount thin mucopurulent fluid. Culture sterile. |

These results, it will be observed, correspond almost exactly with those in general peritonitis.

PLEURISY.

| No. | Intracellular. | Extracellular. | Whites. | Temp. | Remarks. |
|---|---|---|---|---|---|
| 1 | Absent | Normal | 10,000 | 103° | Very severe symptoms. 30 oz. fluid. |
| 2 | " | " | 12,000 | 104° | 21 oz. fluid. Very sick. |
| 3 | " | Consid'bly increased | 8,300 | 99° | Small amount fluid. Probably phthisis. |
| 4 | " | Consid'bly increased | 8,000 | 103° | 50 oz. fluid. |
| 5 | " | Normal | 12,000 | 104.5° | Both pleural cavities filled. |
| 6 | " | Slightly increased | 7,000 | 98° | Very little fluid. |
| 7 | " | Normal | 6,000 | 99° | " " " |
| 8 | " | " | 17,400 | 98.4° | Left pleural cavity filled. Chronic. |
| 9 | " | " | 6,600 | 104° | 20 oz. fluid. |
| 10 | " | " | 4,800 | — | Moderate amount of fluid. Probable phthisis. |
| 11 | " | " | 5,300 | — | Moderate amount of fluid. Phthisis right apex. |
| 12 | " | " | 4,400 | — | 30 oz. fluid. Moderate symptoms. |
| 13 | " | " | 9,000 | 104° | 24 oz. fluid. Very severe symptoms. |
| 14 | " | " | 13,000 | — | Chronic dry pleurisy. |
| 15 | " | " | 19,800 | 103° | Acute pleurisy, without effusion. |
| 16 | " | " | 6,600 | 100.5° | Dry pleurisy. |

Several of the above cases presented the typical picture of empyema, and the negative iodophilia alone settled the diagnosis. In contrast to the previously mentioned cases of sepsis with normal leucocyte count in which the iodine reaction was marked, two of the above cases of pleurisy showed moderate leucocytosis, but no iodine reaction.

PNEUMONIA.

Of forty-nine cases examined, all gave a positive reaction, for the most part very marked in character, appearing early, and persisting until after the crisis. As in many of the septic cases above mentioned, the leucocytosis was sometimes wanting. In three cases no physical signs could be obtained; in these cases the positive iodophilia was of the greatest assistance in diagnosis.

In eleven of the above cases the blood was examined at regular intervals, at the time of and following crisis, with the result that the intensity of the reaction perceptibly diminished after six hours, and with frank resolution entirely disappeared after from twenty-four to thirty-six hours. When the resolution was delayed, the test iodine reaction also persisted for several days.

A case of acute tubercular pneumonia involving the left upper lobe, and accompanied by a temperature of 104.4° and severe symptoms, gave no reaction.

MISCELLANEOUS DISEASES OF THE LUNGS.

*Abscess.*— Two cases; marked reaction.

*Thrombosis.*— Two cases; both negative in early stages, but later, with the appearance of severe symptoms, positive.

*Bronchial asthma.*— One case; very severe, fair reaction.

*Simple bronchitis.*— Invariably negative.

PYONEPHROSIS.

Two cases (leucocytosis, 17,000 and 28,000); both positive.

ENTERITIS.

Seven cases, of which six, all with high temperature and white cells ranging from 16,000 to 25,000 per cubic millimetre, showed a faint reaction.

TONSILLITIS.

One case peritonsillar abscess (whites, 24,000); good reaction. Three cases follicular tonsillitis (whites, 20,000, 21,000 and 23,000); faint to marked reaction.

SALPINGITIS.

Nine cases, two of which (with only moderate inflammation and no pus) were negative, seven with marked inflammation, the tubes usually containing more or less pus (whites from 10,000 to 30,000); all showed a good reaction.

GONORRHEAL ARTHRITIS.

| No. | Intracellular. | Extracellular. | Whites. | Remarks. |
|---|---|---|---|---|
| 1 | Faint | Increased | — | Temp. 102.°. Symptoms of moderate severity. |
| 2 | " | Normal | 16,000 | Temp. 102.6°. Symptoms of moderate severity. |
| 3 | Fair | " | 13,200 | Temp. 99.5°. Three weeks' duration. Convalescing. |

ARTICULAR RHEUMATISM.

| No. | Intracellular. | Extracellular. | Whites. | Remarks. |
|---|---|---|---|---|
| 1 | Absent | — | 7,000 | Convalescent. |
| 2 | " | Increased | 17,000 | Acute. Marked signs and symptoms. |
| 3 | " | Normal | 8,400 | Mild case. Acute. |
| 4 | " | " | 10,600 | Chronic. Severe. |
| 5 | " | " | — | Subacute. |
| 6 | " | " | — | 12 hours' duration. Temperature 101°. Severe. |
| 7 | " | Increased | 26,800 | Subacute. Moderately severe. |
| 8 | " | " | 15,000 | Acute. Extensive. |
| 9 | " | " | 35,000 | 5 days. Very marked symptoms. |
| 10 | " | Normal | 14,800 | 8 days. Moderately severe. |
| 11 | " | " | 16,500 | Acute. Moderately severe. |
| 12 | " | " | 13,200 | 3 weeks. Moderately severe. |
| 13 | Fair | Increased | 31,000 | Temperature 104°. Endocarditis and pericarditis. |

Livierato, in his series, obtained uniformly negative results.

GALLSTONES.

| No. | Intracellular. | Extracellular. | Whites. | Remarks. |
|---|---|---|---|---|
| 1 | Absent | Increased | 14,000 | Many stones in gall bladder. |
| 2 | " | Normal | 6,000 | Many stones in gall bladder. |
| 3 | Faint | " | 15,000 | Many stones in gall bladder. Jaundiced. |
| 4 | " | Increased | 20,000 | Calculi in common duct. |
| 5 | Fair | " | 12,000 | Calculi in gall bladder. Jaundiced. |
| 6 | Good | Normal | 16,000 | Jaundiced. |
| 7 | " | Increased | 23,000 | Calculi in cystic duct. |
| 8 | " | " | 23,000 | Calculi in gall bladder. Temperature 101°. |
| 9 | Marked | " | 15,600 | Near death. Marked jaundice. |

The three cases studied by Livierato give negative results. Too few cases of this condition have been studied to establish conclusive results. In general, the reaction seems to appear with the development of a marked toxemia.

ANEMIA.

(*A*) *Primary anemia.*

(1) *Pernicious anemia.*—Of six cases studied, three showed a faint, intracellular iodophilia; only one of these three, however, had an appreciable increase in the extracellular. The reaction, when present, was never marked, being distinctly of the diffuse type, rather than the granular, and apparently confined to the very severe cases only. Hofbauer's five cases gave similar results.

(2) *Chlorosis.*—But one case has been available for study. The reaction, as in seventeen studied by Hofbauer, was negative.

(*B*) *Secondary anemia.*—Seven cases; four positive, three negative.

Case I. Gastric ulcer, with repeated hemorrhages; near death; marked leucocytosis. Reds, 2,000,000; hemoglobin, 22%. No increase in the extracellular masses, but many of neutrophiles diffusely colored; a few slightly granular.

Case II. Gastric ulcer, with severe hemorrhages. Patient extremely anemic. Whites, 31,000. Died at end of forty-eight hours. Extracellular masses a little increased. Few neutrophiles with faintly brownish cytoplasm were seen, but rarely one showing a few granules.

Case III. Extreme secondary anemia of questionable origin. Hemoglobin, 20%; reds, 822,000; leucocytes, 2,000 (stained smear not like pernicious anemia). Extra cellular masses normal. Protoplasm of many of the polymorphonuclear leucocytes very deeply granular.

Case IV. Severe anemia associated with endocarditis; probably septic. Temperature, 101°; pulse, 120; leucocytes, 31,000; patient dying. Extracellular normal. Nearly all neutrophiles give an intense reaction. Sepsis, if present, would of course account for the iodophilia, independent of the anemia.

MALIGNANT DISEASE.

In malignant disease I have found the reaction present only in the late stages, when constitutional symptoms are pronounced. Of thirty-seven cases, fifteen were negative and twenty-two positive.

ACUTE INTESTINAL OBSTRUCTION.

| No. | Intracellular. | Extracellular. | Whites. | Remarks. |
|---|---|---|---|---|
| 1 | Absent | Normal | 22,000 | Temp. 98.8°. Some free fluid, but intestine not gangrenous. |
| 2 | " | " | 10,000 | Band found causing obstruction. No gangrenous gut. |
| 3 | " | Increased | 11,000 | Free fluid, but bowel not gangrenous. |
| 4 | Good | Much increased | 19,000 | Death. Extensive gangrene of large intestine. |
| 5 | " | Slightly increased | 25,000 | Temp. 99.8°. 4 days' history. Death. Gangrenous intestine. |
| 6 | " | Consid'bly increased | 24,000 | Died. Thrombosis. Mesenteric vein and 3 ft. bowel gangrenous. |

As clearly shown by this table, the iodine reaction in acute intestinal obstruction appeared only in the late stages, when the bowel has become gangrenous.

CARDIAC DISEASE.

Total of eighteen cases. Five of these, all with badly broken compensation, gave a faint reaction. The remaining thirteen, though accompanied by leucocyte counts varying from eight to thirty thousand, were negative.

DIABETES MELLITUS.

| No. | Intracellular. | Extracellular. | Whites. | Per cent. Sugar. | Remarks. |
|---|---|---|---|---|---|
| 1 | Absent | Much increased. | 8,000 | 4 | Symptoms severe. |
| 2 | " | Slightly increased. | 8,000 | 0 | Sugar disappeared under treatment. |
| 3 | " | Slightly increased. | 7,000 | 1 | Mild symptoms. |
| 4 | " | Much increased. | 6,000 | 3.45 | Mild symptoms. |
| 5 | Marked. | Much increased. | 40,000 | — | Whole leg gangrenous. |
| 6 | " | Much increased. | 14,000 | 2 | Coma. |

Livierato, in nine cases, found a uniform absence of intracellular and presence of increased extracellular reaction. Kaminer reports similar results (five cases), except in one patient with coma, in whom he obtained a marked intracellular granulation.

MALARIA.

Twenty out of forty-nine cases were positive; in several of them the reaction was marked. What relation, if any, this sign has to the type of malaria or time of chill, has not been determined.

NEPHRITIS.

I have examined the blood from fourteen cases, all of the severe type seen in hospital wards. Five were negative, while nine showed a faint reaction. In coma the reaction is somewhat more marked, but never of the striking type seen in septic conditions.

TYPHOID FEVER.

Forty-two cases. The reaction was negative in twenty-five, positive in seventeen; it was

never intense, and usually did not appear till the second or third week. In several of the seventeen positive cases the presence of pulmonary complications, bad furunculosis, severe hemorrhage or perforation sufficed to explain the reaction to iodine; in the remainder severe toxemia alone seemed to be the cause. Phlebitis, in my experience, unless leading to serious secondary changes, as gangrene, has not given an iodophilia. One case of perforation which I was able to study showed after three hours an increase of leucocytes to 9,000 and a faint intracellular granulation, and at the end of six hours 12,000 whites, with a good reaction to iodine.

TUBERCULOSIS.

(*A*) *Phthisis.*— Thirteen cases. Five, with secondary infection (one of them after very severe hemorrhage and another associated with a general tuberculosis), showed a faint reaction. The remainder were negative.

(*B*) *Miscellaneous types of tuberculosis.*— Fifteen cases. One case each of tuberculosis of the kidneys, breast, atlas, rib, elbow, two of tubercular glands, one abscess of liver and two of extensive involvement of the peritoneum, were all negative. One case of tubercular peritonitis, with serous pleurisy, acute process in lungs and very high temperature, showed a fair reaction. Two cases of acute miliary tuberculosis, near death, were negative, while two others, both unconscious, one complicated by acute pneumonia (whites, 40,000), were positive.

In general, in tubercular processes without secondary involvement, I have never found iodophilia.

HERNIA.

| No. | Intracellular | Extracellular. | Whites. | Remarks. |
|---|---|---|---|---|
| 1 | Absent | Normal | 9,000 | No strangulation of bowel. |
| 2 | " | " | 36,000 | Strangulated, but not gangrenous. Much free fluid. |
| 3 | " | " | 12,000 | 7 hours' duration. Bowel not gangrenous. |
| 4 | Fair | Increased | 11,000 | Died few hours later. No autopsy. |
| 5 | Marked | Normal | 8,000 | Temp. 98°. Died under operation. Gut gangrenous. |
| 6 | " | Consid'bly increased | 15,000 | 36 hours' duration. Death. No operation or autopsy. |
| 7 | Good | Consid'bly increased | 20,000 | Temp. 98.2°. 2 days' history. Beginning gangrene. |

Hernia, like acute intestinal obstruction, gives a positive reaction only in the later stages, when the intestine becomes gangrenous.

EXTRA-UTERINE PREGNANCY WITH RUPTURE.

Three cases, with a leucocytosis of 9,000, 34,000 and 54,000 respectively, and large amounts of blood in the abdominal cavity, were without iodophilia, while a case of ruptured uterus, seen near death, and having a white count of 20,000, had a very striking reaction. At operation in the last case the peritoneum was found to be infected.

MISCELLANEOUS.

*Shock.*— Two accident cases, both with great loss of blood, faint reaction.

*Ovarian cyst, with twisted pedicle.*— Whites 40,000; no reaction.

*Acute and chronic alcoholism.*— Five cases, negative.

*Arthritis deformans.*— One case, negative.

*Brain tumor.*— Four cases, reaction wanting.

*Carbon monoxide poisoning.*— Three cases, all in comatose condition; two positive, one negative.

*Exophthalmic goitre.*— Two cases, negative.

*Lead colic.*— Three cases, negative.

CONCLUSIONS.

The extracellular masses I have found present in the blood of all individuals, both normal and diseased. Its increase in certain diseased conditions is so variable that, unless associated with an intracellular reaction, it may be said to be of no clinical significance.

The intracellular iodophilia appears only in pathological conditions, and in recording the reaction I have referred solely to this latter type.

The results of my examination of the blood in various diseases, with reference to the iodine reaction, as given above, may be briefly summarized as follows:

(1) In septicemia always marked.

(2) In abscesses and local sepsis (non-tubercular) present, except in the early stages. The intensity varies within wide limits, according to the amount of toxic absorption.

With free drainage of the pus the brown granulation in the leucocytes rapidly diminishes within forty-eight hours, in most cases entirely disappearing.

(3) In appendicitis variable, according to the extent and character of the inflammatory process. The reaction is negative during the intervals between attacks, absent or faint in the early stages of an acute attack, fair to marked in those cases which have progressed to the stage of abscess formation or peritonitis.

(4) In general peritonitis uniformly striking.

(5) In empyema invariably positive, generally of a marked type.

(6) In dry and serous pleurisy always wanting.

(7) In pneumonia (non-tubercular) present, and usually very marked in character. Following crisis, the iodophilia within a few hours becomes less marked, and if the resolution be frank, disappears in from one to two days.

Abscess of the lungs and pulmonary thrombosis in the late stages give a positive reaction.

(8) In simple bronchitis negative.

(9) In enteritis, with severe symptoms, usually faintly positive.

(10) In tonsillitis faint to marked, according to the severity of the constitutional symptoms.

(11) In salpingitis positive in the presence of abscess formation or marked inflammation.

(12) In gonorrheal arthritis positive, though not striking.

(13) In articular rheumatism negative.

(14) In gallstones variable, apparently depending upon the presence or absence of toxemia.

(15) Anemia: (*a*) In pernicious anemia, in the late stages, a faint reaction; (*b*) in chlorosis negative; (*c*) in secondary anemia, of a very marked character, often positive.

(16) In malignant disease positive only in the late stages.

(17) In acute intestinal obstruction negative unless the bowel becomes gangrenous.

(18) In cardiac disease occasionally a faint reaction in the presence of badly broken compensation.

(19) In diabetes mellitus positive only in the cases of coma and complication of gangrene.

(20) In about 50% of the cases of malaria positive, often marked.

(21) In nephritis in more than half the cases a faint reaction.

(22) In typhoid fever positive in about 50% of cases, usually only when complications or pulmonary disease, furunculosis, hemorrhage or perforation are present.

(23) In tuberculosis, uncomplicated, always negative.

(24) In hernia, as in acute intestinal obstruction, negative, unless septic absorption has taken place in consequence of gangrene.

(25) In extra-uterine pregnancy, with rupture, negative.

As will readily be seen from an examination of this summary, the reaction has both a negative and positive value in diagnosis.

Septic conditions of all kinds, including septicemia, abscesses and local sepsis, except in the earliest stages, appendicitis accompanied by abscess formation or peritonitis, general peritonitis, empyema, pneumonia, pyonephrosis, salpingitis with severe inflammation or abscess formation, tonsillitis, gonorrheal arthritis and hernia, or acute intestinal obstruction where the bowel has become gangrenous, have invariably given a positive iodophilia, and by its absence all these cases can be ruled out in diagnosis. In other words, no septic condition of any severity can be present without a positive reaction.

Furthermore, the disappearance of the glycogen granules in the leucocytes in from twenty-four to forty-eight hours, following crisis, with frank resolution in pneumonia and the thorough drainage of pus in septic cases, is of considerable importance. Thus in the former a positive reaction after several days, following crisis, would point strongly to delayed resolution, abscess or empyema, while in the latter it is certain evidence that the pus is not thoroughly drained. In these last-mentioned cases I have repeatedly found the iodine reaction of assistance when other signs failed to give conclusive evidence.

Not infrequently, when questioned concerning the reaction, I have noted surprise and disappointment that it should not be general in its application and conclusive in its significance, and no one regrets more than the writer that such limitations are necessary. To all those familiar with modern laboratory methods, however, this is not surprising, for our most valued and commonly employed laboratory tests as a rule have but limited meaning. Almost none are pathognomonic. The Widal test, for example, though present in from 95 to 97% of all cases of typhoid fever at some time during their course, is occasionally positive in other diseases, as shown by Cabot, who found it in 2% of 2,500 control cases examined. The Diazo reaction is found not only in enteric fever, but also in a variety of other affections. Clinical signs and symptoms are equally variable. In short, the results of laboratory tests in a given case are of value only when considered with the full data of other tests and the signs and symptoms,— their setting, as it were.

The report, which alone means but little, may, when considered as a part of the symptom complex, have the most important and definite significance. Similarly the presence of the glycogen reaction is consistent with a considerable variety of conditions, and taken alone furnishes us only little aid, but when combined with the report of temperature, leucocyte count, signs and symptoms, usually enables us to draw much more definite conclusions. For example, a case is not infrequently seen in which it is impossible, even with the aid of the white count and temperature, to decide between a serious and purulent pleuritic effusion. The iodine test furnishes us the key, since it is always absent in the former and never in the latter. Again, suppose we have an acute abdominal case in which the following conditions must be considered,— typhoid, peritonitis, salpingitis, acute intestinal obstruction, lead colic and enteritis; of what value is the test? Its absence will at once enable us to rule out peritonitis, also appendicitis and salpingitis, unless very early and before the appearance of marked inflammation. On the other hand, a positive reaction is consistent with peritonitis, salpingitis, appendix abscess and severe enteritis; that is, it points to a septic condition. Enteritis never shows the decided granulation found in peritonitis and abscess, and possesses symptoms so characteristic as to render easy a differentiation from sepsis. Acute intestinal obstruction can give an iodophilia only after gangrene, lead colic never. Typhoid, in most cases, I have never found to give a positive reaction before the second week, and at that stage no difficulty in diagnosis should be experienced. In making a diagnosis among the group — peritonitis, salpingitis and appendix abscess — the reaction gives us but little help, except in so far as its intensity measures to a considerable extent the severity of the septic process.

In case the signs and symptoms point to appendicitis, the reaction furnishes valuable indications as to the exact condition, for if absent, the process is probably an early one and confined to the appendix; if faint or only moderate, we may expect to find a small abscess or marked inflammation;

if marked, a peritonitis or very severe inflammatory change in the region of the appendix is present.

Both the microscopical appearances and the clinical evidences point to the origin of the brown granules and extracellular masses, in some degenerative process, taking place in the white cells. Such a process in all my cases can be explained by the condition of toxemia undoubtedly existing. If the leucocytosis represents "Nature's attempt to aid the blood and the system, by means of leucocytosis and their products, of the bacteria and toxic causes of disease," we should expect a marked iodine reaction in those cases where the toxemia is so severe as to overcome the power of the system to produce a leucocytosis, and such has invariably been the case. This fact readily accounts for the discrepancy, so frequently noted in the foregoing tables of severe septic cases, between the temperature and leucocytosis on the one hand, and the glycogen reaction on the other. I therefore believe the iodine test to be a far more constant and reliable indication of the severity of an infection than either the white count or temperature.

## SOME OF THE ORTHOPEDIC CONDITIONS OF THE NEWBORN DEMANDING EARLY SURGICAL TREATMENT.[1]

BY CHARLES F. PAINTER, M.D., BOSTON.

YOUR chairman has asked me to present for your consideration certain of the defective anatomical conditions of the newborn, which demand immediate or at least early orthopedic treatment, more especial attention being devoted to presenting to the obstetrician the consensus of orthopedic opinion as to the best time to begin treatment in such conditions, and what sort of cases demand treatment at all. The best results in these congenital and birth defects must, of course, result from an early appreciation that there is a defect, and also from co-operation between the family physician and the specialist who may be called to treat the defect.

In this class of cases the obstetrician should be the first to appreciate that something is wrong, and in a great majority of instances he is the family physician. Because the above is true I take it to be the reason that you have been asked to listen to this communication.

One more introductory remark and then to the subject-matter. There is a tendency, no more prevalent among obstetricians or general practitioners than among any other class of physicians, to regard many slight, though obvious defects, as ones which the child will outgrow, in the same way that in rapidly growing children incipient hip disease and tumor albus are allowed to get a good start, because some one in times past was unfortunate enough to invent the term "growing pains." Nature does undoubtedly have the power of correcting a very considerable degree of her own occasional departures from the normal, and even those which man, in the capacity of the physician, through inadvertence or ignorance, is responsible for; but this tendency to leave all this to Dame Nature is to be deprecated, for under this misapprehension, irretrievable damage has been repeatedly done and at the least much valuable time has been lost.

(1) *Congenital club-foot.*— This deformity occurs quite frequently. It is rather the most common of the congenital deformities. It is almost always easily correctible manually at birth and during the early weeks of infancy. The varus is commonly more easily correctible than the equimus.

Treatment should be commenced as soon as the child has begun to settle down to normal living; by that I mean as soon as nursing is well established, the bowels are moving, digestion is accomplished and the child is beginning to gain. The nurse should be instructed to manipulate the feet several times daily, pulling the foot around into the position of valgus, if possible. It is seldom necessary to do even a tenotomy upon a club-foot if it is early recognized and properly treated. As soon as the above mentioned time has arrived the parents can be taught the use of a brace to correct the position, and by attention to the application of the straps, the deformity ought to be entirely corrected in three or four weeks in most cases, and in two or three months the feet will stay corrected when the apparatus is removed. Treatment without apparatus must, however, be continued for at least a year or a year and a half, and when shoes are applied and the child begins to walk, the soles of the shoes should be so raised that a valgus position is favored. It indeed sometimes happens that as a result of treatment flat-foot is caused while club-foot is being corrected. In some cases where the mother is unable to attend to the details of a splint requiring frequent adjusting, it is best to apply a plaster-of-Paris splint in the corrected position, changing as may be necessary until the foot is overcorrected and remains so with the cast off.

(2) *Flat-foot.*—This is very rare as a congenital deformity, and never requires treatment before the period when walking begins, for it is not until after that time, or about eighteen months, that it can be fully determined whether an infant's foot is really or only apparently flattened. The fat on the sole of a baby's foot is deceptive, and gives no clue to the real height of the bony arch. The only treatment that is ever needed is the raising of the inner side of the shoes one-eighth inch to cause the weight of the body to be borne through the long axis of the foot, and not to the inner side of it, as it is in valgus. Massage is of considerable value.

(3) *Congenital dislocation of the hip.*— This is not commonly recognized until walking is attempted, but should be examined for in all cases. It is due to a defective development of the femoral head and neck, or of the acetabulum, or both.

[1] Read before the Suffolk District Medical Society, Section for Obstetrics and Diseases of Women, Oct. 23, 1902.

It is recognized by the ability to pull the trochanter down or slide it up at will, by pulling or pushing on the thigh. There is some slight atrophy, without any spasm of the muscles about the hip. As soon as the child begins to walk, of course the diagnosis is soon established, for then the peculiar rolling gait is apparent to everyone, and soon the prominence of the lumbar lordosis is evident. Much has been written upon the subject of congenital dislocation, and perhaps there is no subject in orthopedic literature today about which more is being written.

In spite of it all, treatment fails to accomplish much in many cases. The enthusiasm of various observers has lead them into error, and at present the situation is about this: If there is any acetabulum left which will hold the head, or what is left of the head, and treatment is begun during the first two or three years of life, a large proportion of the reductions will remain in place, and the bloodless method is all that is necessary. When it comes to doing the open incisions the results are very problematical. They more rarely remain reduced; they not infrequently result in ankylosed hips, and it is certainly an open question which is the better condition to grow up with — a stiff hip in position or a movable one out of position. To my mind there is no question, but the latter is preferable. The attempt at bloodless reduction should be advised in the latter part of the second or first of the third year. In certain cases of the double dislocation considerable may be accomplished by apparatus — not in the way of reduction of the dislocation, but by getting rid of lordosis and tilting the pelvis so that the femoral heads come more directly in line with the centre of gravity of the body. Such apparatus is applied to the spine. There is no object in discouraging children with this deformity from walking until the bloodless reduction has been tried.

(4) *Hematoma of the sternomastoid.*— This is a condition which occurs at birth probably, and not prior to it, though the hemorrhage may occur in intra-uterine life. The cause is not known, but is probably mechanical in either case, and not due to syphilis, as has been so often supposed. It is not very common, and gives rise to a torticollis as its principal symptom.

It is seldom necessary to do anything in the way of treatment except manual correction of the position of the head, practiced several times a day and favoring the correction of the deformity by causing the child to lie in such position as best stretches the affected sternomastoid. Massage will favor the absorption, but should not be begun for a few weeks after birth.

(5) *Spastic paraplegia.*— The presence of this form of cerebral infantile paralysis may be ushered in by convulsions beginning at once or some little time after birth, or it may not be suspected at all until the rigidity of certain muscles is noted in handling the child. Depending upon the extent of the hemorrhage and the consequent extent of involvement of the internal capsule, is the degree of peripheral disturbance.

The chief symptoms of course are rigidity of muscles without much of any atrophy or loss of power; exaggerated reflexes when they can be obtained. These symptoms are usually in one or both legs or both arms, or both legs and arms, and only occasionally in one arm alone. It is well that the parents should know that treatment must be commenced early and continued through the entire growing period at least, and is wholly directed to combating the contractures which are certain to come without treatment, and may come in spite of it. Systematic rubbing, passive stretching of all tendons of the affected muscles, and, when the child is old enough to understand it, systematic muscle-training should be practiced. Tenotomies and myotomies may have to be done and done repeatedly, and apparatus worn to prevent the more vicious contractures. Treatment should never be given up, unless as the child develops there is, as occasionally happens with this condition, an entire absence of intelligence. Then it is impossible to carry out much of the treatment.

It is but a step from this condition to that known as congenital athetosis. Here the hemorrhage has been more diffuse than in the spastic cases, and the cortex as well as the internal capsule is involved. Here one gets the inco-ordinate movements of the hands, arms, legs, feet, body, head and neck and the muscles connected with speech.

It is a most distressing condition, and aside from the treatment suggested in the spastics there is not much to advise. It should begin early, particularly the rubbing and passive stretching, and later a great deal can be accomplished in the way of muscle training. They can be taught to use their hands quite deftly in such things as caneseating, etc., etc.

(6) *Obstetrical paralysis.*— Under this head a number of conditions may be classed. The true obstetrical paralysis is the result of an injury to the brachial plexus. Much has been written in regard to the cause and mechanism by which the paralyais is produced and the character of the nerve lesion, but it is not necessary to go into this here.

Treatment should be instituted as soon almost as the condition is recognized, and must be persisted in for prolonged periods. Parents should be impressed with the importance of persistent, prolonged, patient treatment, lasting during a greater part not only of infancy but childhood and adolescence. The methods of treatment include massage, electricity and bandaging, with later on the use of passive and active muscular exercises. Massage and electricity cannot be begun with any profit during the first few months, but should be commenced after that time and continued. Before the use of massage the hand and arm should be kept in the best possible position by a carefully adjusted sling, to avoid as much as possible the tendency to the assumption

of the characteristic deformity seen in these cases. Very good functional results can be obtained by persistence in these methods, and the deformity will be greatly lessened.

Congenital or traumatic dislocations and luxations of the shoulder have had attention drawn to them by Scudder and Phelps within the last few years, and they present a condition sometimes mistaken for obstetrical paralysis. The true dislocation had in several of Phelps' cases been unrecognized according to him, and he operated later for the deformity, putting the head back into the glenoid by the open incision. The results of this are not functionally very good, and the earlier recognition of the deformity and earlier and less radical operation would probably give better results.

(7) *Cleft palate and hare-lip.*— Formerly these defects were treated by the orthopedic surgeon. So recently as Dr. Bigelow's time they were both so regarded. Nowadays, however, the general surgeon or the dentist does this work, and therefore I shall not discuss it except to say that the hare-lip cases are best operated during the first year of life, and that the cleft palates are deferred until such time as an obturator can be fitted to help out the operator. In any case, and for either operation, there is perhaps more choice in operators than in most any other common operation in surgery, and one should be careful to select some surgeon who has done a good many, rather than referring such patients indiscriminately, as the operation requires special facility and patience on the part of the operator.

(8) *Herniæ.*— The subject of hernia is another which does not properly belong in orthopedics, and I mention it here largely to more completely fill the list of the commoner defects of infancy and childhood. Herniæ are rarely congenital, whether umbilical or inguinal. When they occur in the first year or so they can usually be cured permanently by a truss, particularly the umbilical. The latter will generally be entirely cured by cutting a small soft felt pad a little larger than the hernial protrusion, and after reducing the sac applying the pad with adhesive plaster, strapping for two inches on either side of the umbilicus. In six months to a year there ought to be no further tendency to protrusion. The greater majority of such herniæ will be cured by this means.

In the inguinal herniæ occurring at this period of life the worsted truss is the most efficient. It can be made of a skein of Germantown worsted, so placed that the loop comes over the ring. This will effectually hold the hernia in a small number of the cases, and if it will not after faithful trial for a year, then operation must be resorted to, and it is much more commonly done in inguinal and femoral herniæ than in umbilical. If a truss is controlling the sac it is better to wait until the fourth or fifth year before doing the operation, as the parts are larger then and can be more readily found and sutured, and the chances of wound infection are less. In children relapses after operation are very rare, and no truss is necessary unless it be a worsted one for a short time.

(9) *Congenital absence of tibia or femur.*— The only question which arises in these cases is usually one of mechanotherapeutics. I have under observation now two cases of these defects, one in the femur and one in the tibia, who are wearing Thomas knee splints, made the length of the normal leg, and which can be changed as the child grows until the full stature is attained, when an artificial limb may be adjusted. One of these cases could walk easily at fifteen months with no support other than the brace.

(10) *Unclosed bronchial clefts.*— These are purely surgical cases, and are not very common. Perhaps the most common are in the median line of the neck above the thyroid, communicating with the trachea. They do not commonly cause much inconvenience in infancy, and can easily be deferred for treatment in most cases until the parts are larger and can be more readily operated upon. The fistulous tract which connects the trachea with the outside world must be dissected and the inner opening closed before a permanent cure can be effected.

(11) *Spina bifida.*— Spinæ bifidæ are more commonly seen by the general surgeon nowadays than by the orthopedist. The results of operative interference in these cases are very poor; the mortality is extremely high, and is generally due to the difficulty in keeping the wound from infection in the region where most of these occur, combined with the shock of an operation of such gravity to the delicate organization of the infant, for most of them are operated upon early. When they do survive the operation they are frequently more or less completely paralyzed, because of the difficulty in opening the sac and dissecting it away from the cord. I have never seen any cases which have been operated upon recover, and the only two cases which I have seen who have grown up were not operated upon. One of these I have recently operated upon for a condition of pes calcaneus, the result of the paralysis of the posterior muscles of the legs. My experience in these cases, of course, is small, but such as it is, I should advocate trying to nurse these cases along and preventing the sacs bursting by keeping the child on its face on a pillow, and exercising gradual and even compression over the sac, by means of a felt pad, until the child was older and the tissues were strong enough to hold it in place, or the child was strong enough for the operation. I should hesitate about operating, even in one where there was a spontaneous opening and cerebrospinal fluid was exuding. Those cases most certainly will die one way or the other.

(12) *Meningocele.*— This should be considered here, but I have had no experience with it, and I believe Dr. Lund has had some. My impression is that the results of operation here are rather better than in spina bifida, and that the operation offers more show for success, and is, therefore, more justifiable. I know only one case which was operated upon and has grown to adult life.

(13) Lastly, there are a group of genito-urinary defects, which also do not belong in orthopedic surgery but should be briefly mentioned in a paper of this character. (*a*) Extrophy of the bladder, unless relieved by operation, is a most distressing condition, and very successful results are now obtained by plastic methods. It is rare that the whole thing can be completely closed at one sitting, but the condition can be much improved and by repeated operations some sort of a urinary reservoir can be established which will hold enough at any rate to make micturition less of a "continuous performance." Sometimes even control is acquired to a certain degree over the sphincter. When the child is from two to three years of age is a good time to begin to try and close these things in, unless there is some very positive indication for earlier operation. (*b*) Epi- and (*c*) hypo-spadias also require early surgical interference, and modern surgery can reconstruct a urethral tract from the perineum through the glans, as I have had the satisfaction of seeing done by one of our Boston surgeons. It required about thirty operations and anesthetizations, but an entire urethra had to be made in the penis from a pin-hole opening in the midperineum to the glans and through that body, as there was no meatus. This procedure commenced when the boy was nearly four years old and continued through three or four years, and when last I saw him he could take a No. 16 flexible French bougie into the bladder.

I have endeavored to enumerate some of the conditions covered by the title. I have not done much more than merely enumerate them, and I thank you for your attention to so dry an assembly of facts.

## CIRRHOSIS OF THE LIVER IN CHILDHOOD.

BY JOHN LOVETT MORSE, A.M., M.D., BOSTON,

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The lower border of the liver in infancy normally extends nearly halfway from the costal border to the umbilicus. It gradually diminishes in size, and finally disappears beneath the ribs. At just what age this occurs is not known, probably before ten years. This normal condition has often led to errors in diagnosis. The liver is, moreover, often enlarged in many of the chronic diseases of infancy.

All the forms of cirrhosis which are met with in adults occur also in childhood. In addition, there are several forms which are peculiar to children. The symptoms of cirrhosis in childhood are the same as in adult life. So also are the pathological changes.

*Frequency.*— Cirrhosis of the liver is not a common disease in childhood, but is perhaps less uncommon than has usually been thought. It occurs in about one in 20,000 hospital cases. Hatfield, in 1890, collected 156 cases from literature, and Musser, in 1899, added 129 more, exclusive of the 400 Indian cases reported by Ghose. A number have been reported since then.

*Sex.*— In Howard's 100 cases there were about two males to one female. Birch-Hirschfeld's series gave almost the opposite relations.

*Age.*— The ordinary forms are found most commonly between nine and twelve years. The form due to obliteration of the bile-ducts occurs, of course, only in early infancy. The peculiar form seen in India and syphilitic cirrhosis are also peculiar to infancy.

*Type.*—Cirrhosis with enlargement of the liver is more common than cirrhosis with diminution in the size of the liver. It is possible that the vitality of the hepatic cell in the child may explain the frequency of cirrhosis with enlargement, atrophy of the cell occurring less readily than in adult life. Beck, however, thinks that the reason atrophic changes do not occur is because children usually die in an early stage of the disease. A number of cases of Hanot's hypertrophic cirrhosis with chronic icterus have been described (Folger, Gilbert, Fournier, Steffen, Merkle and Hayem).

*Etiology.*— It would seem as if the pathogenesis of cirrhosis of the liver should be easier to establish in the child than in the adult; this, however, is not so. All the causes which produce the disease in adult life may also produce it in childhood. Additional causes in childhood are congenital obliteration of the bile-ducts and congenital syphilis. Congenital syphilis is, undoubtedly, the most frequent cause of cirrhosis in infancy. Alcohol is responsible for from 10% to 25% of the cases, its importance varying according to different authorities. Many cases go to show that very small amounts of alcohol, if taken regularly by children, may produce cirrhosis. In about 60% there is no evident cause.

It is probable that the products of abnormal fermentation or decomposition in the digestive tract are a more frequent cause of cirrhosis in infancy than in adult life. It is also probable that the products of bacterial growth in the intestine or elsewhere are more harmful at this age. The cases which have apparently followed overfeeding are presumably due to this cause. The importance of this class of causes is evidenced by the cases, reported by Segers, from Tierra del Fuego in children fed almost exclusively on mussels. The Indian cases reported by Ghose and others are probably also due to the same cause. Many observers, notably Laure and Honorat, Klein and Edwards, think that the eruptive fevers play an important rôle in the etiology of cirrhosis. They think that the hepatic changes, which occur so frequently in these diseases, often persist, and may in time produce chronic interstitial hepatitis. They state that they have been able to study all stages, from simple lymphatic infiltration to confirmed cirrhosis. Some go so far as to say that cirrhosis is always preceded by the eruptive fevers.

The liver of the child is very frequently affected in the course of infections and toxemias. It is the hepatic cell, however, which is especially involved. This becomes fatty, degenerates, and may die, but when the disease is past it regenerates or disappears, without leaving traces of the lesion. Masses of cells may appear in the portal spaces or in the lobules, or there may be an interstitial proliferation. It is rare, however, for these infiltrations or proliferations to persist; it is still rarer for them to increase, or to be replaced by connective tissue. The facility with which these cellular and interstitial lesions appear and disappear in the liver of the child is remarkable. It shows a nutritive activity and power of renovation which no longer exists to the same extent in adults. The acute toxic infections leave, therefore, but few traces in the liver; at most, small cicatricial areas, or scars, which do not deserve the name of cirrhosis. It is not proper to consider measles, scarlet fever, and so on, as the cause of cirrhosis, because cirrhosis develops after one of them, when so many thousands and thousands of cases are not accompanied or followed by this disease.

*Tubercular cirrhosis.*— Many cases of tubercular cirrhosis have been described. In some there are no evidences of tuberculosis in the liver, the process developing in connection with tuberculosis, or being due to the toxins of the tubercle bacilli. In others there may be a miliary tuberculosis of the liver, as well. Hutinel considers that "cardiotubercular cirrhosis is the most frequent form met with in childhood" (Hutinel, Imerwol). The sequence is tubercular pericarditis with adhesions, passive congestion, nutmeg liver and cirrhosis. There seems no reason, therefore, to separate this form from the other cases due to passive congestion from cardiac or pericardial lesions.

*Cardiac cirrhosis* (Hutinel, Hanot and Parmentier).— Pericardial obliteration is more common in childhood than in adult life. It may lead at this age, as in later life, to cirrhosis. Enlargement of the liver is unusual. The spleen is enlarged. The process is probably not entirely due to passive congestion, but partly to infection or intoxication of enteric origin.

*Cirrhosis of the liver in children in India.*— Gibbons, Mackenzie and Ghose have described a peculiar form of cirrhosis in infancy, which apparently only occurs in India. Ghose has himself seen 400 cases. It usually begins at seven or eight months, but may begin as early as three months. It seldom attacks children over three years of age. It is more common in males than in females. It is most common in the well-fed children of the middle classes. It may occur in all the children of one family, while the children of another family living in the same house and under the same conditions escape. Ghose saw it more often in Hindus than in Mohammedans or Eurasians, while Gibbons seldom found it, except in Hindus. It is certainly not due to malaria, syphilis or alcohol. They are inclined to attribute it to irritants arising from decomposition in the stomach or intestines. This hypothesis is open to doubt, however, because, although the children of all classes receive much the same food and live under much the same conditions, the disease is limited to certain classes.

Attention is usually called to a painless enlargement of the liver by an attack of fever. The liver continues to enlarge, and with it the spleen. Among the early symptoms are nausea, occasional vomiting, sallow complexion, constipation and slight fever. With the progress of the disease slight jaundice, marked constipation, white stools and bile-stained urine develop, and finally ascites and intense jaundice. With the onset of these latter symptoms the liver rapidly diminishes in size. The usual course is from three to twelve months. The disease almost invariably terminates in death.

Gibbons describes the pathological condition as follows: The liver is increased in size and density. The surface is granular or finely nodular. It is hard and tough on section. There is a proliferation of fibrous tissue, not only in the interlobular spaces, but also within the lobules. The amount of fibrous tissue is often enormous, and large areas of liver substance are completely destroyed. The bile-ducts are so numerous in this fibrous tissue as to suggest a new formation. The hepatic cells are more or less completely destroyed, and are represented by granular detritus, pigment granules and minute oil globules. When the destruction is less complete the hepatic cells are small, and loaded with minute particles of brown pigment. In all of Dr. Gibbons' cases the spleen was more or less enlarged.

*Syphilitic cirrhosis.*— All statistics show that the liver is the seat of election for the lesions of hereditary syphilis. It usually takes the form of a diffuse interstitial hepatitis. Gummata are rare. If they occur, they are usually scattered in great numbers throughout the liver, in the form of miliary granules. The liver is enlarged, and harder than normal. Its color is greenish-red or dirty yellowish-grey, like a flintstone. It cuts like sole leather. The lobules are indistinct or indistinguishable. Microscopically there is hyperemia and dilation of the capillaries, infiltration of leucocytes, and proliferation of the capillary endothelium. Round cells then appear in the interstices of the lobules. They are also found within the lobules, between the capillary walls and the rows of liver cells. They are also found in the intima of the blood vessels. In the course of time, connective tissue replaces the cellular infiltration. The liver cells in the beginning show proliferation of their nuclei, then various alterations in form, and finally atrophy. When the children do not die early the process may, in the further course of the disease, lead to smooth or granular atrophy. The spleen is always enlarged, and so remains.

There are often no symptoms referable to the diseased liver except the enlargement of the liver and spleen, or else they are masked by those due

to lesions of other organs. The liver is smooth and hard. Icterus is inconstant, and varies in intensity. Cachexia is marked, and death results from the dyscrasia.

Lesser grades of congenital cirrhosis may not show any symptoms, but later develop the picture of ordinary cirrhosis. Many of these cases of late and slowly developed syphilis of the liver show an unusual or obscure clinical course. Barthélémy has collected thirty such cases, developing between six and thirteen years. The picture of the disease was not at all characteristic. Dyspepsia and intestinal disturbances were marked. The liver was enlarged, and slightly tender. In the severe cases the heart and liver were enlarged, a collateral venous circulation developed in the abdominal wall, and the spleen was much enlarged. Icterus was not common.

*Cirrhosis in connection with congenital obstruction of the bile-ducts.*— Somewhat over seventy cases of this condition are on record. Many cases have occurred in single families. Males are affected about twice as often as females. At birth the infants are usually normal in appearance, and well nourished. The attention is usually attracted by the appearance of white stools or jaundice. Jaundice is always marked. It is sometimes present at birth, usually develops on the second or third day, but sometimes not until the fourth day. The meconium may or may not be normal at first. The stools are colorless. The urine is bile stained. The liver is usually enlarged, while the spleen is always much enlarged. Hemorrhages from the nose, navel, gastro-enteric tract and into the skin are not uncommon. Emaciation is much less than would be expected. Death often occurs early from hemorrhage. If not, it always follows in from three to eight months. No case has lived longer than eight months.

The time of the onset is not known, but the disease is probably always far advanced at birth. The process continues after birth. The time at which complete obstruction to the passage of bile occurs, must vary markedly. When no colored meconium is passed the ducts must have been blocked not later than the third month of intra-uterine life. When there is much normal meconium the obstruction must have taken place considerably later. In some cases the ducts have apparently been patent, although no bile passed through them.

In most instances some portion of the lumen of the ducts is obliterated. Not infrequently some portion is entirely wanting, or is replaced by a fibrous cord. In some, however, there is no naked-eye obstruction, although the walls show much local thickening. The blood vessels of the liver are normal. When the child has lived any length of time the liver is usually, but not always, enlarged. The density is increased; the surface is slightly uneven; the color is dark olive-green. Section shows fine bands of fibrous tissue, forming a network. The microscope shows typical biliary cirrhosis. The spleen is usually much enlarged.

The etiology is obscure. It is certainly not due to syphilis. The early onset and the occurrence of several cases in the same family suggest that the obstruction of the bile ducts is due to arrest of development. The nature of the lesions in the bile-ducts points, however, to a chronic inflammatory process. On either supposition, the changes in the liver must be dependent on the obliteration of the larger ducts. Harley's experiments prove, moreover, that in animals complete obstruction to the flow of bile produces a cirrhosis of the liver, interlobular in character, which is due to the damming back of the bile, and not to inflammation of the walls of the smaller bile channels. Ford has collected over 200 cases of cirrhosis in man, in which the complete retention of the hepatic secretion, and its subsequent action on the hepatic parenchyma, was the only etiological factor. In man, however, there is always an associated inflammation of the walls of the biliary channels. As the liver is probably functionally active after the third month of pregnancy, there is ample time for the cirrhosis to develop as the result of obliteration of the larger ducts.

If the cirrhosis is dependent on the obliteration of the larger ducts, the lesions in them should be older than those in the liver. In some cases they have been; in others, not. Moreover, a number of cases have been reported, in all respects similar to those in which the ducts were obstructed, in which the ducts were open. This suggests that the changes in the liver are due to some other cause, or that both the changes in the liver and in the larger ducts are due to the same cause.

The following explanation seems plausible. Irritant substances may pass through the placenta to the fetus. They may then pass directly to the liver, or reach it indirectly after passing through the general circulation. The conditions necessary for the production of a mixed cirrhosis are then produced. The cholangitis then descends to the larger ducts. Stenosis and obliteration readily follow, because of the extremely small size of their lumen at this time. Additional points in favor of primary cirrhosis are:

(1) The constant occurrence of cirrhosis in obstruction of the bile-ducts in infants, compared with its rarity after obstruction of the larger ducts in adults.

(2) The large size of the liver, which is usually small when due to obstruction in later life.

(3) The enlargement of the spleen, which does not occur in uncomplicated biliary obstruction.

It seems reasonable to suppose, therefore, that the disease is due to irritants derived from the mother, which cause a cirrhosis and cholangitis, the cholangitis descending and obliterating the larger ducts.

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# Medical Progress.

## REPORT ON THE PROGRESS OF SURGERY.

BY HERBERT L. BURRELL, M.D., AND H. W. CUSHING, M.D., BOSTON.

(Concluded from No. 10, p. 276.)

### AMPUTATION THROUGH THE HIP-JOINT, WITH A SYNOPSIS OF TWO HUNDRED AND SIXTY-SEVEN CASES IN WHICH THE AUTHOR'S METHOD WAS EMPLOYED.

Wyeth [30] states that the 267 cases may be classified into three groups: (1) Neoplasms, including sarcoma, carcinoma, epithelioma and one case of elephantiasis, and probably one osteoma. (2) Septic infections, including pyogenic osteitis or osteomyelitis, tuberculous osteitis or osteo-arthritis, gangrene, cellulitis and ulcer. (3) Injuries, with or without pyogenic infection.

In the group of amputations at the hip for neoplasms, all of which were malignant in character with the exception of one case of elephantiasis and one of osteoma, there were 131 cases of sarcoma, five of epithelioma of the soft parts, and one reported as osteocarcinoma. None died in this group, excepting fourteen fatal cases of the subdivision of sarcoma, giving the rate of mortality in disarticulation at the hip for sarcoma as 10.6%, while for the whole group of 137 cases the death-rate was 10.2%. Of the fatal cases one died as a result of a severe hemorrhage immediately before the operation, which was practically hopeless when it was undertaken; one from tubercular peritonitis on the eleventh day; one from septicemia on the twenty-sixth day; one from asphyxia of unknown origin on the twelfth day, and ten died from shock after the operation.

Under the heading of septic infection, ninety-four hip-joint amputations were made. They are classified as follows: Pyogenic osteitis or osteomyelitis — not tuberculous — thirty-six with five deaths, a mortality ratio of 14%; tuberculous osteitis or osteo-arthritis forty-one, with four deaths, or 9.7%; gangrene — moist and diabetic — twelve, with six deaths, or 50%; general cellulitis three, with one death, or 33⅓%; ulcer from breaking down of an extensive cutaneous surface two, with recovery; total for septic infections, ninety-four cases, of which sixteen died, or 17%. Practically all the fatal cases were in a condition of great exhaustion due to prolonged sepsis, or they died from causes not directly referable to the operation. Of the five fatal cases of the first group one was in such a seemingly hopeless condition that the operation was not advised. The second case was almost equally emaciated and anemic from prolonged septic absorption. A third fatal case was complicated with a fracture which had existed for several months before the operation, while a fourth died from cerebral apoplexy on the tenth day, the cause of death not being referable to the operation.

For tuberculous osteitis and osteo-arthritis, or hip-joint disease, four out of forty-one died, or 9.7%. There were no serious complications in these four fatal cases, although they were weakened by the prolonged sepsis and waxy degenerations which are characteristic of tuberculosis in the bones. The operation was undoubtedly the immediate cause of death in each of these.

In the case of gangrene, as one would naturally suppose, the death-rate was exceedingly high, six of the twelve ending fatally; one died from shock, one from hemorrhage after the removal of the tourniquet, one from pneumonia, two from septicemia, and one from cerebral embolism, at the end of the second week after the operation; one case of cellulitis died out of three from anemia and septicemia. In the third group, injuries with or without septic infection, there were thirty-six cases with twenty-three deaths, a mortality ratio of 63.9%. Twenty-four disarticulations of the hip were performed on account of extensive injuries to one or both lower extremities by railway trucks or heavy machinery. Of these, sixteen died, a mortality ratio of 66.6%. When we consider the character of these injuries and the unfavorable conditions to which the patients were subjected, this high rate of mortality is not surprising. Hemorrhage more or less severe occurred in all cases, and it was difficult, and at times impossible, to overcome the shock which supervened. It is more than probable that had the intravenous injection of a saline solution been made before all of these were subjected to the operation the ratio of mortality would have been decreased, since the majority of fatal cases died in shock and before septic infection was observed.

### LIGATION OF THE CAROTID AS A PRELIMINARY STEP TO RESECTION OF THE UPPER JAW.

Influenced by his own experience in several instances as well as by the literature on the subject, C. Schlatter [31] has emphasized his opinion that the loss of blood and the danger of aspiration asphyxia is decidedly diminished by this procedure. It is much to be recommended in all cases of anemic or cachectic patients when no disease of the vessels, especially arteriosclerosis exists. In most cases it is sufficient to ligate

[30] Journal of the American Medical Association, May 18, 1901; Journal of American Medical Science, November, 1901.

[31] Beiträg. z. klin. Chir., Bd. xxx, H. 1.

only the external carotid, only exceptionally must the common trunk be tied. In the former cases the ligation should be permanent. In the latter it is less dangerous when the constriction is only a temporary one.

### INTRA-ARTICULAR TREATMENT OF HYDRO-ARTHROSIS BY INJECTION.

Attention is again attracted to this method by the observations of Devaiseaux[32] who reports favorable results in nine cases of rheumatic tubercular and traumatic hydro-arthrosis treated by irrigation with a carbolic solution. He opened the joint by puncture and removed the effusion. The cavity was next irrigated and washed out with a sterile salt solution, after which the Scliede method of irrigation was employed. The coagula and flocculæ were removed through a large calibre trocar. The writer claims that a 3% solution of carbolic is better than one of 5%. Evidence of irritation was noted in only one case.

### PENDENT PELVIS FOR OPERATIONS CLOSE TO DIAPHRAGM.

G. Kelling[33] gives the following: The organs under the diaphragm can be brought plainly into view and completely exposed by drawing the patient to the foot of the table and allowing the pelvis and legs to hang over the edge. The position is the same as that in which the cadaver is placed for the dissection of the diaphragm. It will be found of inestimable advantage in extensive operations on the stomach and upper surface of the liver. Kelling uses a Stelzner operating table which has a sliding top. The patient's trunk is fastened by a strap over the shoulders crossed behind the back. The leg holders are arranged to hold the thighs, and the spine is bent in the lumbar region. The ordinary longitudinal incision should be supplemented by a transverse incision starting at the tip of the twelfth rib. The intestines must be packed in with a napkin to prevent their falling forward, and the napkin fastened to the skin with peritoneal forceps or by sutures. An assistant maintains pressure on the intestines with one hand, and with the other retracts the costal arch. An iron band is fastened to each side of the table forming an arch over which a cloth is thrown to separate the abdomen from the anesthesia proceedings. The personnel should be trained in the rapid and aseptic change from the horizontal to this pendent position in the course of an operation if necessary.

### SLITTING THROMBOSED VARICOSE VEINS.

Kramer,[34] instead of extirpating the thrombosed varicose vein in the leg, merely slits it throughout its entire length and extracts the clots. In fifty patients thus treated, the lips of the wound in the vein closed spontaneously and healed without reaction. The patients were relieved completely of all their former troubles from this source. The lumen of the veins had become obliterated in the thrombotic process and consequently there was no bleeding nor symptom of embolism.

### ELBOW FRACTURES IN CHILDREN.

Cotton,[35] in a paper on this subject, presents as deductions from his investigation the following propositions:

(1) The usual classification hardly expresses the conditions of lesion as they actually exist.

(2) The lesions frequently met with are (*a*) external condylar fractures; (*b*) supracondylar fractures; (*c*) epitrochlear separations; (*d*) separations of the whole epiphysis in the above order of frequency.

(3) These forms have well-marked special forms of deformity associated with them. (*a*) External condylar fractures frequently show the described "spur" formation with or without displacement of the condyle itself; (*b*) supracondylar fractures frequently show gunstock deformity as well as backward displacement of the lower fragment; (*c*) epitrochlear separations show displacement of the fragment down and forward.

(4) As to loss of motion. (*a*) The loss of motion from external condylar fracture is rarely considerable, and is a loss of extension; (*b* and *d*) supracondylar fractures and separations of the epiphysis may show a loss of motion due to bony displacement, usually a loss of flexion from backward displacement; (*c*) epitrochlear separations may show a loss of extension apparently due to muscular shortening.

(5) Ankylosis or extreme loss of motion is rare in children, is practically independent of massage or passive motion, is due to displacement of fragments and their union in displaced position.

(6) Position in treatment is important only as it affects reduction and retention.

(7) Treatment is to be varied to fit the lesion and displacement found, as indicated above.

### HAND DISINFECTION.

Paul and Sarvey[36] have investigated the bactericide action of Fürbringer's, Hægler's modification of Fürbringer's, Hahn's sublimate-alcohol, the sublimate-aceton, sublimate-methyl alcohol, mercuric citrate, enthylendiamin, mercuric sulfate-enthylendiamin, and their own sublimate-ammonium-sulfid methods of disinfecting the hands for operation, and find that none of the above result in absolutely freeing the hands from bacteria, but that on the contrary astonishingly large numbers of bacteria are often found on the hands at the end of the most careful disinfection.

### CATGUT STERILIZATION.

Renner[37] recommends the following process for the sterilization of catgut which he has used with

[32] Bull. de l'acad. royale de méd. de Belgique, 1901, No. 2.
[33] Journal American Medical Association, Nov. 16, 1901; Centrbl. f. Chir. (Leipsic), Oct. 19, 1901.
[34] Centrbl. f. Chir., Sept. 7, 1901; Journal American Medical Association, Oct. 5, 1901, p. 946.
[35] Annals of Surgery, January, February and March, 1902.
[36] American Medicine, Nov. 30, 1901; Müench. Med. Woch., Sept 17, 1901, 48 Jahrg, No. 38.
[37] Centrbl. f. Chir., 1901, Bd. xxviii, p. 819.

satisfaction during the past eighteen months. His operative work is reported as free from suppuration, and the material so prepared is used both for suturing and ligation. The tensile strength is only moderately lessened, not enough to interfere with its efficiency.

The commercial catgut of good quality is stretched tight on a metal frame and soaked for twenty-four hours in a 5% aqueous formalin solution. It is then boiled ten minutes in pure spring water. It swells during this process but does not lose its form. After this it is allowed to dry for one hour without removing it from the utensil in which it was boiled. It is then kept for use in a 1% alcohol-sublimate solution.

A PRELIMINARY NOTE ON THE STERILIZATION OF CATHETERS: A BACTERIOLOGICAL STUDY.

Nancrede and Hutchings,[38] in a paper on this subject, give the following summary of their views on the matter:

(1) An infected soft rubber catheter cannot be completely sterilized by boiling under four and one-half minutes.

(2) Mechanical cleansing from all dried pus, coagulated blood or mucus will render sterilization easier and will demand a shorter time to be effective.

(3) Elastic (English web) catheters and soft rubber catheters can be repeatedly boiled for five or more minutes without roughening of their surfaces or diminution of their elasticity and strength.

(4) Chemical sterilization by immersion in a 1:2000 mercuric chloride solution for five minutes does not sterilize any variety of catheter which has become infected, at best only inhibiting the growth of the germs, for if the mercuric salt be precipitated by ammonium sulphide the germs will grow freely when implanted in culture media, as has been shown in some of the experiments.

(5) The results of experiments, as stated in the previous conclusion, indicate that chemical sterilization should never be employed for catheters which are to be retained in the bladder for any length of time, unless subjected to a very prolonged action of the mercurial salt, lest the merely inhibited germs develop.

(6) Should corrosive sublimate be employed for the sterilization of catheters, it must be in a concentrated solution and the catheter must remain in it for a much longer time than the usual period considered amply sufficient in the laboratory, no mere washing with any chemical solution being efficient for an infected instrument.

(7) Formalin vapor will sterilize infected instruments in twenty-four hours; how much shorter time will be sufficient has not as yet been determined, but it is proposed to determine it in the future.

(8) All methods of sterilization commonly employed should be continued for much longer periods than the minimum time required for destruction of germs in the laboratory.

(9) English web catheters can apparently be more readily sterilized by heat than can soft rubber catheters, probably on account of their interior construction.

[38] Medical News, Nov. 23, 1901, p. 806.

## Reports of Societies.

### SUFFOLK DISTRICT MEDICAL SOCIETY. SECTION FOR OBSTETRICS AND DISEASES OF WOMEN.

W. H. GRANT, M.D., SECRETARY.

REGULAR meeting, Wednesday, April 23, 1902.

DR. CHARLES F. PAINTER read a paper on

SOME OF THE ORTHOPEDIC CONDITIONS OF THE NEWBORN DEMANDING EARLY SURGICAL TREATMENT.

DR. CHARLES G. CUMSTON: Congenital dislocation of the shoulder is rather an infrequent condition, and for this reason I would like to show the photographs of a patient that I operated on for this deformity recently. The child, a boy, was five years old when I first saw it, and was sent to me with a diagnosis of infantile paralysis, but by careful examination of the shoulder joint I came to the conclusion that I was dealing with a congenital dislocation of the shoulder. The patient was x-rayed, and it is fortunate that I made my clinical diagnosis beforehand, because as you will see by examination of the x-ray photograph the picture given of the process is very misleading.

I employed the technique advised by Phelps of New York, and I must say that it proved to be very disappointing, as by the poster or incision I found it rather difficult to easily expose the capsule of the joint.

The humerus was easily reduced, although the joint cavity was somewhat atrophied, and I resected about three-fourths of an inch of the capsule.

The result of the operation, which was done a year ago, has been very satisfactory, and the usefulness of the arm has been greatly increased. I intend, however, in a few weeks to do a tenotomy of the pectoralis major muscle, which I anticipate will very materially improve the present condition.

Were I to operate again for congenital dislocation of the shoulder I should attack the joint by an anterior incision similar to that advised by Ollier, and it also occurred to me that possibly an incision carried over the top of the shoulder through the upper part of the deltoid muscle might give still more working space. I fail to see how an incision through this muscle at this point could in any way interfere with its proper functions.

YELLOW fever is said to be prevalent in the valley of the Amazon.

## AMERICAN ORTHOPEDIC ASSOCIATION.

Sixteenth Annual Meeting, held in Philadelphia, June 5, 6 and 7, 1902, H. Augustus Wilson, M.D., of Philadelphia, President.

### FIRST DAY.

#### GENERAL MANAGEMENT AND CONSTITUTIONAL TREATMENT OF TUBERCULOSIS OF BONES AND JOINTS, WITH SPECIAL REFERENCE TO THE USE OF TENTS.

Dr. H. P. H. Galloway of Toronto read this paper. He said that, as a rule, the books hardly mentioned the general management of bone and joint tuberculosis, and unduly magnified the mechanical treatment. Drug medication in these cases was of small importance, but the diet should be most nutritious and digestible, and the patient should lead an outdoor life. The plan of treating these cases in tents had been tried at the Toronto General Hospital during the past year, and with such success that the hospital staff enthusiastically indorsed it. Often a favorable change would be noted within a day or two after a patient had been placed in the tent, and the hospital records showed that the tent patients consumed a larger quantity of food and ate it with more relish. More than this, the improvement in the local conditions was equally satisfactory, though slower in manifesting itself.

#### THE MALIGNANCY OF BONE TUBERCULOSIS.

Drs. Joel E. Goldthwait and Charles F. Painter of Boston presented this paper, which was read by Dr. Painter. The special object of the paper was to emphasize the fact that bone tuberculosis is not cured solely by the prolonged use of apparatus. The authors presented a tabulated statement of forty-seven cases. Thirty of the patients had worn apparatus for varying periods. When a relapse occurred it usually made itself manifest in the old seat of disease. The average age at which the exacerbation took place was twenty-eight, and the average duration of the quiescent period was twelve years and a half.

Dr. B. E. McKensie of Toronto spoke favorably of his experience with the management of tuberculous persons in tents, and said that it had led him to place much less confidence than formerly in the mechanical treatment of bone and joint tuberculosis.

Dr. N. M. Shaffer of New York said that his first experience with the tent treatment was in 1883, at which time he had treated a tuberculous person in a tent in a city back yard. So favorable had been this experience that he had resorted to this plan many times since then when it was not feasible to get the patient out into the country.

Dr. Robert W. Lovett of Boston spoke of some observations that he had made with reference to the height and weight of the children coming to his clinic. It was found that during the active stage of the disease the height and weight were distinctly below the average of the other children at the clinic. It was important that such children should remain in the recumbent posture for three or four hours in the daytime.

Dr. Harry M. Sherman of San Francisco said that he had been astonished at the improvement, both general and local, that had taken place in some of his little patients who had been turned loose in the country with little or no supervision of the mechanical treatment. He had taken fresh courage from the last paper presented, because if local recrudescences took place so frequently he could not but feel that his earlier practice of freely resorting to early excision had been along the right lines.

Dr. Henry Ling Taylor of New York also spoke of the wonderful improvement that he had noted in some crippled children sent to the seashore to live in tents.

Dr. Frank E. Peckham of Providence remarked that, according to his experience, these children did better at the seashore than inland.

Dr. George G. Davis of Philadelphia expressed the opinion that it was possible to eradicate bone and joint tuberculosis by early operation.

Dr. Painter said that his table showed that a number of the operative cases had relapsed, but he was very hopeful with regard to the future of early operative intervention.

#### TWO CASES OF ELEVATED SCAPULÆ.

Dr. A. J. Steele of St. Louis reported these cases because Jonathan Hutchinson had recently asserted that they were very rare in England. He was inclined to think the condition was congenital. In the second case the scapula was held in its abnormal position by ligamentous bands. A number of other similar cases had been reported in this country.

Dr. A. H. Freiberg divided these cases into three classes; namely: (1) Those associated with considerable deformity; (2) those having simply an elevation of the scapula and no abnormality of the thorax or spine, and (3) those in which the scapula and the spine or the scapula and the cervical rib were united.

Dr. Henry Ling Taylor of New York thought as many as two or three such cases were seen every year at the Hospital for Ruptured and Crippled.

Dr. H. Augustus Wilson said that the peculiarity of the cases that he had published lay in the fact that there seemed to be prolongations of the seventh cervical vertebra articulating with the scapula.

#### REPORT OF A CASE OF CONGENITAL DEFICIENCY OF THE CLAVICLES WITH PHOTOGRAM AND RADIOGRAM.

Dr. Harry M. Sherman of San Francisco made this presentation. The child was markedly rachitic, and this deficiency had been entirely overlooked before bringing the child to him.

AN APPARATUS FOR PARALYSIS OF THE EXTENSORS OF THE HANDS AND FINGERS.

DR. GEORGE G. DAVIS of Philadelphia exhibited this apparatus. Two pieces of wire shaped like a "V" are united at their angles and fastened to the thumb by adhesive plaster. By a rubber band attached to the dorsal side of this wire and fastened by a cord to the wrist extension is secured. The apparatus for the hand consists of two lateral bars having a joint opposite the wrist joint, and two springs, one on each side, to help keep up extension.

REMARKS ON ARTHRODESIS OF THE ANKLE FOR INFANTILE PARALYSIS.

DR. JOHN DANE of Boston was the author of this paper. He said that the acute stage was usually over before the age of two years, and it was ordinarily possible to determine one year after the initial attack what muscles had been permanently injured. If operated upon early the foot would be found fairly good, the bones and articulations not yet being deformed. By avoiding mechanical support the unaffected and the partially paralyzed muscles were saved the harm that must result from the use of constricting bands and straps. He favored laying the joint open by an internal incision. A skiagraph was exhibited to show that true bony ankylosis was secured. If proper care were exercised in the performance of the operation the tibiofibular epiphysis would not be injured and growth interfered with; on the contrary, intentional irritation of the epiphysis often led to increased growth.

DR. B. E. MCKENSIE said that his experience inclined him to the opinion that irritation of the epiphysis was apt to do harm. Even admitting that there was room to excise the joint without invading the cartilage, the augmented physiological activity accompanying the healing process might cause an early synostosis, and check the growth in the lower end of the tibia.

DR. G. G. DAVIS was of the opinion that after arthrodesis in young children it was necessary to immobilize the joint for a very long time, because of the softness of the tissues.

DR. DANE, in closing, said that he believed many of the failures in the past had been due to an imperfect operation by which an absolutely square mortise joint was not secured.

AN ADDITIONAL CASE OF TRUE SPONDYLITIS FOLLOWING TYPHOID FEVER.

DR. ALBERT H. FREIBERG of Cincinnati presented this paper. The subject of the report was an Italian boy of fifteen years, who on admission to hospital on Feb. 1, 1901, presented typical symptoms of typhoid fever. On March 9 the Widal reaction was negative. On March 29, when permitted to be on his feet, he began to complain of pain in the back, and this increased in severity up to April 7, when he was first seen by Dr. Freiberg. Examination then showed a distinct projection of the eleventh and twelfth dorsal and the first and second lumbar vertebræ, and rigid contraction of the muscles. Marked relief was afforded by a plaster jacket, and on May 31 he was entirely free from pain, and was discharged at his own request. When seen in February, 1902, the deformity and restriction of motion remained about the same, but the patient was the picture of health and had been working steadily at his trade.

A FURTHER REPORT OF THE TREATMENT OF NEUROTIC PATIENTS AS THEY ARE SEEN IN ORTHOPEDIC PRACTICE.

DR. B. E. MCKENSIE of Toronto reported in this paper a number of cases showing how the psychic element might become unduly prominent, and how by clearly cut and kind discipline much misery could be averted. The mechanical protection of a joint for an unnecessarily long time was often the starting point for these neurotic disorders.

A REPORT OF AN EPIDEMIC OF THIRTY-EIGHT CASES OF INFANTILE PARALYSIS.

DR. CHARLES F. PAINTER of Boston reported these cases, which had occurred at Gloucester, Mass., in the summer months, within a radius of four miles. A number of such epidemics were on record. In the one under consideration there were twenty-three males and nine females, twenty-one of the patients being under three years of age. There was only one fatality. A careful investigation had been made concerning infection from the water, ice and food, but with a purely negative result. None of the cases had entirely recovered.

REPORT OF A CASE OF DOUBLE POTT'S DISEASE, CERVICODORSAL AND DORSOLUMBAR.

DR. R. TUNSTALL TAYLOR of Baltimore reported this case, which was of interest, because it is generally thought that vertebral tuberculosis affects adjacent vertebræ. The patient was a child of seven years, and after the involvement of the first three lumbar vertebræ, the fifth, sixth and seventh dorsal vertebræ became similarly diseased.

FINAL RESULTS AFTER THE MECHANICAL TREATMENT OF POTT'S DISEASE.

DR. HENRY LING TAYLOR of New York presented under this caption a large series of tracings from cases of Pott's disease that had been kept under observation for long periods. He possessed records of 150 cases that had been under observation for five years. There were thirty-nine cases, with patterns and histories, which had been under observation for periods varying from ten to thirty-seven years. All but one of the patients had worn the Taylor spinal brace constantly. These cases had been seen between 1861 and 1892. In thirty-three the disease had developed before the age of six years. In the thirty-two cases treated all were apparently cured, though in two or three there was a relapse with subsequent cure. About half of the patients

were known to be living and well; the remainder had not been recently heard from. Of thirty-eight cases treated there was a decrease of deformity in eight, and arrest in four, and an increase in twenty-six cases. In eight cases the disease had existed eight years or more when the treatment was begun. Of the cases in which the deformity increased, the final result as regards deformity was said to be good in nineteen, fair in seven and poor in twelve. These results were least favorable in cases in which the disease was in the dorsal region and most favorable in the cervical region. The author concluded that ankylosis was later, rarer and less extensive than was generally supposed.

Dr. L. A. Weigel said that he now had under observation a case of typhoid spine in which there seemed to be actual bone destruction.

Dr. H. P. H. Galloway recalled having seen a woman of twenty-six years with Pott's disease of the middorsal and lower lumbar regions.

Dr. H. L. Taylor pointed out the danger of making an error of diagnosis by confounding the compensatory kyphos occurring in the lumbar region in connection with disease of the dorsal region with true double vertebral kyphos.

### THE MECHANICAL TREATMENT OF INTERNAL DERANGEMENT OF THE KNEE-JOINT.

Dr. Frank E. Peckham of Providence was the author of this paper. He said that when by any twisting of the tibia with the leg partly flexed and the ligaments relaxed, locking of the joint occurred, the first attack should be treated by rest in bed, and massage with some stimulating application. However, if other attacks occurred, an apparatus should be applied which would make lateral pressure on the inner condyle and so prevent this twisting of the tibia. He had found Dr. Shaffer's apparatus very useful in these cases.

### A CASE OF OSTEOMA OF THE KNEE-JOINT.

Dr. R. Tunstall Taylor of Baltimore reported this case, exhibiting the specimen and skiagraph. A stereoscopic skiagraph had revealed the presence of a foreign body, and on removing it by operation it was found to be an osteoma.

### REPORT OF A CASE OF FRACTURE THROUGH THE SITE OF AN EXCISED KNEE-JOINT.

Dr. H. P. H. Galloway reported this case occurring in a man of forty years, nine months after the excision. The limb was put up in plaster until firm union had taken place, and since then there had been no trouble.

### AN EVENING WITH THE PLASTER-OF-PARIS BANDAGE.

The evening was spent pleasantly and profitably at the Jefferson Medical College Hospital in the demonstration of methods and apparatus of value in connection with the use of plaster-of-Paris bandages.

*(To be continued.)*

THE BOSTON

# Medical and Surgical Journal.

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## RUDOLF VIRCHOW.

In the death of Professor Virchow, which occurred on the afternoon of Sept. 5 in Berlin, the science of medicine loses its highest exponent since Pasteur. Dating from a street accident several months ago he had never fully recovered his former vigor, and his death, resulting rather from the infirmities of old age than from any distinct disease, was not unexpected, and should not be unduly lamented when one considers the fullness of accomplishment of his long life.

Virchow, whose entire name was Rudolf Ludwig Karl Virchow, was born Oct. 13, 1821, at Schivelbein, a small town in Pomerania. His parents were obscure, and nothing is known of the history of his family; he was the first to attain distinction. Until his thirteenth year he remained at home, and then began the serious work of his education at the gymnasium of Cöslin. It was here that, under the direction of Otto Moritz Müller, he attained a thoroughgoing knowledge of Latin. In 1839 Virchow went to Berlin and entered the Friedrich-Wilhelm Institute, with the fixed intention of studying medicine later. At that period his interest in languages was keen, and among others it is worthy of note that he made a careful study of Hebrew. Among his student associates was Helmholtz, whose brilliant career in allied branches of science forms a wholly worthy parallel to Virchow's revolutionary investigations in pathology and anthropology. In 1843 Virchow received his doctorate with a dissertation entitled, "De rheumate presertim corneæ."

Influenced largely by Johannes Müller, Virchow forthwith began his active medical work. Schleiden and Schwann had shortly before promulgated their theories regarding plant and animal structure, and it was natural that Virchow should have become an apt student of their doc-

trine. Writing of this time later he says: "Was Wunder, wenn wir Jüngeren frühzeitig cellular denken lernten." The appreciation of this new cellular theory to man and to the diseases of man was the step which has made possible the subsequent development of scientific medicine.

We cannot, in the space at our command, do more than allude to the successive stages of his notable career. While prosector at the Charité in Berlin, the "Archiv," which bears his name, and in which he played a prominent part, was founded. Up to 1848 he was engaged particularly in scientific pursuits. Sent to investigate an epidemic of typhoid fever in the Silesian Highlands, he wrote a brilliant report, which did much to shape his future career. Original work in pathology, on leukemia, phlebitis, thrombosis, embolism and other subjects occupied this early period in Berlin. From 1849 to 1856 he was a professor at Würzburg, a small university, which through political influences had lost much of its reputation. He had left Berlin because of his political attitude, and, in the more congenial atmosphere of Würzburg surrounding himself with a company of brilliant men, he accomplished much of the best work of his life. It was there that the full implication of the cellular theory as applied to pathology was worked out to its legitimate conclusions. In 1856 he was recalled to Berlin, where the remainder of his life was passed. He built up the famous laboratory of the Charité, and developed the pathological museum, which became, and for years has remained, a great centre of pathological teaching and research. Scientific papers on his chosen subjects appeared with frequency and regularity, and the modern school of pathology was founded. To give a list of titles of these articles would be to cover the whole field of pathological anatomy; many of them are to be found in that greatest of all periodicals devoted to pathology, his own "Archiv."

The unique interest of Virchow's life, however, lies in the fact that he was far more than a pathologist, sufficient to many men as that title may seem to be. His work in hygiene, ethnology, anthropology, and above all in practical politics, would have made him great quite apart from his achievements in pathology. As an anthropologist he was pre-eminent, and for that science he did almost as much as for pathology, but despite his scientific tendencies he found time and inclination for politics. He was democratic in his attitude; a number of years a member of the Reichstag, an opponent of the anti-semitic movement, he did much to ameliorate the governmental conditions in his own country, and at one time is said to have come into such violent disagreement with Bismarck that a duel was narrowly averted.

The ordinary honors which come to men of science were showered upon him on the continent and in England; he was well known in London; a few years ago he received the Copley medal of the Royal Society, and in 1898 he delivered, in English, the Huxley Lecture at the Charing Cross Hospital. He never visited America.

In summing up the life of such a man as Virchow, one is impressed first with his devotion to the special work in hand, and secondly to his versatility. He was a specialist in the very best sense of the term, in that his specialism led to results of the most fundamental importance, but never interfered with a broad catholicity, which could master and see the relationships of many allied sciences. He had, too, to an unusual degree, that rare, but essential attribute of the scientific mind, which was developed to the highest degree in Darwin, the power of correct generalization; of this the promulgation of the cellular pathology is sufficient evidence. The verdict of the future will doubtless be, as has been the verdict during his life, that Virchow stands with half a dozen others, among whom must be included Helmholtz, Darwin and Pasteur, at the very head of the great and ever increasing throng of men of science and benefactors of the human race.

## REPORT ON THE CONDITION OF BELLEVUE HOSPITAL.

BEARING the date of July 1 the Board of Trustees of Bellevue and Allied Hospitals in New York City, of which Dr. John W. Brannan is president, presented a report to Mayor Low which has only just now been made public. In it they reiterate the imperative necessity for a new Bellevue Hospital, stating that the present hospital is antiquated and unsanitary, and that the prison wards remain a disgrace to the institution and the city. The report begins by calling attention to the fact that when they submitted their estimate of expenditure required for the current year they mentioned some of the existing conditions in Bellevue Hospital, referring particularly to the inadequate facilities for the reception of patients, the overcrowded sleeping rooms of the house staff, the dark and unwholesome quarters of the employees, the indecent conditions in the prison wards, the unsatisfactory methods of cooking and serving the food of the patients, and the antiquated and unsanitary character of the plumbing throughout the hospital. Some of these conditions, they state, they have been able to improve; others, in spite of all their efforts, remain practically unchanged. They can only be remedied, in their opinion, by the erection of an entirely

new Bellevue Hospital in the place of the collection of buildings that has borne its name for so many years.

The report goes into details in regard to the present state of affairs, only a very few of which can be given here. All the patients still must be received and examined in one room in the basement, with its poor light and bad ventilation. There are between eighty and one hundred applicants for admission a day, and men, women and children are received into the same room, since no other is available. All varieties of disease and injury follow each other in rapid succession throughout the day and night, and must often be transferred to the wards before a proper diagnosis can be made. During the past five months more than four thousand ambulance cases alone were brought to the door of this room. Here may be seen the very sick, the intoxicated, the insane and even those who are fatally injured; under such conditions the quiet and privacy necessary for a proper and thorough examination are impossible. For the accommodation of the forty-three members of the house staff there are only sixteen rooms, so that they are obliged to sleep three and four, and in one case, five, in a room. There is no sitting-room for these house physicians, and it is impossible for them to secure the rest needed to fit them for their exacting duties. Notwithstanding such improvements as it has been possible to make in the quarters of the employees, the crowding and other unsanitary features remain the same. Not only are the employees wretchedly housed, they are also poorly paid. As a result of these conditions, the class of employees obtained is inefficient and untrustworthy, as a rule. From 40 to 50% are discharged each month for incompetence or drunkenness, and their places filled by others equally unfit. The horrors of the prison wards are also detailed at length, and they present a terrible picture.

The report declares that the new Gouverneur Hospital is the only city institution of the kind constructed on modern lines, and worthy of praise. In conclusion it emphasizes the fact that the only way to abolish the crying evils of Bellevue and Harlem Hospitals is to raze the buildings and construct new and adequate ones, and it also warns the mayor that delay in the matter is full of danger. Reports by other departments are attached to that of the trustees. The Board of Health has examined the plumbing of Bellevue Hospital and has found it inadequate and dangerous to health. In a report by the superintendent of buildings he states that the shaft walls of the only elevator in the building are composed of stud, lath and plaster, which are highly inflammable, while in many parts of the hospital there are no fire-escapes or other means for the exit of patients in case of fire. The fire department declares that the hospital is a veritable fire-trap, stating that in case of a fire not quickly extinguished by the employees, the whole building would be in flames before the arrival of the department, and great loss of life would ensue.

The conditions outlined above, whatever their cause or causes may be, clearly demand a radical remedy, which we trust this report may do much to bring about.

## SHORTENING OF THE COLLEGE COURSE.

A change which has been long pending at Harvard University has finally taken place. It is now possible for a student to take the conventional four years of academic study in three, and to receive his A.B. degree at the end of the third year. Similar action is being taken at Brown University, and it is not difficult to prophesy that under this leadership other institutions of higher education will adopt a similar plan.

The bearing of this change, which at first strikes one as a most radical departure from the time-honored four years of college study, is important in relation to all the professions, but particularly to medicine. A year gained for the modern medical student, before the actual entrance upon his professional studies, is a matter of the utmost importance. We hope the medical curriculum may not be lengthened beyond the now generally accepted four years; but in case this should come to pass, the necessity for a shorter preliminary training becomes even more apparent. As the matter now stands, if the medical student accepts a position as house-officer at a hospital, his medical course is virtually lengthened to five or more years, and the beginning of self-support still further postponed. It is unquestionably a step in the right direction to insist that the estimate of a student's work shall be made on the basis of accomplishment and not on the basis of time spent. If a certain student can do the work in three years which the ordinary student can only accomplish in four, there is every reason why he should be helped to do it, and it is impossible to conceive that the cause of education should suffer thereby. Whatever may legitimately hasten the beginning of a man's life work is certainly to be encouraged, in these days of keen competition and necessarily lengthened special preliminary training.

## MEDICAL NOTES.

Relative Safety of Railway Travel.— According to a daily paper, one out of every four hundred employees of the railways in the United

States is killed each year, and one in every twenty-six employees is injured, as shown by the annual report of the Interstate Commerce Commission. One passenger is killed for every 2,153,469 and one injured for every 121,748 carried. With relation to the carriage of passengers, however, more exact comparison may be made by considering the number of miles traveled, from which it is shown that one may travel on the railroads in round figures 3,500,000 miles without getting injured, or 61,500,000 miles without being killed.

CHICAGO MORTALITY REPORT.— The 524 deaths from all causes reported during the week ending Sept. 6 were ten fewer than the number for the week previous, but forty-one in excess of the number reported in the corresponding week of last year. Aside from the typhoid situation the public health is satisfactory, a result largely due to the low temperature and increase of sunshine, the effects of which were chiefly seen in the mild character and low death-rate of the diseases of infancy.

MEDICAL SOCIETY OF THE STATE OF NEW YORK.— The president of the Medical Society of the State of New York has appointed Dr. Ernest Wende, Buffalo, Hamilton D. Wey, Elmira, and J. Montgomery Mosher, a business committee, the function of which is to take charge of the program of the next annual meeting of the society, Jan. 27-29, 1903, to be held in Albany. Communications relating thereto should be addressed to a member of this committee.

DR. H. C. WOOD A DELEGATE TO AN INTERNATIONAL CONVENTION.— Dr. Horatio C. Wood of Philadelphia has been chosen to represent the United States at the International Convention of the Unification of Heroic Medicines, to be held in Brussels the latter part of this month. The object of this convention, held under the auspices of the Belgian government, is to arrange a common standard of strength for the more powerful drugs throughout the world.

VACCINATION IN FRANCE.— According to the *Medical News* the French Parliament has approved the sanitary law rendering vaccination compulsory. The law reads: "Vaccination is obligatory during the first year of life, and revaccination during the twenty-first year. Parents and guardians are held personally responsible for the execution of the measure."

### BOSTON AND NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON.— For the week ending at noon, Sept. 10, 1902, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: Diphtheria 25, scarlatina 6, measles 4, typhoid fever 27, smallpox 12.

A CENTENARIAN.— Mrs. Rhoda J. Churchill of Middleboro, Mass., the oldest resident of the town and possibly of the Commonwealth, died Sept. 7 at the reputed age of 104 years and 8 days. She was born Aug. 30, 1798, and for the past 100 years she had lived in Middleboro. She held the unique distinction of being one of the few living in the United States who were true daughters of the Revolutionary War. Her father, grandfather and great-grandfather fought in that war.

LOW WATER IN CHARLES RIVER.— It is reported that with one exception the usual summer water level of the Charles River is lower than ever before reported. Many flats about Waltham and Newton are exposed, and malaria is said to be particularly prevalent in consequence.

THE FLOATING HOSPITAL.— This is the last week of this hospital, which in spite of the unusually cool summer has had a highly successful season.

### NEW YORK.

HEALTH REPORT.—The reports of the Health Department show that during the month of August there was an annual death-rate of 18.73, against 20.87 for July and 21.07 for August of last year. The corrected death-rate (excluding non-residents and infants under one week old) was 17.76. Among the diseases showing a decline in mortality were the following: The weekly average of deaths from diphtheria and croup decreased from 32 in July to 24 in August; the weekly average from scarlet fever decreased 14.40 to 7; from measles, 10 to 4; from smallpox, 6.2 to 1.25; from whooping cough, 17.6 to 15.25; from pneumonia, 65.8 to 54; from phthisis, 142 to 131.5; from diarrheal diseases, 350.8 to 276; and from diarrheal diseases in children under five years, 336.2 to 254.5. During the corresponding period of 1901 the weekly average of deaths from diarrheal diseases was 401.5 and of deaths from smallpox, 6.2. The mortality from smallpox has reached the lowest point for nearly two years, and in each of the last three weeks of August there was but a single death from it. Among the diseases showing an increased mortality were the following: The weekly average of deaths from typhoid fever increased from 13.4 in July to 19.75 in August; of deaths from bronchitis, 17.6 to 18.75; from cancer, 47.6 to 49.5; and from diseases of the urinary system, 95 to 101.25. On the whole, the showing for the month of August is an unusually favorable one, and during the twenty-four hours ending at noon on Aug. 18 but 65 deaths were reported in the borough of Manhattan. This is the lowest number in any one day since the 26th of October last, when the recorded deaths were 63.

The Sale of Phosphorus.— In a case recently decided in the courts it was held that a pharmacist who sells phosphorus to a customer, without giving instructions as to the method of handling it with safety, is not for that reason liable for injuries caused by the phosphorus to such purchaser, where the latter has reached the age of discretion and there is nothing to indicate that he cannot judiciously be trusted with the substance.

Magistrate's Court for Children.— A praiseworthy step in reform has been taken in the establishment of a magistrate's court exclusively for children; this was opened in September in the building formerly occupied by the offices of the Department of Public Charities. To it will be sent from all parts of the city all children under sixteen who are arrested. On the opening day sixteen youthful prisoners were arraigned, and the presidents of the State Board of Charities and the Society for the Prevention of Cruelty to Children were interested spectators in court. The first prisoners at the bar presented the most pitiful of the cases. They were a girl and boy, aged respectively ten and nine years, who were arrested at daybreak, having been found devouring garbage at one of the public markets, and they were sentenced to baths and plenty of clean food in the quarters of the Children's Society, pending an investigation of their cases.

New City Hospital for Jersey City.— Mr. Cornelius Zabriskie, a well-known banker of Jersey City, has announced his intention to give $150,000 toward the erection of a new city hospital for that place, on condition that the residents shall raise a like amount by subscription, and also that politics shall be entirely excluded from the management of the institution if the necessary funds are secured. On learning of this proposal Dr. John D. McGill of the Jersey City Board of Health at once promised that he would himself subscribe $25,000, and do all that he could in aiding to collect the remaining $125,000.

## Miscellany.

### LUMBAR PUNCTURE IN SEVERE NERVOUS DISEASES.

Notwithstanding the brilliant results achieved by Quincke in the diagnosis of nervous disorders by lumbar puncture, the method has not been applied as frequently as it deserves. In diagnosis results have been brilliant, but in the matter of treatment much less satisfactory results have been achieved, some even going so far as to claim that lumbar puncture has no place in the treatment of disease. Such a view is not warranted by an examination of the literature. Most cases of cerebral pressure will be benefited by lumbar puncture. Conditions which favor the lowering of intracranial pressure by the withdrawal of the fluid are not yet well understood. In some pathological processes the cranium seems to be shut off from the spinal canal, and hence there is no relief of pressure. In others there is a distinct improvement, so that the variety of cases in which lumbar puncture has been of benefit is remarkable, but they are generally characterized by an increase in the cerebrospinal fluid, its withdrawal producing a symptomatic improvement. The effects now attained are sufficient to justify one in resorting to this procedure in almost any case in which the cerebral symptoms are sufficiently marked to suggest the idea of an increase in intracranial pressure due to an acute process. In the chronic conditions in which pain is a marked element, such as cerebral tumor, the withdrawal of a considerable amount of cerebral fluid is sometimes found to give marked relief from the pain.— *Medicine.*

### RECORD OF MORTALITY

For the Week ending Saturday, Aug. 30, 1902.

| Cities. | Population Estimated, 1902. | Reported deaths in each. | Deaths under five years. | Percentage of deaths from | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | Infectious diseases. | Acute lung diseases. | Diphtheria and croup. | Typhoid fever. | Diarrheal diseases. |
| New York | 3,665,352 | 1,316 | 568 | 34.27 | 9.80 | 1.74 | 1.82 | 16.41 |
| Chicago | 1,852,828 | — | — | — | — | — | — | — |
| Philadelphia | 1,349,624 | 417 | 126 | 25.18 | 6.95 | .96 | 2.40 | 12.71 |
| St. Louis | 603,717 | — | — | — | — | — | — | — |
| Baltimore | 525,330 | 198 | 74 | 35.35 | 8.08 | 2.02 | 7.58 | 14.14 |
| Cleveland | 411,826 | — | — | — | — | — | — | — |
| Buffalo | 375,742 | — | — | — | — | — | — | — |
| Pittsburg | 341,401 | 180 | 78 | 42.78 | 7.22 | 4.44 | 8.88 | 16.66 |
| Cincinnati | 332,032 | — | — | — | — | — | — | — |
| Milwaukee | 304,975 | — | — | — | — | — | — | — |
| Washington | 289,537 | — | — | — | — | — | — | — |
| Providence | 185,870 | 61 | 26 | 42.62 | 3.28 | — | — | 26.23 |
| Boston | 588,736 | 215 | 76 | 34.42 | 4.65 | .93 | 1.86 | 16.28 |
| Worcester | 127,337 | 23 | 9 | 21.30 | 4.35 | — | — | 4.35 |
| Fall River | 111,872 | 52 | 42 | 57.69 | — | 3.85 | — | 42.31 |
| Lowell | 99,574 | 30 | 9 | 26.67 | — | — | 3.33 | 10.00 |
| Cambridge | 96,334 | 19 | 9 | 42.10 | 15.79 | — | 5.26 | 26.32 |
| Lynn | 71,144 | 19 | 5 | 10.53 | 5.26 | — | — | 10.53 |
| Lawrence | 67,275 | 28 | 15 | 14.29 | 10.71 | — | — | — |
| Springfield | 66,854 | — | — | — | — | — | — | — |
| Somerville | 65,882 | 12 | 3 | 25.00 | 8.33 | — | — | 25.00 |
| New Bedford | 65,574 | 25 | 13 | 12.00 | 4.00 | — | — | — |
| Holyoke | 48,065 | 11 | 4 | 27.27 | — | 9.09 | — | 9.09 |
| Brockton | 43,208 | 10 | — | 10.00 | — | — | — | — |
| Haverhill | 40,392 | 8 | 2 | 25.00 | — | — | — | 25.00 |
| Salem | 36,567 | 16 | 3 | 12.50 | — | — | — | 12.50 |
| Newton | 36,336 | 12 | 3 | 25.00 | 8.33 | — | — | 25.00 |
| Malden | 35,390 | 10 | 4 | 10.00 | — | — | — | — |
| Chelsea | 35,264 | 14 | 5 | 14.28 | — | — | — | 14.28 |
| Fitchburg | 33,848 | 7 | 2 | — | — | — | — | — |
| Taunton | 32,759 | — | — | — | — | — | — | — |
| Everett | 27,114 | 5 | 2 | 20.00 | — | — | — | — |
| North Adams | 26,583 | 11 | 3 | 27.27 | 9.09 | — | 9.09 | 9.09 |
| Gloucester | 26,121 | 13 | 5 | 7.69 | — | — | 7.69 | — |
| Quincy | 25,307 | 8 | 4 | 50.00 | 12.50 | — | — | 25.00 |
| Waltham | 24,612 | 5 | — | 20.00 | — | — | — | — |
| Pittsfield | 22,311 | 6 | 2 | 16.67 | — | — | — | 16.67 |
| Brookline | 21,679 | — | — | — | — | — | — | — |
| Chicopee | 20,390 | 13 | 7 | 7.69 | — | 7.69 | — | — |
| Medford | 20,014 | 4 | 1 | 25.00 | — | — | — | 25.00 |
| Newburyport | 14,478 | 7 | 5 | 28.57 | — | — | — | 14.29 |
| Melrose | 13,384 | — | — | — | — | — | — | — |
| Westfield | 13,038 | 3 | 1 | 33.33 | — | — | — | 33.33 |
| Attleboro | 12,846 | — | — | — | — | — | — | — |
| Adams | 12,813 | — | — | — | — | — | — | — |
| Milford | 12,516 | — | — | — | — | — | — | — |
| Framingham | 12,109 | 3 | 2 | 33.33 | — | — | — | — |
| Peabody | 11,957 | — | — | — | — | — | — | — |
| Revere | 11,894 | 4 | 2 | 25.00 | — | — | — | — |
| Gardner | 11,544 | 4 | — | 75.00 | — | — | — | 75.00 |
| Weymouth | 11,337 | 5 | 2 | 60.00 | — | — | — | — |
| Southbridge | 10,838 | — | — | — | — | — | — | — |
| Watertown | 10,660 | 5 | 1 | 20.00 | 40.00 | — | — | — |
| Plymouth | 10,336 | — | — | — | — | — | — | — |

Deaths reported 2,792; under five years of age, 1,121; principal infectious diseases (smallpox, measles, scarlet fever, cerebrospinal meningitis, diphtheria and croup, diarrheal diseases, whooping cough, erysipelas, fevers and consumption), 900, acute lung diseases 220, consumption 280, scarlet fever 17, whooping cough 39, cerebrospinal meningitis 11, smallpox 8, erysipelas 4, measles 7, typhoid fever 73, diarrheal diseases 434.

From whooping cough, New York 16, Philadelphia 4, Baltimore 3, Pittsburg 6, Providence 2, Boston 4, Fall River 2, Brockton 1, Weymouth 1. From measles New York 2, Baltimore, Pittsburg, Fall River, Lawrence and Newburyport 1 each. From erysipelas, New York 4. From smallpox New York, Philadelphia and Lawrence 1 each, Pittsburg 5.

In the seventy-six great towns of England and Wales, with an estimated population of 14,862,456, for the week ending Aug. 16, the death-rate was 15.5. Deaths reported 4,419; acute diseases of the respiratory organs (London) 159, whooping cough 104, diphtheria 70, measles 114, smallpox 9, scarlet fever 52.

The death-rate ranged from 5.6 in Handsworth to 22.3 in Wallasey; London 15.8, Portsmouth 14.9, Southampton 9.7, Norwich 13.4, Plymouth 9.9, Bristol 17.8, Wolverhampton 7.6, Birmingham 18.0, Nottingham 15.0, Derby 14.7, Birkenhead 18.1, Liverpool 21.3, Manchester 19.2, Salford 19.1, Rochdale 18.0, Huddersfield 17.0, Leeds 14.9, Sheffield 15.1, Hull 14.0, Newcastle-on-Tyne 14.3, Cardiff 17.0.

## METEOROLOGICAL RECORD

For the week ending Aug. 30, in Boston, according to observations furnished by Sergeant J. W. Smith of the United States Signal Corps:

| Date | Barometer | Thermometer. | | | Relative humidity. | | | Direction of wind. | | Velocity of wind. | | Weth'r * | | Rainfall in inches. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Daily mean. | Daily mean. | Maximum. | Minimum. | 8.00 A.M. | 8.00 P.M. | Daily mean. | 8.00 A.M. | 8.00 P.M. | 8.00 A.M. | 8.00 P.M. | 8.00 A.M. | 8.00 P.M. | |
| S...24 | 29.98 | 64 | 69 | 60 | 75 | 79 | 77 | N | W | 5 | 5 | C. | C. | .05 |
| M..25 | 29.92 | 70 | 81 | 58 | 76 | 66 | 71 | N W | W | 7 | 7 | C. | C. | |
| T..26 | 30.00 | 71 | 79 | 63 | 65 | 70 | 68 | W | S E | 8 | 4 | C. | C. | |
| W..27 | 30.24 | 63 | 67 | 59 | 62 | 83 | 72 | N E | N E | 14 | 5 | F. | C. | |
| T..28 | 30 26 | 64 | 69 | 58 | 69 | 84 | 76 | N E | E | 8 | 4 | O. | C. | |
| F..29 | 30.18 | 69 | 78 | 60 | 78 | 74 | 76 | W | S | 8 | 9 | F. | C. | |
| S...30 | 30.06 | 72 | 83 | 62 | 95 | 82 | 88 | S W | S | 8 | 10 | O. | C. | |
| ☞ | 30.09 | | 75. | 60 | | | 75 | | | | | | | .05 |

* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow. † Indicates trace of rainfall.
☞ Mean for week.

## CHANGES IN THE MEDICAL CORPS OF THE NAVY FOR THE WEEK ENDING SEPT. 6, 1902.

N. H. DRAKE, surgeon. Detached from the Mare Island Navy Yard and ordered to the "Solace."

W. R. DUBOSE, surgeon. Detached from the "Solace" upon reporting of relief, and ordered home and to wait orders.

W. H. ULSH, assistant surgeon. Ordered to the Washington Navy Yard for examination, and thence home and to wait orders.

R. A. MARMION, medical director. Detached from duty as president of the medical examining boards, Washington, D. C., and ordered to duty as president of the naval medical examining board and to duty in charge of the Naval Museum of Hygiene and Medical School, Washington, D. C.

G. P. BRADLEY, medical director. Upon completion of duty as a member of the board for the examination of midshipmen, detached from the Naval Museum of Hygiene, Washington, D. C., and ordered to duty as a member of the medical examining board and naval retiring board, Washington, D. C.

R. M. KENNEDY, surgeon. Detached from the "Franklin" and ordered to the torpedo station, Newport, R. I.

J. J. SNYDER, assistant surgeon. Detached from the torpedo station, Newport, R. I., on reporting of relief, and ordered to the naval hospital, Philadelphia, Pa.

E. O. HUNTINGTON, surgeon. Order of Aug. 15 modified; detached from the naval hospital, New York, and ordered home in obedience to order referred to.

## RECENT DEATHS.

DR. MORTIMER V. WILKIE of Cuddebackville, near Port Jervis, N. Y., died on Aug. 31 at the age of forty-five. He was born in Buffalo and was a graduate of the College of Physicians and Surgeons, New York. From 1888 to 1894 he was connected with the Manhattan Hospital of that city.

DR. REUBEN MORRIS SUTPHEN, one of the oldest and most prominent physicians of Newark, N. J., died at the home of his son, Dr. T. Y. Sutphen, at Short Hills, N. J., on Sept. 3, at the age of eighty-three. He was born near Princeton, N. J., and was a graduate of the medical department of the University of the City of New York. He practised for a considerable time in Walworth, Wayne County, N. Y., and removed to Newark in 1868.

DR. JOSEPH GARLAND died Sept. 4 at his residence in Gloucester, Mass., following an attack of paralysis three weeks ago. Prior to that time he had been in perfect health, and had uninterruptedly practised his profession. He was one of the oldest physicians on Cape Ann, born in Hampton, N. H., Jan. 22, 1822, his grandfather, Jonathan Garland, being a Revolutionary War officer. He was graduated from Bowdoin College and later entered the Jefferson Medical College at Philadelphia. The following year he went to Gloucester and established himself in practice. He served on the school committee for many years. In December, 1879, he was elected mayor, and was re-elected the following year.

DR. CLAUDIUS B. WEBSTER, the oldest living American alumnus of Dartmouth College, and ex-consul to Sheffield, Eng., died Sept. 7 in Concord, N. H., aged nearly eighty-seven. He studied medicine at the Dartmouth Medical College and at the College of Physicians and Surgeons in New York. In 1862 he was an assistant surgeon in the Civil War.

## BOOKS AND PAMPHLETS RECEIVED.

Die therapeutische Bedeutung des Ichthyolsalicyls. von Dr. B. Rohden-Lippspringe. Reprint. 1902.

The Therapy of Cancer of the Intestines. By Prof. J. Hochenegg, Vienna, Austria. Reprint. 1902.

A Treatise on Diseases of the Anus, Rectum and Pelvic Colon. By James P. Tuttle, A.M., M.D. Illustrated. New York: D. Appleton & Co. 1902.

Transactions of the Obstetrical Society of London. Vol. XLIV. For the Year 1902. Edited by Amand Routh, M.D., Senior Secretary, and Alban Doran, F.R.C.S. London: Published by the Society. 1902.

The Principles and Practice of Gynecology. For Students and Practitioners. By E. C. Dudley, A.M., M.D. Third edition, revised and enlarged. Illustrated. Philadelphia and New York: Lea Brothers & Co. 1902.

The Practical Medicine Series of Year Books, Comprising Ten Volumes on the Year's Progress in Medicine and Surgery. Issued monthly, under the General Editorial Charge of Gustavus P. Head, M.D. Vol. IX. August, 1902. Chicago: The Year Book Publishers.

Jahresbericht über die Fortschritte in der Lehre von den Pathogenen Mikroorganismen umfassend Bacterien, Pilze und Protozoën unter Mitwirkung von Fachgenossen bearbeitet und herausgegeben von Dr. med. P. von Baumgarten, o. ö. Professor der Pathologie an der Universität Tübingen und Dr. med. F. Tangl, o. ö. Professor der Physiologie an der thierarztlichen Hochschule in Budapest. Sechzehnter Jahrgang. 1900. Zweite Abtheilung. Verlag von S. Hirzel, Leipzig. 1902.

The Effects of 190 F. Temperature on Man: The Cell Lesion: A Case. By S. Grover Burnett, A.M., M.D., Kansas City, Mo., Professor of the Anatomy of the Central Nervous System and Clinical Neurology in the University Medical College; Consulting Alienist and Neurologist to St. Margaret's Hospital; formerly Assistant Superintendent Long Island Home of New York for Mental and Nervous Diseases and Inebriety. Illustrated. Reprint. 1901.

Tinnitus Aurium. By G. Griffin Lewis, M.D., of Syracuse, N. Y., Ophthalmic Surgeon to the Hospital of the Good Shepherd: Ophthalmic and Aural Surgeon to Maternity Hospital; Ophthalmic Surgeon to the House of Providence; Ophthalmic and Aural Surgeon to St. Vincent's Asylum; Member of the Syracuse Academy of Medicine; The Central New York Medical Society; The Onondaga County Medical Society, etc. Reprint. 1902.

# Original Articles.

## NOTES ON A CASE OF ACUTE HÆMORRHAGIC POLYMYOSITIS.[1]

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It is only within the last fifteen years that our attention has been called to the various forms of acute polymyositis apart from that occurring with trichinosis. Since the publications of Wagner,[2] Hepp,[3] Jackson[4] and Unverricht[5] in 1887, a considerable number of observations have, however, been reported. Lorenz in his excellent study of diseases of the muscle in Nothnagel's Handbuch divides the polymyositides into the suppurative and non-suppurative forms. Acute non-suppurative polymyositis he distinguishes from instances of myositis in association with peripheral neuritis such as have been reported by Senator, Siemerling and others. The acute polymyositides Lorenz divides into (1) dermato-myositis; (2) polymyositis hæmorrhagica; (3) polymyositis in association with erythema multiforme; (4) a number of unclassifiable cases. All these forms of acute polymyositis have, however, much in common, and it is a serious question whether one should regard such a classification as that of Lorenz as more than a mere division for clinical convenience. The main symptoms of that type of polymyositis to which Unverricht has given the name dermatomyositis consist in the development, usually after prodromal symptoms of weakness and malaise, of local muscle swelling and tenderness and pain in association with extensive œdema and cutaneous eruptions of varying character and extent. The œdema in the affected areas is often extreme and commonly is of a hard, board-like character. The affected area may at first be slight, as in the case of Lépine,[6] or it may involve the greater part of various large muscle groups. The muscles in the affected region are tense, swollen and usually very tender. The tenderness may be extreme. The cutaneous eruption may be erythematous, papular, urticarial, and in some instances has shown the characteristics of erythema nodosum. Paræsthesiæ in the affected extremities are not uncommon. These changes usually spread from one part to another, involving sometimes the majority of the voluntary muscles. Fever is almost always present, though it may be of moderate extent. Œdema of the face and eyelids, as in trichinosis, is a frequent symptom. The spleen is palpable. In several cases there has been more or less subsequent muscular atrophy. The course of the disease is generally progressive, death occurring in the majority of instances from exhaustion or affection of the pharyngeal or laryngeal muscles. Recovery occurred in but five of twenty cases tabulated by Steiner.[7] (In this article, the advance sheets of which have been kindly lent me by Dr. Steiner, there will be found full references to the literature and an exhaustive discussion of the subject.) The affected muscles in the acute stage show marked œdema, together with various degenerations, granular, waxy, fatty and vacuolic. In the earlier stages there is more or less interstitial small celled infiltration in the affected areas.

From this class of cases Lorenz distinguishes polymyositis hæmorrhagica. Here the onset is apt to be somewhat more sudden and associated with less fever, though this is by no means always the case. In most instances the onset is associated with the development of a relatively small, nodular, tender area generally in one of the muscles of the extremities; this is rapidly followed by more or less extensive œdema, which may be as marked as in dermato-myositis. The skin may show an hæmorrhagic or measly eruption, while later a yellowish green discoloration may give evidence of the presence of deeper extravasations of blood. The course is much as in dermato-myositis, the percentage of recoveries among the reported cases being, however, somewhat higher — four out of ten cases which I have collected.[8] I have included among these ten cases only those instances the hæmorrhagic nature of which is reasonably certain. There are other cases in literature which probably belong to this class, as for instance, two of those of Levy.[9] The general symptoms are usually less severe than in dermato-myositis, and as Lorenz says: "The muscle disease as such, that is the inflammatory affection of each separately diseased muscle, represents a more or less individual process which runs its course independently of the inflammation in other muscles, and affects the general condition of the patients, either because of the implication of vital muscles, or as a result of the great number of muscles affected."

Lorenz especially emphasizes the frequency of circulatory symptoms due to affection of the heart muscle. In some instances, as in the case of Fenoglio,[10] marked atrophy may follow the acute symptoms. The excised muscle has shown changes varying from simple hæmorrhages between unchanged muscle bundles, as seen in the case of Neubauer,[11] to appearances similar to those observed in cases of dermato-myositis with the addition of a greater or less amount of interstitial hæmorrhage. At a later stage more or less marked atrophic and sclerotic changes may be found.

[1] Read in part before the Association of American Physicians at Washington in May, 1902.

[2] (*a*) Archiv. d. Heilkunde, 1863, iv., 282; (*b*) Deutsch. Arch. f. klin. Med., 1886-1887, xl, 241.

[3] Berl. klin. Wchnschr., 1887, xxiv, 297.

[4] Boston Medical and Surgical Journal, 1887, cxvi, 498.

[5] Zeitschr. f. klin. Med., 1887, xii, 533; Münch. Med. Wchnschr., 1887, xxxiv, 488; Cor. bl. d. allg. aertytl. Verein v. Thüringen, Weimar, 1887, xvi, 207.

[6] Rev. de méd., 1901, xxi, 426.

[7] Unpublished manuscript of an article to appear in the Journal of Experimental Medicine.

[8] (*a*) Véron: Arch. de med. et de pharm. mil., 1888, xi, 481; (*b*) Prinzing; Münch. Med. Wchnschr., 1890, xxxvii, 846; (*c*) Fenoglio: Rivista clin. Arch. Ital. di clin. med., 1890, p. 497; (*d*) Buss: Deutsch. Med. Wchnschr., 1894, xx, 788; (*e*) Lorenz: Op. cit.; (*f*) Neubauer Centrbl. f. innere Med., 1899, xii, 289; (*g*) Bauer: Deutsch. Arch. f. klin. Med., 1899, lxvi, 95; (*h*) Struppler: Deutsch. Arch., f. klin. Med., 1900, lxviii, 407; (*i*) Georgievskyi: Bolnitsch. Gaz. Botkina, 1901, xii, 696; (*j*) Thayer: (Present case.)

[9] Berl. klin. Wchnschr., 1893, xxx, 420, 449, 475.

[10] Rivista clin. Arch. Ital. di clin. med., 1890, xxix, 497.

[11] Centrbl. f. inn. Med., 1889, xii, 289.

In addition to these types Lorenz places in a separate class the myositis sometimes observed in association with erythema multiforme. The clinical symptoms are, in most respects, similar to those observed in the preceding classes, and the excised muscle in one instance showed like changes. In another group Lorenz places a few atypical cases which he has been unable to classify.

The ætiology of polymyositis is as yet uncertain, and various theories have been advanced. Its association in a number of instances, with other infectious processes, together with the fever and severe constitutional symptoms sometimes observed, has suggested its probable infectious origin. The observations of Bauer,[12] Georgievskyi[13] and Bacialli[14] would tend to support this theory.

The first of these observers reports the case of a man of thirty-nine who died in the tenth week of an acute hæmorrhagic polymyositis. The immediate cause of death was, as has been the case in so many instances, the involvement of the heart muscle. There was severe pain in the affected areas, but little fever, the temperature during eight days of observation ranging between 37° and 38.6° C., only three times reaching a point above 38°. Sections of the muscles and of the area of involvement in the wall of the left ventricle showed hæmorrhages, and in areas marked degeneration of the muscle fibres with a striking increase in the nuclei. This instance, however, differed from most of those which have been reported in the existence of an abundant infiltration with leucocytes, which almost justified the classification of the case as a suppurative process. Pure cultures of staphylococcus aureus were obtained from the muscle. Bauer believes that this observation justifies the conclusion that a part, at least, of the severe instances of polymyositis depend upon septic infection.

Georgievskyi's observation relates to a characteristic case of polymyositis of thirty-three days' duration, ending in recovery. There was but little fever, but evidence of marked inflammatory changes in the muscles and skin. There were very tender, firm swellings of the muscles, and areas of hard, œdematous infiltration of the skin. These manifestations were fleeting, rapidly changing from one place to another, and having a distinct hæmorrhagic character. From a vein of the forearm 10 cc. of blood were taken, from which there developed on agar several colonies of staphylococcus albus. The author was further convinced that these colonies indicated a true systemic infection by the fact that he was able to demonstrate the presence in the serum of the patient of a substance preventing the liquefaction of gelatin cultures of the same organism.

Bacialli reports a characteristic case of polymyositis of five months' duration, belonging more particularly to Lorenz's division of dermato-myositis. During a febrile period a bit of muscle was removed from the left leg. In the blood flowing from the wound a coccus was found microscopically. After twenty-four hours, however, no colonies had appeared on an agar culture. From the tube in which the muscle had been placed a pure culture of staphylococcus albus was obtained. From these results the author concludes that the case may be regarded as an instance of general infection with the staphylococcus albus. In view of the universal presence of the staphylococcus albus in the deep layers of the skin the results in the two latter cases can, however, hardly be considered as conclusive.

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The following case, which would seem to fall into Lorenz's class of polymyositis hæmorrhagica, is believed to be worth reporting on account of the rarity of the condition:

X, thirty-four years old, married; a patient of Dr. Barshinger of York, Pa., consulted me on Feb. 21, 1902. His mother died of tuberculosis. In other respects his family history was good. He had had measles, mumps and whooping cough as a child. At one period as a young man he was rather dissipated, but of late years has been temperate; urethritis fourteen years ago. For fifteen years he has had what he calls "rheumatism." In his own words: "As well as I can remember I was troubled with rheumatism about fifteen years ago and off and on ever since that time. The worst attacks did not stay with me more than a day or two at a time. It starts in the different joints and feels like an electric shock going through the joints and muscles of my arm and leg, jumping from the right arm to the left arm and from the right leg to the left leg, my worst pains acting and feeling about like the worst shock you gave me yesterday. The pain shoots through the joints and muscles and makes them twitch and cause me a great deal of pain, but if I remain very quiet, it generally passes off in a few minutes. At times I have to remain quiet or in bed for the best part of a day before the pain will cease. Very often when it attacks me in the afternoon, by going right to bed it will pass off by the next morning. While these attacks were very seldom years ago, of late years dampness or cloudy weather brings them on."

On Dec. 21, 1899, while doing some heavy lifting he "wrenched" his arm and "it appeared as if the joint in the shoulder had jumped out of the socket." There was no great pain, but the whole arm became greatly swollen. This was especially the case in the upper arm. There was some slight dull pain in the shoulder. The forearm and hand showed a softer œdema. The upper arm was hard and board-like, especially along the region of the biceps, and was of a purplish color, looking as the patient expressed it, as "if a vein had burst." After three or four days everything cleared up. Six or eight months later the arm again became greatly swollen and purplish along its flexor side and somewhat so on the forearm. There was also slight pain in the front of chest running back through the shoulder. This lasted for about ten days, after which he was quite well until one day last autumn when after a fall, he felt a slight snap in the dorsum of his left foot. This was followed by œdema of the foot and leg which lasted for several weeks. His physician states that the foot at this time was very red and somewhat mottled in appearance, but he is uncertain as to whether there was any distinct muscular hardness in the leg. The œdema of the leg disappeared after several weeks, but the foot remained somewhat œdematous for several months. Excepting for these attacks the patient has felt perfectly well, though whenever he lifts any heavy weight, a slight transitory swelling of his right arm and shoulder commonly follows. "It seems that from that time" (the initial attack) "on, my arm was weak, and if I exercised it or lifted any-

[12] Deutsch. Arch. f. klin. Med., 1899, lxvi, 95.
[13] Bolnitsch. Gaz. Botkina, 1900, xii, 696.
[14] Il Policlinico, 1902, No. 13, Sez. méd., fasc. 1 e 2, 16.

thing heavy with it, I would get pain in the shoulder and it would commence to swell up again." In a letter he says: "There is seldom if ever a day goes by that I do not have a little shooting pain in some of my joints or muscles. My right arm for the last two years has felt more or less numb at times and very often feels as if pricked with needles. This has been getting worse, and at the present time this numbness or sleepiness very seldom, if ever, leaves my arm. My hand and fingers are seldom without the numb feeling, and nearly always feel as if they were pricked with needles. This feeling may leave me on a very bright, clear day but while today is a very bright and cheerful day, I have this numb feeling in my right arm and my hand feels numb, as if it was pricked with needles, something like taking an electric shock all the time."

Six or seven days ago, at about three in the afternoon, without apparent cause, the right arm suddenly began to swell. This was associated with a slight tingling, stinging sensation. By the end of five hours the swelling of the upper arm was so great as to entirely fill out a loose shirt sleeve. The skin was red and hard and board-like, though there was slight pitting on firm pressure. Three days after this the forearm and hand became œdematous — a soft œdema. There was no severe pain except for occasional slight stinging, lancinating sensations in the affected area and a general feeling of numbness extending down into the hands, a sensation as if a bee were stinging him. Twenty hours ago when he went to bed there was marked œdema of the right forearm and hand. On waking up in the morning he found that this had entirely cleared up. While the swelling had diminished to a certain extent in the upper arm, he noticed a fresh swelling of the right breast. There is a slight stinging pain at the present time in his right chest and arm. There has never been any very great tenderness in the affected area. He feels perfectly well in all other respects. The doctor thinks there has been no fever.

*Physical Examination.*— The patient is a healthy looking man; lips and mucous membranes of good color; tongue clean; skin cool. The right arm and shoulder are considerably swollen, as is also the right pectoral region as compared with the left. The swelling of the arm extends from the shoulder to the elbow, and is limited almost entirely to the bicipital region. The posterior part of the deltoid is also distinctly swollen. There is an enlargement of the pectoralis major on the right, the external fold being clearly thickened. The biceps is apparently greatly enlarged, standing out as if in marked contraction. On the right as the arm is hanging by the side, it measures at its largest point, 35.4 cm.; on the left, 29 cm. The skin over this area is tense and somewhat reddened. Above it is not œdematous; below it is more reddened, and over about the lower third of the arm, extending, on the inner side, a little further up toward the axilla than it does in front, it is of a deeper, more cyanotic color and very hard and board-like; it pits however, on firm pressure. About 6 or 8 cm. above the elbow there is a transverse, purplish, discolored area about 4 by 1 cm. in extent. In the axilla and around below the pectoral fold there is a distinct yellowish green discoloration of the skin, suggestive of deep hæmorrhage. There is a slight enlargement of the right mammillary gland. The redness, the patient says, is much diminished. There is, apparently, no swelling whatever of the triceps. The infraspinatus and teres muscles are very prominent on both sides. There is a well-marked crepitus about the shoulder-joint as the patient moves the arm up and down, marked on the right, slight on the left. This appears to arise in the substance of the deltoid muscle. The power of the right biceps seems to be fairly good. On account of the condition of the muscle it was deemed inadvisable to allow the patient to make marked effort. It is striking that although the swelling of the arm gives the impression of a contracted biceps, yet the movements of the muscle is scarcely to be felt when the patient actually flexes his forearm.

*Heart.*— The apex impulse is visible and palpable in the fifth space 9½ cm. from the median line; sounds clear; first, slightly reduplicated at the apex; the second sounds are of normal relative intensity. The *lungs* are clear throughout. The *abdomen* is negative except that the spleen is just palpable.

On the following morning the swelling of the arm appeared to be slightly diminished, though the discoloration in the axilla was a little more evident. A piece of tissue about 2 cm. in length by 2 to 3 cm. in depth, together with a little skin, was removed under cocain by Dr. Tinker from about the middle of the anterior surface of what was supposed to be the biceps. On cutting through the skin there was some œdema, due in part probaby to the cocain which was used; no apparent thickening of the skin; no evidence of inflammatory changes. There was very free bleeding from a small subcutaneous vein. On cutting into what was supposed to be the muscle there was a gush of about 50 cc. of blood-stained serum. On squeezing the arm there presented at the opening a mass of old, dark clot, dating probably from early in this attack. About 10 cc. of this were squeezed out. The tissue removed was very pale and œdematous in appearance, somewhat yellowish in color, with dark hæmorrhagic streaks.

The *urine* was of rather pale color; acid; specific gravity, 1013; no albumin, no sugar; sediment inappreciable.

The *blood* showed: Red corpuscles, 4,328,000; colorless corpuscles, 4,000 to the c. mm. Dried specimens colored by Ehrlich's triple stain, showed nothing remarkable in the appearance of the red blood corpuscles. A differential count of the leucocytes showed: Small mononuclears, 23.1%; large mononuclear and transitional forms, 9.1%; polymorphonuclear neutrophiles, 65.8%; eosinophiles, 1.7%; mastzellen, 0.1%.

The patient left for his home immediately after the removal of the tissue from his arm. Dr. Barshinger reported that eight days later, the arm had returned to its normal size, and the stitches were removed, the wound having healed by first intention.

Sections of the tissue removed on Feb. 22 and hardened in Zenker's fluid were stained by a variety of methods, hæmatoxylin and eosin, methylene blue and eosin, van Giessen's stain, Mallory's stain, etc. Dr. MacCallum, who kindly studied the specimens, makes the following report: "The specimen consists of skin with underlying subcutaneous tissue and supposedly part of the biceps muscle. Sections are made vertically through the skin in two directions at right angles to one another and stained by various methods. The skin with its appendages is normal. The small blood vessels are surrounded by a loose network filled with cells of the type of plasma cells. Among the connective tissue vessels of the corium are many red blood corpuscles lying free. The subcutaneous tissue is extremely œdematous and there are considerable hæmorrhages throughout it. In the wide spaces between the tissue elements there is a fine fibrillar network, possibly partly fibrin. In these meshes there are rather numerous round cells, somewhat larger than a polymorphonuclear leucocyte with single ovoid, or slightly irregular nucleus and abundant protoplasm, in which lie granules of a yellowish brown color, probably iron containing pigment produced by the destruction of blood in the adjacent hæmorrhages. As the tissue was fixed in Zenker's fluid, tests such as Perl's ferrocyanide tests are inapplicable. The subcutaneous fat lies in little masses through which abundant blood vessels run. Some of these look as though new-formed. One of these is packed with leucocytes, and its walls are infiltrated with similar cells. Below these bundles of fat cells we reach a denser connective tissue in which the fibres are not so widely separated. There, as in the more superficial layer, there are elongated cells with ovoid nucleus, lying between the separated fibre bundles which seem to be at least very young elements. These fibroblast-like elements seldom, if ever, contain the hæmatoidin pigment shown by the free round cells lying among them. Below this tissue lies a still more dense layer

of connective tissue made up of coarse bundles of wavy fibres, seen in Mallory's and van Giessen's stain, to be made up of connective tissue. In the interstices of this tissue the blood vessels are extremely numerous.

"Underlying this, which has the appearance of a fascial layer, there are only widely scattered bundles of mature connective tissue fibres embedded in a tissue, made up almost entirely of one type of cell, but abundantly furnished with blood vessels. This tissue varies in its density and in alternating layers through which the characteristic cells are the same, although the intercellular substance may be more or less compact. The cells have an elongated vesicular nucleus, and a very long cell body which runs out at each end into a long delicate fibril. Often the cell body is branched, the process like the cell body of the simpler forms being drawn out to long, sharp points. The quantity of intercellular substance varies as stated very markedly. It stains well with the connective tissue stains. In the interstices there are great quantities of red corpuscles lying free. There is no muscle to be seen anywhere in the section. There is therefore beneath the fascia a great new growth of tissue, the main mass consisting of cells of the type of embryonic connective tissue cells with numerous new-formed blood vessels. Both in the connective tissue cells and in the walls of the vessels mitotic figures are very abundant. This tissue, as well as the overlying subcutaneous tissue, is evidently œdematous and full of hæmorrhages."

These remarkable appearances, together with the clinical observation that the apparently greatly swollen biceps muscle could not be felt to contract when the arm was flexed, would appear to indicate that the muscle itself was buried in a mass of subfascial œdema and hæmorrhage, the clot undergoing a process of rapid organization.

June 27, 1902. The patient was visited at his home today. He states that although in good health, he has been unable to lift heavy weights with his right arm, and is under the impression that when he attempts to do so a slight swelling of the biceps follows. He complains of weakness on that side, especially on lifting his arm to his head, and of numbness and tingling particularly in damp weather. The "shooting pains" of which the patient previously complained, "are increasing instead of diminishing." On inspection he looks well. The arms appear to be about equal in size though the biceps is perhaps a little smaller on the right than on the left. The forearms are equally well developed. There is still a slight discoloration at the point where the purpuric patch was previously observed. The extensor muscles stand out rather strikingly, more so apparently on the right than on the left. On the right side the arm measures 29.7 cm., the left, 29. The right pectoralis major below and outside of the nipple appears to be slightly atrophied as compared to the left. The posterior part of the deltoid seems also rather less prominent on the right than on the left, while there is a distinct flattening in the infraspinous region. The same rather general plumpness of the muscles is observed as on the first examination. The grip of the hands is good, slightly less powerful on the right than on the left. The power of the flexors of the forearm is also apparently slightly dimished on the right. There is distinct loss of power in the right deltoid and pectorals.

Sensation to touch is everywhere good. Sensation to pain (prick of pin) is rather remarkably dull all over the body, but not more so on the right than on the left. The patient not infrequently fails to distinguish the head from the point of the pin unless the stab be very sharp. The deep reflexes at the elbow and wrist are with difficulty elicited on both sides. There is no tenderness over the nerve trunks. After the tests of strength the patient complained of numbness and tingling in the right hand and fingers; the sensation, however, remained good.

Electrical examination shows a general dimished excitability to both galvanic and faradic currents in the biceps and flexors of the forearm on the right side, in the deltoid, and very strikingly in the muscles of the right infraspinatus region in which but little response could be obtained. The difference between the reactions on the right and left to both nerves and muscles appear to be quantitative rather than qualitative.

July 13, 1902. The patient came to Baltimore today. He had been feeling well and nominally attending to business, although doing but little work. Nine days ago he moved into the country for the summer, and at that time did a little more lifting than usual. About a week ago he began to suffer from pains in the calves of his legs and in his right arm. The pain in the legs was of an aching character with occasional sharp lightning-like flashes darting into his calves. This, at times, has been bad enough to interfere somewhat with his sleep. Yesterday afternoon at about four or five o'clock his arm became more painful. At the same time there was an aching pain in the calves of his legs. He felt hot and thirsty and ill and was compelled to lie down. The right arm then began to swell, especially just above and inside of the elbow and on the inner side of the forearm. There was also some swelling about the shoulder. Both calves seemed to be somewhat swollen, and the patient asserts that he felt distinctly feverish. He "seemed to be swelled up all around." The pain in the arm and legs lasted for some time into the night, the arm feeling as if it were enveloped in a hot bandage. There was profuse sweating, limited to the arm.

On examination the right arm was found to be swollen, especially just above the elbow joint on its inner side and over the ulnar group of muscles in the forearm; there is a slight greenish yellow discoloration of the skin extending about 5 or 6 cm. upwards on the inner side of the arm and downwards over the ulnar group of muscles for about 8 cm. In the middle of this area is a group of small purpuric spots. The skin feels tense as compared with the same area on the left side, and there is a hard subcutaneous œdema pitting quite deeply on pressure. The right forearm as it hangs by the side measures at its largest point 29¼ cm.; the left about 27½ cm. Just above the elbow at the base of the internal condyle the right arm measures 27 cm.; the left 23½ cm. The right pectoral fold is a little fuller than the left. There is nothing striking about the condition of the calves, despite the fact that the patient feels sure that they were swollen last night. The grip of the right hand is materially less powerful than that of the left. Sensation to touch appears to be good everywhere. Sensation to pain dull on both sides. The patient can touch the back of the head with the right hand, but touches the top of the head with difficulty and considerable effort. The difficulty with which these movements are carried out is quite out of proportion to the plumpness of the muscles in the shoulder girdle, especially the right deltoid, which is considerably plumper than the left, the digitations standing out rather strikingly. The temperature is 99°, the pulse, while the patient is standing during examination is 100.

On the following morning, July 7, 1902, Dr. Thomas very kindly saw the patient with me, and a careful electrical examination was made. The following record was made at this time:

Well built, muscular man. The muscles of the left arm are well developed. They appear to be somewhat larger than one might naturally expect, especially the triceps and the teres major and minor. The superficial veins on the arm and forearm are remarkably prominent.

On the right side the enlargement of the deltoid, which was so striking yesterday, is more marked; all its digitations are plainly visible and the muscle feels tense. It is not tender on pressure. The yellowish discoloration of the arm has spread further downward and now extends upwards to the outer attachment of the pectoralis major, where it is most marked. The supra- and infraspinous regions on the right side appear flattened. With the arm semi-flexed, the left upper arm measures 29.5 cm., the right 34.5 cm. The right arm hanging by its side measures at its largest point 33 cm.

Measurements of forearm, elbow semi-flexed.

| | Right. | Left. |
|---|---|---|
| 5 cm. below the olecranon | 28.7 | 27 |
| 10 " " " " | 28.5 | 26.6 |
| 15 " " " " | 24.6 | 22.8 |
| 20 " " " " | 19.8 | 19 |

*Eyes.*— The pupils are moderately contracted and react well to light and accommodation. Movements of the eyeballs are free and equal in all directions. There is no ptosis. The forehead muscles act well and equally on both sides. There is no weakness of the orbicularis of the eyes or mouth. The muscles of mastication are normal; the tongue protrudes straight. The movements of the neck are strong. The patient shrugs his shoulders well and resists efforts to forcibly depress them. He approaches the scapulæ and depresses the raised elbow with normal strength.

The left pectoral muscle is strong. The right pectoral muscle is contracted and seems rather large, but is very weak, much weaker than the pectorals on the left. In extending the hands forward the scapulæ remain close to the chest wall. The patient can raise the left hand above the head with fair strength, but is unable to hold the right hand when lifted above his head; it gradually falls (weakness of deltoid). On the left side abduction of the shoulder is very strong. Adduction is also strong, as are rotation outwards and inwards. Flexion and extension of the elbow are strong, as are similar movements of the wrist joint. The intrinsic muscles of the hand are all strong.

On the right side abduction is weak, as is adduction, rotation outward and rotation inward. Rotation outward is weaker than rotation inward. Flexion at the elbow is considerably weaker on the right than on the left side, as is also extension. The wrist muscles are also weak. Flexion and extension are both weak; the ulnar extensors are stronger than the radial. The intrinsic muscles of the right hand are weaker than those of the left. The left calf measures 35.5 cm.; the right, 36.5 cm.

*Electrical reactions.*— On the *left side* the nerve roots (brachial plexuses) give to the faradic current a quick normal response from all of the muscles supplied. On direct stimulation all the muscles act promptly, the only abnormality noticed being that there is a tendency toward a tetanic contraction, which persists for an appreciable time after the current is broken.

*Right side.*— The brachial plexus gives a response to faradic stimulation in all muscles supplied, but the response is less prompt and active than on the left side. All parts of the deltoid can be very easily stimulated, but here the response is also somewhat less than on the left. The biceps reacts very slightly to direct stimulation. A current which forces the left biceps into active, strong tetanus causes but a slight contraction of the right. In the muscles of the back of the forearm the difference in response is little between the two sides. On the palmar side of the right arm in the œdematous area (ulnar group) there is response only to a very strong current. The supinator longus reacts equally on the two sides. Over the ulnar nerve at the elbow on the right (the point of maximum œdema) the reaction is but just obtained with a very strong current. At the wrist there is practically no difference between the two sides in the reactions to ulnar stimulation.

*Galvanism.*— On stimulation of left deltoid K.C.C.= 4 M.-A.; on the right K.C.C. ⁄ A.C.C. K.C.C.=3 M.-A.

Biceps.— Left, K.C.C.=3½ M.-A.; right, K.C.C.=12 to 15 M.-A., a sharp and quick reaction.

Triceps.— Left, K.C.C.=3 M.-A.; right, K.C.C.=4 M.-A.

*Reflexes.*— The deep reflexes at the elbow and wrist are not to be obtained. The knee jerks are very slight if present. The patient has considerable difficulty in relaxing his muscles. The ankle reflex (tendo Achillis) is diminished, if indeed, it be present.

The patient states that at times during the night he has noticed that his right arm has been unconsciously lifted. He has waked up on several occasions to find himself holding his right arm with his left. Sometimes the right arm comes forward at night and strikes him in the face so that he "sees stars." He is not sure whether this is due to the fact that it is raised during his sleep and falls across his face or to an active spasm which brings it sharply up to his face.

He was recommended to take strychnin, .0015, three times a day, the dose to be gradually increased to .003. He was further advised to have light massage with passive motions for fifteen minutes daily for the right arm and shoulder, after the swelling had disappeared.

The patient has not been seen since this examination, though in a recent letter he states that there has been no further return of his trouble.

The essential features of this remarkable case appear to have been recurrent attacks of acute swelling with but little tenderness, in various muscle groups. The more severe attacks have been associated with evidences of deep hæmorrhage (widespread discoloration of the skin) and areas of marked hard subcutaneous œdema. During one of the attacks there was a deep, almost erysipelatoid, reddening of the skin in the œdematous area. Subsequently there have been undoubted evidences of atrophy in some of the affected muscles.

There are certain points in the course of the case which are of especial interest:

(1) The mildness of the subjective symptoms of pain. No case so far as I have been able to discover, has shown such marked muscle swelling with so little pain and disability during the attack.

(2) The mildness of the febrile manifestations. The fever has, however, been moderate, in other cases of marked severity, notably those of Struppler and Georgievskyi. It should be remembered also that we have no records of the temperature in this case at the time of the onset of the various attacks.

(3) The widespread cutaneous discoloration, indicative of deep hæmorrhage, almost without purpuric manifestations, is a striking and interesting feature of this case. Georgievskyi states that in his patient the hæmorrhages into the muscles could be clearly seen through the skin, but I know of no instance in which exactly this condition has been described.

(4) The crepitus in the deltoid muscle. This remarkable manifestation is described only by Fenoglio.

With regard to the ætiology of this case little can be said. Cultures were unfortunately not taken at the time of removal of the muscle from the arm. The abruptness of onset of some of the attacks has been almost like that of an angio-neurotic œdema.

With regard to prognosis the future alone can answer. In the meantime the case appears to be of a nature sufficiently unusual to justify this note.

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Lord Strathcona and Mount Royal, Canadian High Commissioner in London, and Lord Mount Stephen, president of the Bank of Montreal, have jointly contributed a sum which will yield $80,000 a year to the King Edward Hospital fund. — *American Medicine.*

## THE EFFECTS OF EXERCISE ON THE HEART AND CIRCULATION.[1]

BY R. C. LARRABEE, M.D., BOSTON.

If the heart of a person in normal health be examined before and again immediately after exercise, certain changes will be noted. They will, of course, vary in degree and in kind with the nature of the exercise, with its duration and with its severity, as well as with the physical condition of the subject. An investigator after exercising for a few minutes with a physiological apparatus in the laboratory, an intemperate teamster who has lifted an unusually heavy weight, a trained athlete who has finished a twenty-five mile race, a mountain climber who has been caught in a storm and has fought all day for his life on the ice and rocks, without food or shelter,— one would not expect to find, and one does not find, the same changes in each. Indeed, an instance will presently be mentioned where separate studies of the participants in two races over exactly the same course yielded results which differed in important respects — variations to be accounted for only by differences in weather and in the circumstances under which the examinations were made.

Certain of the effects of exercise on the circulatory organs are familiar to every one, especially the dyspnea and increased pulse-rate. Although the rate of the pulse is always increased during exercise, it is comparatively rare in healthy persons that its rhythm becomes irregular — a fact which has been noted in athletes, and which has been further shown by the experiments of Staehelin and Christ.

One of the most striking and significant effect of exercise on the circulatory apparatus is enlargement of the heart area. Williams and Arnold, who examined the participants in the Boston Athletic Association's "Marathon" race of 1899 — a race of about twenty-five miles — found increase in the heart area in seven of ten cases. The writer has, with Dr. L. W. Strong, assisted Dr. Blake in examining these men in the races of 1900, 1901 and 1902, and our results have agreed with those of the previous study. Stengel in short distance runners, Darling in oarsman, and numerous other observers have reported the same conditions so commonly that it is safe to say that exertion as a rule causes enlargement of the heart to percussion.

Auscultation, in addition to changes of a somewhat indefinite and inconstant sort in the quality of the heart sounds, often shows a murmur. It is usually systolic, and is most commonly heard along the left border from the base toward the apex. All the writers referred to in the preceding paragraph have reported such murmurs. Williams and Arnold found them in eleven out of thirteen cases examined, and further noted their occasional occurrence in the back. In the last three "Marathon" races they were more variable, being occasionally heard at the apex only, or at the right of the sternum. One case had a presystolic murmur both before and after the race. This last may have been the result of organic valvular disease, but the systolic murmurs have been so commonly found that such an explanation is untenable for most. We were somewhat puzzled to find frequent systolic murmurs *before* the race. As these will not be referred to again it may be said that most of the men were examined under conditions of great nervous excitement, and that this brings them into line with the cases reported by Prince in candidates for the Boston Fire Department. The study of murmurs due to nervous excitement is hardly within the limits of this paper. But certainly exercise alone may cause a murmur.

Studies of the blood pressure during exercise have given results which have varied much with the nature and severity of the work, the stage at which the tests were made, and the animal used. Tangl and Zuntz, Maximowitch and Rieder and others have found during brief exercise in man and in dogs a rise. Kaufmann and Zuntz found, in horses climbing hill or working in a treadmill, a fall of pressure lasting through the whole period of exertion. Kaufmann found in the horse during mastication that the blood pressure in the arteries penetrating the masseter muscle was lowered while that in the carotid or in the aorta was raised. All these investigations referred to brief exercise or to exercise of slight or moderate severity. Where the blood pressure is followed through a prolonged period of exercise it is generally found that the rise is but temporary. The accompanying table shows the pressure in grammes needed to obliterate the pulsations in the radial arteries of two healthy, but untrained, young adults during a hard climb in the White Mountains. It will be noted that there was a marked preliminary rise during the first half hour, after which the pressure varied near the normal as found at the start. The lowest pressure was at the end of about three hours, when both were tired and hungry. In this instance the exercise was not carried to the point of

RAVINE HOUSE (1,283 FEET) TO MADISON HUT (4,850 FEET); DISTANCE FOUR MILES. B CARRIED 29 LBS. IN RUCKSACK; A CARRIED 7 LBS. IN BLANKET ROLL.

| Time from Start. | | Blood pressure. | | Severity of Work. |
|---|---|---|---|---|
| hours. | minutes. | A. | B. | |
| | 0 | 26 | 38 | |
| | 8 | 39 | 46 | Slight |
| | 18 | 49 | 61 | Moderate |
| | 28 | 48 | 56 | " |
| | 38 | 32 | 40 | " |
| | 51 | 34 | 35 | " |
| 1 | 13 | 32 | 34 | Severe |
| 1 | 28 | 37 | 31 | " |
| 1 | 53 | 30 | 39 | Moderate |
| 2 | 23 | 24 | 34 | " |
| 2 | 43 | 24 | 27 | " |
| 2 | 53 | 21 | 24 | " |
| *3 | 8 | 34 | 36 | |
| 3 | 33 | 37 | 31 | Slight |
| 3 | 58 | 24 | 28 | Moderate |
| 4 | 11 | 23 | 31 | " |
| 4 | 23 | 29 | 35 | " |

*After 15 minutes' rest, chocolate and water.

[1] Read before the Clinical Section of the Suffolk District Medical Society April 16, 1902.

exhaustion. No fully satisfactory studies of blood pressure in still more severe, exhausting work are at hand. An attempt to study the blood pressure of the Marathon runners has twice been thwarted by technical difficulties. Still, enough has been learned to make it almost certain that there was a marked drop. The excellent pulse-tracings made by Dr. Cleghorn certainly support this view, which is the one generally adopted. It is safe to say, then, that early in exercise or throughout brief exercise the pressure is raised, especially if the muscles involved are small in extent, and that if exercise is violent and long-continued, especially if many muscles are involved, the arterial blood pressure will fall and will ultimately be below normal.

The following phenomena, then, are observed in connection with the circulatory system after violent exercise: (1) There are certain changes in the blood pressure; (2) the area of cardiac dulness is generally enlarged; (3) murmurs may be heard. These phenomena must be regarded as physiological or quasiphysiological; for, while it is possible to injure the heart permanently by overexercise, the changes above noted are, in the great majority of cases, temporary. In attempting to explain them we are at once confronted with the lack of necessary data. Some things we can say; for the rest we must await further experimental evidence.

The enlargement of the heart's area can be due only to dilatation. The rise of intracardiac pressure which must, of course, take place when the general arterial pressure is raised, suggests itself as the readiest explanation; and indeed Roy and Adami, after causing a rise of intracardiac pressure by compressing the aorta in animals, found that the heart was larger both in systole and diastole. But how account for the enlargement even after the blood pressure has been reduced for a considerable time, as in the Marathon runners? There the dilatation is due to something more than mere mechanical stretching. A better explanation is fatigue of the myocardial fibres consequent upon the increased amount of work done, and possibly due also to the fact that the nutrition is impaired by the presence of "fatigue products" — toxins elaborated in working muscles. It is probable that the dilatation is due to both of these factors,— mechanical overdistention and relaxation of tonus from fatigue, and from toxins affecting the nutrition of the heart-muscle. This is to be regarded as a hypothesis, experimental proof of which is lacking.

In regard to the explanation of the changes in blood pressure, the experimental data are especially incomplete, and it is difficult to judge properly the varying value of what evidence is at hand. The arterial pressure depends on two factors; namely, the amount of blood thrown out by the heart in a given period of time and the amount which flows from the arteries into the capillaries in the same length of time, the latter depending in turn on the state of contraction of the arterioles. As these two factors vary independently of one another the explanation of the resulting variations of the blood pressure is not always easy. The experiments of Kaufmann on the horse have already been alluded to. When, as in mastication, but few muscles were involved, the local fall of pressure due to dilatation of the intramuscular arteries was overbalanced by a simultaneous increase in the output of the heart, and the general arterial pressure was raised. When, however, a large number of muscles were used, as in locomotion, the resulting vascular dilatation involved so many arteries that the increased output of the heart did not balance it, and a fall of the general pressure resulted.

The increased pressure during brief exertion might conceivably be due to vasomotor contraction or to increased output. During exercise there is certainly an immediate and marked increase in the supply of blood to the muscles involved, and the effect of this would be to lower the general blood pressure. This must obviously be overbalanced by other influences, either by vasomotor contraction elsewhere or by increased output from the heart. Whether there is any such vasomotor contraction we do not know, but there is at least good *a priori* reason for believing that the output of the heart is increased at the beginning of exercise. Increased pressure of the muscles of the extremities on the great veins, and a similar action of the abdominal muscles and diaphragm on the portal vessels, results in an increase of blood thrown into the right heart. At the same time increased activity of the respiratory muscles favors the flow of blood to the thorax and through the lungs to the left heart. As the output of the heart is normally the same as its intake — in fact is largely dependent upon the intake — it is obvious that this one factor in the arterial pressure tends to a rise.

In regard to the fall of pressure after more prolonged exercise, it is impossible to say what changes have occurred at this stage in the output of the heart. In regard, however, to the arterial vasomotor condition, there is reason to believe that prolonged exertion results in a dilatation. In the Marathon runners, for example, Dr. Cleghorn's sphygmograph tracings showed the characteristics of this condition to a marked degree. Locally the heightened functional activity of the peripheral muscles involved would call for an increased supply of blood, which would mean local vasomotor dilatation. In regard to the general arterial tonus, there is in the depressor nerve of the heart a means by which, when the heart is overdistended, relief is accomplished. This nerve is afferent, carrying impulses from the heart which act on the vasomotor centre to produce general vascular relaxation and fall of arterial blood pressure. The effects of the fatigue products on the vascular tonus are unknown. It would be interesting to determine whether they, too, cause vascular relaxation. It seems altogether probable that the fall of pressure as exercise continues, is part of a compensatory mechanism through which the circulatory appa-

ratus meets the extra demands upon it without injury to itself. But many of the details of the mechanism are at present unknown.

The cause of the murmur is a matter of much doubt,— as much perhaps as the cause of the ordinary functional and hemic murmurs, and as to the latter, Dr. G. M. Garland read a paper before this society twenty years ago, in which he mentioned no less than eighteen theories that had already been propounded. Some authors, of whom Stengel is one, have attributed the systolic murmurs to dilatation of the pulmonary conus arteriosus. Such dilatation could hardly be recognized clinically, and at best it would only explain some of the murmurs, certainly not those heard only at the apex. A more rational theory is relaxation of the muscles from fatigue, with consequent insufficiency of the mitral valve, so that the murmur is due to a true mitral regurgitation. Some have gone so far as to speak of a "mitral sphincter" whose relaxation permits regurgitation.

What are the anatomical features bearing on this theory? If a heart be macerated after the method described by McCallum, the auricles are easily separated from the ventricles, for few if any muscle-fibres pass from one to the other. A glance at such a specimen is enough to disprove the existence of a sphincter, using the term to indicate muscle-fibres running about the mitral orifice as in the case of the anus or the pylorus, unless, indeed, the sphincter be microscopical. For it will be seen that, while the pulmonary and tricuspid orifices are separate, the mitral and aortic are one large opening, divided by a slender band of connective tissue to which one of the cusps of the mitral valve is attached. Further dissection shows, according to McCallum, after removal of the superficial layers, abundant fibres encircling the common mitral and aortic opening. Their action can only be to constrict, but they must constrict both openings.

Microscopical sections made longitudinally through the mitral orifice show the great majority of the fibres to be cut in cross-sections. This applies to the fibres belonging to the auricle as well as to those of the ventricle, but the former are, even if truly circular in their course, placed too far above the valve, and are too feeble and insignificant to have any important effect in constricting the mitral opening during the high tension of systole. In the valves themselves there are a few muscle-fibres — some parallel with, and some perpendicular to, the edges of the valves. They are more abundant in the flap which is so closely related to the aorta. They are microscopical, and are really insignificant as constrictors.

There is, near the attachment of the mitral valve, a considerable amount of connective tissue which extends between and separates the muscular bundles of the ventricle from those of the auricle. It can be seen in the macerated heart and also in sections, especially if they are stained by Dr. Mallory's method. The firm ring thus formed is further strengthened by the connective tissue of the valve itself, for it must be remembered that the valve is not made up of separate cusps, but is a funnel-shaped structure, the cusps being its widest places. Though elastic fibres are present the valve itself must obviously be inelastic. This connective tissue ring about the orifice of the valve will ultimately limit temporary dilatation; but not necessarily before regurgitation can occur.

The closure of the auriculoventricular valves has been explained by physiologists in various ways, but the most plausible view is that the cusps are brought together by eddies in the ventricular contents at the end of auricular systole, and that the muscles about the orifice make closure more perfect, while the papillary muscles prevent inversion of the valves. Although the action of the papillary muscles is not thoroughly understood, it is reasonable to suppose that if they were involved in any considerable relaxation of the myocardium or otherwise functionally disturbed regurgitation might be favored. And that they do share in any relaxation suffered by the rest of the heart muscle is altogether probable, since it has been shown that the papillary muscles are not made up of independent fibres, but are the continuations and terminations of some of the fibres of the walls of the ventricles. As for the constrictive fibres at the base of the ventricles: Hesse hardened hearts in systole by throwing the organ from a freshly killed animal into a boiling saturated solution of potassium bichromate. Comparing the area of the base with that of the heart in the ordinary diastolic relaxation of death, he found that the base was contracted nearly a half. He inferred that in systole the auriculoventricular orifices were made smaller by muscular contraction. There is much doubt, however, whether he was justified in assuming that this contraction was the same as that which takes place in life. It should also be remembered that in systole the apex contracts first, and the wave goes towards the base, so that the latter, not contracting till much of the blood has left the heart, is hardly an essential factor in the closing of the valve.

More significant was Macalister's experiment. He tied a tube into the aorta of a sheep's heart and introduced water through it. The water leaked through the mitral valve. But when a rubber band whose elasticity replaced the tonus of the myocardium was placed about the base, no regurgitation occurred. The writer repeated this experiment on two hearts, one from a recently killed cat, the other a slightly hypertrophied human heart. In both experiments a manometer was used and the pressure measured. In both the mitral valve leaked freely at very low pressure, the leakage decreasing as the pressure was raised. In the cat's heart some leakage persisted even with higher pressure than the normal, and was not entirely stopped by a rubber band. In the experiment on the human heart the leakage practically ceased when the pressure was above a certain point. This point varied from 50 to 90

mm. of mercury, the variation depending on the position and support of the organ. The pressure was then raised to the limit of the apparatus (232 mm.) and well above the highest normal limit without any further leakage. Without inferring anything from these rough experiments, it should be noticed that these hearts were dead and hence completely relaxed, and that mitral leakage took place at low pressure. We have already shown that as a result of severe and prolonged exercise the heart is relaxed and the blood pressure is lowered.

Taking all things together, it is probable that some of the systolic murmurs are due to true mitral insufficiency, a part of a general myocardial relaxation. This is especially true in such cases as the Marathon runners, where marked dilatation was present. We can *not* infer that all the diversified murmurs are of this nature. Much less can we infer that it is the cause of functional murmurs in general, including those due to anemia or to nervous excitement where no dilatation is demonstrable. Stengel says: "The murmurs at the apex may undoubtedly be due to mitral regurgitation, but I cannot convince myself that all found in this situation are of this nature. Some I believe are intraventricular; others possibly cardiopulmonary in origin." With this unsatisfactory statement we must at present be content.

The phenomena hitherto spoken of are those resulting from the temporary action of a single period of severe exercise. When the heart is habitually called upon to do an increased amount of work, changes take place by which it is enabled to meet the larger demands upon it. To produce these cardiac changes is one of the chief objects of training. Accordingly in trained athletes, especially in those forms of exercise requiring long-continued exertion, the heart almost always shows more or less enlargement. It is considered to be the result of hypertrophy. The extent to which it goes is often surprising. In the Marathon runners, for example, many of the men showed on careful inspection visible bulging of the precordia. The left border was sometimes outside the nipple line. It is impossible to say what changes other than hypertrophy take place in the heart as a result of training. Any subtile, qualitative changes that may occur could hardly be measured clinically.

According to Allbutt, the blood pressure is habitually low in athletes, but this statement cannot be regarded as fully verified.

In view of the strenuous development of modern athletics, especially in the colleges, it becomes a question of great importance whether ordinary training exerts a permanently harmful influence on the circulatory apparatus. There appears to be a general impression among insurance examiners that athletes make poor risks on this account. Stengel believes that there is a possibility of the development of symptoms many years after cardiac strain without any indications in the intervening time; that myocardial disease may arise after middle life as remote consequence of overexertion in early manhood. On the other hand, J. E. Morgan in his book "University Oars," published in 1873, details an inquiry into the health of all the contestants in the Oxford-Cambridge races during a period of forty years. In 17 of the 294 cases the oarsmen or their surviving relatives claimed that injury had resulted. In but two or three is the evidence sufficiently convincing that a normal heart had been permanently injured. The mortality among old oarsmen was better than that shown by insurance statistics for men of the same ages. Morgan concludes that, instead of being injurious, rowing experiences had been beneficial to the majority.

It is, of course, possible to injure the heart by overexercise and to injure it permanently, but this is not a necessary result of training, or even a frequent one. It is altogether probable that in the vast majority of cases the hypertrophy gradually disappears and the heart returns to its original size. How long this involution requires is not known. Darling found some enlargement a year after training had ceased, but, as he says, hypertrophy of the heart from training is no more undesirable, and gives the man no more trouble than the corresponding hypertrophy of the biceps.

It only remains to consider briefly the pathological aspects of the question — heart-strain. Acute heart-strain or acute dilatation is the result of a single act of overexertion. The normal mechanism by which the circulatory system adjusts itself to the additional demands upon it is a delicate one and when it fails damage may result. Such failure rarely occurs in healthy young men, and very rarely in trained athletes. It is more common in older or obese persons or those who are convalescing from acute disease or suffering from degenerative conditions of the circulatory apparatus. Sudden death during exercise is, so far as authentic cases are concerned, wellnigh unheard of in healthy young men. The best known case is that of the Canadian oarsman, Renforth, who died suddenly during a race. According to Krehl the filling of the heart may be increased sixfold, and its intraventricular pressure doubled without arresting its contractions, though not necessarily without injury. The ordinary symptoms of this pathological dilatation — for it must be remembered that after exercise there is normally some dilatation or relaxation — are persistent dyspnea or palpitations, which return on slight exertion, after eating or without cause. There is usually precordial pain or "side-ache." Compensation may fail to be established, and death may occur within a few days, or the patient may recover with a permanently damaged heart, and remain broken-winded, and unable to perform any unusual exertion without dyspnea or cardiac irregularity. Most cases, however, recover.

The diagnosis depends on the recognition of an acute and persistent increase in the area of cardiac dullness; acute as distinguished from the enlargement previously present as a result of

training, and persistent as distinguished from the further enlargement normally present after severe exertion. The rhythm is more apt to be irregular than in the normal cases. Murmurs may or may not be heard.

Treatment should consist of rest, with cardiac stimulants. In old, full-blooded individuals, if seen at once, venesection may be indicated. An athlete should return very slowly, if at all, to active work, and under close medical supervision. As prophylaxis, training is of the greatest importance, its object being to produce a hypertrophy of the heart. The experiments of Maximowitch and Rieder show that the ingestion of fluids, especially those containing alcohol, increases the rise of blood pressure during brief exercise. It would therefore appear best to avoid drinking just before a brief but severe test like a boat race. If the exercise is to be long-continued, fluids should not be taken till the "second wind" is established, and then in small quantities as needed. It is often a difficult matter for those having medical supervision of athletes to decide whether a given man shall be allowed to participate in a race or game. While recognizing that hypertrophy is a desired result of training, it must be admitted that some good men fail to show enlargement to percussion. If one has been able to observe the effects of preliminary trials there is no difficulty. A murmur found during the excitement just before a game means nothing.

There is another form of heart-strain which may be spoken of as chronic, and which results from repeated or habitual overexertion. These cases bear towards training a relation which is analogous to that of acute dilatation towards the normal mechanism of compensation during exercise; that is, the normal mechanism has failed and morbid results have followed. This view is strongly suggested by the autopsies reported by Leyden in cases dying of heart disease attributable to overstrain. Hypertrophy, which is the normal result of training, was seldom seen; but morbid effects—dilatation, with fibrous changes and fatty degeneration, especially of the portion of the myocardium nearest the ventricular cavity — were always present.

There are doubtless more than one form of cardiac disease classed under this heading and due to repeated overexertion. Their relation to one another is not clear. We may leave out of consideration arteriosclerosis and aneurism, rupture of the heart, or of its valves, and the effects of overexertion in bringing about failure of compensation in previously existing valvular disease, and we still have a number of conditions classed as heart-strain. In some of the cases the condition would appear to be a purely functional one — as in the condition spoken of as "irritable heart." In others there is organic change — hypertrophy or dilatation. Whether hypertrophy pure and simple is enough to cause symptoms is questionable. In most of the cases dilatation is present, primarily or secondarily. Da Costa, who described the cases seen in soldiers during the Civil War, believed that they *all* began as functional ones, and that, as a result of the extra work due to the irritability, hypertrophy ensued. Leyden, too, believed that the functional condition of irritability comes first, and that if the cause continues, organic changes, dilatation and degenerative processes may result, the latter often going on to failure of compensation and death. According to another view, the cases of the second type are those in which primary dilatation has occurred during overexercise and compensation has never been re-established.

As to etiology, many writers have observed that, of the innumerable persons whose occupations require frequent expenditure of great muscular energy, but a very small proportion ever suffer from heart-strain. Obviously, overexercise is not the only factor. Alcohol, tobacco, tea, coffee and sexual excess may be mentioned. In the cases of "soldier's heart," constriction of the chest by improperly adjusted accoutrements, is given a prominent place. Improper food, exposure and lack of sleep are also mentioned. Excitement and worry are factors in athletes as well as in soldiers. Most of the "soldiers' hearts" occur in tall, lanky men under twenty-five years old. Other factors are anemia, advanced age, degenerative diseases and obesity. Rarely does proper training produce evil results, but the cause of "staleness" in athletes is not understood, and it may be that the heart has something to do with it.

The symptoms and signs will depend on the type or stage of the disease. In the functional cases there are precordial pain, usually paroxysmal, dyspnea, palpitations and tachycardia. Nervous disturbances — headache, dizziness and insomnia — may be present. The patient may be perfectly well when at rest, the symptoms coming on only during exertion, but being so severe then as to prevent work. On physical examination tachycardia may be the only finding. Marked increase in pulse-rate on slight exertion, and especially on sitting up, is characteristic. According to Leyden, irregularity of pulse is the most constant symptom. The first sound is often described as short and valvular. In the cases with permanent dilatation these symptoms will be present in greater severity, and on examination enlargement to percussion will be found. They are said to have a labored and diffuse impulse, with dull booming first sound. The terminal events in fatal cases are not unlike those seen in other forms of heart disease.

The differential diagnosis between these cases and those of valvular disease may be difficult. In cases of strain murmurs are usually absent. When relative insufficiency occurs, however, the clinical findings are almost identical. It must also be remembered that valvular disease may exist without murmurs, and that in such a case the patient may correctly attribute the onset of his symptoms to a period of overexertion. The relation of heart-strain to myocarditis is even more close. Allusion has already been made to

the autopsies of Leyden in which myocardial degeneration was a prominent feature.

The prognosis is generally good in the functional cases, though recovery may be very slow, and even in healthy young men some irritability may remain for years. In a case of the writer's a young man took a series of senselessly long bicycle rides at a time when his general condition was depressed from other causes. Matters finally culminated in an extremely nervous and debilitated condition with albuminuria. When first seen, two years later, his heart was normal in size, but intermitted occasionally. After a year and a half of good health he was operated on during an acute appendicitis, and the operation, though brief and uncomplicated, was followed by great cardiac pain, intermittent and irregular pulse and albuminuria. Similarly, nine months later, a mild typhoid was attended by attacks of intense cardiac pain requiring morphia, and by slight intermittency of pulse.

Where organic changes have supervened the prognosis is worse. If apparent recovery occurs, relapses are prone to take place.

In treatment rest is of the first importance, its duration and degree depending on the severity of the case. Diet should be abundant and nourishing. Digitalis and other cardiac stimulants are of the greatest value, but they should be given, especially at first, with great care and their action closely watched. In prophylaxis careful training is important. Excesses in the use of tobacco and alcohol should be avoided by those whose occupations require unusual muscular exertion.

To summarize: Violent exertion normally causes changes in the blood pressure, temporary enlargement of the heart's area from dilatation or relaxation of the myocardium, and sometimes a fugitive murmur. The cause of the latter is not obvious. The chief result of training is hypertrophy. As abnormal results of exercise we have acute dilatation, rare in healthy young men, especially if well trained, and as a result of habitual overexercise, "irritable heart" and the other conditions associated with dilatation, hypertrophy, or myocarditis and generally due in part to other predisposing causes.

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## SUPRAPUBIC CYSTOTOMY, WITHOUT DISTENDING THE BLADDER.


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The suprapubic method of entering the bladder for the removal of stone not being the common one, it may be of interest to hear the history of the following two cases with the results obtained; also to call attention to the mode of operating and the conditions that permit of it.

Owing to the fact that a distended bladder draws the loose peritoneal covering away from the symphysis pubis sufficiently to permit of the bladder being opened without entering the abdominal cavity, the description of the several steps preparatory to the operation, in the various works on surgery, have this end in view, and they give instruction to distend the rectum that it may raise the base of the bladder, and then distend the bladder in order to obtain the desired result.

"The part of the bladder concerned in this operation is that portion which lies behind the pubes and the insertion of the urachus. Between the anterior wall of the bladder, the posterior surface of the pubic bones and the abdominal muscles in front, is a pyramidal shaped space filled with connective tissue. In and around this space takes place the surgical manipulation of this operation. The peritoneum can scarcely be said to be attached to the bladder at all, though when the bladder is empty, it lies closely opposed to its anterior surface. Distention of the bladder is the palpable means of elevating this peritoneal fold." [1] This short description sums up the situation admirably, and the conclusion is the same as with all other writers on this subject to the effect that the "distention of the bladder is the palpable means of elevating the peritoneal fold." The fact is lost sight of that the loosely connected peritoneum can be pushed back and the bladder entered without distention. The peritoneum is so loosely connected to the pubes and top of the bladder that it

[1] J. Greig Smith, Abdominal Surgery, 1896.

can be pushed back and the bladder reached and entered without distending it, and at the same time without entering the abdominal cavity. That a perfectly flat and empty bladder can be opened quickly, easily, without injury to the peritoneum, and with perfect safety to the patient, is what the following cases will show:

CASE I. W. D. was first seen Sept. 21, 1897. A catheter had been tied into his bladder, as he was supposed to be suffering from an enlarged prostate. The urine was very foul. He was in a very poor, weak condition, and a most pitiable object to look at. The catheter was removed and the bladder irrigated at regular intervals. Two days later stone in the bladder was diagnosed, as five small stones, weighing 6 gr., were washed out through a large catheter, and sounding of the bladder detected others. Operation was delayed until the condition of the patient improved. From time to time small stones were passed during irrigation, until twenty in all were collected, the two largest weighing 5½ and 7½ grs. respectively.

On Oct. 12 I did the suprapubic operation for stone. The bladder was so contracted that 4 oz. of water forced into it was returned by the side of the catheter, making the usual method of distending the bladder out of the question and the bag in the rectum of no avail. After thorough irrigation the metal catheter used was left in the bladder. An incision three inches long was made in the median line, down to the peritoneum, and starting one inch on the pubes. The loose peritoneum was easily and quickly pealed away from the pubes and over the bladder. An assistant at this point depressed the end of the metal catheter already left in the bladder; this pushed the bladder wall well into view and touch, and allowed one to judge when the peritoneum was pressed back sufficiently. The catheter was depressed so that the beak showed about an inch in front of the symphysis. The point thus indicates to the operator where the bladder wall is when the peritoneum has been pealed back enough to avoid the danger of being opened. At this stage of the operation the peritoneum is liable to rise and protrude with each inspiration of the patient; to avoid this, a gauze sponge was pressed down into the wound, and by hooking a tenaculum into the bladder just back of the promontory where the beak of the catheter showed, it not only held the sponge and peritoneum back, but also marked how far the bladder was freed of peritoneum. Just to the right and left of where the proposed incision was to be made, a thread was passed into the bladder and held to one side by the weight of artery forceps attached; this was to prevent the walls falling away when the final incision was made and the catheter no longer held up the bladder. With a quick plunge of the knife the bladder was entered just in front of the catheter's beak, and the cut enlarged enough to admit the index finger. Two stones weighing respectively 120 and 90 grs., and twelve small ones, making fourteen, were removed. The whole weighed 250 gr. Adding these to the twenty washed out before the operation, it makes a total of thirty-four stones.

After thoroughly irrigating the wound, the bladder opening was closed by a continuous chromicized catgut suture and the rest with deep silkworm stitches. A small gauze wick was left at the bottom of the cut. A sterile soft rubber catheter was tied into the bladder and a fresh one introduced daily, with irrigations of boracic acid solution for nineteen days. The object of this was to prevent any distention of the bladder and the possibility of stretching and opening of the cut in its wall, which would force the urine up into the abdominal wound.

No pain, or shock, or temperature of any moment followed the operation, and the condition of the patient rapidly improved throughout his convalescence. On the sixth day, while irrigating the bladder, a little water came out of the small sinus left by the wick. This occurred but three times. On the sixteenth day the abdominal wound and sinus were entirely healed. On the nineteenth day the catheter was permanently removed. On the thirtieth day the patient was up and dressed, and a week later he went down two flights of stairs to meals, with an enormous appetite and looking another man.

CASE II. In 1894 W. H. P. presented himself for treatment with three sinuses in the perineum leaking urine, an abscess in the scrotum, and almost a total obstruction to the flow of urine. It was impossible to pass anything into his bladder. No stones at this time were detected.

I performed an external urethrotomy and so satisfactory was the result that when a year later I crushed two stones in his bladder, the lithotrite entered the bladder with no trouble. After crushing these stones the patient was well for two years, after which symptoms of stone returned, and, again in 1900, I crushed and removed another one. After this operation he was greatly relieved but not cured, and six months later symptoms of stone returned, more severe than ever before. Struggling for a while to keep about and do his work, he finally took to his bed, a most wretched sufferer, weak and worn out with pain. I now decided to do a suprapubic operation, to explore the bladder and remove every particle of foreign matter. This operation I did Sept. 5, 1901. Remembering the ease with which the bladder was reached in the previous case, I made no attempt to distend the rectum or bladder. After irrigation I went through precisely the same steps already described. Cutting down to the peritoneum; depressing the end of the metal catheter in the bladder so that the beak was felt just in front of the pubes, pealed back the peritoneum beyond the point of the beak, hooked the bladder wall with a tenaculum; secured each side of the bladder where the cut was to be made, and made my cut. The first stone removed weighed 206 gr. Proceeding to explore the interior of the bladder with the finger, I felt at the bottom a roughness; pecking at it, the sharp point of a stone was made out. Being convinced that a stone was encrysted in the bladder an effort was made to set it free, but with difficulty; at last, after an assistant had introduced his finger up the rectum to its full extent, so as to make counterpressure to the finger working in the bladder, it was finally dislodged and removed. It seemed almost inevitable that the bladder wall would be perforated, so slight was the space between the stone and the rectum, but it was not. This stone weighed 149 gr. The bladder was sewed up in the same way as the first case, a small wick left in the wound and a catheter in the bladder. There was no shock and very little pain after the operation. The temperature, which had been running daily from 100° to 102°, dropped to normal the next day and remained so. On the eleventh day the catheter was removed, the bladder proved tight, and no urine at any time came through the wound. On the sixteenth day the wound was completely healed, and at the end of three weeks the patient began to walk around. The patient, having had two operations for the crushing of stone, was able to judge of the merits of the different operations in his case, and he repeatedly expressed himself in favor of the suprapubic method.

## Clinical Department.

### A CASE OF NEURITIS IN THE COURSE OF DIABETES.

BY F. H. PACKARD, M.D., BOSTON,

*From the Long Island Hospital, Boston Harbor.*

A. C., age forty-one, single; laundress. Patient was admitted to Long Island Hospital on July 18, 1898. She stated that she had had rheumatic fever thirteen years before, and that since that time she had had several minor attacks of rheumatism. In January, 1898, she was confined in the Boston City Hospital ten

weeks with rheumatism. Previous history was otherwise negative.

At time of entrance she complained of pain, tenderness and weakness in the knee and ankle joints. The physical examination at that time was recorded as follows: Heart and lungs negative. Right ankle swollen and tender; both knees painful; also right shoulder and both wrists. Urine negative. The patient was given salicylates and acetate of potash; joints were rubbed with soap liniment and oil of gaultheria, and bandages applied.

On Sept. 1, 1898, pains in joints are recorded as having disappeared. The patient was up and dressed, but unable to walk. At that time patient was getting arsenic and strychnia. Physical examination at that time is recorded as follows: Systolic murmur at aortic area. Knee jerks present; no clonus. Abdominal and plantar reflexes lively. Sensation to pin pricks duller on left than on right.

On Nov. 17, 1899, a note is recorded to the effect that there has been no marked change in patient's condition.

On Sept. 5, 1900, patient is recorded as hobbling about the ward a very little with the aid of support, and as having had some pain in the joints and body. A physical examination under this date is as follows: Well developed and nourished; obese. Eyes: React to light and distance normally. Heart: Apex in fifth space within nipple line, action regular; no murmurs heard. Second pulmonic slightly increased. Chest: Resonance and respiration normal. Abdomen: liver and spleen not abnormal. Abdomen lax; not distended. External: Knee jerks present; no clonus; pain in ankle, knee and hip joints.

In October, 1900, patient was obliged to go to bed on account of pain in joints and along the side of right leg. There was also pain over the precordial area. Heart sounds were weak, but there were no murmurs heard.

On Nov. 11, 1900, patient is recorded as being still confined to bed by pains as above mentioned, which pains are unrelieved by rheumatic treatment. Her condition continued about the same until the latter part of January, when she began to sit up in chair for a short time daily, but still complained of some pain.

In March, 1901, patient is recorded as sitting up in chair daily. Motion of knees and hips not painful nor limited. The notes recorded from this time to the 1st of January, 1902, are to the effect that the patient, although able, refused to walk or to help herself in any way. She was dressed daily by the nurses and put in a chair, where she sat all day, unemployed, and in an apathetic frame of mind. So strong was the feeling that the patient could help herself, that food was left a few feet from her with the intention of enticing her to move, but she would go hungry rather than get it. Unless assisted to bed, she would sit in her chair all night.

On Jan. 1, 1902, the urine was examined. The twenty-four hours' amount was 4,000 cc.; specific gravity 1,040, and it contained 300 gm. of sugar. A physical examination was made at that time, with the following result: Patient, well developed and nourished. Eyes: Pupils equal; react sluggishly to light, normally to accommodation. Tongue: Clean and moist; protruded in median line. Heart: Area normal; apex in fifth space within nipple line; no murmurs heard. Lungs: Resonance good throughout; no râles. Abdomen: Soft and tympanitic. Area of liver and spleen normal. No tenderness; no ascites. External: Knee jerks absent. Plantar reflex on left, normal; on right, absent. There was marked edema of both legs below the knees. Sensation was so much diminished that a slight touch could not be felt. Upon deep pressure, however, especially over the nerve trunks, there was very marked tenderness. The sensation in the hands and fingers was considerably diminished, but not so much so as in the legs. There was some slight ataxia of the hands. The motor power of the legs was greatly diminished, the patient not being able to move them without assistance from her hands. The hands were also somewhat weak. The muscular reaction to faradic current was much diminished in the hands and almost absent in the legs.

The patient was immediately put upon a diabetic diet. Three days later the quantity of urine had dropped to 2,000 cc. and the sugar to a slight trace. Since that time the quantity has varied from 1,500 cc. to 3,000 cc. daily, and the quantity of sugar has remained at a slight trace. At the same time daily massage of legs and treatment with faradic current was commenced. At the end of a week a change in the patient's mental condition was noticed. She seemed brighter and began to notice what was going on about her. The edematous condition of the legs also began to improve.

Since that time the mental and physical condition of the patient have been slowly improving. At the end of the third week she could move her feet backward and forward upon the floor as she sat in her chair. About the middle of February she began to complain a great deal of a prickling sensation in her hands and legs. She also said that the numbness was going away. On March 14 the electrical reactions of the muscles were again tried and found much improved, though still slow. At this time the patient had so improved that she could stand up with the aid of a small table, and could take several steps with the table for support.

On March 13 Dr. E. W. Taylor examined the case and made the following observations: Eyes: React sluggishly to light; quickly to distance. Hearing: Watch tick one foot from right side, four inches from left. No paralysis of any of the ocular nerves; slight facial asymmetry. No paralysis of facial or twelfth nerves; fifth nerve supply, and that of the other cranial nerves, normal. Hand-grasp normal on either side; no loss of motor power in arms or hands; no muscular atrophy. Elbow reflexes absent; wrist reflexes absent. Skin of fingers shiny; nails somewhat clubbed. Slight remaining evidences of rheumatoid affection. Sensation: Forearms and handa, pin prick recognized; point and head distinguished; light touch not felt in many places (probable blunting of sensation); pin prick dull all over body; touch also not perfectly appreciated; no marked pain on pressure over nerve trunks of the arms; abdominal reflex present; actual movement of legs and feet free; gross strength considerably diminished in both legs; knee jerks absent; plantar reflex lacking on right; slight on left. Sensation to pin pricks present but dull; tactile sensation, same as arms. Considerable expression of pain on pressure over nerve trunks of legs. Marked crepitus in left shoulder-joint, associated with very slight pain.

From time of last note up to date of writing, May 1, 1902, patient's condition has continued to improve steadily. By April 1 she could get about very readily with her small table, and during the last week she has been walking about the ward without assistance.

In reviewing the records of the case, we find that the patient had an attack of rheumatism seventeen years ago, and that since that time several minor attacks have occurred. At time of entrance to the hospital in July, 1898, she was suffering from rheumatism, the symptoms of which were relieved by treatment, and from which she partially recovered. From this time she continued in her partially relieved condition until October, 1900, when she again commenced to have pain in her joints and also along the side of her leg, according to the records. No mention was made of any redness, swelling or tenderness at this time. The symptoms were not relieved by treatment. The patient remained in bed from this time until January, 1901, when she was got up daily and was placed in a chair. This condition of affairs continued for about one year, during

which time the patient's helplessness was thought to be pretended rather than real. In January, 1902, sugar was discovered in the urine, and a physical examination showed symptoms of a neuritis. The patient was treated for diabetes and the neuritis treated with faradic current. Almost immediately she began to improve mentally and physically. This improvement has continued up to the present time, and has been so marked that the patient is now able to walk without assistance.

Judging from the somewhat incomplete records and from the present physical examination it seems very probable that the patient did have rheumatism previous to and after admission to this hospital, as is evidenced by the facts that there is some slight distortion of the finger-joints, that the joints creak upon motion and that the symptoms were relieved by rheumatic treatment.

How much of the muscular weakness was due to disuse, the primary cause of which disuse may have been due to the rheumatism, is hard to say. Doubtless much of the edema of the legs was due to the disuse and the almost constant dependent position of the legs, as the patient sat in her chair. Much of the numbness, in turn, may have been caused by the edema. While the rheumatism might account for the pain, the disuse for the weakness and the edema for the numbness, none of these would account for the very markedly apathetic mental condition of the patient. Moreover the rheumatism in itself seems hardly to have been severe enough to cause so much disuse, and the weakness and numbness of the hands could not be accounted for, as in the case of the legs, as they had not been so much subject to disuse; nor were they edematous.

That the patient had diabetes on Jan. 1, 1902, is certain. How long it had existed cannot be said. At that time the mental condition of the patient was markedly apathetic — almost semicomatose; which condition was undoubtedly due to the toxemia caused by the diabetes. A toxemia, severe enough to cause such marked mental disturbance, may easily be considered sufficient to cause a neuritis. This we know not infrequently happens.

It seems very probable that the diabetes may have been present for some time, and that it may have been not only the direct cause of the neuritis, but also through the apathetic mental condition which it caused, may have been a cause of the disuse of the muscles. When the diabetic condition was relieved by treatment the mental and physical conditions both began to improve. How much of the improvement of the physical condition was due to the improved mental condition is hard to say, but since the mental condition was due to the diabetes, both — whether we consider the physical condition a true neuritis or not — may be said to have been relieved by the relief of the diabetes. If we consider the case a neuritis due to the diabetic toxemia, it is interesting because of the comparative rarity of the affection. It is also interesting as showing the importance of careful urinary examination in all cases.

# Medical Progress.

## REPORT ON PROGRESS IN OBSTETRICS.

BY FRANK A. HIGGINS, M.D., BOSTON.

### MOVEMENT OF THE PELVIC BONES IN SYMPHYSIOTOMY AND THE TRUE FUNCTION OF THE SECTION OF THE PUBIC SYMPHYSIS.

SANDSTEIN[1] presented a paper with this title before the Edinburgh Obstetrical Society, his conclusions being based on a study of symphysiotomy on twenty-eight recent cadavera taken at random in the post-mortem theatre. All the pelves except two had true conjugates of over four inches. The movements that occurred during and increased with the separation of the pubes after symphysiotomy were as follows: The first was the movement of the pubes outward by rotation of the innominate bones on vertical axes passing through their respective sacro-iliac joints. The outward rotation could only increase the sacropubic diameter to a very limited amount. For although each pubis was carried further from the sacral promontory than it was before, yet it was not so with the line joining the pubes, which, indeed, in some shapes of pelves might even be carried nearer the sacral promontory. The second movement consisted in rotation of the innominate bones on a horizontal transverse axis passing through the sacrum, and carried the pubes downwards. This was estimated by measuring the exact vertical height of the centre of the sacral promontory above the upper end of the symphysis pubis before symphysiotomy, and after it above the line joining the upper ends of the separated pubes. Careful measurements were made, with degrees of separation varying from 1 to 8 cm. It was found that there was positive proof of the existence of that movement of the innominate bones, and one might at least calculate on the depression of the pubes of 1.4 mm. for each centimetre of pubic separation. The third movement consisted in rotation of the innominate bone on its own long axis (an axis lying as it were in a direction from the posterior superior spine to the iliopectineal eminence), so as to cause the ilium to become more erect (or vertical). In every case with each increment of pubic separation there was increase of the distance between the anterior iliac interspinous diameter and the horizontal level of the symphysis pubis. Roughly speaking, 6 cm. of pubic separation gave an increase of 1 cm. An examination of all the results showing that the diameters lying more or less transversely were increased greatly by each centimetre of pubic separation, and a very small amount of pubic separation would enlarge these sufficiently to let the fetal head pass. But unfortunately it was more usually the true conjugate that presented the difficulty, and 6 cm. of pubic separation enlarged that only about one centimetre, or two-fifths of an inch on an average. Here separation of the pubes

[1] Lancet, Jan. 18, 1902, p. 164.

increased greatly the transverse diameters and sometimes increased the true conjugate, but it might even diminish the true conjugate. The downward movement of the pubes increased the true conjugate and the rotation of the innominate bones increased the downward movement of the pubes. Walcher's position should therefore be used, though greater effects were obtained with symphysiotomy. With regard to the safety of symphysiotomy, Dr. Sandstein especially watched the result of the separation of the pubes on the sacro-iliac joint. In 44% rupture of the ligaments began below 6 cm. of separation, while in 56% it began at or above that point. In three pregnant women it began only at 8 cm. in two and not even at that in one. The vulva was greatly affected by the separation of the pubes, the parts between the bones becoming stretched like a drum; up to 5 or 6 cm. the strain was well borne; in only one did a tear occur at 6 cm. After 7 cm. it was evident that there would be a great risk of necrosis and sloughing of the stretched tissues. The bladder and urethra would only be involved secondarily by a tear or through sloughing. Dr. Sandstein collected the results of 300 recorded cases between 1892 and 1898, and found that the danger lay in and around the symphysis pubis. The sacro-iliac joints did not suffer from separation or non-union, though some pain in them was recorded. Lacerations about the vestibule and vulva occurred in thirty cases, hemorrhage in thirty-eight cases, fistula occurred seven times, local sepsis in twenty-four cases, and phlebitis in eight cases. Thirty-five deaths occurred, and were due to septicemia or pyemia in twenty-four cases and to hemorrhage in three cases. As a result of his investigations, Dr. Sandstein stated that pubic separation should be limited to 6 cm., and as each centimetre increased the true conjugate by 1.67 mm., the utmost amount of increase of the true conjugate which could be aimed at was 1 cm., or two-fifths of an inch. Therefore, the cases must be strictly limited to those in which, by an addition of two-fifths of an inch to the true conjugate, they could with safety to the mother deliver a living child by nature alone or aided by forceps or version. The range of forceps was in a true conjugate, of from four to three and a quarter inches; symphysiotomy with a maximum of 6 cm. separation increased the true conjugate two-fifths of an inch, which when subtracted from three and a quarter inches gave two and seven-eighths inches, or 7.3 cm., as the minimum conjugate on which this operation should be performed. Walcher's position should always be used. Sometimes the sides of the pelves moved unequally, with consequent risk of tearing. This could be met by fixing the thigh on the abdomen on the non-moving side, using the bent-up knee of that leg as a lever and abducting it forcibly outwards and downwards; this in his experiments could always make the side share in the movements. The knife should be a broad-bladed one. The symphysis must be completely divided, but division of the subpubic ligament should not be aimed at, as it prevented extension by tearing of the wound down into the vulva. Rigid asepsis was necessary, and since many fatalities occurred from sepsis in patients with a previous foul vaginal discharge, the existence of such a discharge should be considered as a contra-indication to the operation.

### PREMATERNITY HOSPITALS.

In a recent lecture on "Maternities and Prematernities," delivered in the Royal Maternity and Simpson Memorial Hospital, Edinburgh, J. W. Ballantyne [2] makes a strong plea for the establishment of prematernity hospitals. It is usually difficult for a woman to gain admission to a maternity hospital until near the end of gestation. General hospitals also frequently decline to admit patients suffering from the complications of gestation. Pregnancy is a great strain upon the resources, anatomic and physiologic, of the body; and labor is the crowning test of a woman's strength; yet in too many instances the parturient patient comes to this test with little or no preparation. Ballantyne argues that the diseased pregnant woman is entitled to hospital care both for her own sake and that of her infant, and that it ought not to be a matter of favor that she gain entrance to a maternity hospital. There should be a ward attached to every maternity for the treatment of diseases of pregnancy. There can be no doubt that a patient who has passed through a morbid pregnancy will be more liable to difficult labor than will one in whom the changes of the wonderful gestation period have been accomplished in a physiologic fashion. There are many conditions which we classify under the pathology of pregnancy that could be better treated in a special institution, such as hyperemesis, so often found in the early months; disorders of the urinary tract; the toxemia of pregnancy, in which prompt stimulation of all the eliminating organs of the body is so essential. Patients suffering from valvular heart disease would be far better off if kept under the close observation practicable in a special institution.

In a recent contribution by J. Clarence Webster [3] on "Valvular Heart Disease in Relation to Pregnancy and Labor," the author emphasizes the fact that when pregnancy occurs in a woman suffering from cardiac disease, she should be carefully looked after from its very beginning. Her daily routine should be regular and well ordered. She should be guarded from strain, worry, anxiety or sudden shock. Medical treatment should be instituted when there are signs of heart failure such as breathlessness, dyspnea, cough, edema and increasing irregularity of weakness of pulse. Undoubtedly the chances for the mother and the child in such cases would be increased if such a patient was in a prematernity hospital.

There has been endowed in the Royal Maternity of Edinburgh a bed for the study and treatment of the diseases of pregnancy, and it has already had an

[2] American Medicine, Feb. 15, 1902, i, 287.
[3] British Medical Journal, Jan. 11, 1902, i, 65.

occupant suffering from hyperemesis and hydramnois. This may be the small beginning of a prematernity institution. No obstetrician, who has had to deal with dispensary cases in our large cities, but who has been impressed by the fact that many poor and worthy pregnant women drag out a miserable existence of from six to nine months from complications of pregnancy treated under most adverse circumstances, and obtaining very little relief because of the lack of proper care, who would be much better cared for if they could be admitted to some prematernity institution. The care of the pregnant woman and her unborn child should be just as near to the hearts of the philanthropist as the founding of colleges and the building of libraries.

FORCEPS OPERATION IN PHTHISIS, ANEMIA AND CARDIAC DISEASES.

Abbott[4] says that few practitioners of today would allow patients suffering from tuberculous lungs, valvular lesions of the heart, severe anemia or neurasthenia, to perform any exercise which would cause prolonged holding of the breath, cardiac strain, or severe muscular exertion. And yet many physicians follow the old-fashioned method of tying a sheet to the foot of the bed and allowing such a patient to deliver herself, causing her to strain the lungs, heart and vascular system generally. He believes this to be decidedly wrong, both in theory and practice. A much better method is to allow the first stage during which there is practically no straining, to go on as usual. When the second stage begins, however, the patient should be anesthetized immediately and the vagina fully dilated by gradually introducing the elongated compressed hand and slowly extracting the full fist once or twice. After this apply the forceps in the usual manner. The second stage is thus accomplished without straining the heart and lungs.

He says there are many cases of cardiac and tuberculous disease, in which the patients invariably date the commencement of their unfavorable or serious relapses to a time at which they unwisely exposed themselves to an extra physical strain; that he cannot but believe that the cause of many tuberculous mothers failing so markedly, almost immediately after the birth of their child, is due to the severe straining of the lung tissue at the time of delivery. The use of the forceps immediately that the second stage has begun, in order to prevent all straining, will save many a mother from an increase of her heart symptoms or tuberculous troubles, and perhaps prevent an early death.

*(To be continued.)*

SMALLPOX, as officially reported in the United States from June 28 to Sept. 5, 1902, amounts to 5,021 cases with 317 deaths. For the corresponding period in 1901 there were 8,534 cases with 231 deaths. — *American Medicine.*

[4] American Medicine, Jan. 18, 1902, p. 115.

# Reports of Societies.

## SUFFOLK DISTRICT MEDICAL SOCIETY. SECTION FOR CLINICAL MEDICINE, PATHOLOGY AND HYGIENE.

HENRY F. HEWES, M.D., SECRETARY.

REGULAR meeting, April 16, 1902.

DR. R. C. LARRABEE read a paper on

THE EFFECT OF EXERCISE ON THE HEART AND CIRCULATION.[1]

DR. MORTON PRINCE: There is no doubt in my mind that the final conclusions drawn by Dr. Larrabee are in general correct. It seems to me, however, that he has not given quite the full weight to the experiments of Roy and Adami. The value of these experiments is in that they demonstrate a physiological law which explains in a very satisfactory way the phenomena which Dr. Larrabee has spoken of here. Roy and Adami showed experimentally that whenever the heart is called upon to do an increased amount of work that it always expands to do the work; that is, that under certain conditions there is a physiological dilatation. Now the work may be increased in two ways, either by increasing the resistance against which the blood is pumped or by stimulating the heart to contract more forcibly. Under the first condition the resistance may be experimentally increased by constricting the aorta, while under the second condition the heart's action may be increased by stimulating the nerves. Now under both conditions they found that the heart, as Dr. Larrabee has said, dilated to a very large degree, so that at the end of systole it might be two or three times greater than it was before in diastole. Now these experiments which have been accepted by physiologists though they have not received the attention from clinicians they deserve, show an important physiological law. The heart normally dilates or contracts according to the work to be done. This being the case, we have absolutely the same conditions under physiological exercise, and also sometimes in conditions of disease where we get a temporarily enlarged heart. The heart is called upon to do an absolutely or relatively increased amount of work.

That the heart does an increased amount of work during muscular exercise is shown by the increased force with which the heart can be felt to beat, and by the increased rapidity of the action, and by the increased strength of the pulse. Instruments of precision may determine the amount by which the action is increased, but *that* an increased amount of work is done is shown by this simple method.

Under these circumstances, then, the heart by this law physiologically dilates to do the work and thereby throws out more blood.

Assuming the heart to be a sphere, according to the laws of mechanics, if the heart is dilated

[1] See page 318 of the Journal.

so that the circumference is double what is was before, each systolic contraction of an inch would throw out something like four times the amount of blood it did before; so that there is an economy in such a dilatation, for it enables the heart to throw out a larger quantity of blood with the same contraction. Now in physiological exercise it seems to me that the hearts of these runners act simply according to this law. The heart has been physiologically stimulated and it dilates physiologically.

It is true, as Dr. Larrabee has said, that with dilatation the blood pressure may be decreased, because when an excessive amount of work has been put upon the heart it eventually becomes fatigued. In this case the muscular contractions diminish in strength, as is the case with all muscles, and the blood is thrown out with diminished force. In a condition of fatigue, too, the heart may fail to retract again to its normal size, and then we may have a condition of pathological fatigue or "heart-strain" so called. All this has been experimentally shown. But with a fatigued heart there is a still further tendency for the heart to dilate in accordance with this same law, even though the resistance may be somewhat diminished, for then the work may be still *relatively* increased; that is, the power has become diminished in a degree greater than has been the resistance, which is thus augmented relative to the power to do it. Now the experiments of Roy and Adami showed that regurgitation occurred through the left ventricles, and even through the right heart when the dilatation became excessive. Here again is what is observed after excessive exercise.

Turning now to pathological conditions, it seems to me that we have exactly the same conditions temporarily in febrile diseases where you have a mitral murmur with dilatation; there again the work is relatively increased, because the strength of the heart muscle is diminished (from the action of the toxin) so that even under such conditions this physiological law comes into play.

Now as to the question whether there is an anatomical mitral sphincter or not, it seems to me this is not so important as whether there is a physiological sphincter; that is, whether any fibres, no matter how located, narrow the mitral orifice during systole. Now the experiments of Hesse show that in diastole the mitral orifice is much larger than in systole, and that during contraction of the ventricle a narrowing of the orifice occurs as a part of the mechanism of the closure of the valve.

Similarly, W. G. Thompson, by instantaneous photographs in observation on birds, if I remember rightly, showed an expansion and contraction of the base of the heart. So, as Dr. Larrabee has said, narrowing of the mitral orifice occurs during systole and helps in its closure. Still, it has not been proved that when the heart is working under ordinary conditions this sphincter action is absolutely essential, and that the valve alone is incapable of closing the orifice. But, on the other hand, there is no doubt that when extreme physiological or pathological dilatation occurs the valves cannot close the expanded opening without the help of the sphincter. It is for this reason that when dilatation is excessive, or the muscle is fatigued, that regurgitation occurs. I have seen the healthy heart expand until the left border was outside the mammillary line under the stimulation of nervous excitement and then retract again in a few moments. All this has a direct bearing on the interpretation of the phenomena of disease as well as of those of exercise, for a diseased heart is subject to the same physiological laws as is a normal one. I am glad that Dr. Larrabee has emphasized so emphatically that we should be conservative in our attitude toward the effect of athletics on the heart. It was only a short time ago that a young Harvard student was sent to me by a prominent physician in New York for trouble with his heart. It seems he had been told he must not take any part in athletics as he had cardiac enlargement. He had various heart symptoms, but after examining him I satisfied myself that the symptoms were purely mental from being told that he had heart disease, and that the hypertrophy was physiological. I sent him back to his athletics, his symptoms disappeared, and I have reason to believe he is all right now.

Dr. John B. Blake: Death due to physical exercise is very unusual. I have found reference to only three or four cases. The first one was the original Marathon runner — a soldier who ran from the battlefield to the marketplace of Athens, announced the victory of the Greeks and dropped dead. The second one was a guide who conducted parties up the Matterhorn. He was caught in a storm and had to carry the packs of the others; while coming down he had to support one of the party who was exhausted. He got them down to the snow line, and dropped dead almost immediately. This was a combined physical and mental strain. The third was a famous oarsman who was champion sculler of England and stroke of a noted four-oared crew. During a championship race, and at the end of the three-quarter mile, he was seen to totter and fall over on his oars. He was taken to a house on the river's edge, and died in a few hours. There was a suspicion of poison, and an autopsy was performed, which proved that he had died of acute congestion of the lungs. He was a man of excellent health and habits, strong and able-bodied. It was said that two or three days before he had strained himself in trying to lift a boat off the beach. After watching men who run races, it seems to me that the danger of death as an immediate result is very slight indeed, provided that the men are normal at the start. In collapse there are two forms, one in which a man runs a hard race and drops up at the end of it but soon recovers; and the more unusual sort, where the man does drop during the contest and never recovers. During the progress of the Marathon race of 1901 one of the men, who was far in the

lead, dropped. He was covered with blankets, rubbed vigorously, stimulated moderately and given some hot soup. In about fifteen minutes he sat up and expressed a desire to walk home. He started, walked a little way, then said he would like to run some more, and he finally finished second. Whether he had congestion of the lungs or an acute dilatation of the right side of the heart we have no means of knowing. I agree with Dr. Larrabee, that it is very unusual for a thoroughly trained athlete, who is in good condition previous to a race, to be seriously and permanently affected by the strain.

DR. BLAKE: I would like to ask Dr. Larrabee if any examinations have been made of the hearts of schoolboys who race.

DR. LARRABEE: As far as I know, no studies have been made. It would be very interesting.

DR. TOWNSEND: I will say that the schoolboys are all examined in a general way to show that they have no chronic disease of the heart, but they are allowed to race.

DR. LARRABEE: One must be very cautious in applying the results of laboratory experiments to the explanation of clinical findings. Roy and Adami, in the experiments to which I presume Dr. Prince had reference, constricted the aorta in anesthetized dogs and studied the resulting effects on the blood pressure and on the heart. It is a far cry from this to a race. In few respects are the conditions the same, and in some they are wholly different. For example, in the experiments, the changes in the heart are wholly due to increase in the aortic blood pressure, while in exercise the pressure soon falls to lower than normal.

In regard to the work done by the heart, we are probably safe in assuming that during brief exertion, when the blood pressure is high and the heart is beating rapidly, that the work done by the latter is greater than during rest. To what extent this is modified by the subsequent fall of tension and the other changes when the exertion is prolonged, is, at least so far as the writer is concerned, entirely unknown.

## AMERICAN ORTHOPEDIC ASSOCIATION.

SIXTEENTH ANNUAL MEETING, HELD IN PHILADELPHIA, JUNE 5, 6 AND 7, 1902, H. AUGUSTUS WILSON, M.D., OF PHILADELPHIA, PRESIDENT.

(Concluded from No. 11, p. 307.)

### SECOND DAY.

#### THE DIAGNOSIS OF HIP DISEASE.

DR. ROBERT W. LOVETT of Boston read this paper. Ninety-five cases of hip disease were analyzed which began in the years 1897 and 1898 as to their condition four years later. Nearly all were found. About two-thirds of the cases proved to have been real destructive tuberculous bone disease pursuing a characteristic course. Some twenty-three cases recovered rapidly without much treatment, and were all entirely well. A group of some fifteen miscellaneous cases proved to be infantile paralysis, arthritis deformans, coxa vara, etc., not pursuing a course characteristic of tuberculous disease. The symptoms present in the different groups were all analyzed, and the conclusion reached that the diagnosis can not, as a rule, be made off-hand from certain symptoms generally considered characteristic, but with great care, and often only after observation. There were twenty-one cases of short duration, and these after three or four years were well without atrophy, shortening or limitation of motion. About one case in five recovered within a few weeks without treatment, and from our present knowledge we were not warranted in saying that they were tuberculous.

#### THE RATIONAL OR COMBINED TREATMENT OF COXALGIA.

DR. R. TUNSTALL TAYLOR was the author of this paper. He had found many of the operative methods disappointing, and desired to especially recommend erasion. The x-ray had given him material assistance in detecting and locating early tuberculous lesions in the hip-joint, the affected portions appearing much paler than the surrounding bone in the skiagraphic negative. As an aid to early and accurate diagnosis he considered it vastly superior to the tuberculin test. A common objection to early operations was the supposed danger of dissemination of tubercle, but this he was disposed to look upon as a surgical bugbear. Again, the growth of the limb was not interfered with by erasion as it was in the operation of excision. It was a question of securing an immediate bony ankylosis rather than obtaining ankylosis after years of suffering and discharge from the diseased joint. After erasion the patient should be kept in bed with a traction force of five pounds applied in the line of deformity. When the disease focus was very small, it might be well to try the effect of rest and good hygiene, but skiagraphs should be taken from time to time to keep the surgeon informed as to the progress of the case, and if the disease became extensive the operation was no longer indicated. He preferred to remove the disease focus, under the guidance of the skiagraph, by means of the round irrigating curette, using for irrigation of the wound a 2½% solution of formalin. Having had a child die on the table from acute carbolic acid poisoning, the result of injecting successively strong carbolic acid and alcohol, he had discarded that practice. His explanation for the fatality in that case was the supposition that some of the carbolic acid had been thrown directly into the circulation through the open mouth of a large vessel.

#### THE REMITTENT LIMP OF THE FIRST APPARENT STAGE OF HIP-JOINT DISEASE.

DR. NEWTON M. SHAFFER of New York presented this paper. He brought up this subject again because, although as far back as the meeting of the association in 1889 it had seemed to him an

old topic, he had found that this symptom was not even yet very generally known, or its value appreciated. Sometimes there would be quite a number of these attacks of transient limp, but close observation had convinced him that even in the intervals reflex muscular spasm was present to a degree.

THE OPERATIVE TREATMENT OF HIP-JOINT DISEASE.

Dr. James K. Young of Philadelphia was the author of this paper. He said that multiple myotomy and tenotomy and forcible straightening were not effective operations unless combined. He preferred Gant's method of doing osteotomy. The operation of erasion, especially by Willard's method, had proved very satisfactory in children, and was preferable to excision, the latter being reserved for cases of long-standing suppuration with extensive bone change. Ordinarily the external curvilinear incision of Agnew should be used, as the incision of Barker, made anteriorly, was not satisfactory, and demanded invariably the use of posterior drainage. The author did not favor early excisions, nor did he advocate amputation at the hip-joint except when the disease had extended down the femur without involving the pelvis to any extent.

Dr. T. Halsted Myers of New York opened the discussion on the foregoing papers. He said that most of his own diagnostic errors in this group of cases had occurred in connection with rheumatism, and he was positive that the textbooks were wrong in asserting that in children under five years of age acute articular rheumatism could be excluded. The x-ray was sometimes useful, and in several instances he had been enabled to make a positive diagnosis by the results of the tuberculin test, and the subsequent history had proved the correctness of the diagnosis.

Dr. E. H. Bradford counseled taking a conservative attitude in the matter of operating for the early removal of disease foci, and insisted that skiagraphs were susceptible of such diverse interpretations, even by experts in this field, that their indications should be accepted with reserve.

Dr. W. R. Townsend of New York referred to two cases in which sarcoma of the thigh and sciatica respectively had been mistaken for disease of the hip-joint.

Dr. H. L. Taylor recalled a case in which infantile paralysis had been confounded with hip disease.

Dr. N. M. Shaffer said that all the usual symptoms of hip disease might be present in a case of traumatic separation of the epiphysis.

Dr. R. H. Sayre of New York observed that rapid recovery from tuberculous joint disease was no ground for excluding such disease any more than quick recovery from an incipient pulmonary tuberculosis should lead to the exclusion of that diagnosis. There was much truth in the criticisms made by Dr. Bradford on the uncertainty of the revelations made by the x-ray. He had several skiagraphs from persons who had recovered from hip disease with good motion and who were free from pain, yet to look at these skiagraphs one would think the joint had been absolutely destroyed.

Dr. George G. Davis of Philadelphia advocated the drilling of the bone in several places during the acute stage of the disease with the idea of eradicating the disease focus. His experience with this simple and comparatively safe operation led him to believe that in this way the course of the disease could be favorably modified, provided the usual appliances and conservative treatment were employed in conjunction with it.

Dr. John Dane of Boston thought many errors in diagnosis arose from confounding tuberculosis with syphilitic disease of the joint.

Dr. Harry M. Sherman said that when there was persistent atrophy of the limb he thought it was reasonably certain to diagnose tuberculosis. He could not help feeling that the operation of erasion, when done on such a deeply buried joint as the hip, must yield even more disappointing results than erasion of the knee.

Dr. John Ridlon of Chicago pointed out that the result of an x-ray examination might be negative because of an absence of bone deposit, while, on the other hand, if there were such a deposit the x-ray would apparently indicate disease although the patient had recovered.

Dr. R. Tunstall Taylor said that in children syphilitic disease was more apt to attack the diaphysis than the epiphysis. There was no difficulty in operating through the anterior incision, provided one did not wish to remove the synovial membrane of the joint, and he had personally relied upon the use of antiseptics as a substitute for that procedure.

WOLFF'S LAW OF TRANSFORMATION.

Dr. Albert H. Freiberg of Cincinnati presented in this paper a general consideration of the theory of functional conformation of bones and of the functional pathogenesis of deformity, illustrating the subject by the presentation of specimens and lantern slides, showing the femora of the ox, sheep, llama, leopard, baboon and gibbon. The author concluded that Wolff's law and its corollaries, while not admitting of strict mathematical proof, should not, on this account, be rejected.

Dr. L. A. Weigel said that at the last meeting of the association in Washington, D. C., he had exhibited radiographs from a case in which there was tuberculous disease of the knee, and in which, upon the living subject, he had been able to demonstrate the actual change in the contour and structure of the bones of the foot as compared with the normal side. The shapes of all of the bones of the foot were different from those of the opposite side, which had constantly borne weight. The practical point was to determine how long a part could be kept immobile without interfering with the normal function and growth of the structures not directly involved.

THE TREATMENT OF CONGENITAL DISLOCATION OF THE HIP.

DR. ROYAL WHITMAN of New York read this paper. He said that the aim of treatment should be to thoroughly stretch the anterior border of the capsule, overcome shortening and hold the limb in an exaggerated position long enough to allow of retraction of the capsule and muscles. If simple manipulation failed, the joint should be thoroughly explored by incision. If anteversion of the neck were present, the limb should be placed in a position of inward rotation, and osteotomy performed at the time of the second dressing. The present tendency was to restrict more and more the field for the procedure of excavating the acetabulum. It might be laid down as a general rule that the more perfect the replacement the greater the danger of restriction of motion. In a certain proportion of cases it was probable that the acetabulum was sufficiently developed at birth. Perfect success could only be secured by forcible reduction, supplemented if necessary by arthrotomy or osteotomy. So long as there was local sensitiveness or pain on use the joint should be protected. Out of the ten cases of functional cure that he had previously presented to the association, nine had been treated by the bloodless method.

CAUSES OF RELAPSE AFTER REDUCTION OF CONGENITAL DISLOCATION OF THE HIP.

DR. E. H. BRADFORD of Boston, in discussing this topic, expressed the opinion that it was not time yet to tabulate the results; an interval of five or ten years should first elapse in order to be certain that what was supposed to be a cure was really nothing more than a transposition. The causes of relapse should be ascertained. Apparently deepening of the acetabulum was not required in a very large proportion of the cases. He had been disappointed with the results of shortening of the capsule.

DR. JOHN RIDLON advocated the repeated trial of replacement, using all the force one dared to apply. In one case, occurring in a child of four or five years, this meant the combined pull of three men. He believed his failures were attributable to his not having secured abduction to a right angle and such full hyperextension that the knees were carried back to the median plane of the body or further.

DR. H. M. SHERMAN said that he had stopped trying to suture the capsule in cases of congenital dislocation of the hip upon which he did arthrotomy. In the cases in which he had reduced the dislocation through a simple incision he had attained a greater measure of success than in other cases. Undoubtedly it would sometimes be necessary to excavate the acetabulum, but this was always unfortunate because of the resulting stiffening. If, however, this stiffness were left untreated, and the child were allowed to walk there would be some gain in motion without inflicting any traumatism. The causes of recurrences might be epitomized in the words "anatomical misfits."

DR. GEORGE R. ELLIOTT of New York said that an experience in two cases had led him to believe that a possible cause of anterior displacement was to be found in the tremendous pressure made posteriorly, thereby forcing the bone anteriorly.

DR. ROYAL WHITMAN remarked that he had never had a case relapse after he considered it to have been cured by the bloodless method.

DR. E. H. BRADFORD said that in a certain number of cases the dislocation could not be reduced by the bloodless method, and if in some of these assistance could be rendered by opening the capsule this should be done, as no great additional risk would be incurred.

SIMPLIFICATION OF THE TREATMENT OF LATERAL CURVATURE.

DR. E. H. BRADFORD of Boston presented this paper, which was a plea for a simple home treatment, thus saving the child a year of special treatment occupying four or five hours a day. Diagrams were shown to give an idea of the exercises recommended. They could be done at home under the supervision of the mother or nurse, and all the apparatus required was a frame made of gas pipe with a rod across it. Having secured the greatest possible flexibility of the spine the development of the muscles should be the next step.

THIRD DAY.

THE NECESSITY OF SUPPORTING THE HEAD IN CASES OF SCOLIOSIS SITUATED IN THE UPPER DORSAL REGION.

DR. REGINALD H. SAYRE of New York was the author of this paper. With the aid of photographs he pointed out the advantages of such support, and insisted that they more than outweighed the inconveniences.

FAULTY ATTITUDE AND ROUND SHOULDERS, WITH DESCRIPTION OF AN APPARATUS FOR MEASURING IT.

DR. ROBERT W. LOVETT of Boston presented this communication. Briefly, the method consists in measuring from a certain horizontal plane special and easily located anatomical landmarks. The measurements are quickly made by means of a slight modification of the sliding horizontal rod on the apparatus generally used for measuring the height. The landmarks chosen are the mastoid, the vertebra prominens, the seventh dorsal vertebra, the fourth lumbar vertebra, the middle of the trochanter, the head of the fibula and the external malleolus. These measurements are plotted on paper. A composite taken in this way from the measurements of seventy-two healthy boys was shown and contrasted with a similar composite from several hundred measurements taken in a girls' school. These charts were very similar, except that the fourth lumbar vertebra was further forward in relation to the tro-

chanter, in the girls, due to the relatively greater lordosis normally found in young women. Experience had shown that it was possible by this method to secure quite close agreement in the observations of one person at different times and of different observers.

DEMONSTRATION OF THE CONNECTION OF ROTATION AND LATERAL DEVIATION IN SCOLIOSIS ON A MODEL.

Dr. Lovett also exhibited his flexible model of the vertebral column to refute the published paper and photographs of Dr. A. B. Judson. Dr. Lovett apparently demonstrated by this model that rotation does take place along with the lateral bending.

THE ANATOMICAL CHANGES IN SEVERE CASES OF SCOLIOSIS AS DEMONSTRATED IN THE LIVING SUBJECT.

Dr. L. A. Weigel of Rochester discussed this subject with the aid of a number of skiagraphs. He said that the amount of rotation does not necessarily depend upon the degree of lateral curvature, and that in some cases exhibiting marked rotation the changes in the intervertebral cartilages were extreme as compared with the changes in the bone.

Dr. H. P. H. Galloway said that while no one would dispute the desirability of supporting the head in the treatment of scoliosis, the difficulties in the way of carrying this out in private practice appeared to him to be almost insurmountable. It did not seem to him of much importance what system of exercise was adopted, as the effect was only indirect, operating through the development of the muscles. In his opinion the most important element of the treatment, and that for which Dr. Bradford apparently did not provide, was the education of the patient to assume the position in which the spine is least curved. The treatment must be continued day after day until the assumption of this position becomes automatic and habitual. He did not think it was possible to have any one attend to this at home after a short period of instruction.

OPERATIVE TREATMENT OF CLAW-HAND RESULTING FROM FRACTURE OF THE ARM.

Dr. H. P. H. Galloway of Toronto read this paper. As the flexion of the fingers was evidently the result of a real shortening of the tendons, the scar of the original injury was separated from the underlying tissues, and then the tendons were lengthened to the desired amount by the well-known method of splitting them and allowing the parts to slip past each other. On removing the first plaster dressing at the expiration of ten or twelve days it was found that primary union had taken place. Within a month the man could write well and could grasp with firmness, and after two or three months the functions of the hand were practically perfect. The tendons were lengthened about an inch and a half above the annular ligament.

FASHIONING APPARATUS FOR FLAT FEET AND DEFORMITIES OF THE TOES.

Dr. Albert H. Freiberg exhibited this apparatus. He obtained a working pattern of the foot by painting the sole with a mixture composed of fifty parts of solution of chloride of iron, forty-five parts of 80% alcohol and five parts of glycerin. The patient stands on a card and the outline of the foot is drawn with pencil, and then the tracing of the sole is developed by brushing the card over with a concentrated solution of tannic acid. This method of obtaining the tracing he found less troublesome than the use of printer's ink, which is dirty to handle and difficult to remove from the patient's foot.

SOME TYPES OF BONE DISEASE AFFECTING THE VERTEBRAL COLUMN ASSOCIATED WITH PRESSURE PARALYSIS.

Dr. George R. Elliott of New York reported several cases and presented specimens.

A CONTRIBUTION TO SPASMODIC WRYNECK.

Dr. Elliott reported in this paper a case in which the head had been drawn down to the right side, and although very slight force only was needed to restore it to the proper position, several neurologists had been unable to give the patient relief. The patient had now worn a Taylor head-rest for two years, and had experienced great comfort from it.

THE PASSIVE CARRYING FUNCTION OF THE ARM; ITS IMPORTANCE; ITS DESTRUCTION, AND AN OPERATION FOR ITS RESTORATION.

Dr. Philip Hoffmann of St. Louis presented this paper. He called attention to the fact that the normal arm is not straight, and that, as a consequence of the two segments joining at the elbow at an angle of about 170°, the forearm diverges from the body when the upper arm is held parallel to it. This divergence enabled one to carry weights without touching the thighs and interfering with locomotion. The only expenditure of muscular energy was that required for grasping. Anything changing the direction of the articular surface to one facing downward and slightly inward, by reversing the elbow angle to an inward one, destroyed the ability of the arm to passively hold weights away from the thigh. From this it followed that weight carrying must then be accomplished by muscular exertion. The muscles mainly concerned in this were the deltoid and trapezius, the former acting at a great disadvantage. As the distance of the weight from the fulcrum was about four times that of the power, every pound held in the hand would exert a pull upon the deltoid equivalent to four pounds. Again, while walking, without weight carrying, the hand tended to cross in front of the moving thigh. This, in itself, led to discomfort and muscular fatigue. The disability just described was a rather common one, and resulted from various elbow injuries. The passive carrying function of the arm could be restored by reversing

the plane of the lower articular surface of the humerus to its normal direction. Dr. Hoffmann accomplishes this without disturbing the joint by dividing the humerus above the condyles and bending the lower fragment, with the attached forearm, outward. It was only recently, he said, that he had learned that this operation was not original with himself.

DR. CHARLES F. PAINTER said that he had been able to find seven operative cases of this kind on record. Those who had studied the question most carefully were of the opinion that the cause of the disability was almost invariably a transverse fracture above the condyles. In some instances the interference with the carrying function of the arm had even led to the development of a true rotary lateral curvature.

DR. G. G. DAVIS remarked that as these patients usually insist that the use of the arm is perfect it was difficult to obtain consent to operate, though the risk was slight. He was of the opinion that it was better to operate from the inside of the angle, so that when the angle was opened the remaining periosteum would form a hinge. By operating on the outside there was an unnecessarily extensive separation of the periosteum, and moreover there was considerable danger of injuring the musculospiral nerve.

A BACK BRACE.

DR. J. C. PEGRAM of Providence exhibited a brace provided with two curved and hinged arms passing up in front of the shoulders. They are fixed in the desired position by a friction joint, and between them a strap passes across the front.

THE X-RAY STEREOSCOPE.

DR. L. A. WEIGEL exhibited the reflecting stereoscope used in connection with stereoscopic skiagraphic negatives for more accurate localization.

A CASE OF CONGENITAL ABSENCE OF THE TIBIA.

DR. A. J. STEELE of St. Louis reported this case.

ELECTION OF OFFICERS.

The annual election resulted in the election of the following officers: Dr. L. A. Weigel of Rochester, President; Dr. Reginald H. Sayre of New York, First Vice-President; Dr. R. Tunstall Taylor of Baltimore, Second Vice-President; Dr. E. G. Brackett of Boston, Treasurer; Dr. John Ridlon of Chicago, Secretary.

The next annual meeting will be held in Washington, D. C., in conjunction with the Congress of American Physicians and Surgeons.

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MEDICAL JOURNALISM.—The current number of the *Medical Standard* devotes a large part of its space to various matters relating to medical journalism, especially to an historical consideration of medical publications in the United States, and to the growth of medical journalism.

## Recent Literature.

*The Climates and Baths of Great Britain.* Being the Report of a Committee of the Royal Medical and Chirurgical Society of London. C. THEODORE WILLIAMS, M.D., Chairman; P. HORTON SMITH, M.D., Honorary Secretary. Volume II: The Climates of London and of the Central and Northern Portions of England, together with those of Wales and of Ireland. London: Macmillan & Co., Ltd. 1902.

This issue of the second volume, seven years after the first, at length completes the work undertaken by the Committee of the Royal Medical Chirurgical Society in 1889. While the personnel of the committee has been changed by death and resignations, the high quality of its work has been fully maintained and the present volume is a fitting companion to the previous one. Wisely, for the accuracy of comparisons, the meteorologic data are given for the same years as those in the earlier volume. Besides the usual climatic statistics, which are well arranged, sufficient attention has been paid to a presentation of the prevailing conditions of public health in the various resorts described, a feature not sufficiently considered in many cases before selecting a residence for persons in uncertain health.

Dr. Ewart's study of the peculiar meteorologic conditions of London, perhaps the only city which can boast an individual climate, is of great value and suggestiveness. We hope the material necessarily omitted from this paper may find publicity elsewhere.

The contributors to the present volume are: Wm. Ewart, M.D.; H. L. Brooksbank, M.D.; Wm. Murrell, M.D.; P. Horton Smith, M.D.; Robert Maguire, M.D.; W. S. Lazarus Barlow, M.D.; D. J. Leech, M.D., D.Sc.; C. Theodore Williams, M.D.; Sir John W. Moore, M.D.; Norman Moore, M.D.

The committee and the society are to be congratulated upon the high quality of the report, and the medical profession upon the acquisition of so valuable an addition to climatologic literature.

*Mother and Child.* By EDWARD P. DAVIS, A.M., M.D. Professor of Obstetrics in The Jefferson Medical College; Professor of Obstetrics and Diseases of Infancy in the Philadelphia Polyclinic; Visiting Obstetrician to The Jefferson, Philadelphia and Polyclinic Hospitals, etc. Philadelphia: J. B. Lippincott Company. 1902.

This little work, being written for mothers, should not, of course, be judged too critically. It touches briefly on pregnancy, labor, the puerperium, the feeding of infants, the hygiene of the child and of the nursery, the signs of illness in children, the nursing of sick children, and medical and surgical emergencies. It is full of good common sense, and should be as useful as other

books of its class. In common with them, however, it is very superficial, and many things are just touched on and not thoroughly explained. It is commendable in that it constantly emphasizes the importance of calling a physician and not trusting to home remedies or the advice of friends and neighbors. We cannot agree with the author's position as regards wet-nurses, and hardly think that alcohol taken as a food during pregnancy will lead to inebriety in the after life of the child. We do agree most heartily with the statement that "the most difficult matter to regulate in nourishing a child is not the child, but those interested in it."

*Massage and the Original Swedish Movements.* Their Application to Various Diseases of the Body. By Kurre W. Ostrom, from the Royal University of Upsala, Sweden. Fifth edition, revised and enlarged, with 115 illustrations. Philadelphia: P. Blakiston's Son & Co. 1902.

This book of 181 pages is the substance of practical lectures delivered before various training schools for nurses in Philadelphia. It has reached its fifth edition within about twelve years, and has been revised and partially rewritten to meet the requirements of new methods and advance in the general subject of massage and physical training. The subject-matter is systematically arranged with copious illustrations of the exact way in which the various movements should be performed, and a brief discussion of the application of these physical means of treatment to various conditions of disease is appended. The book should be of much practical value, and we hope may do its share in bringing these important methods of treatment to the attention of physicians.

*Gibson and Russell's Physical Diagnosis.* Third edition, revised and rewritten. By Francis D. Boyd, C.M.G., M.D., F.R.C.P. (Edin.), Assistant Physician, Edinburgh Royal Infirmary, etc. With 144 illustrations, pp. xvii, 448. New York: D. Appleton & Company. Edinburgh and London: Young J. Pentland. 1902.

In this third edition of this excellent volume on physical diagnosis new sections have been added on the blood, gastric contents, intestinal parasites, the cranial nerves and clinical bacteriology, with a corresponding increase in the number of illustrations. These additions have naturally resulted in improvement, and the book may be recommended as a modern, safe guide in the principles of physical diagnosis as applied particularly to internal medicine. The volume is well made, unusually well printed, and the illustrations are much clearer than one usually meets in books of this scope and character.

At the recent convocation, Pres. William H. Harper reported that the medical department had received a gift of $50,000, and that the expenses of the department for the year had been less than the estimated amount.—*Journal American Medical Association.*

THE BOSTON

# Medical and Surgical Journal.

THURSDAY, SEPTEMBER 18, 1902

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283 Washington Street, Boston, Mass.

## HOSPITAL NEEDS OF NEW YORK CITY.

For the hospital needs of New York City Mayor Low has recommended that the credit allowed it by the Constitution should be used, and by increasing its borrowing capacity be enabled to distribute the expenditure necessary for the purpose over a number of years. In regard to the handling of infectious diseases he points out that until bonds were issued during the present year there was absolutely no provision made either for disinfecting plants or for the treatment of this class of diseases in the boroughs of the Bronx, Queens and Richmond, which have together a population of 500,000. An issue of bonds in the sum of $425,000 was authorized for these purposes, and the most urgent needs are thus being met, but not less than $2,000,000, he states, ought to be spent within the next three years for hospitals for infectious diseases alone, in order to make good New York's marked deficiencies in this direction. Comparing the two cities, he finds that London has 6,500 beds for the treatment of these diseases, or one for each 1,000 of the population, while New York has only 750 beds, or one for each 5,000 of the population. London is now adding 1,500 beds to its previous supply, while New York, through the issue of the bonds authorized in the spring, is adding 225 beds. In London, this year, out of nearly 20,000 cases of infectious disease, nearly 88% were treated in hospitals, while in New York only 9.5% were so treated. Modern sanitary science demands the increasing treatment of such cases in hospitals, and New York can no longer afford to neglect this great element of safety. He expresses his confidence that the conscience of the city will not suffer it to be less than one-fifth as thoughtful of its sick poor and of its own health as the English metropolis, and furthermore gives it as his opinion that these in-

creased hospital accommodations cannot be provided for through the tax levy.

As an incentive to increasing the efficiency of the Health Department he points out that smallpox might have been epidemic in the city last spring but for the activity of the Department. The free vaccinating corps performed 700,000 vaccinations in the first six months of 1902, as against 300,000 last year. As a result, the threatened epidemic was held in check. Diphtheria and consumption, there was reason to believe, were yielding to modern medical attack, and he quoted statistics regarding bacteriological examinations, etc., showing efficiency on the part of the Department and a lowering of the death-rate. The mayor also referred to the recent report of the trustees of Bellevue and Allied Hospitals, showing the urgent need of new and enlarged hospitals for the treatment of diseases which are not infectious, and recommended that financial provision for these should be made in the same way.

The attitude of Mayor Low toward the needs of the sick has from the first been liberal and indicative of a full realization of the duty of a great city towards its sick poor. The recent report of the committee appointed to investigate the conditions at Bellevue Hospital, with its highly adverse findings, together with these recommendations of Mayor Low, to which we have alluded, should do much toward stimulating public interest in what always must be one of the gravest responsibilities which a city government has to face.

## THE ETIOLOGY OF SUMMER DIARRHEA.

A PRELIMINARY report of an investigation by Dr. C. W. Duval of Annapolis and Dr. V. H. Bassett of Baltimore on the etiology of the summer diarrhea of infants, has appeared in *American Medicine* for Sept. 13. These investigators working at the Thomas Wilson Sanitarium, Maryland, under a grant from the Rockefeller Institute of Medical Research, have succeeded in isolating from the stools of forty-two cases of summer diarrhea, the bacillus dysenteriæ (Shiga). This organism was also secured from scrapings of the intestinal mucosa at autopsy and in one case from the mesenteric glands and liver. In acute cases the bacillus was found in large numbers, but was secured with difficulty from cases of mild character and long duration. It is claimed that the specific bacilli isolated are identical with the dysenteric bacillus isolated by Shiga, Flexner and others from cases of acute dysentery in adults. The authors state that agglutinative reactions were obtained when the organisms were tested (*a*) with the blood serum of the patients from whom they were secured; (*b*) with the serum of other infants suffering from summer diarrhea; (*c*) with the serum of adult patients with acute dysentery; (*d*) with antidysenteric immune serum. The specific bacillus was not found in the stools of twenty-five healthy children, nor of those suffering with simple diarrhea, marasmus and malnutrition; nor did the blood serum of these latter individuals agglutinate the dysenteric bacillus.

The writers believe themselves justified in concluding that infant summer diarrhea is etiologically identical with adult acute bacillary dysentery. We shall await with interest the full report which is later to appear in the *Journal of Experimental Medicine*. In the meanwhile we must regard this preliminary report as a valuable indication of the work which is being done; it is, however, too brief to permit of a dogmatic statement of the final worth of the completed investigation: Dr. Simon Flexner is mentioned as having aided in the work, but no mention is made of Dr. Welch, whose name has been coupled with the discovery in the somewhat garbled reports appearing in the daily papers.

## MEETING OF THE AMERICAN DERMATOLOGICAL ASSOCIATION.

THE American Dermatological Association meets in Boston during the latter days of this week. The time is certainly propitious for such a gathering, and we trust the place is also. Certainly Boston seems to be growing in popularity as a meeting place for important national societies. In the spring of this year the Laryngological and the Pediatric associations held their annual meetings here, both under the presidencies of Boston men. The Dermatological Association has followed the example set by its sister societies, in spite of the fact that the president this year is Dr. George T. Jackson of New York. Whatever the attractions of the city may be to the visiting physicians, we can assure them a cordial reception.

The scientific sessions, Thursday, Friday and Saturday morning, are, for the most part, to be held at the Hotel Bellevue, Beacon Street, and although no such statement appears in the program, we have no doubt that physicians in general would be welcome to the meetings. Friday afternoon the session will be held at the Harvard Medical School, at which Dr. W. T. Councilman and Dr. C. W. Allen will respectively give lantern demonstrations on the structure and mode of formation of the smallpox pustule, and on the value of radio-therapy in cutaneous and other cancers.

There is no better indication of the rapid differentiation of the branches of medical knowl-

edge, and of the surprisingly small interest which physicians take in each other's scientific work, than the usually poor attendance of outsiders at these annual medical gatherings. The surgical meetings are coming more and more to be for surgeons alone, and medical meetings, with all their subdivisions, for specialists in various lines of work. Inevitable as this may be, it is altogether to be regretted. We are all too ready to allow these exceptional opportunities for general medical culture to slip by without making even the effort of attendance at the meetings. We hope the importance of the subjects which our colleagues in dermatology have to present, as well as a sense of the opportunity offered for learning what is being done by the leaders in this branch of medicine, may induce many practitioners in general or special lines to attend the scientific meetings.

## MEDICAL NOTES.

Typhoid Fever in Chicago.— According to the *Bulletin* of the Chicago Health Department for the week ending Sept. 13, 1902, there are indications that the typhoid fever epidemic was abating. The total typhoid deaths reported, forty-three, were twelve less than those for the previous week, and during the last three days of the week they were only five, one and two respectively, or a daily average of less than three, as compared with a previous daily average of seven for the seven weeks previous. This decrease in the number of deaths, as an indication of the decline of the epidemic, was further corroborated by the returns of cases admitted to the various hospitals. In the County Hospital there were only 240 cases under treatment at the close of the week, as compared with 373 three weeks previous — a reduction of 35%. Although there was some slight improvement in the quality of the water supply during the week — enough to warrant the department in resuming the characterizing of certain supplies as "good" — the decrease in the typhoid mortality cannot be attributed to this cause. It is due rather to the campaign of education begun by the department nearly two months ago as to the nature and cause of typhoid and the method of its prevention. Another fact that is construed as an indication that the height of the epidemic has been reached is the increasing duration of the disease in the fatal cases. The average duration in the fatal cases in August was seventeen days. During the first thirteen days of September it was twenty-two days, and during the last week it was more than twenty-seven days.

The Association for the Protection of the Adirondacks.— This association has begun the agitation of a proposition to acquire more land within the Adirondack Park. The limits of this park were defined ten years ago, but as yet the State of New York owns much less than half of the three million acres which the proposed park measures. The wisdom of acquiring title to the whole of this tract as soon as possible is manifest. Eventually New York City will have to look to the Adirondack region for the greater part of its water supply, and then public control of the watershed will be an absolute necessity. But it is not the city alone that will benefit; it would be an even greater calamity to the State at large than to the city to have this great region denuded of its forests, its rainfall decreased, and its lakes dried up. The land will never be cheaper than it is now, and as its purchase will be for the good of posterity, there would be no injustice in incurring for this purpose a debt for posterity to discharge.— *Medical Record.*

Charter for Christian Science Church in Philadelphia Denied.— An application for a charter for a Christian Science Church in Philadelphia has been legally refused. The presiding judge in delivering his opinion is reported to have said: "The charter applied for in this case covers a double purpose, a church and a business. We have power to grant a charter for a church, but we have no authority to grant a charter for a corporation for profit, that is, a business corporation." In support of the view that this church was intended to have a double mission, it was pointed out that Mrs. Eddy's publications are expected to be sold and circulated by the members, which is a matter of business, without apparent relation to religion.

Cholera in Egypt and the East.— The cholera returns for Egypt show that there have been 1,380 new cases reported, making totals since July 15 of 20,328 cases and 16,209 deaths. The spread of the disease in the far East and in Egypt has led to additional precautions to prevent the disease from effecting an entrance into the United States. Quarantine stations on the Pacific coast have been strengthened, and special precautions have been taken at Honolulu. Cholera is increasing in Japan, in China and in the Philippines, and there is reported to be some reason to fear that the water supply of Manila is infected with cholera germs.

Professor Virchow's Funeral.— It was voted by those in authority at Berlin to accord Professor Virchow a public funeral, the expenses to be borne by the municipality. Professor Waldeyer of the University of Berlin was one of those selected to deliver eulogies of Virchow on the day of the funeral, which took place Sept. 9.

BOSTON AND NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON.— For the week ending at noon, Sept. 17, 1902, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: Diphtheria 32, scarlatina 16, measles 3, typhoid fever 37, smallpox 13.

THE RECENT OUTBREAK OF SMALLPOX IN CAMBRIDGE, MASS.— Cambridge is now practically free from smallpox. Two weeks ago the hospital was empty, and but one victim of the disease has been found since then. It is estimated that not less than 65,000 persons were vaccinated by the city and privately between Oct. 1, 1901, and Aug. 1, 1902. The following statistics are of interest: Number of persons affected with smallpox from Oct. 1, 1901, to Aug. 1, 1902, 180; number vaccinated more than five years before, 71; number vaccinated within five years, 6; number unvaccinated, 103; total, 180. Number died, 33; number died unvaccinated, 27; number died vaccinated, 6; number died vaccinated within five years, 0; total, 33.

TYPHOID FEVER IN WAKEFIELD, MASS.— Typhoid fever has for some time been prevalent in Wakefield. In the last two months the number of cases has increased rapidly without discoverable cause. The State Board of Health has been notified, and a careful examination of the various water supplies is about to be made. Warnings have been issued to the people to drink no water from the local sources before boiling it, until the bacteriological examination has been made. It is stated that the number of cases in the town in the last two weeks is larger than the number found in Boston for two months.

NO FOUNDATION FOR CHARGES AGAINST WORCESTER, MASS., INSANE HOSPITAL.— In view of recent charges made against the management of the Worcester Insane Hospital by certain discharged employees, a searching investigation has been made by the board of trustees, with the not unexpected result that the institution is shown to be in most efficient running order, and the charges made against it wholly unjustified.

FIRE AT JORDAN HOSPITAL, PLYMOUTH, MASS.— For the second time within a few days, the Jordan Hospital at Plymouth, still in process of construction, has been on fire. The later fire has seriously damaged six rooms intended for wards. There is considerable suspicion that the fires have been of incendiary origin.

NEW YORK.

TYPHOID FEVER.— During the first week of September the number of cases of typhoid fever reported in New York City was 219, against 114 for the corresponding week in 1901 and 53 in 1900. The total number of cases during the last month was 646, as against 257 in 1901 and 248 in 1900. At the same time the mortality from the disease has been very low up to the present time, so that notwithstanding the marked increase in the number of cases, there has been little or no increase in the number of deaths, as compared with former years. As explaining the low mortality to a partial extent, it is stated that an unusually large proportion of cases reported as typhoid this year have proved on investigation not to be this disease.

## Miscellany.

### APPENDICITIS AS AN AMERICAN DISCOVERY.

WE question the complete justice of this quotation from the *Practitioner* (London), but offer it to our readers for what it is worth:

"One of the most familiar features of the traveller from the States who visits this obsolescent old country is the quiet peremptoriness with which he claims everything that strikes him as good as 'Amurrican.' It may be cheerfully admitted that we do in fact owe many inventions, happy and otherwise, to America. But we really must protest against the assumption which is calmly made by writers in American medical journals, that we owe them the knowledge either of appendicitis or its treatment. It might almost be gathered that some of them believe that the appendix itself is an American discovery. Among James Russell Lowell's less felicitous literary productions is an essay "On a Certain Condescension in Foreigners." Recent events would make one on a certain condescension in American physicians and surgeons towards foreigners singularly appropriate. They have been laying down the law on the treatment of appendicitis to the surgical world in general and to English surgeons in particular with an oracular assurance which shows that the sense of humor which they boast of as a national characteristic remains, in their individual cases, in a state of latency."

### FRENCH AND ENGLISH MORTALITY.

THE *British Medical Journal* comments as follows on the mortality in France as compared with England:

"The *Times* in a recent issue took the occasion offered by the recent issue of papers by the French Bureau d'Hygiène to draw attention to the extraordinary fact that the government of a country claiming to be in the forefront of scientific progress does not even take the trouble to collect precise statistics of mortality from more

than one-third of its population. That the Central Government Department should know nothing of the causes of mortality among two-thirds of the population, and that there should be no machinery whatever for obtaining exact information of outbreaks of infectious diseases, is not creditable either to the judgment or to the humanity of French administration. For there can be no doubt that such information, when obtained, would give an enormous impetus to sanitary administration, would lead to the cleansing of many Augean stables, and would greatly lower the death-rate among the French population. Is it because the obstructionists recognize that the necessary operations would involve a large expenditure of public funds that the necessary reforms are so long delayed? Even though the responsible authorities do not appear to recognize the high money value of human life, it might at least be expected that in view of the declining population of France, and of its delicate international position, the immense military value of an increasing population would be appreciated.

"The imperfect returns available — that is, of the gross number of deaths in France during 1900, and of the causes of death for a third of its population — are instructive reading. In 1900, for the fourth time in eleven years, the number of deaths actually exceeded that of births, the death-rate being 21.9 and the birth-rate 21.4 per 1,000. Of the births, nearly one-sixth were illegitimate as compared with one-twenty-fifth in this country. The birth-rate is the lowest in Europe, contrasting with 35.6 in the German Empire, 39.3 in Hungary and 28.7 in England.

"The death-rate in Paris was 20.6, that of London was 18.8. In Paris the phthisis death-rate was 4.01, in London only 1.75 per 1,000. The deaths from fever were proportionately more than twice as many as in London, the death-rate from diarrhea 1.27, compared with 0.78. From measles and whooping cough Paris suffered less than London; and the death-rate from diphtheria was only 0.11 as compared with 0.34 in London. Whether this is due to the pandemic influence of diphtheria having been exhausted earlier in Paris than in London, or to the more systematic and general use of antitoxin in the former city, or more probably to both these influences, must be left an open question.

"In the few provincial towns for which statistics are available, the contrast is quite as striking. Thus Le Havre, with a population of 110,000, had 326 deaths from typhoid fever and 621 from diarrhea; while in Brighton, with only a slightly larger population, the mortality was 11 from fever and 94 from diarrhea. Similarly Toulon, with a population of 73,000, had 118 deaths from fever and 230 from diarrhea; while in Devonport (68,000) the numbers were 13 and 35 respectively.

"There is evidently great scope for active reform in France. Much has already been done by the Public Health Department, under the able supervision of Professor Brouardel and M. Monod, and doubtless much more progress would have been secured had they been allowed a free hand. Special attention has been paid to garrison towns and barracks, and the mortality from fever in the army has declined. Between 1875 and 1884 it was 3.1 per 1,000 among the troops; it is now just below 1 per 1,000."

## ALPINE ACCIDENTS.

SPEAKING of accidents in the Alps the *Medical Press* comments as follows: Switzerland has been well termed the playground of Europe, but unfortunately it still proves to many a burial-ground. And much of the loss of life occurring on the mountains or glaciers is directly the outcome of ignorance or folly, the neglect of ordinary hygienic precautions, or the voluntary acceptance of unwarranted risks. Swiss guides are rightly praised for their prudence and endurance. In some districts they receive a certain amount of instruction in the principles of first aid, but generally speaking they are guides by "rule of thumb," or should we say "rule of foot" — at all events they frequently lack a knowledge of hygienic principles, and hence when calamity overtakes them the limits of their helpfulness are soon reached. The recent calamity on Mont Blanc is clear evidence of this. If the published accounts are to be taken as correct, the two young mountaineers who lost their lives, and the guide and porter who rushed headlong into disaster had seriously lowered their powers of resistance to the low temperature to which they were exposed during the snowstorm by indulgence in alcohol. The experience of the best climbers, and the testimony of such Arctic travelers as Nansen, have clearly demonstrated the prejudicial action of alcohol when physical exertion has to be borne at low temperatures, and yet the findings of experiment and experience are constantly set aside, and only too often with disastrous results.

## METEOROLOGICAL RECORD

For the week ending Sept. 6, in Boston, according to observations furnished by Sergeant J. W. Smith of the United States Signal Corps:

| Date | Barometer | Thermometer. | | | Relative humidity. | | | Direction of wind. | | Velocity of wind. | | We'th'r * | | Rainfall in inches. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Daily mean. | Daily mean. | Maximum. | Minimum. | 8.00 A.M. | 8.00 P.M. | Daily mean. | 8.00 A.M. | 8.00 P.M. | 8.00 A.M. | 8.00 P.M. | 8.00 A.M. | 8.00 P.M. | |
| S...31 | 30.06 | 78 | 23 | 78 | 69 | 95 | 82 | S W | S | 8 | 10 | O. | C. | |
| M...1 | 29.93 | 78 | 89 | 67 | 86 | 80 | 83 | S W | S W | 10 | 14 | C. | O. | |
| T...2 | 29.92 | 75 | 86 | 64 | 88 | 42 | 65 | S W | W | 12 | 10 | O. | C. | .07 |
| W..3 | 30.06 | 69 | 79 | 59 | 56 | 72 | 64 | N | S | 2 | 8 | C. | O. | |
| T...4 | 29.82 | 70 | 79 | 61 | 93 | 66 | 80 | S | W | 12 | 7 | O. | O. | .62 |
| F...5 | 30.13 | 60 | 67 | 54 | 60 | 48 | 54 | N W | N | 18 | 9 | C. | C. | |
| S....6 | 30.39 | 56 | 63 | 48 | 63 | 69 | 66 | N E | S E | 3 | 15 | C. | C. | |
| ☞ | 30.04 | | 78 | 59 | | | 71 | | | | | | | .69 |

*O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow. †Indicates trace of rainfall. ☞ Mean for week.

## RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, SEPT. 6, 1902.

| CITIES. | Population Estimated, 1902. | Reported deaths in each. | Deaths under five years. | Percentage of deaths from | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | Infectious diseases. | Acute lung diseases. | Diphtheria and croup. | Typhoid fever. | Diarrheal diseases. |
| New York. . | 3,665,352 | 1,230 | 491 | 34.71 | 9.51 | 1.30 | 2.36 | 17.56 |
| Chicago . . | 1,852,828 | — | — | — | — | — | — | — |
| Philadelphia. | 1,349,624 | 426 | 141 | 26.29 | 4.69 | 1.40 | 2.34 | 10.09 |
| St. Louis . . | 603,717 | — | — | — | — | — | — | — |
| Baltimore. . | 525,330 | 207 | 79 | 32.84 | 6.76 | .97 | 4.83 | 12.08 |
| Cleveland. . | 411,826 | — | — | — | — | — | — | — |
| Buffalo . . . | 375,742 | — | — | — | — | — | — | — |
| Pittsburg . . | 341,401 | 136 | 62 | 38.23 | 7.35 | 6.62 | 6.62 | 16.91 |
| Cincinnati . | 332,032 | — | — | — | — | — | — | — |
| Milwaukee . | 304,975 | — | — | — | — | — | — | — |
| Washington . | 289,537 | — | — | — | — | — | — | — |
| Providence . | 185,870 | 70 | 28 | 32.85 | 1.43 | 1.43 | — | 24.28 |
| Boston . . . | 588,736 | 204 | 83 | 35.78 | 7.35 | .98 | 2.45 | 16.67 |
| Worcester. . | 127,337 | 36 | 16 | 33.33 | 5.56 | — | — | 13.88 |
| Fall River. . | 111,872 | 37 | 21 | 35.14 | 2.70 | — | 2.70 | 13.51 |
| Lowell . . . | 99,574 | 35 | 17 | 34.30 | — | 5.71 | 5.71 | 20.00 |
| Cambridge . | 96,334 | 25 | 8 | 44.00 | 12.00 | 4.00 | — | 16.00 |
| Lynn. . . . | 71,144 | 14 | 5 | 42.86 | — | — | — | 14.29 |
| Lawrence . . | 67,275 | 29 | 12 | 41.38 | 3.45 | — | 3.45 | 20.69 |
| Springfield . | 66,854 | 24 | 10 | 25.00 | 4.17 | — | — | 12.50 |
| Somerville . | 65,882 | 19 | 7 | 26.31 | — | — | 5.26 | 10.52 |
| New Bedford. | 65,574 | 23 | 10 | 13.04 | 8.69 | — | 4.35 | — |
| Holyoke . . | 48,065 | — | — | — | — | — | — | — |
| Brockton . . | 43,208 | 8 | 1 | 12.50 | — | — | — | — |
| Haverhill . . | 40,392 | 17 | 7 | 23.53 | — | — | — | 11.76 |
| Salem . . . | 36,567 | 11 | 1 | — | — | — | — | — |
| Newton. . . | 36,336 | 6 | 4 | 50.00 | 16.67 | — | — | 50.00 |
| Malden . . . | 35,390 | 11 | 4 | 18.18 | — | — | — | — |
| Chelsea. . . | 35,264 | 15 | 5 | 13.33 | — | — | — | — |
| Fitchburg. . | 33,848 | — | — | — | — | — | — | — |
| Taunton . . | 32,759 | 13 | 3 | 15.38 | — | — | — | 15.38 |
| Everett. . . | 27,114 | 9 | 1 | 22.22 | — | — | — | — |
| North Adams | 26,583 | 10 | 6 | 60.00 | — | 10.00 | — | 20.00 |
| Gloucester . | 26,121 | 6 | 1 | — | — | — | — | — |
| Quincy . . . | 25,307 | 4 | 3 | 75.00 | — | — | — | 50.00 |
| Waltham . . | 24,612 | 3 | 1 | — | — | — | — | — |
| Pittsfield . . | 22,311 | 5 | — | 20.00 | — | — | — | 20.00 |
| Brookline. . | 21,679 | — | — | — | — | — | — | — |
| Chicopee . . | 20,390 | 8 | 4 | 37.50 | — | — | — | 25.00 |
| Medford . . | 20,014 | 6 | 3 | 33.33 | — | — | — | — |
| Newburyport | 14,478 | — | — | — | — | — | — | — |
| Melrose . . | 13,384 | 3 | — | 66.67 | — | — | 33.33 | — |
| Westfield . . | 13,038 | 6 | 3 | 50.00 | 16.67 | — | — | 50.00 |
| Attleboro . . | 12,846 | — | — | — | — | — | — | — |
| Adams . . . | 12,813 | — | — | — | — | — | — | — |
| Milford . . | 12,516 | — | — | — | — | — | — | — |
| Framingham | 12,109 | 5 | — | 20.00 | — | 20.00 | — | — |
| Peabody . . | 11,957 | — | — | — | — | — | — | — |
| Revere . . . | 11,894 | 3 | 1 | 33.33 | — | — | — | — |
| Gardner . . | 11,544 | 3 | 2 | 66.67 | — | — | — | 33.33 |
| Weymouth . | 11,337 | 6 | 1 | 66.67 | — | — | — | 33.33 |
| Southbridge. | 10,838 | 4 | 1 | 25.00 | — | — | — | 25.00 |
| Watertown . | 10,600 | 2 | 1 | 50.00 | — | — | — | — |
| Plymouth . . | 10,336 | — | — | — | — | — | — | — |

Deaths reported 2,699; under five years of age, 1,048; principal infectious diseases (smallpox, measles, scarlet fever, cerebrospinal meningitis, diphtheria and croup, diarrheal diseases, whooping cough, erysipelas, fevers and consumption) 885, acute lung diseases 190, consumption 263, scarlet fever 18, whooping cough 42, cerebrospinal meningitis 8, smallpox 4, erysipelas 4, measles 2, typhoid fever 68, diarrheal diseases 116.

From whooping cough, New York 18, Philadelphia 6, Baltimore 1, Pittsburg 4, Boston 5, Worcester 2, Fall River 2, Lowell, Springfield, Haverhill and Medford 1 each. From measles, New York 1, Pittsburg 1. From erysipelas, New York 2, Philadelphia 1, Boston 1. From smallpox, Philadelphia 1, Boston 2, Revere 1.

In the seventy-six great towns of England and Wales, with an estimated population of 14,862,456, for the week ending Aug. 23, the death-rate was 14.4. Deaths reported, 4,116; acute diseases of the respiratory organs (London) 136, whooping cough 94, diphtheria 48, measles 125, smallpox 7, scarlet fever 54.

The death-rate ranged from 5.5 in Hornsey to 20.2 in Stockton-on-Tees; London 14.5, Portsmouth 17.1, Southampton 12.1, Norwich 11.5, Plymouth 16.6, Bristol 18.7, Wolverhampton 7.6, Birmingham 15.4, Nottingham 11.8, Derby 12.0, Birkenhead 16.2, Liverpool 18.1, Manchester 17.0, Salford 16.1, Rochdale 9.3, Huddersfield 18.7, Leeds 15.2, Sheffield 14.7, Hull 11.9, Newcastle-on-Tyne 20.2, Cardiff 13.9.

## CHANGES IN THE MEDICAL CORPS OF THE NAVY FOR THE WEEK ENDING SEPT. 13, 1902.

E. G. PARKER, passed assistant surgeon. Detached from the "Pensacola" and ordered to the "Adams" Sept. 10.

## RECENT DEATHS.

JOSEPH GARLAND, M.D., M.M.S.S., died in Gloucester, Sept. 4, 1902, aged eighty years.

JAMES PEIRCE, M.D., M.M.S.S., died in Methuen, Aug. 25, 1902, aged fifty-four years.

DR. M. F. PULTZ, vice-president of the Dutchess County Medical Society, died at his home at Stanfordville, N. Y., on Sept. 9. He had not been well for some time, and had lately complained greatly of his head.

## BOOKS AND PAMPHLETS RECEIVED.

Handbook of Medical and Orthopedic Gymnastics. By Anders Wide, M.D. Illustrated. New York: Funk & Wagnalls Co. 1902.

Are Vessels Infected with Yellow Fever? Some Personal Observations. By Surgeon H. R. Carter. Washington: Government Printing Office. 1902.

Albany Medical College Register of Students 1901-1902. Announcement for Session 1902-1903. Illustrated. Albany, N. Y.: Press of Brandow Printing Company. 1902.

Einige Fälle von erfolgreicher Bottini'scher Operation bei besonders lange bestehender completer Urinverhaltung. von Dr. Albert Freudenberg in Berlin. Sonderabdruck. 1902.

Theories of the Action of Inorganic and Organic Substances and Changes of Substances in the Organism. By J. W. Wainwright, M.D., New York. Illustrated. Reprint. 1901-1902.

The Practical Medicine Series of Year Books, Comprising Ten Volumes on the Year's Progress in Medicine and Surgery. Issued monthly under the General Editorial Charge of Gustavus P. Head, M.D. Vol. VI. May, 1902. Chicago: The Year Book Publishers. 1902.

Two Cases of Streptothrical Infection. Demonstration of a Streptothrix, or Branched Tubercle Bacillus, in the Sputum. By John H. Musser, M.D., and Norman Gwyn, M.D. Abscess of the Brain due to a Streptothrix. By John H. Musser, M.D., R. M. Pearce, M.D., and Norman Gwyn, M.D., of Philadelphia. Illustrated. Reprint. 1901.

Diseases of the Stomach, their Special Pathology, Diagnosis and Treatment, with Sections on Anatomy, Physiology, Chemical and Microscopical Examination of the Stomach Contents, Dietetics, Surgery of the Stomach, etc. By John C. Hemmeter, M.D., Philos. D. Illustrated. Third enlarged and revised edition. Philadelphia: P. Blakiston's Son & Co. 1902.

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## Original Articles.

# THE CREATION OF AN ARTIFICIAL VALVULAR FISTULA: (*A*) FOR THE TREATMENT OF CHRONIC COLITIS; (*B*) AS AN ADJUVANT TO CERTAIN OPERATIONS ON THE STOMACH.[1]

BY C. L. GIBSON, M.D., NEW YORK,

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(*A*) Aggravated forms of colitis are apt to pursue a chronic course, and if attended with pronounced ulceration, do not respond with any frequency, and still less consistency, to the routine so-called medical treatment. If ulcerations are visible in the lower bowel, supplementary treatment by topical applications is generally attempted. It has always been known that in these serious forms of colitis the ulcerations, far from being limited to the lower segment, generally involved the entire colon, and yet no attempt was made to attack these lesions directly, although the wisdom of this course should be apparent on general principles.

With the increase of operative attacks on nearly all the viscera and structures of the body, and with the tendency to apply surgical measures to almost any form of disease, it is not surprising that these ulcerations should have come within the radius of the surgeon's action. It was felt — and apparently justly — that the irritation of an inflamed and ulcerated colon by the constant passage through it of its highly obnoxious contents might be sensibly allayed by suspension of its physiological function. So colostomy was performed at various sites, but most wisely in its first portion. So to the sufferings of the poor wretch the very obvious discomfort of a fecal fistula was added. Some of these operations resulted in improvement and even a cure. Others, failing to yield the desired results, it was thought that the operation was not sufficiently radical, in that only a part of the fecal current was diverted. So the next proposal of the advanced operator was to establish a complete and permanent artificial anus by transverse section of the gut. Eventually, the patient having been cured of his colitis, the continuity of the intestine would be restored by one or several of the complicated methods now in vogue, disregarding the fact that such operations, even with modern methods and superb technique of the individual operator, still ranked with the most serious surgical procedures, and with a consistently high mortality.

Personally I should have preferred even the generally inefficient and irksome non-operative treatment, for it has always been repugnant to me to create an artificial anus except as a direct life-saving measure. And yet, perhaps not less than any one, owing to considerable familiarity with the post-mortem phenomena, did I realize that we should attack the lesion so directly as possible.

Two years ago I saw in consultation a young gentleman who was then in a very serious condition, as a result of a colitis which had failed to improve under the most efficient medical treatment. To meet his case I devised the plan which will be subsequently explained. It was not accepted, chiefly because I was then unwilling to pronounce myself very positively as to the probable results. The patient failed to survive an operation for a complete artificial anus performed by another surgeon.

It occurred to me then that there might be a compromise between the two extremes of treatment; that is, to adhere to the plan of attacking the lesion by direct means, and yet avoiding the discomforts and real dangers of an artificial anus. The desired result would be attained by establishing a fistula in the cecum, whose functions should be limited to the introduction of cleansing and healing agents, and not in any way to give exit to the contents of the bowel. The practicability of this scheme seemed assured, as the technical conditions — as seen in the perfected gastrostomy — had already been devised. So I determined to reproduce in the cecum the exact conditions of the Kader's gastrostomy. In this operation a valvular fistula is created by burying a tube in an inverted funnel of the stomach wall. In a few days the fistula becomes a permanent structure and the tube is withdrawn, and is only reintroduced from time to time for conveying fluids into the stomach. In the intervals the valve action is perfect and the patient is not hampered by the wearing of any apparatus or dressing, and can pursue his usual life; and, as practical application showed, the cecum lends itself to the creation of the fistula fully as well as the stomach.

It was my hope, after the making of such a fistula, to carry out the treatment for a prolonged period, expecting by this gentler palliative treatment to accomplish my object. Meanwhile the patient would not necessarily be confined, either to his bed or to the house, but could pursue his ordinary avocations to the extent his health allowed. While it seemed a safe and innocuous procedure, there must necessarily be a doubt if such treatment would improve a really serious case of chronic ulcerative colitis until actually proven by practical experience.

Cases of serious colitis seem rare in the practice of those New York physicians who are willing to lend a kindly ear (and patients) to untried measures of the surgical enthusiast, and I was to wait a long time before graduating from theory to practice. I am indebted to my surgical colleagues for their acceptance of my ideas and the practical test of their possible usefulness.

The first to perform the operation was Dr. Percival R. Bolton, surgeon to the New York Hospital. The result was most gratifying, as every hope as to the technical function of the fistula and the therapeutic result was realized. I quote in part

[1] Read before the Surgical Section of the Suffolk District Medical Society, March 5, 1902.— We are indebted to Messrs. Wm. Wood & Co. for the use of the cuts accompanying this article.

the history as published in the *Medical Record* for March 16, 1901:

Male, age forty-two years. His family history was negative. Eight weeks before his admission to the hospital, without assignable cause, he developed a severe diarrhea accompanied by fever and prostration. The diarrhea persisted in spite of all treatment; the evacuations occurred from sixteen to twenty-three times in twenty-four hours, were blood-stained, and contained a good deal of mucus. There was loss of strength and of thirty-one pounds in weight.

Examination showed a considerable emaciation and anemia. The mucous membrane of the rectum and sigmoid flexure was congested, and everywhere presented very numerous superficial ulcerations, varying from one-eighth to three-eighths inch in diameter. The urine was normal. The feces contained much mucus, blood and pus, but no amebæ were found.

The first step in the treatment consisted in the formation of a cecal colostomy, as follows: A one-and-a-half-inch incision was carried through the abdominal wall parallel with the right Poupart's ligament and an inch internal to its outer part. The cecum at once presented. A point was chosen in its anterior band, and the intestine opened sufficiently to admit a fair-sized soft-rubber catheter. Three tiers of sutures placed above and below this orifice served to infold the cecal wall. The ends of those last introduced, left long and carried through the margins of the abdominal incision, brought the cecum forward into close contact with the abdominal wall, and further were utilized to close the external wound, being reinforced by a silkworm-gut suture at each angle. Healing of the abdominal wound was without incident.

The after-treatment consumed about four weeks, but the patient was confined to bed for the first half of this time only. He was put upon a diet at first composed entirely of proteids, and took salol and castor oil in small doses every three hours, but toward the close of his stay in the hospital a mixed diet was allowed.

Irrigation of the colon was begun at once. The patient was placed on an ordinary douche pan and a large Kelly urethral speculum was passed through the anus, and then several quarts of .01% solution of silver nitrate were injected through the catheter, and the colon was thoroughly washed out. The silver solution was then followed by .5% salt solution. For the first three days this washing was done twice daily; for the next eleven days once daily, and the strength of the silver solution increased to .02%; for the remaining time every other day.

After the seventh day the catheter was removed except at the periods of washing, and in the intervals there was absolutely no leakage. Even during the injection, when the cecum and ascending colon were tightly distended and bulging the abdominal wall, no fluid followed if the catheter was withdrawn.

There was never any difficulty in introducing the catheter. From the first the diarrhea began to improve; at the end of two weeks no ulceration of the mucous membrane could be seen, and at the time of the patient's discharge from the hospital the mucous membrane of the rectum and sigmoid seemed normal; he was defecating without pain from one to three times daily; the stools contained nothing abnormal; his weight had increased ten pounds.

To my colleague, Dr. F. H. Markoe, surgeon to the New York and St. Luke's hospitals, I am indebted for a second very satisfactory trial of this method:

James D., age twenty-nine, iron worker. Admitted to the New York Hospital medical service Nov. 14, 1901. In March, 1901, while living in Florida, began to suffer from diarrhea, which has persisted to the present time. There are occasional remissions; when very bad has twenty to thirty stools a day. The stools usually contain mucus and often blood. There is almost constant pain across the lower abdomen, and very often severe tenesmus.

On the medical division he was put on a proteid diet, various forms of drugs suitable to the condition, and rectal irrigations. The number of stools did not then exceed eight daily; still contained blood. Amebæ were not found.

Nov. 23: Dr. Markoe established a valvular fistula in the cecum through an intermuscular abdominal incision. Nov. 25: Today nine stools. Nov. 26: Irrigation from colostomy tube out through Kelly tube in rectum with two quarts saline solution was begun and repeated daily.

Dec. 1: Averaging four stools daily. Dec. 4: Colostomy tube removed. Dec. 5: Irrigated now daily with two gallons 1-20,000 nitrate of silver solution. Dec. 8: Irrigation with 1-15,000 silver solution twice a day. About three stools daily. Dec. 11: Weight 100½ lbs. (normally 135 lbs.). Dec. 29: Today irrigated with three quarts 1-12,000 silver solution. With first washing several well-formed brown cylinders of fecal matter were pressed through for the first time. The movements are diminishing in frequency, are often semi-solid, are entirely without the former severe tenesmus, and are only slightly offensive. Weight 114 lbs.

Jan. 7: Weight 119 lbs. Usually three stools daily. Jan. 24: For the most part only one stool daily.

Feb. 18. Discharged. Weight 133 lbs. Complete restoration of former physical condition. He is so pleased with the treatment that he desires and proposes to keep it up, which he is able to do himself.

My personal experience is inconclusive, being limited to the demonstration of the possibilities of the technique.

For the opportunity to perform the operation I am indebted to the courtesy of my colleague, Dr. C. C. Ransom, visiting physician to the City Hospital:

Woman suffering from marked alcoholic neuritis and an intractable colitis; nature not determined, probably tubercular. The small movements, largely mucus, were almost continuous. Patient so very much reduced in flesh and strength that it hardly seemed she could be benefited by or stand any interference. As it appeared to be otherwise a hopeless condition, I decided to give her the benefit of the doubt. The abdomen was opened by an intermuscular incision, the anesthetic being discontinued so soon as the peritoneum was opened; the fistula was established without difficulty. She only lived eight days, but the flushing of the colon, owing to a misinterpetration of directions, was inaugurated the first day, and was successfully carried out without infection of the peritoneal cavity, as proved by the autopsy, which showed the lesion to be a tubercular enterocolitis.

The technique is as follows: A small incision — preferably the McBurney intermuscular — is made over the caput coli. If desirable, the anesthetic can be discontinued so soon as the peritoneum is opened. Nitrous oxide gas anesthesia might be used. With an intelligent and self-controlled patient local anesthesia might suffice. Should there be any difficulty in bringing the colon to the surface, I see no positive disadvantage in utilizing the lower ileum. Two Lembert sutures, half an inch apart, are inserted, and the cecum opened between them. A soft catheter, about 30° F., is introduced so that it projects well into the bowel, and the original sutures lightly tied. The wall of the gut is further infolded around the tube in two superimposed layers. The ends of the superficial layer are used to suture and hold the cecum

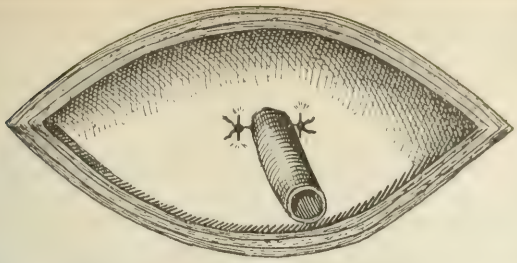


Fig. I. Tube introduced and held in place by the suture placed on either side.

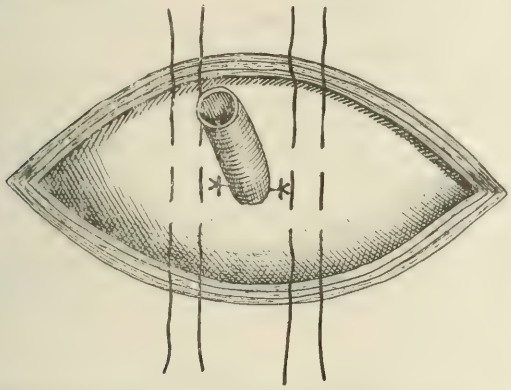


Fig. II. The first row of inversion sutures in place but not tied.

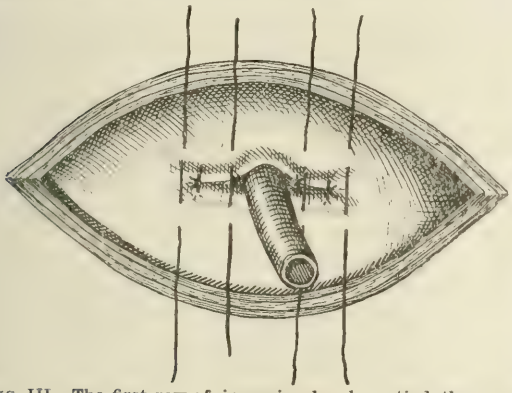


Fig. III. The first row of inversion has been tied, the second row in place but not tied.

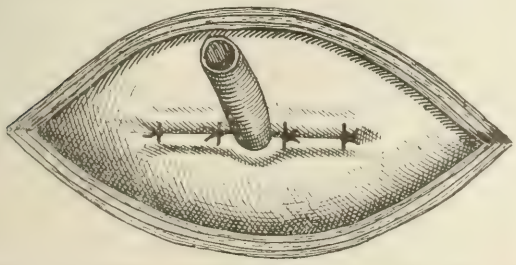


Fig. IV. Operation completed. The tube is enfolded in a furrow of the cecum.

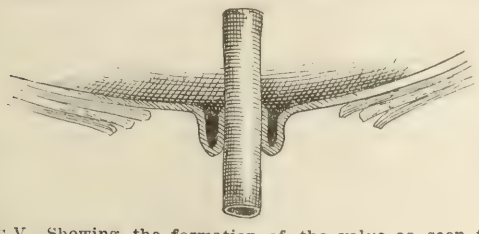


Fig V. Showing the formation of the valve as seen from within the lumen of the bowel.

to the musculo-aponeurotic structures. The tube may also be secured in place by passing a fine catgut stitch through its wall. The abdominal wound is closed at the angles, or packed. It will be safer not to begin irrigation before three or four days. The tube may be withdrawn in a week or ten days, being introduced only when necessary for the irrigation, and withdrawn so soon as it has served its purpose. If our ideal has been attained, there will be no leakage, even when the colon is visibly distended. Treatment should be persisted in till a cure is obtained. Closure of the fistula occurs spontaneously with the discontinuance of the daily passage of the catheter.

It seems to me unwise, if not impossible, to attempt at present to formulate any indications for the employment of this measure. From what has been related, it is fair to say that certain forms of colitis can be cured by it. It may be objected that such cases and the ones here described are of the milder variety that would yield to the orthodox treatment. Personally, it seems that the results have been more direct, progressive and prompt than are attained by the non-operative measures.

On the other hand, I do not cherish any illusions regarding certain forms of ulceration, such as the tubercular, that may be properly considered as incurable, especially when accompanied with similar or more extensive changes in the small intestine. Actual experience only can determine whether by frequent cleansing of these ulcerating surfaces and by neutralization of the products of decomposition we can somewhat ameliorate the symptoms, and if to an extent that warrants actual interference.

With regard to the therapeutic agents that may prove of value when so locally applied, I can only indicate those ordinarily employed. For the present I shall rely principally on the mechanical cleansing by flushing the bowel with an appropriate bland solution, such as the normal saline. It may either be used as a continued irrigation, escaping through a rectal tube, or the colon may be filled to moderate distention, say three quarts, and subsequently evacuated. The frequency should be established by the tolerance of the bowel and the agency of the symptoms. At the beginning, if well borne, I should prefer to repeat the irrigation at regular intervals of eight or twelve hours, possibly oftener. Agents destined to exert a direct influence on the ulcerating surfaces will naturally act better after the preliminary cleansing. They should be introduced separately from the saline, or after it has been evacuated. The bowel should be flushed with plain water prior to the use of substances such as $AgNO_3$, which combine with the saline.

The required therapeutic agents will also vary somewhat with the nature of the colitis. Gradually increasing strengths of quinin and methylene-blue have been recommended for the amebic form. Nitrate of silver in strengths increased from 1-20,000 will, I think, prove the best single remedial and stimulating agent. The whole

gamut of the milder non-poisonous antiseptics, especially of the naphthol group, may be tried, as well as the ordinary astringents. Small doses of iodoform in emulsion might be tentatively tried in the tubercular form. Glutol, a non-irritating derivative of formalin, which acts so admirably in ordinary suppurations, might also be employed. The patient should be on an appropriate, chiefly proteid, diet.

(*B*) As regards the second application of the valvular fistula,—as an adjuvant to certain operations on the stomach,—I bring it to your attention only tentatively. It can have only a limited application; its results, immediate and remote, are debatable, and for its indications I can offer only an imperfectly communicable personal impression.

It has seemed to me that a considerable number of patients who die after such operations as gastro-enterostomy and pylorectomy, die chiefly from inanition, whose beginning naturally antidates the operation. Rectal feeding has always seemed to me a very poor makeshift, especially at such a crucial period, when not ordinary, but extraordinary, resources are demanded to determine the balance between recovery and death. We should have, I think, a method of keeping up the patient's strength and nutrition whose benefits can be manifested synchronously with their need. The custom of some surgeons of beginning stimulation by mouth at an early period does not meet the extreme urgency of the case, nor does the practice meet with general approval.

What we want is something that can be employed at once, and on this basis I determined lately to supplement my severer stomach operations by making in addition an opening in the jejunum through which food might be introduced —if need be, at once—on the operating table, giving an opportunity for absorption to practically the entire intestinal canal.

The technique was again furnished by the imitation of the Kader's gastrostomy, permitting absolute control of the fistulous opening, and it is this particular feature that makes the operation feasible and of possible value.

The following is an illustration:

Woman, age fifty-five. Large movable tumor of pylorus. On Sept. 13, 1901, I removed somewhat more than half the stomach. Implantation of duodenal stump into posterior wall of the stomach. A loop of the upper jejunum was held temporarily in the lower angle of the abdominal wound. Sutures of the abdominal wall were introduced and tied, excepting the lower one. Discontinuance of the anesthetic; establishment of a jejunal valvular fistula, same technique as previously described, except a much smaller tube and shallower inversion. It had been my intention to begin feeding at once, possibly on the operating table. The operation, however, was so well borne that it was postponed for twenty-eight hours.

The feeding at first consisted of 2 oz. of beef juice hourly, gradually increased in amount to 4 oz., and in variety such as liquid peptonoids and peptonized milk and whiskey. These were well borne; no nausea pain or vomiting. On the third day unfavorable symptoms set in, and she died on Sept. 17. Autopsy showed a peritonitis starting in the lesser sac, evidently due to infection during the operation, the suture lines and anastomosis being found irreproachable. There had been no leakage around the jejunal opening, the opening being under perfect control.

This jejunal opening is recommended only if made as just described, as I should hesitate greatly to make, and I doubt the value of, an opening in the upper part of the intestine, which cannot be perfectly controlled. Leakage under these conditions would mean inanition, danger of sepsis, and distressing excoriation of the skin, and the opening would eventually require a possibly serious operation for its repair.

On closure of the fistula there would be some diminution of the calibre of the bowel. I do not think it must necessarily be very great, and probably not enough to be of moment, in view of the fluid character of its contents.

I therefore recommend this little procedure on the following grounds:

That there is a demand for some such additional means of maintaining the patient's strength immediately after a severe operation on the stomach.

That it promises to be efficacious.

That it adds little, if any, risk to the original operation.

That it can be made after discontinuance of the anesthetic, and therefore does not substantially prolong the operation.

That the feeding can be begun, if necessary, on the operating table.

When the fistula has outlived its usefulness it can be put out of commission by withdrawal of the tube, and should close spontaneously in two or three days without essential leakage.

I may add that I am contemplating utilizing such a fistula as a substitute for gastro-enterostomy in some—certainly the more advanced—cases. As the operation would then consist simply in opening the abdomen long enough to reach and bring up the first loop from the duodenal-jejunal junction, it would of itself be a trifling procedure, and spare the patient the possible dangers of more or less complicated anastomoses and their dubious sequelæ. The patient would finish his existence on the same rationale as a patient after gastrostomy. That the stomach secretions would not thereby be effectually drained, would seem to be a minor consideration, if by a comparatively trifling procedure some alleviation of a pitiable condition can be effected.

Since this paper was read several more operations for the relief of colitis seem to confirm the usefulness of this operation. Influenced apparently by a disappointment in its technical performance, Dr. R. F. Weir has sought to modify the operation by the use of the appendix. His description of this procedure has already been published in the *Medical Record*, Aug. 9, 1902. I feel, however, great confidence in the simple technique I have described, and I shall for the present continue to make use of it in its original form.

## THE ILIOPSOAS BURSA: ITS SURGICAL IMPORTANCE AND THE TREATMENT OF ITS INFLAMMATORY CONDITIONS, WITH REPORT OF THREE CASES.[1]

BY F. B. LUND, M.D., BOSTON.

Beneath the musculotendinous portion of the iliopsoas muscles and the front of the capsule of the hip-joint,— extending from the lesser trochanter upward, frequently to and above the brim of the pelvis, where its posterior boundary becomes the inner surface of the ileum,— there is a bursa which receives scant attention from anatomists and surgeons, at least if one may judge by ordinary surgical textbooks.

Yet in three instances in the writer's experience disease of this bursa has simulated deep abscess in front of the hip-joint, and incision of the bursa gave great relief in two of the cases and was a surgical indication in the other. In a dissecting-room subject the dilated bursæ were very prominent in the front of the groin, forming symmetrical rounded tumors, extending above the iliopectineal line, and resembling psoas abscesses except for their greater prominence and sharper slope above and below.

As in one of the cases operated on by the writer a diagnosis of strangulated hernia had been made, it is evident that iliopsoas bursitis must be considered in the differential diagnosis of tumors of the groin.

The anatomists generally dismiss the subject with the statement that between the insertion of the iliopsoas muscle and the capsule of the hip-joint there is a bursa which sometimes communicates with the hip-joint by an opening of variable size.

Tillaux[2] gives the best description by far of the anatomy of this bursa, as well as account of its surgical importance, which I have yet seen, and I cannot do better than quote his words. He says: "Behind the psoas muscle there is situated an organ which tends to still more complicate the already difficult study of this region. I refer to the bursa between this muscle and the anterior surface of the hip-joint and the rim of the acetabulum. This bursa is large, runs a certain distance above the iliopectineal eminence, and (a most important detail) often communicates with the capsule of the hip-joint through an opening in the latter. Collections of fluid accumulated in this sac, although rare, give rise to a deep-seated tumor, which lifts up the femoral vessels, and the diagnosis of which is attended with certain difficulties. It may be mistaken for a cold abscess, a cyst developed in a gland, or an old hernial sac. Inflammation of the bursa may extend to the joint, and vice versa. Thus, as a result of a psoitis, for example, the suppuration may invade first the bursa, then the capsule of the femur, and produce a luxation of the head of the femur amounting to a complete dislocation. On the contrary, an acute arthritis of the hip-joint may determine an inflammation of the bursa, and result in an abscess of the neighborhood."

The cases which have come under my observation confirm entirely Tillaux's observations as to the surgical importance of the bursa depending upon its communication with the joint, and in two of these cases the disease was primary in the joint and not in the bursa. The extension of the disease to the bursa, however, resulted in the affection of the latter dominating the symptoms, and



The Iliopsoas Bursa.

Drawing by Miss Byrnes, from a dissection by the writer.
(*a*) Poupart's ligament; (*b*) anterior crural nerve; (*c*) bursa opened through the fibres of the iliopsoas and retracted by threads; (*d*) femoral artery; (*e*) femoral vein; (*f*) sartorius muscle.
The dotted line represents the limits of the bursa in this case.

[1] Read before the Surgical Section of the Suffolk District Medical Society, March 5, 1902.
[2] Anat. Topograph., p. 958.

in the appearance of a painful tumor in the groin, to which relief was given by operation.

The pain and tenderness resulting from inflammation of this bursa are easy to understand when we remember that on, and practically in, the substance of the muscle lies the anterior crural nerve, which is lifted up and stretched by the distention of the sac, a cause for pain which would seem at least adequate to the ordinary observer.

The anatomical works which I have consulted (except Tillaux) make no mention of the variable size of this bursa, or of the fact that it may extend well above the pelvic brim. That it frequently does so extend is proved by the writer's observations in the cadaver, and by Cases II and III, which also prove that the variation in its size or extent may have surgical importance.

In order to ascertain the size and position of this bursa, and the frequency of its communication with the hip-joint, the writer examined the right hip in eighteen subjects in the dissecting room at the Harvard Medical School, and found that the bursa connected with the hip-joint by a free opening in three. In the others there was no connection with the joint. In about half the cases the bursa extended up over the pelvic brim. In all the cases which form a basis for this paper it will be seen that disease of the bursa was associated with disease of the hip-joint, either gonorrheal, osteo-arthritic or suppurative. The diagnostic complications and the relief afforded in two of the cases by operation are the reasons for the presentation of this paper, and also the belief of the writer that there are certain peculiarities of the disease which ought to make a preoperative diagnosis possible. The result of operation in two of the cases was most satisfactory. In the other the patient's condition, owing to the extent of the infection, was such that operative relief was impossible.

CASE I.— *Iliopsoas bursitis, complicating osteo-arthritis of the hip. Symptoms: Spasmodic pain and fluctuant tumor elevating femoral artery. Diagnosis: Deep abscess in front of hip-joint. Incision; relief of pain and disability.*— M. D., age seventy, laborer; was admitted to the City Hospital in the service of Dr. Post on June 17, 1899. The history was that he had had pneumonia five years before, and suffered from a cough every winter since. On the morning of day of entrance he noticed a lump in his right groin, which pained him considerably and caused stiffness of the leg. He had no movement of the bowels for two days, and a physician who was called made a probable diagnosis of strangulated hernia, and attempted to reduce it. The effort caused considerable pain down the front of the leg. Another physician who was called in consultation concurred in the diagnosis of strangulated femoral hernia, and advised removal to the hospital, where the patient was seen by the writer at 8 P.M.

Examination showed a rather emaciated patient, whose finger-joints showed osteo-arthritic deformity. No examination of the condition of the hip-joint was made. In the right femoral region, just below Poupart's ligament and just external to the femoral artery, which was lifted up and could be felt pulsating over the inner part of it, was a tumor the size of half an egg. Deep fluctuation could be felt. The tumor was extremely tender, and the skin over it slightly irritated, probably by applications. The external inguinal ring was normal, and femoral hernia was excluded by the fact that the tumor was situated externally and beneath the femoral artery. A tentative diagnosis was made of deep abscess in front of the hip-joint.

A vertical incision was made over the most prominent part of the tumor, from just below Poupart's ligament downward for two inches. The anterior crural nerve was found stretched over the top of the tumor, and was drawn outward. The incision, carried along the inner border of the iliopsoas tendon, came to a thick sac, which was incised, allowing the escape of about an ounce of serofibrinous fluid. Through the incision the finger passed into a smooth-walled cavity lined with synovial membrane, lying to the inner side of, and extending beneath, the iliopsoas tendon. On the under side of the sac was an opening half an inch in diameter, through which the finger passed into the hip-joint, where the head of the femur could be felt and seen to be covered by the irregular bony deposits of osteo-arthritis. The serum and fibrin were washed out of the joint with normal salt solution, the sac sewn with catgut, and the skin wound sutured.

Entire relief of pain resulted. The patient was out of bed on July 6, and went home on July 17, having had no recurrence of pain.

A smear taken from the fluid showed no bacteria. The culture showed a few organisms, probably saprophytic.

CASE II. *Gonorrheal arthritis complicated by iliopsoas bursitis; incision and drainage of the bursa and joint; immediate relief of symptoms and gradual recovery.*— On Aug. 9, 1901, I saw, in consultation with Drs. Hatch of Lynn and Parcher of Saugus, G. M., twenty-two years of age, single, an electrician, who had contracted a gonorrhea about six weeks before. Early in July he began to have pain in his left groin and hip, with fever, the temperature rising as high as 104° at night and falling to about 99° in the morning. He was put to bed. Two weeks before I saw him the temperature had fallen somewhat and the pain decreased. Two days before I saw him there had been a fresh access of pain and fever. I found him in bed, with the left thigh flexed and supported with pillows. The hip and groin were exquisitely tender, and the slightest touch or jar caused him to cry out with pain. In front of the hip-joint, extending upward over the pelvic brim and to the outer side of the femoral vessels, was a diffuse swelling, which showed on palpation deep-seated fluid.

The diagnosis was made of acute gonorrheal arthritis of the hip-joint, with probable abscess in front of the joint, iliopsoas bursitis not being thought of.

Under ether a vertical incision was made over the most prominent part of the swelling; the psoas muscle, just to the outer side of the anterior crural nerve, was exposed, and beneath it deep fluctuation could be felt. A director was passed vertically between the fibres of the muscle, and there was an escape of about half an ounce of cloudy serum with fibrin flakes. The opening was dilated with dressing forceps, and the finger passed into the cavity of the bursa, which extended upward over the pelvic brim for over two inches beneath the iliopsoas muscle. Directly beneath the lower end of the incision the finger entered the hip-joint through a wide opening in the bottom of the sac, and upon the articular surface could be felt numerous slightly roughened spots where the cartilage had been superficially eroded by the disease. Considerable cloudy serum and fibrin was washed out of the joint with normal salt solution, and in view of the favorable results reported from the drainage of gonorrheal joints it was deemed advisable to drain this one. A large strip of iodoform gauze was therefore carried upward to the bottom of the bursa, where it extended over the pelvic brim, and another downward into the hip-joint, the ends of both protruding through the incision. A large aseptic dressing was applied.

The operation resulted in an immediate relief of pain, and fall in pulse and temperature. The drainage of the joint was kept up for a week. The flexion of the hip disappeared immediately after the operation was performed. The wound healed in three weeks. The convalescence was slow, but steady, and on Oct. 2 he sat

up in a chair. He gained steadily in flesh and strength, but had a stiff joint, and in December Dr. Hatch etherized him and broke up adhesions.

He now has a slight limp, but is well and at work.

Case III. *Iliopsoas bursitis due to suppurative arthritis of hip; incision; death from septicemia.*—A teamster, thirty-eight years old, alcoholic, was admitted to the City Hospital Sept. 5, 1900. He had felt ill and was unable to work for ten weeks. Six weeks before entrance he went to bed on account of pain in his right hip. The pain was steady, and he was unable to walk. He had a chill on the morning of entrance to the hospital.

Examination showed that he was well developed and nourished, but in poor general condition, sweating profusely, facial expression anxious, and pulse soft and rapid. There was a systolic murmur at the apex of the heart. The lungs showed consolidation at the right apex, and in the left axilla and base. There were many râles of all sorts throughout the lungs. In the right groin was an indurated tender mass, over which the skin was excoriated by applications. The motions of the hip were painful, and attended by marked spasm. The tenderness extended above Poupart's ligament to the region of the anterior superior spine. The inguinal rings were normal. There was no shortening of the right leg. On Sept. 4 he had three chills, much pain in the right groin, and vomiting. On Sept. 5 he was much worse; pulse was rapid and weak; had profuse sweating and delirium. There was swelling about the hip-joint, and a distinct feeling of gas with fluid in a cavity just below Poupart's ligament, to the outside of the femoral vessels.

The writer saw him in consultation, and under ether made a vertical incision one inch outside the femoral artery. The sartorius muscle was drawn outward. The incision was carried into the abscess cavity, from which gas and a large amount of pus escaped. The finger passed under Poupart's ligament and down to the back of the pelvis under the psoas muscle. Directly under the incision the finger entered the hip-joint. The joint surface was smooth and apparently healthy. The abscess had extended a short distance under the femoral vessels. It was thought to have begun as an iliopsoas bursitis. As it had entered the joint, a posterior incision just back of the trochanter was made, and the joint was irrigated and rubber drainage tubes inserted. The patient failed rapidly during the operation, and died fifteen hours later.

In this case it seems probable that the disease started first as an iliopsoas bursitis and then extended to the hip-joint, as the joint surface on operation was smooth and apparently had not long been the seat of inflammation. An earlier diagnosis and incision would have been very desirable. The presence of gas in the abscess would indicate the possibility of infection by a gas-producing bacillus, but no record of a culture is to be found.

It is to be regretted that no autopsy was obtained in this case, but it is worth reporting, as showing a case of iliopsoas bursitis resulting in general septicemia and death.

To sum up:

(1) The iliopsoas bursa possesses surgical importance, owing to its position and its frequent connection with the hip-joint. It frequently extends above the pelvic brim.

(2) It may be involved in osteo-arthritis, gonorrheal infection or suppurative arthritis of the joint, and the symptoms due to the disease of the bursa may dominate the clinical picture.

(3) In gonorrheal arthritis incision of the bursa affords an easy method for reaching and draining the joint.

(4) In osteo-arthritis relief of pain is afforded by incision of the bursa.

(5) The bursa is best reached by a vertical incision just below Poupart's ligament, between the anterior crural nerve and the femoral artery. The iliopsoas muscle may be drawn inward, or, as is perhaps more direct and preferable, the fibres may be separated by blunt dissection in the line of the incision.

(6) Where the bursa is connected with the joint a ready diagnosis of the condition of the head of the femur and acetabulum may be made by passing the finger through the opening in the bottom of the bursa.

(7) Iliopsoas bursitis should be more often considered in the differential diagnosis of obscure tumors in the groin, and such a diagnosis should be possible in cases where the hip-joint is known to be diseased and a tumor suddenly appears in front of the joint, under the anterior crural nerve and femoral vessels, which is very painful and tender, and perhaps gives to the palpating finger a sensation of deep fluctuation.

## OPERATIVE TREATMENT OF VARICOSE VEINS.[1]

BY J. B. BLAKE, M.D., BOSTON.

The operative treatment of varicose veins is not of modern origin. It is difficult, if not impossible, to determine by whom it was first practised. It dates presumably from far antiquity. It appears to have been so well known in the time of the Romans that it was used for cosmetic purposes, and even then occasioned no special comment as an unusual operation. Plutarch relates the story of Marius the consul. According to Gay, to whom the writer is indebted for many interesting and instructive facts, "at a late Roman period varicose veins were doomed on account of their interference with personal beauty." He quotes Plutarch, as follows: "Both his legs (speaking of Marius) were full of varicose veins; being troubled at the deformity, he determined to place himself in the hands of his surgeon. Refusing to be bound, he stretched out one of his legs to the knife, and without motion or groan bore the inexpressible pain of the operation. However, when the surgeon was about to begin with the other leg, he would not suffer him, saying, "I see the cure is not worth the pain." Here, therefore, was a surgeon who not only excised varicose veins, but operated upon both legs at one sitting. We have not progressed far beyond this at present.

Hippocrates, Celsus, Paulus Aegineta, Fallopius, Parè Fabricius and many others discuss and recommend various methods of operative treatment. These include puncture, incision, transverse or longitudinal excision, ligature and cauterization. Excepting the injection of styptics into the vein itself, or the use of a seton through its walls, all methods that have ever been devised

[1] Read before the Surgical Section of the Suffolk District Medical Society, March 5, 1902.

or recommended were apparently known to the ancient or early surgeons, and the differences between them and later methods are mainly in matters of detail.

The two serious drawbacks to these old operative treatments were the pain, which the patient was compelled to suffer, and the far more important inflammatory reaction which was so apt to follow. Anesthesia and asepsis have banished these two evils, but writers of the seventeenth and eighteenth centuries frequently mention the serious and fatal phlebitis, abscesses and sloughing, which only too often followed the operation, as we may easily believe from the descriptions of their technique.

Injection of the "diluted tincture of the sesquioxide of iron" was at one time practised extensively in Germany and France. Maissoneuve tried it in hemorrhoids and varicocele, as well as in varicose veins, and did not find it dangerous. Erichsen and Sir Henry Thompson used it in England, but came to the opposite conclusion in regard to its safety. Erichsen treated 200 cases by compression "between a needle and a piece of bougie laid lengthwise along the vein." Neither pyemia nor phlebitis followed in any instance. Other methods comprise clamp springs;[2] oval disks,[3] closed by a screw; silver wire;[4] pins under the veins,[5] with rubber or silk ligatures[6] crossing them in the figure 8; and finally, a variety of external applications, including Vienna paste,[7] silver nitrate,[8] potash,[9] lime, potash[10] and alcohol, and the galvano-cautery. All these methods have one aim in view; namely, to cause coagulation and permanent interruption to the blood current without excision of the vein itself.

With the elements of pain and sepsis excluded, modern operations must be judged by a single standard. There is practically no danger in present procedures for the cure of varicose veins, and the only question which remains to be settled is the completeness and permanency of the relief of symptoms. Just what constitutes a "cure" is not always easy to determine, but it is fair to assume that every "cure" must at least include the disappearance of the symptoms for which the patient sought advice. As a general rule, the patient does not appeal to the physician simply on account of a vein which looks larger than it formerly did. From this it follows that however much an operation may appeal to us upon mechanical, anatomical or physiological standpoints, its actual clinical or practical value can only be determined by its results in a considerable number of cases which have been traced and examined at least one year from the time of operation. Recurrences have occasionally occurred at a later period, and this is certainly the minimum time within which "cures" should be discussed. If the cure is not complete, the amount of relief should be noted; and patients have been found who went so far as to consider themselves actually worse after the operation.

For present purposes we may eliminate from the extensive list above alluded to all but two or three procedures. Veins may either be (1) ligated in one or more places; (2) excised in short portions, chiefly high up; (3) removed in extenso by continuous dissection, or the second and third methods may be combined.

It is needless to say that strict asepsis should invariably be followed; that all ligatures should be applied by the open method; that all incisions should be carefully closed, preferably by the subcuticular suture; and that drainage of any sort should be avoided, except possibly in the presence of infiltrated tissues in the immediate neighborhood of ulcers. The incision may be extremely long, but is always superficial to the deep fascia, and is shallow except in very fat patients. The line of the incision is preferably in the direction of the vein, and a little to one side of it. Right-angle and curved flap incisions have been recommended from time to time by various operators. All arterial branches, however small, should be caught between two light snap forceps and tied with fine or medium catgut. In the thigh, and where the skin has not become inflamed, the vein can often be dislodged from its bed quite rapidly by a director or blunt dissector. But in places in which the skin is infiltrated, or a phlebitis and periphlebitis exists, this is impossible, and the dissection is often tedious and occasionally bloody. In these conditions it is well, if possible, to excise a strip of skin with the vein, and not to try to remove the vein itself from tissues with which the periphlebitis processes have actually fused it. In this way, the danger of sloughing of thin and unhealthy flaps is avoided.

The multiple ligature certainly effects no more than the excision. It leaves a smaller scar, but this is a trivial consideration. It leaves the vein itself still subject to inflammatory action. It is, on the whole, distinctly less effective than the other methods.

We are left, therefore, with the choice of an extensive dissection or a local excision in the thigh, or a combination. To this latter class Trendelenburg's operation belongs, and of the class it is the type. It consists simply in the ligation of the internal saphenus vein in two places, five or six cm. apart, in the upper third of the thigh, and the excision of the short intervening portion. It has one object: to interrupt the blood column. It is indicated only in those cases where, the limb being raised and made free from blood, the saphenus vein being compressed, and the leg lowered, the blood is seen to rush in a wave down into the empty vein the moment the pressure is removed. This test, which is Trendelenburg's own, is supposed to demonstrate the fact that in such a vein there is a column of blood extending from the right heart to the foot which is unsupported by vein valves, and which is the

[2] Vidal.
[3] Rozeman.
[4] Brown.
[5] Lee.
[6] Dr[illegible] Valpeau, [illegible]
[7] Langier, Bernel.
[8] Mayo.
[9] Brodie.
[10] Skey.

essential feature in the production or, at least, in the continuation of the symptoms.

It is obvious that this operation — or, for that matter, any extensive dissection which involves the upper part of the thigh — actually cuts off all return of the blood of the leg, which should pass through the saphenus vein. While there are undoubtedly inter- and intra- muscular branches which connect the branches of the internal and external saphenus with the deep veins, it is nevertheless a fact that by far the greater part of the blood from the entire superficial leg and thigh normally passes through the internal saphenus and thence into the femoral vein. If we cut off this superficial channel, we must be sure that the deep veins are intact; otherwise, most undesirable results may follow. It is probable that Trendelenburg's test does demonstrate that the deep veins are pervious, though just why it does so is not easy to say. All it appears to demonstrate is that the deep veins above the entrance of the internal saphenus are patent, and that the valves of the internal saphenus itself are not at all competent.

The writer has not been able to find references to recent investigations in relation to the frequency of varicosity and thrombosis of the deep and superficial veins simultaneously. It is usually taken for granted that the support of surrounding tissues and the action of neighboring muscles prevent the deep veins from becoming varicose. In twenty-four dissections, however, Gay has shown that "with superficial varicosity there are other serious lesions, affecting both arteries and veins, deep and superficial." Actual obstruction of the deep veins he found in one case only. In twenty-one dissections Verneuil concludes: "(1) Whenever superficial varices exist in the lower limb the corresponding deep veins are varicose; (2) deep veins may be dilated without superficial varix; (3) deep varices are more common than superficial; (4) the primitive seat of varicosity resides in the deep veins." Callander, however, failed to discover evidence in his dissections of the constancy of the intramuscular varix. Further evidence on this point is desirable; it is a matter of extreme importance, for Trendelenburg diliberately throws the entire circulation upon the deep veins; if, therefore, these are coincidently affected, it seems doubtful if permanent benefit can accrue.

Trendelenburg's operation does not contemplate the removal of local varix,—of veins which have become thrombosed, nor of those which threaten to rupture. It is stated by some that all these conditions disappear spontaneously after the Trendelenburg operation.

While foreign operators have reported excellent results, the writer has not been able to find any printed report of series of cases treated in this country by the Trendelenburg method. Dr. C. G. Cumston has, however, a paper, soon to be published, recording a considerable number of successes following Trendelenburg's procedure.

Conversation with other surgeons who have practised this operation, brought out the fact that in their hands the operation was not so successful, and that they habitually combined a local dissection with the high excision in all cases where it seemed indicated.

Two years ago the writer endeavored to trace twenty-five cases operated at various times and by various methods at the Boston City Hospital. Only eleven could be discovered. Of these, seven were cured, three partially cured, and one said he was worse. The methods varied widely, and under the circumstances the results were gratifying. The Trendelenburg operation, pure and simple, was not done, though in several cases the dissection included the internal saphenus to its middle or upper third.

In the future it is desirable to settle two points in relation to the operative treatment of varix:

(1) To determine how often the deep veins are actually and clinically affected, in connection with superficial varicosity, and how it is possible to determine the condition of these deep veins before operation.

(2) To subject a large number of cases of all degrees of varicosity and its complications to the same method of treatment, and trace the results carefully for one or two years. This method of treatment might be the unmodified Trendelenburg operation, or this operation combined with local dissection.

A large majority of cases, both male and female, presenting themselves in out-patient departments on account of varicose veins and their complications, should be given at first a careful course of palliative treatment, and then, if this is not followed by speedy improvement and cure, should, in the absence of organic disease, be recommended immediately for operation, as described above. Every effort should be made to have such patient report at given intervals after operation, so that each case may be under observation for from one to two years, and the clinical record rendered complete. In this way only can statistics be collected from which accurate, competent and logical conclusions may be drawn, and the indications for and value of the operative methods be finally determined.

## THE LOCAL PATHOLOGY OF ACUTE GENERAL INFECTIONS ARISING THROUGH THE LYMPHOID TISSUE OF THE FAUCES.[1]

BY J. L. GOODALE, M.D., BOSTON.

In 1899 Koelliker, in his textbook of histology, wrote: "Interest in the tonsils has of late been centred chiefly in their development." For several years previous a controversy had been in progress between this author and Retterer, in regard to the origin of these structures and the derivation of their constituent units. Attention

[1] Read before the American Laryngological Association, May 27, 1902.

was, however, becoming directed more and more by clinicians to the importance of the lymphoid tissue of the fauces, as constituting points of diminished resistance against the invasion of the body by micro-organisms. Cases were reported with increasing frequency of infections of various structures, supposed to arise through the tonsils, or at least following upon a primary involvement of them. Such evidence as at this time existed was chiefly circumstantial and clinical, based upon the order of appearance of symptoms. In other words, the histories were usually to the effect that sore throat or tonsillitis was first noticed in a given case, and was followed by inflammation of other organs or by general infection of the system. Thus a number of cases were reported where the tonsillitis was followed by acute articular rheumatism, by endocarditis, by pneumonia and pleurisy, by phlebitis, by nephritis, by iritis, or by septicemia.

It was not in many cases demonstrated that the secondary infection was dependent upon a primary infection of the lymphoid tissue in question, and in fact, even at autopsy, absolute proof of this was often impossible. Nevertheless, the clinical evidence on hand favored this view, which has been receiving confirmation from time to time through the reports of other similar cases.

Within the last five years several additions have been made to our knowledge of the local pathology of infections arising through the lymphoid tissue of the fauces, which have clarified our conceptions of such phenomena to a considerable extent.

The object of the following paper is to present a review of our pathological information relating to the subject. We shall consider the following questions: (1) The ability of pathogenic bacteria to penetrate the tonsillar tissue; (2) the alterations excited in the structures in question, and (3) the possibility of the transference of bacteria from the tonsils to other regions.

In this consideration it is necessary to bear in mind certain points connected with the structure of the organs in question, taking for the sake of brevity the faucial tonsils. The unit of the tonsil is the follicle. Each follicle consists of an ovoid or spherical framework of connective tissue, containing in its interior a delicate network of connective tissue fibres lined with endothelial cells. The concentric rings of the fibres of the capsule of the follicle contain between them closely packed rows of lymphoid cells. Each follicle is separated from its neighbor by a delicate connective-tissue reticulum, lined with endothelial cells in the same manner as the interior of the follicle. This interfollicular connective tissue is in direct communication with the fibrous trunks of the tonsil, which proceed from its base to the periphery. The compact pavement epithelium of the free surface of the tonsil, which is a direct continuation of the oral epithelium, exhibits an invagination into the tonsillar tissue reaching almost to the base of the organ. The epithelium simultaneously on its infolding experiences an alteration in density, becoming looser, and exhibiting numerous channel-like deficiencies between its cells. The lymphoid cells, which are formed in the capsule of the follicles, proceed in two directions: the larger number in the direction of the crypts, while the remainder pass towards the fibrous trunk on the opposite side. These lymphoid cells, as one proceeds from the follicle, experience an alteration in structure, and assume gradually the characters of plasma cells. In the mucous membrane of the crypts lymphoid and plasma cells occur, chiefly together, with a varying number of polynuclear neutrophiles. In the crypts themselves these cells are found, with the polynuclear neutrophiles predominating. Bacteria are always to be found in the lumen of the crypts, and usually in the interior of the polynuclear neutrophilic cells.

A comparison of the preceding description with that of the lymph glands shows an essential similarity. The microscopical anatomy differs chiefly in the following points: In the lymph gland we have on its distal aspect afferent lymph channels which enter the organ and are continuous with the interfollicular lymph channels. These channels on the proximal side are again gathered into larger ones, and pass out of the organ as efferent channels. In the tonsil one encounters efferent lymph channels, but no afferent channels. The condition is entirely analogous to that present in the subepithelial lymphoid tissue of the turbinates and laryngeal ventricles. We note, however, one peculiarity in the tonsil which distinguishes it from the solitary follicles; namely, an invagination of the epithelium, with loss of coherence of epithelial cells, lining the invaginations. The presence of these intercellular deficiencies led the writer a number of years ago to inquire as to the destination of foreign particles and fluids present in the crypts, in contact with this loose epithelium. Experiments showed that finely divided foreign substances in the crypts of the tonsil are capable of entering the tonsillar tissue proper, and that the course of these substances is in the interfollicular lymph spaces. These observations were confirmed subsequently by Kayser and Hendelsohn for the faucial tonsils. These investigators found also the same phenomena in the pharyngeal tonsil, and were able to trace the penetrating foreign bodies at times into the interior of the follicles themselves.

These experiments were conducted with inert, finely divided particles of various substances, both in the human subject and in lower animals. In 1899 Pirera repeated the experiments on the lower animals, using for his purposes pathogenic bacteria. He found that these followed the same course as inert substances, and penetrated even beyond the tonsil into the adjacent lymph glands.

From these investigations it is evident that a certain analogy is present between afferent channels of the lymph glands and the mucous membrane of the crypts of the tonsil, both constituting the entrance point for foreign substances into the interior of the organs in question, and

being in direct communication with the efferent lymph channels.

In common with other observers, the writer has found in his examinations a complete absence of bacteria in the tonsillar tissue proper, under ordinary circumstances, although the lumen of the crypts contained large numbers of them. In view of the experiments above noted, the inquiry next arises, by what means are the bacteria destroyed or rendered undiscoverable on examination of the tonsillar tissue? We have to consider: (1) phagocytosis, and (2) destruction of the micro-organisms by the action of the body fluids.

With regard to phagocytosis, I wish to call your attention first to a point which, so far as I know, has been overlooked or wrongly stated in every textbook of laryngology. The statement is commonly made that the leucocytes formed in the tonsil are phagocytic and protect the organism against the invasion of micro-organisms. From this source, it is further stated, are derived the so-called salivary corpuscles, which act as scavengers in the mouth.

In the light of our present knowledge, however, this view is not tenable. We have, it is true, two forms of phagocytosis which occur normally in the tonsils: the first being exhibited by the large endothelial cells of the reticulum of the interior of the follicles, which are phagocytic for other cells; the second by the polynuclear neutrophiles of the crypts, which are phagocytic for bacteria. It has, as you know, been already stated that the cells produced in the follicles are lymphoid cells, which may eventually undergo a transformation into plasma cells. It has nowhere been shown that polynuclear neutrophiles are produced anywhere within the tonsil, and the transformation of the plasma cells into them is improbable. It seems more reasonable to assume that the polynuclear neutrophiles of the crypts have come by way of the blood vessels, and have made their way through the vessel walls in the direction of the crypts as the result of a positive chemotactic action produced by the contents of the crypts.

We cannot, therefore, regard the tonsils as constituting protective organs, in the sense of themselves producing phagocytic leucocytes, but rather as representing unusually open channels of communication between the interior of the organism and its exterior, along which polynuclear leucocytes make their way from the blood vessels to the surface of the mucous membrane.

Examination of longitudinal sections of the crypts, both in acute and chronic inflammation, shows near the orifice the largest number of bacteria. The polynuclear leucocytes in the vicinity of the orifice are seen to be, for the most part, crowded with micro-organisms, and many of them to be in a state of disintegration and surrounded by clumps and accumulations of bacteria. A short distance away, in the deeper portion of the crypt, the bacteria become less numerous, the phagocytosis is active, and the polynuclear leucocytes show less evidence of fragmentation. Still deeper, near the base of the crypt, few or no bacteria are encountered, although the crypt is filled with leucocytes. We must, therefore, regard the phagocytic property of the polynuclear leucocytes as of the first importance, in restricting the development of the bacteria in the crypts of the tonsils. The number of leucocytes in the crypts, as in other portions of the body, directly depends upon the presence of substances with positive chemotactic properties, and is, therefore, the response of the organism to the irritation of bacterial toxins.

An examination of the phenomena discussed renders it probable that we have to do in the tonsil with the following conditions: (1) A constant formation of lymphoid cells in the follicles, extending in all directions, chiefly in the direction of the crypts, either as the result of positive chemotaxis, or through a *vis a tergo* from younger cells; (2) a penetration of the fluids and foreign particles of the crypts, into the tonsillar tissue in the lymph channels of the interfollicular reticulum, and finally, (3) a constant migration of the polynuclear neutrophiles of the blood vessels in the direction of the crypts. So much for phagocytosis.

Another agent in the destruction of the lacunar bacteria is to be found in the bactericidal properties of the body fluids themselves, and forms a subject too complex for discussion in the present connection. Our information in regard to it up to the present time has been well summarized recently by P. Ehrlich.[2]

We turn next to the alterations induced in the tonsils by the action of infectious micro-organisms. The most important of these are the pyogenic cocci, and the diplococcus of pneumonia. Evidence is now at hand in the case of the former micro-organisms, which enables us to form a tolerably clear idea of the lesions which they produce. Two types of lesions occur: (1) Those characterized by the proliferation of the lymphoid and endothelial cells of the organ, and (2) those presenting local foci of suppuration. In the cases of the first class, namely, those of proliferative tonsillitis, the writer was in no instance able to demonstrate the presence of bacteria in the tonsillar tissue proper, although the crypts were filled with them in immense numbers. In the second type of lesions, which was less common than the first, occurring in about one-third of the total number of cases, suppurative foci were found in the interior of the follicles themselves. With these intrafollicular abscesses were associated in the vicinity the ordinary phenomena of proliferative inflammation. The cases in which they occurred represented clinically a severe type of the inflammation, as shown by the greater fever and prostration, as compared with those of simple, proliferative tonsillitis. The ordinary course of such abscesses was to enlarge in the direction of the crypts, and finally to discharge their contents through them, convalescence thereupon rapidly

[2] Deutsch. Med. Woch., 1901, Nos. 50, 51, 52.

supervening. At times, however, these intrafollicular abscesses were found to discharge into the efferent lymph channels, and such cases were usually associated with a beginning circumtonsillar abscess. It was possible to trace polynuclear leucocytes from the intrafollicular abscesses along the efferent lymph channels, towards the base of the organ in the immediate vicinity of the capsule.

This observation brings us to our final point for consideration, namely, the method of transference of micro-organisms from the tonsils to other organs. So far as our information reaches at present, acute infectious bacteria multiply in the tonsillar tissue proper, only when a penetration has been effected into the germ centres of the follicles. Under certain circumstances, this invasion is brought about, and the termination of the case then depends upon the course of the abscess. If these abscesses discharge externally through the crypts, recovery occurs without complication. If they rupture into the efferent lymph channels, a circumtonsillar abscess may ensue. Our anatomical knowledge, and the results of Pirera's experiments lead us to assume with reasonable probability that these micro-organisms may be carried beyond the capsule of the tonsil into the adjacent lymph glands, producing there acute proliferative or suppurative inflammation. If the intrafollicular abscesses should discharge into the veins of the vicinity, the conditions present would be adequate for the production of a general septicemic infection.

The presence of such intrafollicular abscesses can at times be recognized clinically by the occurrence of pinhead-sized white spots, lying below the mucous membrane of the free surface of the tonsil. This point, to which attention was first called by the writer in 1899, has seemed to him since to be of particular importance. Care must be taken to avoid confusion with spots of exudate, and with leucocytic collections at the orifice of the crypts. The writer has seen such subepithelial points in the tonsils in a case of general pneumococcus septicemia, following a sore throat, which terminated fatally, and in a case of severe pneumonia and glossitis following sore throat. In view of his own experience, both clinical and pathological, the writer would urge careful and extended observations of this point in the class of cases under consideration.

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THE Medical Society of Paris believe it has become necessary to adopt measures tending to check the alarming spread of petroleum drinking. It was first thought that the increased tax imposed on alcohol by the French government was responsible for the formation of the habit, but investigation showed the habit was prevalent in certain districts before this time, and that it has spread with exceeding rapidity. Opinions differ as to the precise effects of the petroleum on the system, but it is agreed to be very harmful. It is noticed that the victim becomes morose, but does not grow brutal.— *American Medicine.*

# Medical Progress.

## REPORT ON PROGRESS IN OBSTETRICS.

BY FRANK A. HIGGINS, M.D., BOSTON.

[Concluded from No. 12, p. 328.]

### PREGNANCY AND ALBUMINURIA.

RECENTLY the belief that lesions of the kidney are entirely responsible for the presence of albuminuria during pregnancy, and especially the eclamptic seizures, has been much modified by valuable investigations. D. Berry-Hart[5] briefly reviews Schorl's work to show that eclampsia is due to a strong irritant developed in connection with the placenta, causing degenerative changes in the liver, lungs and heart, as well as the kidneys, and hence albuminuria is only one symptom of a systemic toxemia. This irritant he believes to be a fibrin ferment derived from placental giant cells. This advance in pathology has led to a modification of the treatment of eclampsia, and an avoidance of violent and depressing remedies is particularly urged. We must remember that various organs are undergoing changes, that the nature of the irritant is still hypothetical, and that we still do not know by what organ it is eliminated, if eliminated at all. When albumin is found, a milk diet, rest in bed, attention to the bowels and an occasional hot bath are all that is usually necessary. If headache and eye symptoms supervene, induction of labor is indicated. If eclampsia has occurred, powerful purgatives, pilocarpine and venesection should be abandoned as being too depressant. Chloroform is very valuable and should be given at once to control the seizures. Begin with hypodermic injections of morphin, $\frac{1}{3}$ to $\frac{1}{2}$ gr. and $\frac{1}{4}$ gr. repeated in two or three hours if necessary. The morphin treatment was first started in Germany, but is now fairly well accepted in England. The effect of morphin is more lasting than that of chloroform and constant attention is not so essential. A large saline by bowel should next be given, or an intravenous injection in very severe cases. Hot packs are beneficial, but oxygen inhalations seem to do little good. A minimum of judicious treatment seems most successful. Labor should be accelerated, but the rapid methods of Duhrssen and Cesarean section are seldom necessary.

### PROLAPSE OF CORD.

This condition is a great misfortune, and unless discovered early and treated successfully is apt to be fatal to the child. Any new method, therefore, of replacing and retaining the prolapsed cord is valuable. H. Henne[6] treated a case with ease and success in the following manner: After all the well-known means had failed, the cause of such failure was found to be the attachment of the placenta, which was very low down and caused the head of the child to remain in the right aspect

[5] Medical News, 1902, i, 76.
[6] Medical News, 1902, No. 1, vol. ii, 212.

of the canal. The method he followed was suggested by the retention of loops of intestine away from the operative field in abdominal sections by means of gauze pads. He took a clean towel, soaked it in 1% solution of lysol and squeezed it dry. He folded this into a pad, passed it into the vagina, and then, after replacing the cord gently, forced the towel up into the uterus in such a position that the cord rested upon it and was retained by it. The procedure was easily carried out with the help of profound narcosis. The head of the child of course had to be pushed upward into the uterus. The intra-uterine hand of the operator was maintained within the canal until pains again appeared. It then guided the head of the child into its proper position and rendered the action of the towel more satisfactory. In this case the remainder of the delivery was normal and entirely free from a recurrence of the prolapse.

### FETAL PLACENTAL CIRCULATION.

The relation between the circulation of the maternal and fetal blood within the placenta has long been an interesting subject, and has lately been settled beyond reasonable doubt on the point that the blood of the mother does not enter the vessels of the child. B. S. Schultz[7] presents an interesting and simple method of proving this fact. A fresh placenta is taken and floated upon a dish full of warm water with the maternal surface uppermost. The umbilical vein is dissected out of the cord and provided with a cannula. Through this warm milk is run until a high degree of pressure is obtained. It will then be found that the exposed surface of the placenta is entirely free of milk, although the head of that fluid has been sufficient to squeeze out blood from the vessels of the maternal surface. It will be found that the placenta will erect itself, so to speak, take on the full form which it had in the uterus, even to becoming concave toward its fetal aspect. While making these changes in position and form, blood will continue to flow from the vessels of the maternal surface, but milk does not escape. Furthermore, the separate cotyledons of the organ begin to appear discrete from each other, and still the injecting fluid remains entirely within the fetal circulation. If at this point one of the cotyledons is cut with a knife an active stream of milk with oozing will appear. It is best to select the vein for this injection because of its comparatively wider distribution in the organ than the arteries themselves, and also because its lumen remains comparatively larger than the lumen of the arteries, and therefore permits the milk to flow more freely. This is a simple and effective means of demonstrating that mother blood and child blood are separate throughout intra-uterine life. It therefore follows that when the child perishes through early separation of the placenta from the uterine wall, death does not occur through lack of blood, as has ordinarily and for many years been held. When such separation occurs, the child does not lose a single drop of blood. Similarly, when a child is born apparently dead from the same cause, it is not hemorrhage, but rather from deficient aëration of the blood that its condition becomes serious.

[7] Centrbl. f. Gynäk., Dec. 7, 1901; Medical News, 1902, i, 75.

### CRIMINAL ABORTION.

Stuver[8] believes that the distinction between the terms abortion and miscarriage should be made on moral and ethical grounds rather than be determined by the length of time pregnancy has continued, as has heretofore been done. He would, therefore, define abortion as the deliberate and intentional interruption of pregnancy before viability of the fetus has been attained. The principal causes of criminal abortion are as follows:

(1) Hereditary vestiges of pre-existing savage or barbarous instincts and practices.

(2) Ignorance of the biologic fact that from the moment of conception the developing embryo contains all the potential powers of the fully developed individual.

(3) Apathy, or a spirit of *laissez faire*, on the part of a great majority of the people.

(4) Incompetence on the part of legislators to comprehend the true significance of the subject, and the consequent futility of the laws enacted by them to prevent the crime of abortion by adequate punishment thereof.

(5) Inability or disinclination of judges to appreciate the rights of the embryo as an individual entity during the early stage of its development.

(6) The ignorance or disregard of the subject on the part of teachers, ministers, druggists and physicians, and the frequent complicity of the two latter classes in the perpetration of the crime.

(7) Ignorance of the physical dangers and the moral degradation inevitably attendant on this offense.

To prevent or at least mitigate this evil, in the first place, every true physician should be aroused to a keen appreciation of the moral and professional importance of this subject, and he, in turn, should strongly impress upon every one who applies to him for such service that, from a biological standpoint, the operation, unless absolutely necessary to save the mother's life, is plain, simple murder, and cannot be extenuated in any manner whatsoever. Every physician should be given to understand that he dare not induce abortions upon prostitutes, or upon those who, for convenience or social indulgences, would violate Nature's laws, and at the same time retain his position as an honorable professional man or woman. Finally, laws, with severe penalties for their contravention, should be enacted, prohibiting newspapers from advertising and druggists from selling abortifacient remedies, except on prescription of properly licensed physicians.

### OPHTHALMIA NEONATORUM.

Nance[9] says that the local remedies in ophthalmia are less important than the way in which

[8] Medical News, 1902, i, 25.
[9] Medicine, January, 1902.

they are used. The solution of boric acid is as efficacious as any solution for irrigation. He believes that silver nitrate is superior to the newer applications used, in a 2% solution, and daily increasing the strength until improvement, even to solutions as strong as 10 and 12%, being used in severe cases. During the first days of the attack until the discharge becomes purulent, applications of silver are harmful. Applications of cold compresses are of much value by reducing the temperature of the conjunctiva. The conditions are less favorable for a growth of the micro-organisms. Compresses of small pieces of sterile gauze kept cold on a cake of ice should be applied to the lids and changed every minute or two; when swelling of the lids subsides it is well to omit the compresses.

The eye should be carefully examined for corneal ulceration, which, if it occurs, should be treated with atropin in iodoform ointment. It is not necessary to confine the patient in a darkened room. Corneal involvement in this disease makes the prognosis grave. Most cases treated carefully from the beginning have a favorable outcome, but occasionally there may be one which does not do well even when the diagnosis has been made early and treatment begun promptly.

### HYPEREMESIS GRAVIDARUM.

Condamin [10] strongly recommends the treatment of this condition by saline enemata. It has yielded highly satisfactory results in eight cases in which he has employed it. From five to seven pints are injected daily, half a pint being administered at frequent intervals. No food is administered by the mouth at this time. The procedure should be followed for six days, when a little soup can be administered. The appetite gradually improves, and the patients improve rapidly, and so far no return of the hyperemesis has occurred. In cases where the rectum is intolerant, a few minims of tincture of opium should be administered in each enema, and if the irritation still continues, subcutaneous injections of saline fluid are indicated.

### STRUCTURE OF THE PLACENTA.

Blacher [11] studied the structure of the human afterbirth by examination of full-term fresh placentæ, and came to the following conclusions:

(1) The human placenta arises from two tissues only, the maternal endothelial tissue and the chorionic tissue. Both are exclusively vascular systems, which are most intimately interwoven with each other. The thick maternal venous network runs between the branches and stems of the chorionic vessels and divides the cut surface of the placenta into islands of different form and size.

(2) The syncytium is composed of young maternal endothelium, and can, under the influence of pregnancy, arise everywhere that endothelial cells are found.

(3) The whole maternal tissue of the placenta is newly formed out of a small part of the outer surface of the uterine mucous membrane with its capillaries. In this part of the uterus falls the whole loss of tissue in labor.

(4) Between the maternal and fetal blood is found a double membrane.

### THE DECIDUA REFLEXA.

Webster, in his monograph on "Human Placentation," says that there is a tendency at the present time to give up the use of Hunter's term, "reflexa," and to substitute for it, "circumflexa" or "capsularis," the latter being merely descriptive and not suggesting any method of development.

Very widely held has been the view that when the ovum became attached to the vera a projection of the latter grew up around it, until it formed a complete investment. More recently, it has been thought by several that as the ovum attaches itself to the growing vera, the latter continuing its development soon surrounds and envelopes the former, the reflexa being, therefore, the superficial part of the vera which has grown above and over the ovum. These and other views have been entirely speculative, the earliest stages never having been observed in the human female.

Hubert Peters' specimen is of the greatest interest in connection with the origin of the reflexa, because it is the earliest stage yet secured. The area of the reflexa was not elevated above the general surface of the island of mucosa. On surface view it was paler than the surrounding decidua. The ovum was entirely sunk in the compact layer of the vera. Over each side was an extension of the latter, forming the outermost portion of the reflexa; the central portion was made up of a mass of blood fibrin. The ovum in this case, therefore, was not completely invested with decidual tissue.

Peters' view as to the origin is as follows: When the young ovum becomes attached to the mucosa, it rapidly sinks into the compacta, thereafter continuing to excavate laterally as well as deeply. The overhanging portion of the mucosa forms the reflexa, the gap through which the ovum entered being closed by the organization of blood-clot. The latter area is, therefore, of fibrinous nature. He regards this observation of great importance, especially in explanation of the microscopic appearances found in the polar portion of the reflexa later in pregnancy, namely, abundance of fibrin, absence of decidual cells and glands. His view as to the origin of the reflexa in his specimen cannot be doubted. The irregular inner surface and the absence of epithelium on it, such as there was on the outer surface, were an additional corroboration.

As to the part played by the decidual reflexa, it seems mainly to fix and steady the ovum during its early life while the placental circulation is being established. It probably also furnishes a little nourishment to the ovum through the cho-

[10] Edinburgh Medical Journal, 1902, v.
[11] Centrbl. f. Gynak.; Peterson-Lewis: Obstetrics, April, 1902.

rion læve, but this is of very minor significance and of brief duration.

OPERATIONS DURING PREGNANCY.

Christ [12] considers the relations between pregnancy and operations, especially dental operations. Whether extraction of teeth exerts a bad influence upon existing pregnancy, is a question of interest to physicians and dentists alike. He concludes:

(1) With a normal uterus any necessary operation may be undertaken. Only in operations upon certain parts which have a special relation to the genital function must the possibility of an interruption of the pregnancy be taken into account.

(2) With a healthy uterus the month of the gestation does not make any difference.

(3) Whenever necessary teeth should be extracted without considering the pregnancy; so with other dental procedures and operations.

## Reports of Societies.

### SURGICAL SECTION OF THE SUFFOLK DISTRICT MEDICAL SOCIETY.

F. B. LUND, M.D., SECRETARY.

REGULAR meeting March 5, 1902, DR. F. S. WATSON in the chair.

DR. F. B. LUND read a paper on

THE ILIOPSOAS BURSA; ITS SURGICAL IMPORTANCE AND THE TREATMENT OF ITS INFLAMMATORY CONDITIONS, WITH REPORT OF THREE CASES.[1]

DR. THORNDIKE: I have had one case where this bursa had inflamed and had become very large, but it had not connected with the joint. The enlargement had taken place to such an extent that it was possible, on opening the bursa, to pass the finger down into the pelvis where there was a very large cavity. The drainage of the bursal cavity took a good many weeks. That was not a gonorrheal case, and did not enter the joint.

DR. C. L. GIBSON of New York read a paper on

THE CREATION OF AN ARTIFICIAL VALVULAR FISTULA: (*a*) FOR THE TREATMENT OF CHRONIC COLITIS; (*b*) AS AN ADJUVANT TO CERTAIN OPERATIONS ON THE STOMACH.[2]

DR. E. W. CUSHING: It is new to me. I can only say it is very well conceived — very forcible. It seems to open great possibilities in the treatment of dysentery. I cannot see why in cases of chronic ulcers, dysenteric, etc., a like operation might not be the means of keeping the colon washed out, so that instead of being useful in these rather occasional chronic cases, it might become of great importance in tropical countries. I would like to ask the author's ideas in regard to this.

DR. GIBSON: These diagrams illustrate the technique, and are labelled 1, 2, 3, 4, 5. Fig. 1 shows the opening in the bowel and the two sutures that diminish the size of the opening around the catheter in place. Fig. 2 explains itself. The first row of inversion sutures is in place ready to be tied. This can be done with a purse-string suture, but I feel safer with the separate Lembert sutures. I think one can regulate the tension a little better. Fig. 3 shows the first row of inversion sutures tied and the second row in place ready to be tied. Fig. 4 shows the second row tied, operation completed. Fig. 5 gives a view of the interior of the bladder, showing the valve formation.

The lumen of the catheter for the cecum and for the stomach is of pretty fair size, 25 to 30 French. In the one case where I made the jejunal opening I used a tube not over 15 French, because I did not wish to make too large an opening, only to do an infolding into the jejunal wall. I do not anticipate any trouble from the infolding in the way of contraction. The amount of infolding one makes is quite small, and as soon as the tube is withdrawn and pressure applied it flattens out. I do not personally see any very great objection to this jejunal fistula. One may from theoretical grounds oppose it, especially from the standpoint of the possible cicatricial contraction. I think the jejunum is of larger calibre than the pylorus. It is a pretty good pylorus which will readily admit the thumb, and the jejunum will more than admit that, and I think the amount of contraction will probably not exceed the normal diameter of the pylorus. The pylorus being less than two feet away, and the contents of the bowel fluid at that point, I see no particular disadvantage to the slight contraction.

As to the use of this operation in acute forms of colitis I cannot say. I hope some of the gentlemen will feel like trying it in bad chronic cases and report on the merits. Many cases are not improved by any ordinary treatment, and at the post-mortem you see the ulcerations starting from the cecum and going to the lower bowel. The ordinary treatment is very painful and disagreeable. On the other hand this little operation is very simple. You have practically only these two dangers — the ordinary danger of an anesthetic and the remote risk of peritoneal infection. I think it is really very remote, because one can do this operation through a small incision, practically extraperitoneally. The cecum is glued to the abdominal wall and readily seals up in the course of a few days. One does not begin the irrigation until the dangers of extravasation are past, and when this fistula is once established the patient is not confined to bed, does not need to wear any dressing; simply once or twice a day can have this tube introduced, connected with the irrigator, the fluid evacuated, and that is all there is to it.

[12] Deutsch. Monats. f. Zahnheilk., Bd., xviii, H. 11, 12; Peterson-Lewis: Obstetrics, April, 1902.

[1] See page 345 of the Journal.
[2] See page 341 of the Journal.

DR. E. W. CUSHING: I should like to ask whether a similar opening could be made in the bladder. I can conceive of cases where it would be advantageous by a suprapubic cystotomy to be able to wash out the bladder, and still not have the patient so but what he could go about.

DR. GIBSON: I think this fistula is applicable in all the forms of drainage of hollow viscera in practically the same manner, whether in the stomach or intestine gall bladder, and in the urinary bladder. I have found it very useful in the urinary bladder, especially in the clean cases where one does not fear the accumulation of large clots and masses of decomposing matter, and in a paper published in the *Medical Record* Jan. 12, 1901, I have formally recommended the procedure. Its chief advantage is that the fistula closes very readily. If you leave out the tube it will close ordinarily in twenty-four hours.

DR. J. B. BLAKE read a paper entitled

OPERATIVE TREATMENT OF VARICOSE VEINS.[3]

DR. LUND: I have been very much interested in the results of what few operations I have done on varicose veins, and very much pleased. It does not seem to me one needs to worry about the deep veins. We have a great column of the superficial veins without support except the loose skin, and therefore the veins dilate. The deep veins are surrounded by muscles, fascia, etc., and I am sure that they cannot be found as dilated and tortuous as the superficial veins. These superficial veins are not doing any good, because they are not carrying blood to the heart; they are simply columns of stagnant blood, and the weight of this blood prevents blood going to the heart; therefore, what is the reason of being afraid to take them off. Whatever blood is going back is going the other way, and you simply relieve the skin and tissues of the lower limb of the pressure of this column of blood. Wherever a person has a painful bunch of varicose veins I think that bunch ought to be excised. If extensive, I think the whole saphenous vein ought to be dissected out. This is not a severe operation. It is a pretty good test of an operation when a patient on whom you have done it brings another to have the operation done, which has happened to me several times in connection with this operation. Where the varicose veins are extensive and cannot be all dissected out, I do not expect the patient even after the operation will be able to do without bandage or support, and have found that the patient is very well pleased to get rid of the bunches which cause pain.

DR. BLAKE: Of course when a man with varicose veins is standing, no blood goes back to the heart through the internal saphenus, unless the deep veins are occluded. A very considerable portion goes back as soon as he sits down or lies down. In cutting off the internal saphenus by operation there is an absolute impossibility of superficial return circulation. In regard to the condition of the deep veins, everybody I think has occasionally met with edema, pain and permanent swelling, which can only be explained on the supposition that the return circulation is very seriously interfered with. I think in those cases there would probably be no tendency towards improvement if what superficial circulation there was were cut off. I was surprised to find a record of fifty dissections demonstrating that the deep veins do become varicose. In spite of those two things I should agree with Dr. Lund that varicose veins, as a rule, should be operated upon.

[3] See page 347 of the Journal.

## AMERICAN NEUROLOGICAL ASSOCIATION.

TWENTY-EIGHTH ANNUAL MEETING, HELD AT THE NEW YORK ACADEMY OF MEDICINE, JUNE 5, 6 AND 7, 1902, DR. JOSEPH COLLINS OF NEW YORK, PRESIDENT, IN THE CHAIR.

FIRST DAY.

STUDY OF THE MYOSPASMS, MYOKYMIA, MYOCLONUS-MULTIPLEX, MYOTONIA ACQUISITA, INTENTION SPASM.

THIS was the title of a paper by DR. GEORGE L. WALTON of Boston. In his opinion the present classification of the spasmodic disorders is not uniform. Myoclonia, for example, is used both as a synonym for myoclonus multiplex and as a collective term, including in this disease the fibrillary chorea of Morvan, electric chorea, etc. Persistent muscular quivering should not be named "myoclonus multiplex."

Myoclonus multiplex is symmetrical, involves large muscles, and represents a disorder of the central nervous system. General muscular quivering (best named myokymia) represents a purely muscular disorder, perhaps a faulty connection between the nerve terminals and the muscle fibre. The quivering does not necessarily indicate increased irritability, but may represent irregular lapse from tonicity through such faulty connection.

Two cases were presented showing persistent general muscular quivering without atrophy, persisting three and five years respectively, and two typical cases of myoclonus multiplex were reported to illustrate the distinctive characters of these disorders. Under the tonic myospasms, a case of "intention spasms" was reported in which tonic spasm of the lower extremities appeared on every attempt to walk, and persisted. Neither the myotonic reaction nor the myotonic muscular disorder were present.

The following conclusions were drawn:

(1) The term "myoclonia," as a collective designation for the unrelated disorders, should be discontinued.

(2) The term "myokymia" should be limited to cases showing, without hereditary or congenital history, widespread muscular quivering, without atrophy or other indication of progressive degeneration of the nervous system, without constitutional symptoms, and without signs of present

infectious or other acute disease. Cases should not be excluded, however, on account of preceding or introductory symptoms pointing to disease of the lower neurons, if such disease has either disappeared or come to a standstill.

(3) The term "myoclonus fibrillaris multiplex" should not be applied to such cases, since it suggests a relationship between myokymia and the paramyoclonus multiplex of Friedreich, with which it has nothing in common.

(4) Paramyoclonus multiplex should be used to designate bilateral clonic spasms involving whole muscles or groups of muscles, generally those attached partly or entirely to the trunk.

(5) The term "myotonia acquisita" should be limited to non-hereditary and non-congenital cases in which otherwise healthy individuals present the typical motor disorder or the typical reactions of Thomsen's disease. This term should not include the rigidity accompanying marked intestinal disorder or pronounced psycopathic states, even though the rigidity in the latter conditions may be increased by voluntary movement.

(6) The tendency to spasm on attempted voluntary movement, unless accompanied by the typical motor disorder, or the typical reactions of Thomsen's disease, should be classed as intention spasm.

PARAMYOCLONUS MULTIPLEX.

This was the report of a case by Dr. F. W. Langdon of Cincinnati. The patient was a girl thirteen years of age. The onset of the attack was attributed by her mother, to fright by her brother, who was in the habit of teasing her. There were violent shock-like contractions of the muscles of the trunk and of those attaching the limbs to the trunk. They rarely descended below the knees or elbows. The frequency with which they occurred was from thirty to eighty shocks per minute. The face, hands and feet were not involved. The wrists, fingers, ankles and toes were flaccid, even during the muscular contractions of other parts. The spasms were symmetrical, but with a tendency to greater activity on the left side. The contractions cease during sleep, but have not ceased for a half-hour consecutively during waking hours for six weeks. The patient is still under observation. Treatment so far by antispasmodics has merely modified the violence of the contractions.

Dr. N. E. Brill of New York presented a case of

PARAMYOCLONUS MULTIPLEX

and exhibited the patient, a girl of sixteen, whose disease started one year ago. The disease began after a severe fright, the clonic spasms involving almost all the muscles of the upper and lower extremities, including the flexors and extensors of the hands. There were no movements below the knees. The sternomastoids on both sides and the abdominal muscles were involved. Shortly after she came under Dr. Brill's observation the speech muscles became affected, so that she articulated with difficulty, her articulation being snappy and explosive in character. There were at no time fibrillary twitchings in the muscles. She never had rheumatism or chorea. The distribution of the muscular spasm was more extensive and involved more muscle groups than any case under his observation or reading. He indicated the possible relation in this case to hysteria, because, while drugs had no influence on the disease, improvement was brought about by suggestion. The patient, however, showed none of the sensory stigmata of hysteria. He also mentioned the difficulty of distinguishing between this class of cases and generalized tic convulsif of the French writers.

Dr. M. Allen Starr of New York referred to a similar condition as occurring in a patient under his observation. A young man, thirty-one years of age, has suffered from the same affection about eight months. During an attack of grippe he was frightened, and this mental shock was the active cause of his trouble. His spasms were identical with those we expect to find in paramyoclonus limited to the trunk muscles. The patient also had the same condition of the voice and speech as seen in Dr. Brill's patient. The voice was extremely irregular, and gave vent to peculiar involuntary sounds. During a four months' stay in the hospital, nothing produced any benefit except rest in bed, in a quiet room, with massage and baths. Under this treatment he improved so much that one month ago he went home, and now has a spasm only occasionally,— once in two or three days,— each lasting but a few minutes.

Dr. Morton Prince of Boston mentioned a case in which the spasms were confined to the legs, and developed as a traumatic neurosis following a carriage drive, the carriage being overturned after being struck by a trolley car. The same night there developed marked spasms of the lower extremities, confined almost entirely to the quadratus femoris on each side, but also extending over the posterior group of muscles when an attempt was made to move them. These spasms persisted for many years. The nerves were submitted to the operation of stretching, the legs being bent backwards and upwards toward the shoulder as far as possible. Immediately following this there was a change in the character of the spasms, and they continued during the night, but the next morning they disappeared, and have been absent ever since. It was of interest to note that this began as a traumatic neurosis and ceased abruptly. It is doubtful whether any real injury was done to the nerves themselves.

Dr. B. Sachs of New York had seen the patient shown by Dr. Brill, and said that the sudden cessation of the movements under the simple rest treatment and also the equally sudden return of the phenomena under emotional excitement were quite noticeable.

Dr. J. W. Putnam of Buffalo had observed a patient in whom the voice was of a peculiar character. He thought it was often impossible to differentiate between what is called hysteria and the

spasmodic neuroses under discussion. We do not know just what the nature of hysteria is, but adopting the usual conception of it, hysteria may imitate other diseases in which there is shown a tendency of the nervous system to break down. There is certainly a sliding scale between the two, and we should not attempt to make a very sharp distinction between them.

DR. CHARLES K. MILLS of Philadelphia called attention to the occurrence of a form of tonic myospasm or myotonia, closely simulating Thomsen's phenomena in brain tumor, the tumor not situated in the motor region. In a patient now under his care he has witnessed a gradual development of this condition in association with other symptoms of organic brain disease. There were no motor or sensory disturbances, but there has been an increasing disturbance of his mental powers, such as of judgment, memory, etc. Several years ago he had seen another case in which Thomsen's disease was closely simulated. A brain tumor was found to be the cause of the symptoms.

DR. SMITH BAKER of Utica believed it was entirely useless to attempt to help these cases with any ordinary therapeutic measures. He had never been able to benefit them with medicines. He thought that more attention should be paid to the mental condition than to the spasm. Let them alone, isolate them, and study how to perform some deep psychical impression. This would go as far as anything he was aware of in producing good results.

DR. F. X. DERCUM of Philadelphia was much impressed with the psychical element in these cases, and also with the close relation which they seem to bear to hysteria. He had been in the habit of regarding them, especially when there has been a history of any psychical origin, as of a hysterical nature. Incurability is, therefore, not in keeping with this view. These cases bear some relation to general convulsive tic, which is an hereditary neuropathy. The muscular tracts are undoubtedly influenced by potassium, calcium and sodium salts, and here, perhaps, is where chemistry may help us.

DR. WALTON said that the absence of fibrillary twitching in the cases reported showed that this symptom is not a common one in myoclonus multiplex. While Dr. Baker's observations as to the mental factors are quite accurate as regards myoclonus multiplex: they do not apply to myokymia, or to myotonia, congenital or acquired.

DR. LANGDON concluded that close lines could not be drawn as to the cause. There were no commonly recognized stigmata as in hysteria. If the cases are largely psychic, how are we going to reverse the psychic processes? So far as a cure is concerned, ordinary remedies do not seem to have much effect.

### DISSEMINATED SCLEROSIS CAUSING OCULAR PALSIES AND SPASTICITY WITH LOSS OF KNEE JERKS.

DR. WILLIAM G. SPILLER of Philadelphia read a paper with this title. The necropsy showed the existence of numerous sclerotic areas throughout the brain and spinal cord. In 1891, the patient, a woman forty-one years of age, complained of numbness in the feet, and soon the legs became numb. She had at this time progressive loss of power in the lower limbs and staggering gait. Within two days the numbness extended as high as the waist, and she complained of girdle sensation, and had complete paralysis of the lower limbs. She had also incontinence of urine and feces. The disturbance of gait soon disappeared, and she was able to walk until 1899, but staggered. She complained of shooting pains at times in the knees, extending to the ankles. In 1901 her speech was somewhat drawling. The lower limbs were completely paralyzed, were much wasted and spastic, slight irritation causing the limbs to be drawn up involuntarily, and yet the patellar and Achilles reflexes were absent. The knees and feet were inverted. The Babinski reflex was pronounced. Sensation was normal everywhere. Voluntary movement in the upper limbs was impaired, and the grasp of the hands was very feeble. The hands were very much atrophied. Reflexes of the upper limbs were normal. Mentality was feeble. She had almost complete external ophthalmoplegia and partial atrophic cupping of each optic disc. Iritic response was good.

The interesting features of this case were: The pronounced muscular atrophy; the secondary degeneration of the pyramidal tracts in a case of disseminated sclerosis; the loss of the patellar and Achilles reflexes with great spasticity of the lower limbs, the loss of these reflexes probably being the result of sclerotic areas in the posterior columns of the lumbar and sacral regions and the almost complete external ophthalmoplegia resulting from a sclerotic area in the nuclei of the third and fourth nerves.

DR. KNAPP related the history of a patient in whom there had been gradually increasing headache and vertigo for several weeks, the general symptomatology being somewhat similar to that in the case reported by Dr. Spiller. This was followed by an apathetic mental condition; slowness in speech; post-neuritic optic atrophy; unequal but active pupils; uncertain gait; exaggerated knee jerks and ankle clonus; increased muscular rigidity, and general diminution of sensibility to pain and touch. The mental dulness and apathy increased, and the diagnosis rested between a tumor of the cerebellum and one of the frontal lobe. Death soon followed. The autopsy revealed a cerebellar tumor and basal meningitis.

DR. WALTON had lately seen a patient with marked bilateral contracture associated with hemiplegia of comparatively recent occurrence. He thought that in the absence of the knee jerk in spastic paralysis we should take great care to exclude variations of tonicity from the normal before having recourse to an additional focus of disease in the reflex arc. He had seen absence of knee jerk and of cutaneous reflexes in cases of tumor with spastic paralysis, and also the cuta-

neous reflexes lost during the rigid stage of meningitis to gradually return during relaxation.

Dr. Starr had observed a child who presented the typical symptoms of multiple sclerosis developing at the age of seven years after an attack of measles. There was the characteristic spasmodic condition of the lower extremities with exaggerated reflexes and evidence of descending degeneration in both pyramidal tracts. The only question that arose in his mind was whether the descending degeneration was secondary to the sclerosis. He was glad that Dr. Spiller had presented pathological observations, which makes it evident that multiple sclerosis may have a secondary descending degeneration.

Dr. J. W. Putnam said that as disseminated sclerosis is not very common in this country, he wished to state that several years ago he had seen a case in which very extensive degenerative changes were found in the cord. This patient also had marked disturbance in the action of the eye-muscles.

Dr. Sinkler thought that the symptoms as described in the case of Dr. Spiller were more those of a diffuse myelitis than a desseminated sclerosis.

Dr. D. J. McCarthy of Philadelphia asked Dr. Spiller to explain the loss of reflexes in cases of patches of sclerosis.

Dr. Spiller, in closing the discussion, said that it is extremely difficult to decide whether or not the knee jerk is lost in cases of rigidity of the limbs. With regard to infants we should be guarded in our statements as to these reflexes. He had seen loss of knee jerk in disseminated sclerosis a number of times and had attributed it to sclerotic patches. Generally, we do not find, as in this case, permanent bilateral contraction in unilateral lesions. Descending degeneration in multiple sclerosis does exist, but it is very rare.

### TRAUMATIC MYELITIS CAUSING SYMPTOMS OF CENTRAL HEMATOMYELIA.

Dr. Spiller read a paper with this title, and reported a case because of the dissociation of sensation of the syringomyelic type following a fall without fracture of the vertebræ. It has been assumed that under such conditions this symptom-complex indicates hematomyelia. The case showed that traumatic myelitis with very insignificant hemorrhage could produce the same dissociation of sensation as hematomyelia. The recovery of motor power in the lower limbs had been very great, although intense degeneration of the pyramidal tracts was shown by the Marchi method. The case showed that much motor power might exist even when the degeneration of these tracts was considerable. The nerve-cell bodies of the anterior horns of the cervicol swelling, especially at the eighth cervical segment, were much degenerated, and this explained the greater intensity of the paralysis in the hands and fingers, even though the mild traumatic myelitis was above the sixth cervical segment. The case also showed that degeneration of nerve fibres and cell bodies from trauma may occur within the spinal cord without fracture of the vertebræ, and may resemble that produced experimentally. This fact has much medico-legal importance.

### COMBINED TABES AND MULTIPLE SCLEROSIS.

Dr. Wharton Sinkler of Philadelphia read a paper with this title. He described a case in which pronounced symptoms of multiple sclerosis were combined with those of locomotor ataxia, and remarked upon the fact that while multiple sclerosis gave rise to a diversity of symptoms, according to the location of the diseased areas, that he had never known of a case in which the symptoms of this disease were so conspicuously blended with those of tabes as in the following case:

The patient was a man, sixty-two years of age. He had had syphilis as a youth, but had never had any secondary symptoms. For many years he had noticed a tendency to shaking of the hands in doing delicate work, but for the past eight years there has been marked tremor on voluntary effort. About eight years ago he began to have attacks of intense lightning pains in the legs. The pain was usually concentrated in a small area, the spot being not much larger than a ten-cent piece. For about the same length of time the legs have felt dead and numb. About the same time he suddenly found that there was loss of vesical control, that is, at night he would have sudden and unconscious emptying of the bladder. This condition has persisted so that he has been obliged to wear a urinal. The patient's gait is not characteristic of locomotor ataxia, but it is unsteady. He walks long distances habitually and does not experience any sense of fatigue. The station is bad, that is, there is considerable shaking of the body from tremor of the legs. Standing with the eyes closed there is great swaying, and he would fall if not supported. The knee jerk and Achilles jerk are absent. Plantar reflex is present, but easily exhausted. No Babinski sign. There is extreme intention tremor in both hands, more marked in the right. It is impossible for the patient to carry a glass of water to the mouth with the right hand, although by some dexterity he succeeds in accomplishing this with the left. He is unable to write. An attempt to write his name results in an illegible scrawl. The Argyll-Robertson phenomenon is absent, and there is no change in the fundus of the eyes. The speech is not scanning.

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According to the *Philadelphia Medical Journal* Dr. John Marshall, professor of medical chemistry and toxicology and dean of the medical faculty, has announced his intention of refusing re-election as dean for the coming year. He was first elected dean seven years ago, succeeding Dr. James Tyson. He desires to be relieved of the many duties attached to the office of dean, that he may devote all his time to chemistry and toxicology.

THE BOSTON

# Medical and Surgical Journal.

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## THE HYGIENE OF OCCUPATIONS.

THE occupations in which men and women are employed through a considerable part of their lives have a direct effect upon the health and longevity of those who are thus employed either for better or for worse. If it were possible to gather the facts in regard to the nine millions of agricultural workmen, fishermen and others employed, according to the United States census, in outdoor industries, as has been done in other countries having better systems of vital statistics than the United States, this general class of employed persons would undoubtedly be found to live longer and to lead more healthy lives than the millions of workmen and women who are employed in indoor occupations of a less healthful character.

We have laws relating to the inspection of factories and workshops by police authorities, for the purpose of securing better conditions relative to the hours of labor and the employment of children, but very few states have enacted laws such as exist in other countries, providing protection against the injurious action of special industries upon those who are employed, and furnishing medical supervision and inspection over such establishments. The country in which the most efficient organization of this character exists is England, and the recent annual report of Dr. Whitelegge, the chief inspector of factories, shows to what extent such inspection is provided. A decided step in advance has been taken in several European countries in recent years, in the employment by the government of medical, engineering, and chemical experts to aid in investigating the different sources of danger in hazardous occupations and in devising means for the relief of operatives.

The chief dangers to health to which wage-earners are exposed are the following[1]: (1) Those caused by overfatigue; (2) those arising from defective conditions in workshops; (3) those arising from the work itself (dust, gases, poisons, etc.); (4) those caused by the machinery (explosions, etc.); (5) those connected with the worker (food, lodging, mode of life).

The increasing interest displayed by the public in social affairs has led to a corresponding desire for accurate information as to the condition in which their fellowmen and women live and work. The volume just issued by Dr. Thomas Oliver, entitled "Dangerous Trades," is a response to a widely expressed demand for a true and authoritative statement upon this important subject — a subject which concerns not thousands, but millions of the workmen of different countries.[2] The field covered by this work is a very wide one, and as no one person is competent to deal adequately with the whole subject, it was found desirable to engage the co-operation of experts on the various trades with which the volume treats. In carrying out this plan an enormous amount of information, hitherto unrecorded or inaccessible, has been brought together and made available for reference.

The work consists of sixty chapters, written by thirty-eight different authors, among whom are many physicians, health officers and factory inspectors. The first nine chapters embrace the following general topics: A Historial Sketch of the Development of Legislation Relative to Dangerous Industries; The Regulation of Injurious Occupations in Different Countries; The Principles of Prospective Legislation for Dangerous Trades; Infant Mortality and Factory Labor; Child Labor; Home Work; The Physiology and Pathology of Work and Fatigue, and The Mortality of Occupations, the latter by Dr. John Tatham of the Registrar-General's office. The remaining chapters relate to the different harmful occupations, and to the accidents, injuries, lesions and diseases to which persons employed in them are subjected.

Dr. Tatham's monograph upon "Dust-producing Occupations" shows that, in a list of twenty-two such industries, potters or earthenwaremakers, cutlers, filemakers, glassmakers, coppermakers, gunsmiths, iron and steel workers, zinc workers, stone quarriers, brassmakers, chimney-sweeps and lead workers, have the highest mortality from phthisis in the order named, while filemakers, lead workers and potters have the highest general mortality.

[1] Palmberg; Public Health and its Applications. London, 1893, p. 108.

[2] Dangerous Trades: The Historical, Social and Legal Aspects of Industrial Occupations as Affecting Public Health. Edited by Thomas Oliver, M.A., M.D., F.R.C.P. London, England: John Murray, Albemarle St. 1902.

The subject of "Lead and its Compounds," by Dr. Oliver, is very fully treated, and embraces a large number of important industries, such as lead mining and smelting, the manufacture of white and red lead and other lead compounds.

"No industry, unless, perhaps, that of pottery manufacture, has caused so much plumbism as the manufacture of white lead, and yet in none has strict attention to regulations and personal hygiene been so productive of good as in these two industries." The author expresses his opinion that:

> The predisposition to lead poisoning is in both sexes doubtless spread over all periods of life, but, so far as occupation exposure to lead is concerned, my opinion is, (1) that women are more susceptible than men; (2) that while female liability is greatest between the ages of eighteen and twenty-three years, that of men is later; and (3) that while females rapidly break down in health under the influence of lead, men can work a longer time in the factory without suffering, their resistance apparently being greater. In addition to a sexual predisposition to plumbism, there is also an individual and a family tendency as well. It is difficult to explain this susceptibility of certain persons to lead poisoning. As to the fact, however, there is no doubt. It is partly a constitutional, and it may be partly a temporary and accidental condition."

A still more dangerous occupation is that of steel grinding. An examination of the returns relating to cutlery grinders shows that out of every 1,000 deaths of this class of workmen, phthisis causes 345, and other respiratory diseases 295, or collectively these diseases account for 64% of the entire mortality of men employed in this industry.

The interesting topic of phosphorus necrosis, as occurring among matchmakers, has been the subject of a recent parliamentary inquiry with reference to the following points: (1) The nature and extent of the dangers attending the use of yellow and white phosphorus; (2) the means whereby these can be lessened; (3) the practicability of discontinuing the use of yellow and white phosphorus.

Instances are cited in which thirty cases of fracture of the long bones, caused by muscular effort, occurred among the matchmakers in one town. Dr. Kocher of Berne treated a matchmaker who broke his thigh bone five times.

The occupation of mining is of special interest at the present time, and is fully treated by Professor Louis, and a chapter upon the air of mines by Dr. Haldane is also presented.

Some excellent German statistics are given, showing that among 3,623,175 persons insured for one year in the Miners' Relief Fund, there were 278,371 accidents, or 76.8 per 1,000 of those employed, while 7,721 of these, or 2.1 per 1,000, proved fatal. The number of fatal accidents is decreasing, and that of non-fatal accidents is increasing. The greater number of accidents was due to the falling of rocks, coal and other falling bodies.

The following were the death-rates per 1,000 persons employed in Russian mines for the ten years 1891-1899: In bituminous coal mines 2.5; in lignite mines, 1.9; in metal mines, 1.1; in other mines, 1.7. Metal mining is in Germany a much safer occupation than coal mining. In Belgium and France the death-rate of miners is less than that of Germany.

For the United States, Hoffman, a well-known insurance statistician, gives the following figures: Death-rate from accident per 1,000 miners employed: Iron ore miners, Michigan (1892-1896), 5.1; (1899-1900), 3.6. Copper miners, Lake Superior (1892-1896), 3.6; (1898-1899), 2.1. Metal miners, Colorado, 3.9; Missouri, 2.6. In bituminous coal mines, 2.1; anthracite, 3.1.

In England the accident death-rate of miners has diminished from 4.3 per 1,000 in 1851 to 1.3 in 1899. This improvement has taken place in coal mining but not in metal mining.

In the chapter on eye diseases in their relation to industrial occupations, the following classification is adopted: (1) Diseases due to occupations involving prolonged use or excessive strain of the eyes, such as nystagmus among miners, etc.; (2) diseases due to occupations involving the use of certain poisonous substances; (3) diseases due to occupations involving exposure to excessive light or heat or both; (4) injuries or accidents among grinders, iron and steel workers, etc.

The following additional topics show the comprehensive character of this valuable work: Rag-sorting and shoddy, jute, laundry workers; fish curing; fruit preserving; tinplate works; aerated waters; flax, linen and cotton manufacture; fur pulling; compressed air illness; boiler making; mountain climbing; iron and steel industries; occupation diseases due to excessively repeated muscular actions; and miscellaneous trades, among which are such industries as railway employment, celluloid manufacture, tobacco and cigar manufacture, dealers in alcoholic drinks, label and stamp licking, glass blowing and chimney sweeping.

Some of the foregoing industries are conducted to a much larger extent in America than in England, and yet but little has ever been accomplished here by means of state legislation, toward placing them under trained medical supervision, whereby very much might be done toward improving the conditions under which 20,000,000 of workmen are employed in different industries, and thereby preventing or at least diminishing materially the loss of life among them, which is due to clearly preventable causes.

It is in such useful investigations that a national board of health might find a very fruitful field of work. A board organized upon the same plan as the German Board of Health might undoubtedly become the means of saving very many lives and preventing a large part of the accidents which are constantly occurring.

The total number of accidents reported as occurring in British workshops and factories in 1901 was 83,760, of which 1,035 proved fatal.[3] As an indication of the satisfactory improvement attendant upon the supervision under the English laws, the reported cases of lead poisoning in English industries had diminished as follows: In 1898 there were 1,278 cases; in 1899, 1,258; in 1900, 1,058; and in 1901, only 863.

Works of this character are very useful to physicians and health authorities in industrial cities and towns, who are desirous of studying the causes and prevention of the numerous diseases and lesions to which the great army of wage-earners is subjected by reason of the different conditions and circumstances under which they are employed.

## THE STRAUSS MILK DEPOTS IN NEW YORK.

NEARLY one million bottles of Pasteurized milk and milk foods, in addition to more than a million glasses of raw and Pasteurized milk, were dispensed in New York from the Nathan Strauss summer milk depots, which closed for the season on Sept. 6. The records of vital statistics show that since Mr. Strauss established this charity twelve years ago the summer death-rate among infants in New York (borough of Manhattan) has been decreased by half, and there is reason to believe that this gratifying result is in no small measure attributable to this distribution of Pasteurized and modified milk. This is the opinion of Dr. J. Corwin Mabey, connected with the bacteriological laboratory of the Health Department, who has made a special study of the subject. A careful investigation, he states, shows that a very low death-rate for children is characteristic of the sections of the city where the distributing depots are located. During the past summer he has had under his personal observations sixty-five infants from three months to one year in age, all born in tenements and who have been fed on modified and Pasteurized milk from the Nathan Strauss laboratory. All of these children are living and well except one, which was taken away from his care and fed on plain milk for a time. When it was brought back to him its vitality had been undermined, and it could not be saved. A great many mothers, he says, have been steady patrons of the Strauss depots, and have raised two and three healthy children who were nourished in their infant days by the Pasteurized and modified milk supplied from them. In 1891, when the child population under five years of age was 188,703, there were 5,945 deaths in the months of June, July and August, showing a death-rate of 126. In the following summer the death-rate rose to 136.1, but in that of 1893 it declined to 117.9. Since then, with the exception of 1895, when there was a very slight augmentation of mortality, there has been a steadily progressing decrease, until during the summer just past, when notwithstanding the fact that the infant population had increased to 243,272, there were only 3,855 deaths, giving a death-rate of 63.6. Of course, other agencies have also been concerned in this decline in mortality, but there can be no question that the Strauss depots have constituted a very important factor in the result.

[3] Annual Report of the Chief Inspector of Factories and Workshops for the Year 1901. London, 1902.

## MEDICAL NOTES.

TYPHOID FEVER IN CHICAGO.— The deaths from typhoid fever for the first three weeks of September have been fifty-five, forty-three and thirty-eight respectively, and although there were eighteen more cases in the county hospital at the close of last week, there is every reason to believe that, if the precautions so generally enforced during the past six weeks be continued until cold weather sets in, there will be nothing more than the usual seasonal increase of the disease during the remainder of the fall. There is all the more reason for continuing these precautions, since the water supply has lost the slight improvement noted at the close of the week before last; a recent windstorm and rain has carried pollution out to all the city intakes. It is advised that all city water to be used for drinking purposes should be sterilized.

CHOLERA IN EGYPT.— A despatch to the *London Times* states that the total number of fresh cholera cases in Egypt last week was 6,570. There were 5,983 deaths. In the previous week there were 9,805 fresh cases and 8,497 deaths. Since the beginning of the epidemic on July 15 there are said to have been 30,931 cases and 25,734 deaths.

ADDRESS IN MEDICINE, CANADIAN MEDICAL ASSOCIATION.— The address in medicine before the Canadian Medical Association was delivered Sept. 17, at Montreal, by Professor William Osler of the Johns Hopkins Hospital, on the subject "Chauvinism in Medicine."

Development of Gynecology at Johns Hopkins Hospital.— It is reported that Dr. Howard Kelly has given the sum of $10,000 for the further development of the work of the department of gynecology at the Johns Hopkins Hospital, Baltimore.

Death at the Age of One Hundred and Four.— Thomas Shaw, said to have been 104 years of age, the oldest man in Nova Scotia, and a British veteran of the Crimean War, died in Halifax Sept. 17.

Deaths from Lightning.— It is said that an average of eight hundred persons are annually killed by lightning in the United States, or one person in each 95,000 of the population.

The International Obstetrical Congress.— The International Obstetrical Congress was held at Rome, Italy, this week. Several Americans were in attendance.

### boston and new england.

Acute Infectious Diseases in Boston.— For the week ending at noon, Sept. 24, 1902, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: Diphtheria 42, scarlatina 28, measles 2, typhoid fever 38, smallpox 16.

Boston Mortality Statistics.— The number of deaths reported to the Board of Health for the week ending Sept. 20 was 203, as against 216 the corresponding week last year, showing a decrease of 13 deaths, and making the death-rate for the week 18.05. The number of cases and deaths from infectious diseases was as follows: Diphtheria, 42 cases, 4 deaths; scarlatina, 20 cases, 1 death; typhoid fever, 30 cases, 6 deaths; measles, 4 cases, no deaths; tuberculosis, 23 cases, 16 deaths; smallpox, 18 cases, 1 death. The deaths from pneumonia were 10, whooping cough 4, heart disease 16, bronchitis 6, marasmus 6. There were 13 deaths from violent causes. The number of children who died under one year was 63; under five years, 81; persons more than sixty years, 42; deaths in public institutions, 48.

A Centenarian.— Elisha Marston died Sept. 13, in Centre Sandwich, N. H., at the reputed age of 101 years and 2 days. He was the oldest man in the State, and his father is said to have served three enlistments in the Revolutionary War as private and sergeant.

### new york.

Stony Wold Sanatorium.— At the recent laying of the corner-stone of the Stony Wold Sanatorium for consumptive women and girls, in the Adirondacks, addresses were made by Bishop Potter, Dr. Edward L. Trudeau and others. In the course of his remarks Dr. Trudeau said: "It has been proved that incipient consumption can be cured — most cases are cured — and in all cases life is prolonged and suffering alleviated. With care, infection from this disease, the danger of which has of late been so much exaggerated, can be prevented. It has been exaggerated so much that the world turns from it and those afflicted with it. And yet, after nineteen years of experience in a sanatorium for consumption, I have never known a servant, a nurse, a physician nor an employee to become infected."

Resignation of Examiners in Lunacy.— Drs. Allen Fitch and H. Valentine Wildman, who for a long time have been examiners in the department of lunacy, Bellevue Hospital, have resigned their positions. The reason for this is stated to be that the Board of Trustees recently recommended that, instead of employing two visiting physicians who could spend only two hours a day at the hospital, there should be three resident physicians at the Pavilion for the Insane. Dr. Wildman has signified his willingness to remain on duty until the new arrangements have been completed.

Legal Contest Regarding Position of Coroner's Physician.— A legal contest having arisen as to the successor of Dr. Hamilton Williams as coroner's physician, Dr. Otto H. Schultze has secured from the Supreme Court a peremptory writ of mandamus directing the Municipal Civil Service Commission to certify his name to the Manhattan Board of Coroners for appointment to the post. A similar writ applied for on behalf of Dr. Stephen E. Whitman, who was a coroner's physician in the borough of Richmond up to the first of January last, was denied by Justice Greenbaum.

Typhoid Fever at Paterson, N. J.— In the first eleven days of September thirty-seven cases of typhoid fever were reported at Paterson, N. J., and an investigation by the Board of Health showed that all of them were traceable to a certain well on Jackson Street, which was immediately put out of commission. A report by Professor Shippen Wallace, state chemist, on samples of water sent him from the well, states that the water was contaminated and unfit for drinking purposes.

Accident to an Ambulance.— On Sept. 19 an ambulance of the J. Hood Wright Hospital was completely demolished by collision with an Eighth Avenue trolley car. Fortunately, there was no patient in the vehicle at the time, and while neither the surgeon, the driver nor the horse escaped without some injury, none of them were seriously hurt.

BOARD OF HEALTH APPROPRIATION.—In his estimate for the budget of 1903 the president of the New York Board of Health has asked for an appropriation for the department of $1,263,040, an increase of $278,648. $106,600 of this increase is for use in the borough of Manhattan.

BEQUEST TO A JEWISH HOSPITAL.—Meyer Guggenheim of New York has added $20,000 to a previous gift of $60,000 for the erection of a building for private patients on the grounds of the Jewish Hospital at Logan, a suburb of Philadelphia.

## Miscellany.

### REQUIREMENTS OF NEW YORK DEPARTMENT OF PUBLIC CHARITIES.

MAYOR LOW has supplemented his recent communication in regard to the hospital needs of New York City with one relating to the present condition and requirements of the Department of Public Charities, and it includes some further statements and recommendations as to the care of the sick, as well as the other dependents of the city. Whatever may be the deficiencies of New York at the present time, he says (referring to the care of those who are not able to care for themselves) it is clear that there has been great improvement during the past twenty-five years. Thus, a quarter of a century ago public sentiment demanded no thought from the public authorities in regard to the welfare of children, except to provide for the public schools, and that upon a scale which would be thought altogether inadequate now. Today, however, public sentiment demands not schools only, but also small parks, children's playgrounds, recreation piers, and playgrounds at the school buildings in the summer. In the City Hospital, on Blackwell's Island, twenty-five years ago the sick poor were nursed by inmates of the workhouse, and even of the penitentiary. Today the patients are cared for by nurses educated in a training school conducted by the city, which stands so high that last year there were nine hundred applications for admission to it, coming from all parts of the country.

Reference is made in detail to a number of improvements which the present charities commissioner, by an enlightened management and with the aid of an increased appropriation by the Board of Estimate and Apportionment, has been enabled to make in the various institutions of the Department. In regard to the care of consumptives he says: "The department has established, since the 31st of January, a special hospital for consumptives, using for that purpose buildings vacated in October, 1901, by the Metropolitan City Hospital for the Insane. This has enabled the Department to take its consumptive patients out of other hospitals and to give them better care in a hospital specially arranged for that purpose. The total number of patients admitted since the opening of the hospital is 1,091. Of these, 475 have been discharged, of whom 256 were decidedly improved." The mayor concluded by giving a summary of the present and future needs of the Department, prepared by the commissoner. Among them are the following:

Extensive changes in existing buildings to introduce modern plumbing, heating and ventilating systems.

The construction at the various hospitals and almshouses of separate buildings for the accommodation of employees.

The building of a hospital for convalescents upon Blackwell's Island, in which those who no longer need medical treatment, but who do require a period of rest for complete convalescence, may get the rest they need prior to their discharge, so that, when discharged, they may resume their usual occupations.

### THE ACQUISITION OF CLINICAL WISDOM.

IN the course of a recent address before the Canadian Medical Association Dr. William Osler made the following pertinent comments: "Medicine is a most difficult art to acquire. All the college can do is to teach the student principles, based on facts in science, and give him good methods of work. These simply start him in the right direction, they do not make him a good practitioner — that is his own affair. To master the art requires sustained effort, like the bird's flight, which depends on the incessant action of the wings, but this sustained effort is so hard that many give up the struggle in despair. And yet it is only by persistent intelligent study of disease upon a methodical plan of examination that a man gradually learns to correlate his daily lessons with the facts of his previous experience and with that of his fellows, and so acquires clinical wisdom. Nowadays it is really not a hard matter for a well-trained man to keep abreast of the best work of the day. He need not be very scientific so long as he has a true appreciation of the dependence of his "art on science," for, in a way, it is true that a good doctor may have practice and no theory, art and no science. To keep up a familiarity with the use of instruments of precision is an all-important help in his art, and I am profoundly convinced that as much space should be given to the clinical laboratory as to the dispensary. One great difficulty is that while waiting for the years to bring the inevitable yoke, a young fellow gets stale and loses that practised familiarity with technique which gives confidence.

"I wish the older practitioner would remember how important it is to encourage and utilize the young men who settle near them. In every large practice there are a dozen or more cases requiring skilled aid in the diagnosis, and this the general practitioner can have at hand. It is his duty, and failing to do so he acts in a most illiberal and un-

just way to himself and to the profession at large. Not only may the older man, if he has soft arteries in his gray cortex, pick up many points from the young fellow, but there is much clinical wisdom afloat in each parish which is now wasted or dies with the old doctor, because he and the young men have never been on friendly terms.

"In the fight which we have to wage incessantly against ignorance and quackery among the masses and follies of all sorts among the classes, *diagnosis* not *drugging*, is our chief weapon of offense. Lack of systematic personal training in the methods of the recognition of disease leads to the misapplication of remedies, to long courses of treatment when treatment is useless, and so directly to that lack of confidence in our methods which is apt to place us in the eyes of the public on a level with empirics and quacks."

## MOTIVES LEADING TO THE STUDY OF MEDICINE.

The *Lancet*, quoting Dr. Arthur Keith, gives the motives supposed to be operative in the choice of medicine as a profession:

"The motives leading to the choice of a career are very various, but of course the primary one is the necessity which comes home to the majority of earning a living. As to those which specially influence men to enter the medical profession we are indebted to Dr. Arthur Keith of the London Hospital, lecturer on anatomy in the London Hospital Medical School, for a most interesting inquiry as to how one hundred men at his hospital came to take up medicine as a means of livelihood. The result of Dr. Keith's inquiry, which took into account men of all sorts, qualified and unqualified, some of them teachers, most of them students, appeared in the *London Hospital Gazette*, and his analysis showed that 'seven had their profession chosen for them; thirty were born in the profession and grew up in it; ten adopted it as a boyish ideal, at a very early age; twelve adopted it by a process of exclusion — it was the profession they had the least objection to; seven chose it because it was the nearest akin to their favorite subjects — zoology or chemistry; thirty-one were led to adopt medicine from some accidental circumstance;' while 'three drifted into it — they could not tell why.'"

## Correspondence.

### GOOD EFFECTS OF THE X RAYS IN HODGKIN'S DISEASE NOT PERMANENT.

Boston, Sept. 19, 1902.

Mr. Editor: The surprisingly rapid diminution in the size of the glands in Hodgkin's disease and the improvement in the patient's general condition after the use of the x-rays unfortunately do not seem to be lasting. In the three cases of this disease which I have treated by the x-rays, the earliest one showed most gratifying results during the first few months of treatment. After about six months, although the treatment has been continued, the glands have again enlarged and the patient's condition is no better than it was at the beginning of the treatment.

It seems to me desirable to publish this short note in regard to the action of the x-rays in this disease, in order to save others the disappointment which I have experienced.

Truly yours,

Francis H. Williams, M.D.

## RECORD OF MORTALITY

For the Week ending Saturday, Sept. 13, 1902.

| Cities. | Population Estimated, 1902. | Reported deaths in each. | Deaths under five years. | Percentage of deaths from | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | Infectious diseases. | Acute lung diseases. | Diphtheria and croup. | Typhoid fever. | Diarrheal diseases. |
| New York | 3,665,352 | 1,213 | 500 | 36.23 | 5.66 | 2.71 | 1.48 | 17.79 |
| Chicago | 1,852,828 | 494 | 161 | 38.25 | 6.87 | 1.41 | 8.70 | 17.40 |
| Philadelphia | 1,349,624 | 379 | 116 | 23.47 | 2.87 | 1.58 | 3.43 | 3.43 |
| St. Louis | 603,717 | — | — | — | — | — | — | — |
| Baltimore | 525,330 | 191 | 82 | 36.64 | 4.19 | 2.09 | 4.71 | 14.13 |
| Cleveland | 411,826 | — | — | — | — | — | — | — |
| Buffalo | 375,742 | — | — | — | — | — | — | — |
| Pittsburg | 341,401 | 120 | 47 | 37.50 | 7.50 | 4.16 | 9.16 | 14.16 |
| Cincinnati | 332,032 | — | — | — | — | — | — | — |
| Milwaukee | 304,975 | — | — | — | — | — | — | — |
| Washington | 289,537 | — | — | — | — | — | — | — |
| Providence | 185,870 | 58 | 21 | 65.51 | 5.17 | 1.72 | 5.17 | 43.10 |
| Boston | 588,730 | 183 | 68 | 32.69 | 6.56 | .54 | 1.63 | 15.84 |
| Worcester | 127,337 | 43 | 20 | 27.90 | — | — | — | 18.60 |
| Fall River | 111,872 | 54 | 27 | 31.46 | 3.70 | — | — | 20.36 |
| Lowell | 99,574 | 51 | 23 | 29.40 | 7.84 | 5.88 | — | 13.72 |
| Cambridge | 96,334 | 29 | 11 | 31.03 | — | — | — | 13.72 |
| Lynn | 71,144 | 22 | 10 | 9.09 | — | — | — | 9.09 |
| Lawrence | 67,275 | 23 | 9 | 43.48 | — | — | 8.70 | 21.74 |
| Springfield | 66,854 | 25 | 9 | 32.00 | — | 4.00 | — | 16.00 |
| Somerville | 65,882 | 13 | 5 | 15.40 | 7.70 | — | — | 15.40 |
| New Bedford | 65,574 | 20 | 13 | 45.00 | 5.00 | — | — | 40.00 |
| Holyoke | 48,065 | 19 | 7 | 52.63 | 5.26 | — | — | 36.84 |
| Brookton | 43,208 | 10 | 6 | — | — | — | — | — |
| Haverhill | 40,392 | 5 | 2 | 40.00 | — | — | 20.00 | 20.00 |
| Salem | 36,567 | 17 | 7 | 5.88 | 5.88 | — | — | — |
| Newton | 36,336 | 10 | 3 | 30.00 | — | — | — | — |
| Malden | 35,390 | 10 | 3 | — | — | — | — | — |
| Chelsea | 35,264 | 8 | 1 | 10.00 | — | — | — | — |
| Fitchburg | 33,848 | — | — | — | — | — | — | — |
| Taunton | 32,759 | 15 | 6 | 20.00 | — | — | — | 20.00 |
| Everett | 27,114 | 8 | 4 | 50.00 | — | — | 12.50 | 25.00 |
| North Adams | 26,583 | 10 | 5 | 40.00 | — | 10.00 | — | 20.00 |
| Gloucester | 26,121 | 13 | 9 | 30.80 | — | 7.70 | — | — |
| Quincy | 25,307 | 10 | 4 | 40.00 | — | — | — | 30.00 |
| Waltham | 24,612 | 10 | 2 | 10.00 | 10.00 | — | — | 10.00 |
| Pittsfield | 22,311 | 5 | — | 60.00 | 20.00 | — | — | — |
| Brookline | 21,679 | — | — | — | — | — | — | — |
| Chicopee | 20,390 | 7 | 3 | 14.30 | — | — | — | 14.30 |
| Medford | 20,014 | 2 | — | — | — | — | — | — |
| Newburyport | 14,478 | 6 | 3 | — | 33.33 | — | — | — |
| Melrose | 13,384 | 3 | 1 | — | — | — | — | — |
| Westfield | 13,038 | 2 | 1 | — | — | — | — | — |
| Attleboro | 12,846 | — | — | — | — | — | — | — |
| Adams | 12,813 | — | — | — | — | — | — | — |
| Milford | 12,516 | — | — | — | — | — | — | — |
| Framingham | 12,109 | 3 | — | — | 33.33 | — | — | — |
| Peabody | 11,957 | — | — | — | — | — | — | — |
| Revere | 11,894 | 3 | 3 | — | — | — | — | — |
| Gardner | 11,544 | 3 | 1 | 67.00 | 33.00 | — | — | 67.00 |
| Weymouth | 11,337 | 7 | 2 | 28.60 | — | — | — | 14.30 |
| Southbridge | 10,838 | 2 | 1 | 50.00 | — | — | — | 50.00 |
| Watertown | 10,600 | 5 | 1 | 20.00 | — | — | — | — |
| Plymouth | 10,336 | — | — | — | — | — | — | — |

Deaths reported, 3,122; under five years of age, 1,201; principal infectious diseases (smallpox, measles, scarlet fever, cerebrospinal meningitis, diphtheria and croup, diarrheal diseases, whooping cough, erysipelas, fevers and consumption) 1,060, acute lung diseases 171, consumption 308, scarlet fever 20, whooping cough 40, cerebrospinal meningitis 11, smallpox 7, erysipelas 3, measles 7, typhoid fever 104, diarrheal diseases 488.

From whooping cough, New York 22, Chicago 10, Philadelphia 3, Baltimore 1, Pittsburg 1, Boston 3. From measles, New York 4, Pittsburg, Boston and Lawrence 1 each. From erysipelas, New York 1, Philadelphia 2. From smallpox, New York 3, Pittsburg 1, Boston 3.

In the seventy-six great towns of England and Wales, with an estimated population of 14,862,379, for the week ending Aug. 30, the death-rate was 15.2. Deaths reported, 4,319; acute diseases of the respiratory organs (London) 139, whooping cough 98, diphtheria 56, measles 121, smallpox 2, scarlet fever 44.

The death-rate ranged from 3.6 in Bury to 24.2 in Hanley; London 15.8, West Ham 16.5, Brighton 14.2, Portsmouth 20.1, Southampton 15.5, Plymouth 21.3, Bristol 21.2, Birmingham 16.8, Leicester 10.8, Nottingham 12.7, Liverpool 17.5, Manchester 17.7, Salford 19.6, Bradford 15.7, Leeds 13.2, Hull 15.9, Newcastle-on-Tyne 17.9, Cardiff 14.8.

## METEOROLOGICAL RECORD

For the week ending Sept. 13, in Boston, according to observations furnished by Sergeant J. W. Smith of the United States Signal Corps:

| Date | Barometer. | Thermometer. | | | Relative humidity. | | | Direction of wind. | | Velocity of wind. | | Weather* | | Rainfall in inches. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Daily mean. | Daily mean. | Maximum. | Minimum. | 8.00 A.M. | 8.00 P.M. | Daily mean. | 8.00 A.M. | 8.00 P.M. | 8.00 A.M. | 8.00 P.M. | 8.00 A.M. | 8.00 P.M. | |
| S....7 | 30.10 | 66 | 74 | 58 | 79 | 88 | 84 | S | S W | 12 | 13 | O. | C. | .12 |
| M...8 | 30.09 | 70 | 80 | 61 | 75 | 60 | 68 | W | S W | 7 | 12 | C. | C. | |
| T...9 | 29.88 | 70 | 80 | 61 | 92 | 93 | 92 | S | S E | 10 | 20 | O. | R. | .05 |
| W.10 | 29.89 | 64 | 71 | 56 | 91 | 57 | 74 | W | N W | 9 | 9 | O. | C. | .10 |
| T..11 | 30.15 | 62 | 71 | 53 | 78 | 77 | 78 | W | S | 4 | 8 | F. | C. | |
| F..12 | 30.22 | 66 | 76 | 56 | 79 | 65 | 72 | S W | S | 5 | 10 | C. | C. | |
| S...13 | 30.04 | 61 | 68 | 54 | 87 | 95 | 91 | E | S W | 10 | 8 | O. | O. | .11 |
| ☞ | 30.05 | | 74 | 57 | | | 80 | | | | | | | .38 |

*O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow. †Indicates trace of rainfall. ☞ Mean for week.

## OFFICIAL LIST OF THE CHANGES OF STATION AND DUTIES OF COMMISSIONED AND NON-COMMISSIONED OFFICERS OF THE PUBLIC HEALTH AND MARINE HOSPITAL SERVICE FOR THE FOURTEEN DAYS ENDING SEPT. 4, 1902.

PETTUS, W. J., assistant surgeon general. Granted leave of absence for seven days from Aug. 25. Aug. 23, 1902.

VANSANT, JOHN, surgeon. Placed on waiting orders, to take effect Aug. 20, 1902.

CARTER, H. R., surgeon. Granted five days' extension of leave of absence from Aug. 29. Aug. 26, 1902.

BANKS, C. E., surgeon. Granted leave of absence for one month from Sept. 12. Sept. 4, 1902.

ROSENAU, M. J., passed assistant surgeon. To proceed to Vera Cruz, Progreso, Jalapa, Coatzacoalcos, Crizaba and Tampico, Mexico, for special temporary duty. Aug. 23, 1902.

BLUE, RUPERT, passed assistant surgeon. Granted ten days extension of leave of absence from Aug. 30. Aug. 23, 1902.

ANDERSON, J. F., assistant surgeon. Detailed as acting director of Hygienic Laboratory during temporary absence of the director, Passed Assistant Surgeon M. J. Rosenau, Aug. 25, 1902.

FRICKS, L. D., assistant surgeon. Granted six days' leave of absence under paragraph 201 of the regulations.

HEISER, V. G., assistant surgeon. To proceed to Boston, Mass., for special temporary duty. Aug. 22, 1902.

HEISER, V. G., assistant surgeon. Relieved from special temporary duty at Washington, D. C., and directed to report to Commissioner-General of Immigration for instruction relative to services as temporary immigrant inspector in Canada. Aug. 27, 1902.

CURRIE, D. H., assistant surgeon. To rejoin station at 641 Merchant Street, San Francisco, Cal. Aug. 23, 1902.

BEARD, H. J., acting assistant surgeon. Granted eighteen days' leave of absence from Sept. 7, 1902. Aug. 25, 1902.

DUFFY, FRANCIS, acting assistant surgeon. Granted leave of absence for six days from Aug. 26, 1902. Aug. 22, 1902.

LINLEY, W. J., acting assistant surgeon. Granted thirty days' leave of absence on account of sickness. Aug. 23, 1902.

SAMS, F. P., acting assistant surgeon. To assume temporary charge of service at Charleston, S. C., relieving Surgeon John Vansant. Aug. 23, 1902.

SAVAGE, W. L., acting assistant surgeon. Granted fourteen days' leave of absence from Aug. 19. Aug. 23, 1902.

MACDOWELL, W. F., pharmacist and chemist. Department letter of July 31, 1902, granting Pharmacist and Chemist MacDowell thirty days' leave of absence from Aug. 2, 1902, amended so that said leave shall take effect from Aug. 16, 1902. Aug. 22, 1902.

ROEHRIG, A. M., pharmacist and chemist. Detailed to represent the service at meeting of American Pharmaceutical Association at Philadelphia. Pa., Sept. 8, 1902, reporting at bureau en route. Sept. 2, 1902.

STEARNS, W. L., pharmacist and assistant chemist. Granted twenty days' leave of absence from Sept. 3, 1902. Aug. 23, 1902.

RICHARDSON, S. W., pharmacist. Detailed to represent the service at meeting of American Pharmaceutical Association at Philadelphia, Pa., Sept. 8, 1902, reporting at Bureau en route. Sept. 2, 1902.

CARLTON, C. G., pharmacist. Granted seven days' leave of absence from Aug. 14, 1902, under paragraph 201 of the regulations.

### BOARD CONVENED.

Board convened to meet at Washington, D. C., Aug. 27, 1902, to revise regulations governing the service. Detail for the Board: Assistant Surgeon-General George Purviance, Chairman; Assistant Surgeon-General L. L. Williams; Surgeon A. H. Glennan; Surgeon P. M. Carrington; Assistant Surgeon B. S. Warren, Recorder.

## SOCIETY NOTICE.

TRI-STATE MEDICAL SOCIETY OF ALABAMA, GEORGIA AND TENNESSEE.—The fourteenth annual meeting of this society will be held in Birmingham, Ala., Tuesday, Wednesday and Thursday, Oct. 7, 8 and 9, 1902.

## RECENT DEATHS.

JULIA MARIA PATTEN, M.D., M.M.S.S. of Holyoke, died Sept. 8, 1902, aged forty-three years.

DR. CHARLES H. JOHNSON of Brooklyn, N. Y., died on Sept. 18, at the age of forty-eight years. He was graduated from the medical department of the University of the City of New York in 1880, and from the Rotunda Hospital, Dublin, in 1881, and had practised in Brooklyn for twenty-two years.

DR. EDMUND HOWELL COOK, a son of the late Henry Cook, M.D., of Sag Harbor, Suffolk County, died at his residence in Flushing, borough of Queens, New York City, on Sept. 14, in the thirty-ninth year of his age. He was graduated from Bellevue Hospital Medical College in 1893.

DR. WALKER CURRY of New York died at Highlands, Ulster County, on Sept. 20, of pleurisy. He was a native of the South, and was graduated from the medical department of the University of Pennsylvania in 1857. During the Civil War he served as a surgeon in the Confederate Army.

## BOOKS AND PAMPHLETS RECEIVED.

The Theory and Practice of Infant Feeding, with Notes on Development. By Henry Dwight Chapin, A.M., M.D. Illustrated. New York: William Wood & Co. 1902.

Transactions of the American Dermatological Association at its Twenty-fifth Annual Meeting held in Chicago, Ill., May 30 and 31 and June 1, 1901. Official Report of the Proceedings. By Frank Hugh Montgomery, M.D., Secretary. New York: Rooney & Otten Printing Co. 1902.

Clinical Lectures on Surgical Subjects, delivered in University College Hospital. By Christopher Heath, Past President of the Royal College of Surgeons of England; Emeritus Professor of Clinical Surgery in University College, London, and Consulting Surgeon to University College Hospital. Second series. Philadelphia: P. Blakiston's Son & Co. 1902.

# Original Articles.

## CONTAGIOUS CONJUNCTIVITIS.[1]

BY MYLES STANDISH, M.D., BOSTON,

*Ophthalmic Surgeon, Massachusetts Charitable Eye and Ear Infirmary; Instructor in Ophthalmology, Harvard University, etc.*

The subject of my paper is "Contagious Conjunctivitis," but the time at my disposal is too short for an extensive consideration of all the diseases which are included under this title, and therefore I shall pass quickly over the most common disease in this class.

### ACUTE CATARRHAL CONJUNCTIVITIS.

We are all familiar with the clinical picture which that name presents. The patient almost invariably states that upon waking in the morning of a certain day he found his lids stuck together. Upon examination the conjunctiva is found to be hyperemic, the lids are swollen and a sticky mucopurulent discharge exudes from the conjunctival sac. This condition increases in intensity, if untreated, for four or five days, but it is a self-limited disease, and at the end of ten or fifteen days has disappeared. The affection is due either to the bacillus of Weeks,—so called because Dr. Weeks of New York first isolated the germ and proved its pathogenic importance,—the pneumococcus of Fraenkel, or, in some less severe forms of the disease, to the diplobacillus of Morax. The only method of aborting an acute catarrhal conjunctivitis which has proved successful in my hands, has been to dust into the conjunctival sac finely powdered and dry iodoform. If this is done two or three times at intervals of twelve hours, the disease will be arrested in a large proportion of cases. The course of the disease is benign; secondary affections of the cornea never follow.

This evening I propose to confine myself to the three contagious conjunctival diseases which have had such appalling blind rates in the past, namely, trachoma, gonorrheal ophthalmia and diphtheritic conjunctivitis. This I am glad to do, because in the last twenty years no other group of ocular diseases shows such advances in treatment and such an improvement in the results obtained. It is to this side of the subject that I propose to invite your attention this evening.

### TRACHOMA.

The first of these diseases which I shall take up is trachoma. There is no doubt in my mind that it is contagious; not highly so, like gonorrheal ophthalmia, but certainly capable of being conveyed from the person afflicted to others if the contact is sufficiently close and continuous. I am perfectly aware that many gentlemen in this country and abroad do not entertain this view, but how any ophthalmologist who has seen, as I have, trachoma slowly spread through an orphan asylum or an almshouse, can fail to believe that it is contagious, I cannot understand. We are told that it is dependent upon hygienic conditions, but these conditions have been the same in these institutions before and after the admission of trachomatous individuals, and after their admission the disease has slowly spread. Those who do not believe in the contagiousness of trachoma evidently consider it a condition analogous to adenoid growths in the nasopharynx. But to my mind, such observers must confuse two entirely distinct conditions — I mean follicular conjunctivitis and trachoma. The so-called follicular conjunctivitis is characterized by low, rounded follicles, principally placed in the lower conjunctival sac, where they are arranged most often in rows parallel to the margin of the lid. These follicles never extend onto the bulbar conjunctiva, and are rarely seen on the conjunctiva of the upper lid, but when discovered there they are usually single, discrete follicles scattered at intervals over the tarsal conjunctiva. This condition, which is most frequently seen in children between five and fifteen years of age, is persistent, but disappears spontaneously, leaves no scar on the conjunctiva, produces no ptosis, is non-contagious, and never causes any disturbance of the cornea or produces any other untoward result.

Trachoma, on the other hand, is characterized by rather full, rounded, purplish, so-called frog-spawn-like follicles, which appear first along the fornix of the upper lid and then spread over the entire conjunctival surface of the lid and often onto the bulbar conjunctiva; eventually they occupy the entire conjunctival surface of the lower lid also. The existence of these great masses of follicles in the upper lid produces a very characteristic fullness, obliterating the fold and causing marked drooping of the lid. Soon a fringe of vessels appears at the margin of the cornea extending into its epithelial covering, which becomes gray, increasing in density, and, as the process continues, ulcerations supervene, which extend into the corneal tissue itself. These increase in number, and the resulting cicatricial tissue being opaque, the final result is only too often blindness. When in the course of time the follicular inflammation has run its destructive course, the conjunctiva is replaced by scar tissue and the resulting contractions produce trichiasis, which adds to the corneal disaster. Twenty years ago such cases were treated invariably by applications of the crayons of sulphate of copper or alum. The follicular stage lasted from three to five months. When that had passed, the surface of the lid consisted of a mass of white, cicatricial tissue in which were situated gristly islets of rough, reddish, elevated tissue. The treatment at this stage was also more often touching with crayons of sulphate of copper or alum than anything else, although nitrate of silver in 1% or 2% solution was often painted onto the conjunctival surface with a brush as an alternative treatment, atropin being instilled whenever the cornea was involved. The progress, if there was any, was exceedingly slow. This condition remained pres-

[1] Read by invitation before the New York County Medical Society, April 28, 1892.

ent for years; such patients often being under treatment for five, ten or fifteen years in the out-patient department of ophthalmological institutions, with numerous relapses to the follicular stage complicated by repeated ulcerations of the cornea. In Boston the number of such patients in the wards of the hospital was large, but in the out-patient department this continued treatment for many years made the percentage of trachomatous patients fully 20 to 25%, if my recollection is correct, although at the Massachusetts Charitable Eye and Ear Infirmary no record has even been kept of the diseases for which old patients returned for treatment, and I have no means of directly substantiating this statement.

Fortunately, some fifteen years ago, the idea began to prevail that the proper method of getting rid of trachomatous granules was to treat them surgically and, as they were probably contagious, antiseptically. From that time modern control of this destructive disease began. One of the methods at first advocated was excision of the follicles, but as this necessarily removed the conjunctival tissue and left scar tissue in its place, the method has been gradually abandoned. Of late years expression, so called, has been generally adopted, and many instruments have been devised to accomplish this result, the best of which are the forceps devised by Dr. Prince of Springfield, Ill., these being the simplest, cleanest and most effective. After the follicles have all been emptied the antisepsis of the evacuated crypts must be thorough. The best method of accomplishing this result is by vigorously rubbing the surface with bichloride of mercury — 1 part in 500 — conveyed on a cotton ball wound upon the end of a stick. The effect of this treatment is surprisingly prompt. In twenty-four hours the patient can open the lids perceptibly wider. The follicular stage, which formerly occupied from three to five months, has entirely disappeared, and the conjunctiva, which at time of operation seemed hopelessly lacerated, looks smooth and shows no trace of its rough handling. The subsequent treatment consists of collyria, preferably bichloride of mercury. The case should be carefully watched, and if, as is probable, the antisepsis has not been absolutely thorough, and new follicles appear, they should be promptly evacuated and treated in the same manner. The patient is able to continue his occupation. Corneal complications are rare, and at the end of one or two years the disease will be absolutely cured, and that, too, without leaving visible cicatrices either in the conjunctiva or cornea. Several years before this method of treatment came into vogue another remedy was brought forward in the shape of the jequirity bean (*abrus precatorius*), which, with us in Boston at least, fulfilled a very useful part. It proved to be of very little benefit, if not actually harmful, in the early stages, but in the cicatrizing stage, formerly so common in our out-patient service, where there were frequent relapses, dense pannus and frequent corneal ulcerations, the application of the decoction not only stopped the pathological process in the lids, but greatly aided in clearing up the pannus of the cornea, and such cases could finally be considered cured.

Table I.

CASES OF TRACHOMA COMING TO OUT-PATIENT DEPARTMENT MASSACHUSETTS CHARITABLE EYE AND EAR INFIRMARY, BOSTON, MASS.

| | | | PERCENT | | | | PERCENT |
|---|---|---|---|---|---|---|---|
| 1880 | TRACHOMA PATIENTS | 238 | 3.5 | 1897 | TRACHOMA PATIENTS | 208 | 1.3 |
| | TOTAL " | 6736 | | | TOTAL " | 16217 | |
| 1881 | TRACHOMA " | 268 | 3.6 | 1898 | TRACHOMA " | 223 | 1.4 |
| | TOTAL " | 7317 | | | TOTAL " | 15486 | |
| 1882 | TRACHOMA " | 292 | 4.1 | 1899 | TRACHOMA " | 223 | 1.2 |
| | TOTAL " | 7185 | | | TOTAL " | 17619 | |
| 1883 | TRACHOMA " | 242 | 3.7 | 1900 | TRACHOMA " | 214 | 1.1 |
| | TOTAL " | 6532 | | | TOTAL " | 19435 | |
| 1884 | TRACHOMA " | 222 | 3.0 | 1901 | TRACHOMA " | 215 | 1.0 |
| | TOTAL " | 7510 | | | TOTAL " | 21880 | |
| TOTAL TRACHOMA PATIENTS | | 1262 | 3.5 | TOTAL TRACHOMA " | | 1083 | 1.2 |
| TOTAL NUMBER | | 35280 | | " NUMBER " | | 110638 | |

It soon became evident that by the methods above described the existence of trachoma in our cities could be easily controlled, if not exterminated, provided we could exclude the importation of new cases among the immigrants to our states. Recognizing this fact, in a communication to the Massachusetts Medical Society in 1897 I advocated the placing of trachoma in the list of contagious diseases, which would exclude an immigrant, having the disease, from coming to this country. This was subsequently done, and Dr. Davis in a recent paper has very conclusively demonstrated the diminution of trachoma in our Eastern cities, attributing it wholly to such exclusion. While this factor has undoubtedly been a very large one, I believe another very important cause has been the fact that we are able to cure cases of trachoma, which do arise, so promptly

that there is much less opportunity to infect other members of the community.

In order to determine how far each of these two causes has contributed to this happy condition, I have examined the case books of the Massachusetts Charitable Eye and Ear Infirmary, and wish to present to you the results. The records of the infirmary give quite an accurate estimate of the amount of trachoma in the community, as it is the only large ophthalmic hospital in Boston, a city of practically one million inhabitants, where trachoma was formerly very prevalent. The metropolitan district has nearly doubled in population in the last twenty years, and the total number of out-patients in the infirmary has thribbled. In the accompanying tables the cases of trachoma coming to the Out-Patient Department of the Massachusetts Charitable Eye and Ear Infirmary in 1880 were 3.5%; in 1881, 3.6%; in 1882, 4.1%; in 1883, 3.7%; in 1884, 3%, being an average of 3.5% for

Tables II and III.

CASES OF TRACHOMA TREATED AS HOUSE PATIENTS
MASSACHUSETTS CHARITABLE EYE AND EAR INFIRMARY,
BOSTON, MASS.

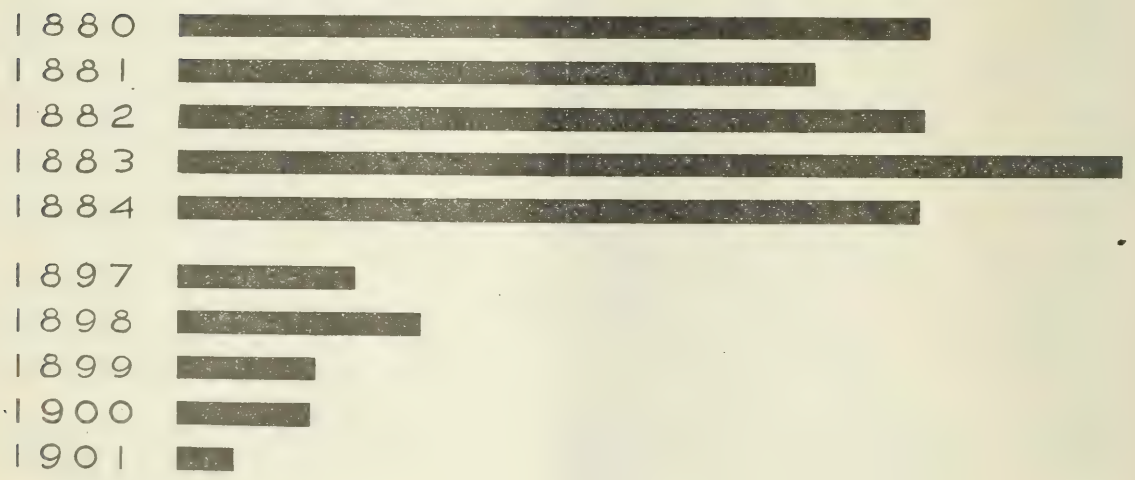
| YEAR | NUMBER OF TRACHOMA PATIENTS | | NUMBER OF DAYS IN HOSPITAL | AVERAGE LENGTH OF STAY IN DAYS | TOTAL NUMBER OF PATIENTS IN HOSPITAL | PERCNT. OF TRACHOMA CASES |
|---|---|---|---|---|---|---|
| | MALE | 33 | 3070 | | | |
| 1880 | FEMALE | 26 | 1639 | | | |
| | | 59 | 4709 | 79.8 | 476 | 12.39 |
| | MALE | 19 | 1629 | | | |
| 1881 | FEMALE | 32 | 2781 | | | |
| | | 51 | 4410 | 86.4 | 486 | 10.5 |
| | MALE | 32 | 1522 | | | |
| 1882 | FEMALE | 31 | 2557 | | | |
| | | 63 | 4079 | 64.7 | 513 | 12.28 |
| | MALE | 34 | 1672 | | | |
| 1883 | FEMALE | 47 | 2789 | | | |
| | | 81 | 4461 | 55.07 | 522 | 15.5 |
| | MALE | 41 | 2007 | | | |
| 1884 | FEMALE | 34 | 1762 | | | |
| | | 75 | 3769 | 50.2 | 614 | 12.2 |
| FOR | MALE | 159 | 9900 | | | |
| FIVE | FEMALE | 170 | 11528 | | | |
| YEARS | | 329 | 21428 | 64.5 | 2611 | 12.6 |
| | MALE | 18 | 672 | | | |
| 1897 | FEMALE | 9 | 314 | | | |
| | | 27 | 986 | 36.5 | 950 | 2.9 |
| | MALE | 30 | 797 | | | |
| 1898 | FEMALE | 14 | 424 | | | |
| | | 44 | 1131 | 25.7 | 1096 | 4.0 |
| | MALE | 21 | 640 | | | |
| 1899 | FEMALE | 9 | 304 | | | |
| | | 30 | 944 | 31.4 | 1321 | 2.25 |
| | MALE | 24 | 601 | | | |
| 1900 | FEMALE | 9 | 92 | | | |
| | | 33 | 693 | 21.0 | 1569 | 2.1 |
| | MALE | 11 | 395 | | | |
| 1901 | FEMALE | 3 | 127 | | | |
| | | 14 | 522 | 37.3 | 1538 | 0.9 |
| FOR | MALE | 104 | 3015 | | | |
| FIVE | FEMALE | 44 | 1261 | | | |
| YEARS | | 148 | 4276 | 29.0 | 4905 | 3.0 |

the five years. Comparing this with the last five years, we find that in 1897 the percentage of trachoma cases was 1.3; in 1898, 1.4; in 1899, 1.2; in 1900, 1.1, and in 1901, 1%, being an average in the five years of 1.2% (Table I.) Again, in the years 1880-1884 the total number of house patients in the infirmary was 2,611; of these, 329 were trachomatous, or 12.6%, while during the last five years the total number of house patients was 4,905, of whom 148 were trachomatous, which gives us only 3%. As showing that this remarkable diminution is not entirely due to the exclusion of trachomatous immigrants, but probably also to improvement in treatment, let me invite your attention to the columns of figures giving the average length of time these patients staid in the hospital, it being in 1880, 79.8 days; in 1881, 86.4; in 1882, 64.7; in 1883, 55.07; in 1884, 50.2, being an average of 64.5 days per patient. Compare this with the statistics of the last five years, when in 1897 it was 36.5 days; in 1898, 25.7; in 1899, 31.4; in 1900, 21; in 1901, 37.3, being an average of twenty-nine days (Tables II, III and IV). These tables, to my mind, show two things: (1) That the modern treatment is far more efficacious — on the face of the tables we should say, as 29 is to 65.5, but in reality the efficiency is much greater, for the trachomatous case now leaves the hospital well on the road to recovery and, if properly followed up, without much danger of impairment of vision, while twenty years ago it was rare indeed for a trachomatous case to leave the hospital with a perfect cornea; and (2) that, as the actively contagious stage is over when the patient is discharged, fewer of his associates become infected.

That the diminution of trachoma in our Eastern cities has been largely due to treatment, as well as to the exclusion of immigrants, has been curiously substantiated of late by a map showing the prevalence of trachoma in the State of Illinois, recently presented in a paper on the subject by Dr. William H. Wilder of Chicago.[2] On this map it will be seen that the amount of trachoma in the counties within a short railway journey of the city of Chicago, where competent and adequate free treatment can easily be obtained, is very small, with the single exception of Winnebago County, which exception is accounted for, Dr. Wilder writes me, by the fact that it has a large foreign population, among whom the disease is very prevalent; while in the southern portion of the State, in which there are few large cities and no ophthalmic clinics, the amount of trachoma is overwhelmingly large, demonstrating conclusively that the curing of trachoma in the individual case is the most efficient means of preventing its spread throughout the community.

TABLE IV.

CASES OF TRACHOMA TREATED AS HOUSE PATIENTS MASSACHUSETTS CHARITABLE EYE AND EAR INFIRMRAY, BOSTON, MASS.




GONORRHEAL OPHTHALMIA.

In this, as in trachoma, the treatment at the Massachusetts Charitable Eye and Ear Infirmary has been greatly improved in the last twenty years. At the beginning of that period the most numerous class of this disease, namely, ophthalmia neonatorum, was treated entirely in the Out-Patient Department with, according to the recollection of the gentlemen who served at that time, a very large blind rate.

The first case of ophthalmia neonatorum which was admitted to the hospital was on Feb. 10,

[2] Ophthalmic Record, November, 1901.

1876, and after that there were many scattering admissions, but at first only severe cases were admitted, and their mothers were admitted with them to care for them, but in 1896 a large ward, that could be isolated, was set aside for the admission of these cases, and from that time all who applied to the out-patient clinic were compelled to enter the hospital, the alternative being a refusal to treat the case. These patients were admitted without their mothers, and it was feared at first that the mortality rate would be excessive, but this fear has proved groundless.

A dietary was established, the milk being modified by the nurses for the various ages according to the following table, which is based upon the formula in use at the West End Infants' Hospital in Boston (Table V).

Table V.

INFANTS' DIETARY.

MASSACHUSETTS CHARITABLE EYE AND EAR INFIRMARY. BOSTON.

| | | STARTER | 1ST WK. | 2-3 WK. | 3-4 WK | 4-6 WK | 6-8 WK. | 2-4 MO. | 4-8 MO. | 8-9 MO. | 9-10 MO. | 10-10½ MO. | 10½-11 MO. | 11-12 MO. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CREAM | oz | 1. | 2. | 3.75 | 6. | 9.5 | 10.5 | 11. | 13. | 17. | 17.5 | 17.5 | 18. | |
| MILK | " | | | | | | 1. | 1. | 4. | 10.5 | 16.5 | 17.5 | 26. | 44. |
| LIME WATER | " | .5 | .5 | .75 | 1.2 | 1.5 | 1.5 | 1.5 | 1.75 | 2. | 2. | 2. | 2. | 2 |
| BOILED WATER | " | 7.5 | 7.5 | 10.5 | 13. | 14.2 | 16.5 | 15. | 13.5 | 12. | 7.66 | 6.33 | | |
| MILK SUGAR | (MEAS. G.M.) | 1. | 1. | 2. | 2.6 | 3.4 | 3.5 | 3.75 | 4. | 4.6 | 4.25 | 1.8 | | |
| STERILIZATION TEMPERATURE | | 167 F | 167 F | 167 F | 167 F | 167 F | 167 F | 167 F | 167 F | 167 F | 167 F | 167 F | 167 F | 167 F |
| INTERVAL OF FEEDING | | 2. | 2. | 2. | 2. | 2.5 | 2.5 | 2.5 | 2.5 | 3. | 3. | 3. | 3. | 3 (IN HOURS |
| NIGHT 10—6 FEEDINGS | | 1. | 1. | 1. | 1. | 1. | 1. | | | | | | | |
| NO FEEDINGS IN 24 HOURS | | 10. | 10. | 10. | 10. | 8. | 8. | 7. | 7. | 6. | 5. | 5. | 5. | 5 |
| AMOUNT AT A FEEDING | | 1. | 1. | 1.5 | 2. | 3. | 3.5 | 4. | 4.5 | 7. | 8.5 | 8.5 | 8.75 | 9 (IN OUNCES) |
| TOTAL AMOUNT IN 24 HOURS | | 10. | 10. | 1.5 | 20.2 | 24.5 | 28. | 28. | 32. | 42. | 42.5 | 44.5 | 44.5 | 45. " |
| FATS | % | 1. | 2. | 2.5 | 3. | 3.5 | 4. | 4. | 4. | 4. | 4. | 4. | 4. | 4. |
| SUGAR | " | 5. | 5. | 6. | 6.5 | 7. | 7. | 7. | 7. | 7. | 7. | 5. | 4.5 | 4.5 |
| PROTEIDS | " | 7.5 | 7.5 | 1. | 1. | 1. | 1.5 | 1.5 | 2.1 | 2.5 | 3. | 3.25 | 3.5 | 4.5 |
| LIME WATER | " | 5. | 5. | 5. | 5. | 5. | 5. | 5. | 5. | 5. | 5. | 5. | 5. | 5. |

Experience has changed the proportions of fat, sugar, etc., from time to time, but the table as presented above has remained unchanged for over two years with very satisfactory results.

The printed instructions for nurses in regard to the feeding of children were established as follows: Fill a pan with water, level with the milk in the bottles; bring temperature of water to 167° F.; remove at end of twenty minutes to a cool place and use as desired; milk upon using to be brought to a proper temperature by emersion in hot water; bottles to be left with children from fifteen to twenty minutes; bottle nipples, etc., to be boiled before using; afterward to be cleaned with tepid water, boiled, and left in solution of soda and water.

The average weight of the babies upon entrance has been 7 lbs. 2 oz., and the average weight at discharge has been 7 lbs. 13 oz. This average includes such babies as have died. In the year 1900, eighty babies were admitted to the house with ophthalmia neonatorum, and of that number six died. One was a premature child weighing at entrance $4\frac{3}{4}$ lbs.; the second was a baby six months of age, which had had a purulent ophthalmia since birth untreated, and in whom there were many other indications of gross neglect and malnutrition; the third died of enterocolitis; the fourth, also a premature child, had great evidence of malnutrition upon entrance; the fifth unfortunately met an accidental death, and the sixth case was almost moribund upon entrance. In the year 1901 there were eighty-two admissions and four deaths. The first died of enterocolitis; the second was a twin admitted for observation, as the other child had gonorrheal ophthalmia; this baby died of infantile atrophy; the other child, it is interesting to note, lived; the third was marasmic, and had profuse diarrhea on entrance; the fourth, a syphilitic child, illegitimate, was also marasmic upon entrance and died of enterocolitis. When we consider that these children were mostly taken from their mothers in the first week of life, many of them syphilitic, a still larger number weakly, neglected children of

more or less immoral parents, we can but regard the death-rate as very small. It shows also that it is possible to give these children fully as good a chance for life in the hospital as they probably would have had in their homes.

For the larger part of the past twenty years the principal remedy has been nitrate of silver; this, in 1% or 2% solution, has been painted onto the everted lids and, as a rule, washed off with water. There is no doubt that the greatest disadvantage of this method of treatment has been the danger of mechanical injury to the cornea. Owing to the introduction of protargol, which has been used at the infirmary simply by flooding the conjunctival sac with the solution, this danger is now reduced to a minimum, and the use of protargol has distinctly diminished the number of unsuccessful cases. When only one eye is infected, the other has been protected, this being done at the Massachusetts Charitable Eye and Ear Infirmary by a sort of cocoon dressing. The second eye is thickly covered with iodoform, and over that is constructed a cocoon covering with cotton and collodion. The object in using the iodoform is, that if the edge of the dressing becomes loosened and the secretion passes under the protective covering, it is immediately absorbed and rendered innocuous by the iodoform before it reaches the protected eye. We have not found any of the substitutes for iodoform equally efficacious for this purpose.

In attempting to make comparisons between the results in the cases treated with nitrate of silver and in those treated with protargol, it is only fair to compare the results of treatment since the introduction of compulsory admission, for in these cases we know that directions for cleanliness in the care of the eyes have been scrupulously followed.

Protargol was first brought forward about the time the institution began to admit all cases of ophthalmia neonatorum, and was at first used as an alternative treatment with nitrate of silver part of the time. I have been able, therefore, to find only fifty cases in which nitrate of silver was exclusively used. In these fifty cases there were three that had clear corneæ upon admission, which subsequently developed ulceration of the cornea sufficient to interfere with vision. This shows 6% of unsuccessful cases. I find on the records 150 cases in which protargol was the only remedy used; among this number there were also three admitted with clear corneæ which developed ulcers that greatly injured or destroyed vision. This gives 2% of unsuccessful cases. The strength of the protargol has been constantly rising from a 4% solution in the beginning to an habitual use of 20% today, with the result that in the last fifty cases no baby which had clear cornea upon admission has had any corneal complications.

The fifty cases above mentioned in which nitrate of silver was relied upon for treatment remained in the hospital an average of 23½ days, while the last fifty consecutive cases treated with the stronger solution of protargol have remained in the hospital an average of 16½ days, making a clear gain of one week in the length of treatment required. In 15.6% of these cases the gonococcus was not found, although it is probable that at times it may have been hastily or unskilfully sought for.

The routine method of applying the protargol is simply to part the lids and flood the conjunctival sac with the solution. This is repeated once in three hours. The wisdom of admitting all such patients to the hospital, and the efficacy of protargol in their treatment, cannot be successfully disputed in the presence of statistics showing a percentage of loss in cases where the cornea was clear upon entrance of only 2%. Nevertheless, if the cornea has an infiltrated ulcer upon entrance, protargol appears to have no extraordinary specific control of the corneal process. It has long been the belief of several of the surgeons at the infirmary that such cases do better than they otherwise would, if the keratotomy of Siemisch is immediately done whenever the ulcers show any tendency to spread. Dr. Parker, senior house officer at the infirmary, has recently compiled[3] all the cases of Siemisch operation in gonorrheal ophthalmia, both in children and adults, in one of the ophthalmic services during a period of two years. He reports twelve cases of rapidly extending sloughing ulcers of the cornea, occurring during a violent gonorrheal ophthalmia in which this procedure was resorted to, with the result that nine of the twelve cases retained clear cornea over the pupil, which is much more than could have been expected under such appalling conditions without operation. Although the conjunctival sac in gonorrheal ophthalmia might be supposed to contain quite a variety of micro-organisms, there was no case in which there was apparently intraocular inflammation from them, and in the one case in which the eye was lost, the entire cornea sloughed. The immunity of the eye from infection after Siemisch's operation in cases of gonorrheal ophthalmia is probably explained by the fact that cultures made from the conjunctival sac in such cases, inoculated on a media unsuitable for the growth of gonococcus, are almost always sterile.

Although from the inadequacy of the records I am not able to give any figures regarding the number of eyes lost twenty years ago in cases of ophthalmic neonatorum, I am nevertheless certain that the results we have seen tonight are a great improvement over those of that period, and the community has undoubtedly been saved the support of many blind paupers.

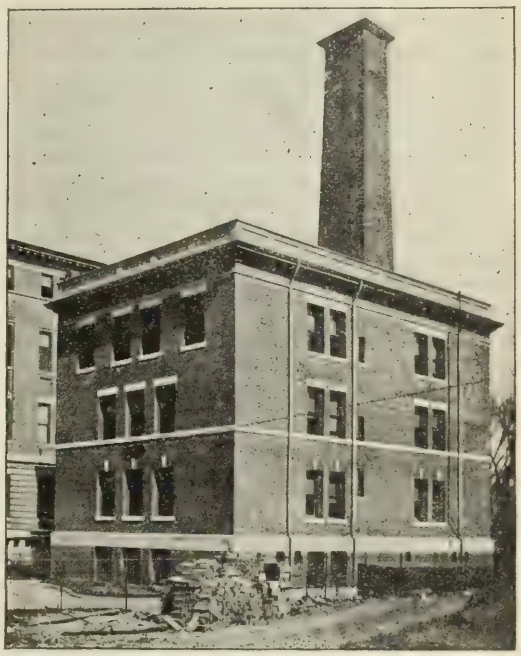
### DIPHTHERITIC CONJUNCTIVITIS.

In 1889 one of the most learned and eminent ophthalmologists in Boston reported a case of diphtheritic conjunctivitis at a meeting of the New England Ophthalmological Society. The description of the clinical appearances and the progress of the disease to its final result in the

[3] Ophthalmic Record, April, 1902.

total loss of the eye were reported with the most scientific precision. A member of the society present, noting that no mention was made of the treatment, inquired what methods had been used to prevent the disaster. The reporter replied that a collyrium of bichloride of mercury and an ointment of iodoform had been used for treatment, but that it had not been mentioned, as in such cases the eyes were invariably lost. This gentleman stated tersely and candidly the opinion of the profession. Statistics of diphtheritic conjunctivitis before the days of bacteriology, at the Massachusetts Charitable Eye and Ear Infirmary, as elsewhere, are impossible to attain, as such cases were classified as purulent conjunctivitis, gonorrheal ophthalmia, or diphtheritic conjunctivitis, according to the predisposition of the surgeon who made the diagnosis. But diphtheritic conjunctivitis today is a distinct disease capable of being definitely diagnosticated, beginning with marked velvety congestion of the conjunctiva, both upper and lower lids, lachrymation, and slight, if any, mucous discharge for three or four days. It is impossible at this stage of the disease to make a diagnosis from the local appearances. As the disease progresses, the conjunctiva becomes densely infiltrated, the upper lid hangs over the lower, and there appears upon the conjunctiva, first upon the tarsal surface of the upper lid, a definite, tough, dirty white, closely adherent membrane. If this is separated, which is done with some difficulty, the surface beneath bleeds. There is some slight mucopurulent discharge, great chemosis, and considerable edema of the lids. If to this picture we add the discovery of Klebs-Loeffler bacillus, and this is proved by culture, and the culture is proved by inoculation on the guinea-pig, the diagnosis is absolutely certain. Unfortunately the culture and proof by inoculation under ordinary circumstances take considerable time, so that a differential diagnosis between the Xerosis bacillus and Klebs-Loeffler bacillus must depend entirely upon the clinical picture, for, if the treatment by antitoxin is to be of greatest advantage, it cannot wait for the slow processes of the pathological laboratory.

Taking the above definition of diphtheritic conjunctivitis as the basis of my statistics, I wish to offer such results as I have been able to gather in Boston, concerning the treatment of this rare disease by antitoxin. I first inquired of Dr. J. H. McCollom, medical director of the South Department of the Boston City Hospital, who has had under his care since the institution was opened 8,000 cases of diphtheria. In this number, he tells me, there have been twenty-five cases of diphtheritic conjunctivitis in which there was no doubt of the diagnosis. Of these, eight were admitted by transfer from the Massachusetts Charitable Eye and Ear Infirmary, upon a diagnosis of ocular diphtheria. The other cases were faucial diphtheria, which had incidentally a diphtheritic membrane on the conjunctiva. In all of these cases, including the eight admitted from the infirmary, the Klebs-Loeffler bacillus was found in the discharges from the nose. About one-third of these cases had corneal complications. All were treated with antitoxin, receiving, as a rule, a first dose of 4,000 units, usually a second dose at the end of six or eight hours of an equal amount, and some had three or four injections. Such cases in twenty-four hours have generally been doing well, and after forty-eight hours no more anxiety has been felt for the eyes. In those cases in which there were corneal ulcerations, the antitoxin has favorably affected the corneal lesion, and with the exception of four cases to be mentioned in a moment, the patients left the hospital with good vision. In one of these four cases the cornea, upon the entrance of the patient to the hospital, seemed to be totally necrotic. I saw the case just before admission and six months afterwards was greatly surprised to find that the woman had considerable vision in the eye, the opaque scar occupying



The Isolation Wards of the Massachusetts Charitable Eye and Ear Infirmary.

approximately half the cornea. In the other three cases every cornea was lost. These cases had one factor in common which, superficially at least, seemed to account for the extraordinary severity in the corneal process, in that each of these patients had diphtheritic infection during an attack of measles. In no case was the cornea involved after the administration of antitoxin.

When the new infirmary building was constructed, by the liberality of Mr. George A. Gardner, it was provided with a separate structure for the treatment of contagious diseases. This building, the picture of which you see here, at first consisted of only two floors, the intention being to treat diphtheritic cases on the upper floor and gonorrheal, syphilitic and other contagious diseases on

the floor below. The whole building was soon filled with contagious diseases of the latter classes, with the result that a number of diphtheritic cases had to be transferred to the South Department of the City Hospital. Within a year Mr. Gardner has added a third story, which connects with the corridor going to the main building by a separate flight of stairs. This floor is intended for diphtheritic and other highly contagious diseases. The result of this crowded condition has been, as you have seen, the transfer of the eight diphtheritic cases to the South Department of the City Hospital. I find, however, upon the records ten cases which were undoubtedly diphtheritic conjunctivitis, and which were treated by antitoxin at the infirmary. I will give a brief synopsis of these cases, in all of which cultures were taken for Klebs-Loeffler bacillus, which were positive. All these cases were treated promptly upon entrance with injections of antitoxin, some of them with doses of 4,000 units, as above described.

TEN CASES OF DIPHTHERITIC CONJUNCTIVITIS.

Case I. Age, twenty-one months. Condition upon entrance: Left eye, marked swelling of lids and chemosis. Dense, dirty, gray membrane on tarsal conjunctiva of upper lid; cornea clear. Klebs-Loeffler bacillus found.

Third day: Marked infiltration of cornea so that pupil cannot be seen.

Upon discharge, cornea clear.

Case II. Age, four years. Condition upon entrance: Either eyelid shows marked redness and great swelling. They are board-like and densely infiltrated. Marked chemosis; well-developed, dirty, gray membrane. Throat and nose also show membrane. Corneæ seen with difficulty, but are apparently intact. Klebs-Loeffler bacilli obtained from nose, throat and eyes.

Third day: Eyes widely open; corneæ clear.

Upon discharge, eyes white; corneæ clear.

Case III. Age, six months. Condition upon entrance: Right eyelids red and swollen; marked chemosis; not any membrane seen; cornea clear. Left eye uninfected.

Second day: Dense membrane on tarsal conjunctiva; cornea clear; increased chemosis. Klebs-Loeffler bacillus found.

Third day: No membrane; eye wide open.

Discharged twelfth day. Cornea clear; eye white.

Case IV. Age, two years. Condition upon entrance: Each eye swelling and redness of lids; some chemosis; corneæ clear; dirty, gray, adherent membrane covers most of tarsal conjunctiva. Diphtheritic nasal membrane well developed.

Sixth day: Child opens eyes well.

Discharged with corneæ clear.

Case V. Age, two and one-half years. Condition upon entrance: Right eyelids red and swollen, upper lid overhangs lower; marked chemosis; dense, gray membrane on tarsal conjunctiva: cornea clear. Klebs-Loeffler bacillus found. Left eye not infected.

Fifth day: Eye rapidly becoming white; cornea clear.

Discharged tenth day. Eye white and wide open; cornea clear.

Case VI. Age, two and one-half years. Condition upon entrance: Right eye very slight injection and discharge. Left eye, considerable swelling of upper lid; considerable membrane; lower one-third of cornea infiltrated with loss of substance.

Second day: Infiltration *not* advancing.

Upon discharge eye white; scar of cornea involving about lower one-fourth; did not perforate.

Case VII. Age two years. Condition upon entrance: Right eye uninfected. Left eye, considerable swelling of lids, dense infiltration; upper lid projects considerably over lower; marked swelling of conjunctiva and considerable chemosis; conjunctiva of upper lid entirely covered with dense, dirty, gray membrane; cornea apparently clear, but cannot be perfectly seen because of chemosis. Klebs-Loeffler bacillus found.

Third day: Less membrane; less swelling.

Fifth day: Slight haze of cornea.

Tenth day: Irregular loss of substance noted at lower inner side of cornea for the first time.

Upon discharge, cornea very much clearer, but it is slightly roughened; eye white. About 44,000 units of antitoxin given in this case.

Case VIII. Age, eight months. Condition upon entrance: Right eye, overlapping upper lid, which is very red and densely infiltrated. Conjunctival surface presents a dense, dirty, gray membrane; much chemosis; cornea clear. Klebs-Loeffler bacillus found.

Second day: Patient partially opens eye.

Discharged twelfth day. Eye white; cornea clear.

Case IX. Age, four years. Condition upon entrance: Either eyelid shows great swelling, and chemosis is very marked. Dense, gray membrane on lids. Cornea, right eye shows dense haze throughout, and is completely opaque down and out. Cornea, left eye, clear. Klebs-Loeffler bacilli found.

Sixth day: Eyes open. Cornea, left eye clear. Right eye clear, except for small opacity near limbus down and out.

Discharged tenth day. Eyes white and wide open. Cornea, left eye, clear. Cornea, right eye shows very faint nebula at limbus down and out.

Case X. Age, fourteen months. Condition upon entrance: Right eye not infected. Left eyelids swollen and densely infiltrated. Upper lid hangs well down over lower. Dense, dirty, gray membrane over whole of tarsal conjunctiva; marked chemosis; cornea clear. Klebs-Loeffler bacillus found.

Third day: Eye partially open; no membrane.

Discharged eighth day. Eye white and wide open; cornea clear.

From these statistics it will be seen that out of thirty-five cases there were but three in which the cornea was lost or sufficiently injured to produce absolute blindness, and these three cases were complicated with measles. Of the ten cases treated at the infirmary, there was in no case serious impairment of vision, and seven were discharged with clear corneæ, and of the twenty-five cases at the South Department of the Boston City Hospital fifteen or sixteen had the same fortunate result.

Such a report indicates a great advance from the day when ophthalmologists practically agreed that retention of vision after a diphtheritic conjunctivitis was not to be expected, and I only wish to conclude my paper with my original thesis — that in no other branch of ophthalmology has such remarkable improvement in treatment and results been made in the last twenty years as in contagious conjunctivitis.

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Prof. Johannes Orth, Virchow's Successor. — Prof. Johannes Orth of the University of Göttingen has been called to the chair of pathological anatomy rendered vacant by the death of Professor Virchow. Professor Orth was formerly Virchow's assistant, and through reputation and accomplishment is admirably fitted for the position which he has been asked to fill.

## THE SIMPLIFICATION OF THE TREATMENT OF LATERAL CURVATURE.[1]

BY E. H. BRADFORD, M.D., BOSTON.

The proper treatment of lateral curvature is difficult, not because of any pathological state to be altered, but because the conditions necessary for complete success are not readily obtained. In knock knee, where an undue prominence of a condyle prevents the correction of a deformity, this can be obviated by osteotomy if the bone is firm, or otherwise in growing children by the constant use of an apparatus determining proper growth by correcting pressure. This difficulty makes corrective treatment of advanced cases of scoliosis impossible, as osteotomy is not feasible in lateral curvature, and the amount of pressure necessary for altering the shape of grown bones in the trunk is so great that correction becomes impossible.

It is this which has given to many surgeons the impression that a scientific treatment of scoliosis is impracticable. Granting that this is true in many instances, there remains a large class of cases among growing children demanding treatment, which should be effective if thoroughly applied. If the lower jaw can be moulded into an improved shape, there is no essential impossibility in correcting a projecting shoulder or hip in growing children, provided the conditions necessary for treatment are not impossible.

The surgical indications for the treatment of lateral curvature are now well understood. It is generally agreed that where the muscles are weak and a faulty attitude favored by weak muscles, the muscles should be developed.

Where the ligaments are shortened they need to be stretched or made more elastic by such correcting measures as can be used.

Where alteration in the shape and position of the bones has taken place, the spine should be held during the growing period as near the correct position as possible.

That during the growing period faulty attitude should be prevented by retaining the apparatus if necessary.

The question for the practitioner is that of the application of these principles.

In other words, the practitioner needs to consider:

(1) Measures to promote flexibility in a localized position of the spine. Means for the greatest possible rectification of curves.

(2) Gymnastic exercises for the development of such muscles as may be needed in given cases, to maintain a corrected attitude.

(3) Appliances preventing faulty positions of the spine.

(4) Means of recording the condition and progress in cases.

While elaborate apparatus is often of value in giving the greatest possible precision, it is manifest that the greater the elaboration the less general is the applicability of such apparatus. The practitioner needs the simplest possible measures which may be regarded as efficient.

In practice the cases may for convenience be classified as follows:

Cases needing correction demanding considerable pressure and the use of a removable jacket, with or without exercises.

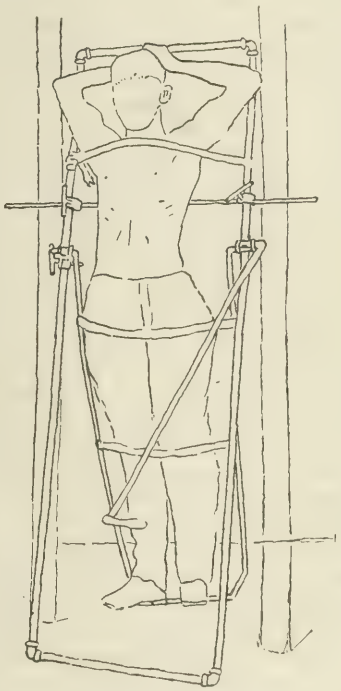
Cases requiring flexibility and passive exercises, conducted by the surgeon or nurse.

Cases suitable for flexibility, exercises done by the patient.

Cases needing developing exercises, measured by graded work and strength tests.

Cases needing measures for the improvement in carriage, recorded by measure and photograph, to be kept under observation.

A consideration of the first two would require space beyond the limits of this paper, and is



Rocking apparatus adjusted for backward stretching-correction of round shoulders. A leather abdominal band is applied to prevent lordosis. Apparatus can be arranged for diagonal pressure in scoliosis.

deferred. In the treatment of the cases coming under his care, the surgeon will find the greatest difficulty in his attempts to increase the flexibility of the spine, as the development of muscles is a matter comparatively well understood, while giving elasticity to muscular fasciæ and shortened ligaments, especially in a localized portion of the spine, presents great difficulty. Precision of application is necessary, and if to this is added the question of simplicity and inexpensiveness, the difficulty is not diminished.

The following measures have at least the merits of the later qualities, and if painstaking work is added, a reasonable amount of effectiveness results:

[1] Read before the American Orthopedic Association, June 6, 1902.

The armamentarium consists of a few wooden blocks, a few straps with buckles, a large, strong gas-pipe frame, a few cast-steel rods with adjusting clamps, and a cast-steel rod bent so as to form a swing, moved by an adjustable handle. They can all be made by a blacksmith and a gas fitter at the cost of a few dollars. Cases vary as to the amount of force which can be exerted, and it will be thought best in most cases to begin with the mildest measures. This is furnished in the following way:

An inch metal rod, two feet long, is placed across two blocks of wood two inches high, put upon the floor, separated from each other by a distance of eighteen inches, and arranged with staples, which prevent the rod from rolling. A felt pad or pillow is placed over the rod and the patient lies upon this in such a way that the rod presses upon the projecting portion of the curvature. In the simplest form, namely, round shoulders, the patient lies with the rod stretched across the back at the level of the middle of the scapulæ. The attendant exerts greater pressure on the upper part of the sternum and on the lower part of the thorax, or the patient raises his straightened arms (weight or not with a dumb-bell, letting them fall to the floor) above the head, arching the spine back. Arching of the lumbar spines is minimized by directing the patient to draw up the knees, and by exerting pressure upon the lower ribs and the pelvis by means of a strap.

In scoliosis it is necessary to exert a diagonal pressure, and this is effected by placing the patient more upon the side and adjusting the counter pressure correspondingly. It is almost unnecessary to add that care is needed to prevent the pressure from becoming too much a side pres-
-e, and that it is properly localized. This, how-
tran- is a matter easily regulated, the adjustment
sis; g simple. This exercise is either active or
uni- ssive, according to the strength or docility of
co patient. It can be made of greater or less efficiency by increasing the height of the blocks on which the rods lie, which diminishes the comfort and increases the strenuousness of the exercise.

Another simple form of flexibility exercise can be furnished in the following way:

The patient stands or sits on a stool, leaning his back against the padded top of a gas-pipe frame, the lower portion of which rests in the corner formed by the wall and the floor of the room. The height of the frame upon the patient's back is regulated by the distance from the wall the patient sits or stands.

If the patient swings his arms above and back of his head, a backward strain is given in the portion of the spine above the point of pressure. This is increased if the patient holds any weight in his hands, or pulls upon a Whitely or weight and pulley exerciser. Hollowing the back below the point of pressure is checked by pressure upon the lower part of the thorax and pelvis. The exercise can be made a passive one if necessary, the attendant manipulating the correction by manual pressure or by means of straps. The direction and adjustment of the correcting pressure requires care in this as in the proceeding exercise.

As is well known, simple correcting force can be given by the paddle, that is, lever pressure, and the use of circingle straps adjusted with cord and pulleys so as to pull in the proper direction. In the former it is necessary to employ especial care that the points of counter pressure are carefully adjusted, and in the latter the encircling straps need to be kept apart by means of spreads



FIG. 1. Natural attitude before stretching treatment.
FIG. 2. Natural attitude after three months' stretching treatment. Upper backward flexion increased from 26° to 50°.

on one side, to prevent undue compression of the chest.

Simple arrangements for correction of the rotation of the spine are not easily furnished. The Hoffa-Weigel apparatus, or its recumbent analogous, or, still better, the various Schulthers apparatus, are most efficient in this direction. The only objection that can be presented is that they are essentially apparatus for an institution or large establishment, and that they are beyond the use of the ordinary practitioner.

The following arrangement, devised by A. M. Greenwood of the Harvard Medical School, will

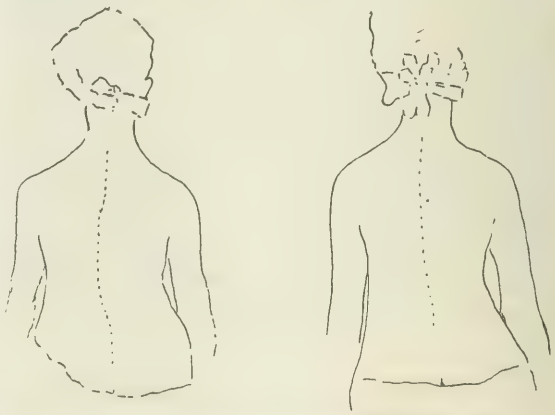


FIG. 1. Girl of thirteen years. Curve of some rigidity.
FIG. 2. After four months' home treatment. Increase of daily home gymnastic work from 487 to 1,784 pounds.

be found to be of use, though requiring care in application: The patient sits on a stool, with

a strap fixture on the pelvis; the legs are extended and placed upon another stool, and secured at such an angle with the cross axis of the pelvis as may be desired; the head is slung to diminish the superimposed weight. A milkmaid shoulder yoke made of steel rods is secured to the shoulders and upper thorax, giving the possibility of a twist to this segment of the thorax, as may be desired. In the rotated middle segment a modified logger's cant-hook can be applied, arranged so as to exert pressure to the front and back of the thorax. This pressure is regulated by a screw, and gives the surgeon a grasp, by which the thorax can be twisted with any desired force. The apparatus requires care in adjustment, but can be made effective. A simpler way can be given by the application of two strips of adhesive plaster around the thorax. If cords are attached to the free ends, which should just clear the points of pressure, any desired amount of pull can be furnished.

Anyone who has read Schulthers' admirable work on lateral curvature must have been impressed by the admirable utilization of mechanical force he employs. It is important to see if the same method cannot be employed in a less expensive way. It seems as if it is possible in the following way:

A large gas-pipe frame is made and furnished with adjustable sockets. Playing in a pair of these is a cast-steel swing, bent so as to furnish a foot-piece, and at the top at one end so as to fit into a long handle, which will enable the swing to be moved at will or with weights as a pendulum. A small cross rod placed in sockets adjustable by screw pressure, at any desired height on the frame, regulates the point of back pressure, and straps secure the patient to this and to the swing in any desired position. Any desired amount of correcting force can be given. The frame can be made to rest in a doorway, secured by a cord and staples. To arrange for different sizes in patients, an extra swing will be needed, but a fine adjustment is arranged by a cross rod. If this swing is reversed and lowered, it can be applied to the back of the seated patient, secured by proper pressure straps, and made to serve as a trunk-bending appliance with pendulum force.

It is believed that a serviceable amount of correcting force can be furnished in the manner described, which, when applied with painstaking thoroughness, will give good results in increasing the flexibility in suitable cases, and moreover, this is at the disposal of every surgeon who has the patience and time to devote to a given case.

For measures of muscular development, dumbbells can be made to answer every requirement, under proper guidance. The use of heavy exercises, with the addition of heavy bars, is of the greatest assistance, as has been shown by Teschner and Erich.

This, and a description of the portable appliances needed in many cases to prevent faulty attitudes, are subjects left for another paper. The object of the present paper is to call attention to the need of correction in treatable cases of lateral curvature, by such means as can be carried out by the patients for a long period under the direction of a nurse. As the disease is one of faulty growth, treatment should be carried out during the rapidly growing period. Home treatment, under careful directions and simple measures, is therefore more practicable and beneficial to a larger number of patients, than institution treatment.

While it is evident that more thorough treatment can be given in institutions, with patients directly under the care of a physician, yet it is also evident that in correcting a process of growth during the growing years, treatment must be carried out for a long period, and success cannot be attained unless home treatment be provided for at the later stages.

Treatment in institutions and by specialists is frequently necessary at certain stages, but unless it is supplemented by carefully directed home treatment, satisfactory results are not secured.

It is believed that this is practicable in a large number of cases.

## SENSORY HALLUCINATION AND ITS ANALOGUES.

BY ROBERT MACDOUGALL, PH.D., NEW YORK,

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### I.

The sign of the plural is like the occurrence in writing of certain expressions which brand their users with literary philistinism. It marks a difference in kind more important than that in number. Speech and speeches, reason and reasons, sight and sights, beauty and beauties,— these are not merely singular and plural forms of the same term, they are names of separate objects or concepts, and discriminate points of view. The plural is popular, concrete, practical; the singular is theoretical, abstract and scientific. One's acquaintance with the facts denominated by a term used in the plural is no sufficient indication of his knowledge concerning that which its singular denotes.

In no province of experience is the need of this discrimination more forcibly felt than in connection with the facts of sense-deception. The literature of *hallucinations* is ancient and voluminous; that of hallucination is recent and relatively meagre. In the former, spectres and visions, visitants angelic and demonic, unearthly laughter, groans and voices, with chill airs and clanking chains, appear in riotous phantasmagory, magnified and distorted in a mist of supernatural terrors. From a surfeit of reading in the literature of phantasmal apparitions one rises with the edge of horror dulled, but with no sense of either illumination or delight. Impartial observation and faithfulness of report are alike lacking. Each experience has been so penetrated by dramatic or superstitious imagination that the

impressive accessories of the occurrence have been thrown into relief and its intrinsic truth let slip. The huge, undigested mass of tales yields to no solvent. The historical succession of incidents presents no development.

The monotony of this fantastic literature is a result of the failure to observe the exact nature of the experience through a constant centering of interest upon the practical and symbolical relations of the event. For its narrator the phenomenon was not a mental process, but a portent, and his concern was to interpret its extrinsic connections with the contingent realities of experience. Out of such materials may be spun endless systems of divination, but never a rational comprehension of hallucination. The latter purpose can be served only by narrations which represent a disciplined psychological insight, for which the teleological significance of the occurrence is indifferent and its precise elements and conditions all-important. The method of crucial instances, however, cannot well be applied to hallucinations of the normal individual, since their occurrence is not under the control of the experimenter and the sporadic experience is too disturbing to its subject to be critically observed. For an understanding of the phenomenon reliance must be placed upon a statistical method which eliminates its adventitious elements and preserves only common features. This work has been done in a series of extensive and laborious inquiries which, while leaving a variety of questions in solution, have done much to clarify our knowledge concerning the psychological nature of hallucination.

There is, however, another method of approach to this as to all problems of abnormal functioning. One's interest in pathology is never intrinsic. The diseased structure, the perverted function, is a situation which either involves a problem for practical therapeutics or presents a phenomenon to be scientifically classified. Its theoretic value, often very great, is finally in every case as an illustration of the normal process from which it presents divergence. Its abnormality consists in the exaggeration or repression of certain elements of the type, and from a study of the healthy function and its normal variability one may often construct the forms of aberration which a pathological series must present.

In no subject of analytic observation is the importance of this comparative method more patent than in the study of human mental processes. A continuous series of modifications connects the facts of ordinary perception with complete hallucination in its most extravagant forms. Furthermore, the essential relations of the mind to its object in sense-deception are duplicated in diseases of the memory and will. To illuminate any one of these fields is therefore to shed light upon all its analogues.

## II.

The phenomena of sense-illusion are presented in various degrees and in endless forms by our ordinary waking life. In some individuals, as well as at certain ages, they are more frequent than in others. The misinterpretation of sense-stimuli as objects of reaction is among children the rule rather than the exception. How often does a child mistake a stranger for a relative and call an unfamiliar object by the name of a familiar! His system of signs has not yet attained the richness and definition which characterizes the mature person and protects him from errors which are the hourly occurrence of child-life. Such illusions are not confined to infancy; let a fit of indigestion disturb the regularity of the organic processes; let hashish or opium play upon the unstable centres of the nervous system; let expectancy heighten the natural precipitancy of the mind, or fear and credulity disperse the coolness of normal judgment, and immediately the well-knit consistency of life is invaded and shot through by a thousand fantastic flashes from unregulated fancy, false perception and vicious judgment. Hasty or careless observation makes us mistake one for another of the objects about us. Abstraction renders us oblivious of sense-impresses which in ordinary circumstances would force themselves disagreeably upon us. The mere suggestion of a thing is frequently sufficient to induce a hallucination of its presence. We are all ready to become Poloniuses if anyone will play the Hamlet skillfully for us:

HAM.: "Do you see yonder cloud that's almost in shape of a camel?"
POL.: "By the mass, and 'tis like a camel, indeed."
HAM.: "Methinks it is like a weasel."
POL.: "It is backed like a weasel."
HAM.: "Or like a whale."
POL.: "Very like a whale."

The cloud-form was as susceptible of one interpretation as of another; and as each new concept was suggested the content of the mind shifted, a fresh set of angles and shadows being seized upon as the basis of each succeeding judgment.

Transient hallucinations of sight arising from expectancy and even from simple suggestion, will be recalled by almost everyone. Hallucinations of hearing are still more common. How many of us are there who have not at some time or other received an answer that was never given, or heard a bell or clock which had not yet struck, or listened to footsteps at the door which fell but in the corridors of imagination! Violinists play upon this susceptibility by continuing to draw the bow after it has ceased to touch the strings, thus prolonging the diminuendo to a tenuity unapproachable without the aid of fancy.

All perception, it has been said, is of the type of hallucination. It would be more correct to say, of illusion, for in all true perception there must be an objective datum. This basis may be full or meagre. Commonly, the fact that what is perceived has not all been given in the sense-impression escapes notice. The percept seems to be a direct recept. But in all our perception of common external objects a great proportion of

their material is not given directly, but added by the mind to the group of sense-impressions received. I see a table, for instance, a certain combination of form with color and brightness, and there arises a cloud of associate characters — of weight, solidity, odor, texture and whatnot — so intimately concrete with those presented that I do not discriminate their separate origins, but seem at once to receive a sense-impression of the table as it stands in my consciousness. The objective stimulus to sight is merely a signal for the associated characters to troop upon the stage. The object perceived is thus never that which is given. However bare perception is, it contains always a contributed element of considerable importance. Theoretically, a pure percept is possible in the first moments of experience, when the sense-impress arouses no associates, but stands before the mind in its sensorial nakedness. In all subsequent perception past experience plays its part in adding to the elements afforded by sensation. A sound, a sight, a touch is received, and instantly in each case the mind fills out the sensation with its appropriate accompaniments.

The process is the same whether the perception be true or false. If the sensation suggest the right object, it is called a perception; if the wrong, an illusion. The one is a correct, the other an incorrect interpretation of the signal received. Illusions may vary from those in which only the slightest elements of the presentation are misconstrued to cases where there is but the merest peg of objectivity upon which to hang the ideal synthesis. Here, then, is lost the distinction between illusion and hallucination. The amount of objectivity in a sense-presentation must be reduced to a vanishing point before the false perception ceases to be an illusion. If a hypnotic subject be directed to fix his eyes upon a black spot on a sheet of paper, and reports that he sees there a likeness of himself, the phenomenon may still be considered an illusion; for there is the objective stimulus, the *point de repère*, as it is technically called, which gives a material basis for the perception and which forms a nucleus about which the hallucinatory elements crystallize.

The postulate that every idea includes an image and that every image tends to externalize itself is part of a psychologist's working formula. The normal outcome of all mental activity is in some form of bodily movement. In ordinary life great numbers of these discharges are rendered ineffective by contradictory ideas, which have in consequence been called *reductives*. When these correctives are absent every representable idea which arises in the mind will be projected in the form of a motor reaction. Such results are familiar to us in the phenomena of hypnotism. We have only to look more closely at the facts of ordinary life to see this native tendency in its incipient stage, while it is occasionally encountered there in a fully developed form. Concentration of the mind upon any object greatly strengthens its susceptibility to illusion, especially that form of attention which is called expectancy. At the burning of the Zoölogical Gardens in London a large gathering of persons watched for a long time the struggles of a baboon endeavoring to escape from a burning building, only to find in the end that the frantic simian was nothing but a torn awning fluttering in the wind. Illusion and hypnotic suggestion are alike in that each is conditioned by the absence of a set of surroundings sufficiently detailed and characteristic to determine the specific form of the activity which is aroused by the stimulus.

Proneness to sense-deception, therefore, is no monstrous tendency of the mind, but a result of its primitive type of reaction upon suggestion, which still forms the background of our active life. It is overlaid and checked by a thousand doubts and considerations, which experience has gathered upon its way, the weight of which directs the final outcome to this or that line of action. These are the comments of practical wisdom which arrest the motor discharge until its congruity with present conditions has been established. Motor suggestions supply everywhere the material of our active attitudes whose form is determined by the interplay of supplementary and inhibitive ideas called up on their presentation. Illusion in the sensational world is what hasty and impetuous performance is in the active, or a rash and inconsiderate verdict in the intellectual. The evidence has not all been in, or not all considered, and the erroneous conclusion in all three cases results from the ignoring of certain elements.

## III.

The older psychologists give a far from scientific definition of hallucination. Crichton, writing at the end of the eighteenth century, defines hallucination, which he does not discriminate from illusion, as a delusion of mind in which fancies are mistaken for realities, and real objects misrepresented. Sauvages and Felix Pater include within the term the results of certain pathological conditions of the sense-organs and general system, such as vertigo, ringing in the ears, dizziness, double sight, and such complex mental states as hypochondria, somnambulism and delusional insanity. Arnold (1806) was the first to give an approximately precise application to the term, and Esquirol, in his "Maladies Mentales" (1838), established its contents. He defines hallucination as a cerebral or psychical phenomenon which the subject experiences, and which he believes to consist of sensation, though no external agent is present.

In all the earlier literature of the subject the phenomena of hallucination and illusion are confused together, or more correctly, have not yet been discriminated. The typical forms of mental process, perception and conception were recognized, and between these appeared a third abnormal form, a hybrid between the other two, which was called *hallucination*. Lelut thus regards it as a spontaneous transference of thought

into sensation. Aubanel refers to it as the transference of delirious mental conceptions into sensations, and the perversion of real sensations by assimilating them to such delirious conceptions. Calmeil defines hallucination as ideas converted into material impressions, although the peripheral organs remain passive. At the same time he points out that the sense-organ may be the starting point of even the most extravagant hallucinations. Henceforth the conception of a hallucination is definite and its application comparatively unanimous. Boismont defines illusion as a false appreciation of a real sensation, hallucination as the perception of the visible signs of an idea. Sense-deceptions, says Moll, are divided into hallucinations and illusions. The first is the perception of an object where there is really nothing; the second is the false interpretation of an existing external object. Both, in short, are species of false perception, one depending upon the wrong appreciation of an external stimulus, the other involving a wrong appreciation of an internal stimulus only.

Several further distinctions must be drawn between hallucinations and certain adjacent classes of mental phenomena. Hallucination does not include the appearance of after-images due to fatigue of the retina. It is true that a series of examples may here be drawn which run out into the neighboring field of hallucination, as in the case of an English surgeon who had an hallucination one morning of the body of a child which had shocked him in the operating-room the evening before; but in general the phenomena of persistent after-images are but exaggerations of the normal process of perception, due to a pathological retardation of the process of recovery from stimulation. To the immediate observer, nevertheless, the phenomenon is a true hallucination, and only for the theoretical student does there arise a question as to whether the physiological conditions of the apparition affect the retina or the brain.

Hallucination must, of course, be distinguished from sensorial imagination. Memory images are faint and shadowy in the experience of most persons, but in acute visualizers they may reach such a degree of intensity as to stand before the mind's eye with all the freshness of their original presentation. It is true they may never be mistaken for real sense-impressions, recognized subjectivity being one of the elements which characterize them as memory pictures, but this will not suffice to distinguish them from hallucinations. The deceptive character of the latter may be recognized during the very time of presentation, as in the case of Nicolai of Berlin, who was quite aware of the fact that the figures which appeared to him with such vividness of form and coloring had no objective existence. The distinction between the two groups of facts must be sought in the manner in which the phenomenon arises and its relation to the whole form of the consciousness in which it appears. Memory images are under voluntary control, their imaginative origin is recognized, and they lack the vividness and obstinacy of hallucination.

But here one comes to a closer discrimination still. Between true hallucination and the pictures of memory lies an intermediate class of phenomena, including and excluding elements of each, which have been called *pseudo-hallucinations*. The apparitions are recognized to be purely subjective, but their appearance is beyond the control of the will. They differ from ordinary images of memory and fancy in being much more vivid, spontaneous and persistent than the latter, and from hallucinations in lacking the element of objectivity which the latter possess. Memory images are thus both produced at will and known to be subjective; pseudo-hallucinations are known to be subjective, but are not produced at will; while hallucinations are, as a rule, neither produced at will nor known to be subjective.

How completely the limits of voluntarily aroused subjective imagery may be overstepped by these figments is illustrated in the experience of Blake, the English poet and artist. "When a model was presented," he says, "I looked at it attentively for half an hour, sketching occasionally upon the canvas. I had no need of a longer sitting. I put aside the drawing and passed to another person. When I wished to continue the first portrait, I took the subject of it into my mind, I put him into the chair, where I perceived him as distinctly as if he had been there in reality; I may even add with form and color more defined and lively than in the original. I contemplated from time to time the imaginary person, and set myself to paint; I suspended my work to examine the pose, exactly as if the original had been before me; every time I cast my eye on the chair I saw the man." Of a nervous, imaginative type, he had manifested a tendency to hallucination from childhood. In later years his very thoughts seem to have been reflected, spontaneously and capriciously, in shapes which he describes in vividly objective terms. The subjective nature of these phenomena was at first clearly recognized, but as time went on his discrimination of real from unreal seems to have become more and more confused, so that intimate acquaintances were liable to be suspected of insubstantiality and phantasms to be treated as flesh and blood.

## IV.

The most favorable objective conditions for sense-deception are presented when the general field of sensation is reduced in intensity, and the originating stimulus is feeble or ill-defined. Dusk and silence, with their shadowy forms and faint noises, are the fruitful occasions of illusion. On the subjective side also the predisposing state is a reduction of nervous vigor, in drowsiness, exhaustion and disease. The special change which appears in consciousness is a relative monoideism, due to a decline in capacity for complex stimulation and rapid association.

The most familiar example of this is in the phenomena of hypnagogic hallucination. The

reductives fall away one by one as the avenues of sense close and the activity of the brain is lowered, until the centrally excited images readily attain full objectivity. Persons who have never had hallucinations at any other time have experienced them at the moment of falling asleep. These hallucinations usually begin with points and lines of light changing position in the visual field, which afterward develop into intricate patterns or elaborate scenery. In a report by Prof. S. R. Palmer in the *Louisville Medical News*, Mr. W. Deering says: "At these times I very seldom fall asleep, but simply into a species of slumber, in which I frequently find myself in a rayless or moonless moonlight, looking, and this usually with serene pleasure, at nearby gardens, slopes, rivulets, and various little vistas, which more times than otherwise vanish at my bidding, and except I fall asleep, are immediately replaced by others." The physiological excitant of this activity seems to lie in some abnormal condition of the retina, upon which the mind seizes as a framework for its fantastic structures. In other cases no such condition can be inferred, the hallucination taking the form of an after-image of something seen during the day, as in the case of Maury's beefsteak.

Within the scope of hypnagogic hallucinations are included those also which occur at the transition from sleep to waking, a state which is likewise fruitful of illusions. Almost everyone must have experienced at least a tendency to hallucination in the momentary feeling of strangeness toward his surroundings which occasionally assails one at the instant of waking. Familiar objects seem changed in size, distance, relative position, or even wholly transformed in character. After a few seconds the feeling of unfamiliarity fades like a dissolving view, and the subject, gradually or with a start, returns to himself and finds in every article an accustomed face. This experience contains a true element of hallucination, for it is a purely mental contribution which imposes the strange and foreign accent upon familiar things.

Many of these phenomena are due to interrupted dreams, whose images for a few moments persist among the objects of waking life. Mr. Gurney relates the case of an acquaintance who awoke in the midst of a vivid dream about a man well known to him, and saw the dream-image in the early morning light standing by his bedside in the very attitude of his dream. He looked at the figure for a moment or two, then putting out his foot, kicked at it. When the foot reached it, it vanished. An acquaintance of mine, an amateur water-colorist, on several occasions when wakened suddenly from a doze into which he had fallen while reading, has seen on the page of his open book figures and portions of landscapes possessing color as well as form. Frequently the hallucinatory image has no recognizable connection with a remembered dream. It appears as an independent phenomenon, and tends to crystallize about some article of furniture in the room; so that a continuous series may be traced from complete hallucination to the faintest illusion arising from a slight misinterpretation of actual presentations of sense.

That the conditions of the hypnagogic state are favorable to hallucination is indicated by the results of investigations carried on by the Society of Psychical Research. Of 302 cases of visual hallucination 43 (one-seventh) occurred within a few moments of waking, and of the remainder, 66 were experienced by persons in bed. Similarly, of 187 cases of aural hallucination, 63 (over one-third) occurred to persons in bed. These facts are attributed to the favorable conditions of quiet and passivity, the anemic state of the brain and the partial inaction of the higher centres.

The high percentage of cases in which hallucinations occurred to persons who were in bed is ambiguous until it is known whether these subjects were simply resting or in bed on account of illness. The latter condition has many elements in common with that of sleep, including a reduction of nervous tone, and is likewise provocative of hallucination. Sense-deception occurs more rarely to persons of vigorous health than to those of weakened constitution, consequent in part no doubt upon a disturbed nervous condition, which affords the physiological basis for a variety of novel and ill-defined subjective sensations about which the hallucinatory experience clusters. Dr. V. Kandinsky, in his studies on hallucination, describes a picturesque multitude of false visual images which appeared to him during a period of illness. "For a week I saw on the wall, which was hung with tapestry of one color, a row of pictures with wonderful golden frames or borders, fresco pictures, landscapes, sea-pieces, sometimes portraits with colors as bright as those of Italian artists. Another time when I made myself ready for sleep, I saw suddenly before me a statue of middle size, of white marble, in the attitude of a stooping Venus. After some seconds the head of the statue fell off, leaving the stump of the neck, with its red muscles. The head, when it fell, broke in the middle, exposing the brain. The contrast between the white marble and the red blood was especially striking."

*(To be continued.)*

## Clinical Department.

### A CASE OF TRANSPLANTATION OF THE BICEPS FEMORIS TENDON.

BY CHARLES F. PAINTER, M.D., BOSTON,

*From the Orthopedic Clinic of the Carney Hospital, Boston.*

L. O'B., female, twenty-eight years of age, single, a dressmaker; has been crippled to a very considerable degree as the result of an infantile paralysis. Shortly after an attack of what was called cholera infantum, when she was one and one-half years of age, a paralysis was noted in-

volving both legs and one arm. The arm got entirely well in a comparatively short time, and there was gradual improvement in the legs during the next four or five years. After seven years of age the paralysis has been as it was on her entrance to the hospital on April 2, 1902. She has been obliged to use two crutches, or a crutch and a cane all her life, and even then her gait has been very awkward, and she has been able to walk very little without becoming very tired. The apparatus which she has worn from time to time has of late years been more tiring than the use of crutches alone, and has brought no commensurate improvement in gait or functional activity.

In April of this year examination showed a fairly developed woman except for the lower extremities. There is now no trace of paralysis in the upper extremities. In the left thigh there is flaccid paralysis involving, for all practical purposes, all the muscles except the biceps femoris. In the lower leg none of the muscles are wholly paralyzed, but are considerably weakened. Knee reflex is absent. There is marked atrophy of both thigh and calf. In walking the foot is turned inward and the leg is extended in this position through the action of the biceps femoris and the fascia lata. This muscle can be seen and felt when attempts are made to extend the leg with the foot rotated inward through an arc of 90°. In the right leg there was complete flaccid paralysis of all the muscles of the calf, particularly the posterior groups, namely, the gastrocnemius and peroneals, the tendons of the latter being dislocated 2 cm. in front of the external malleolus. The muscles of the thigh are functioning, though weak. Complete extension of the leg is possible; slight knee jerk present. Marked atrophy of the muscles of thigh and calf, particularly of the calf, and about 2.5 cm. shortening of the leg, chiefly confined to the tibia. In walking, a position of extreme calcaneus is assumed. The tibia is quite markedly subluxated.

On April 3, 1902, the right astragulus was removed through an incision 6 cm. in length, made in a semilunar shape over the peroneal tendons. The tibia was placed so far posteriorly that the os calcis was tilted up in a much exaggerated position, and the foot appeared to have no heel, and the malleoli were in the same anteroposterior plane with the posterior extremity of the os calcis. After the removal of the astragulus, the cartilage covering the top of the scaphoid and the anterior extremity of the os calcis was denuded, and also that covering the external malleolus; then the tibia was moved as far forward as possible upon this denuded area. The wound was closed with silkworm gut, and the leg put up in plaster in good position. Union was by first intention, and the stitches were removed at the end of two weeks, at which time the second operation was performed upon the left leg. At this time an incision was made over the outer side of the left knee, parallel with the tendon of the biceps femoris, extending from the insertion of this muscle into the head of the fibula for 12 cm. upon the external aspect of the thigh. All the muscles of this region of the thigh except the biceps were very pale and lifeless in appearance. The biceps tendon was cut off its attachment, and the muscle dissected free to such a height as would make it pull as an extensor when inserted into the quadriceps tendon, at the upper border of the patella. A slit was made through the expansion of the quadriceps tendon close to the patella, and the biceps tendon was passed through this and fastened by two mattress silk sutures. The lower end of the fascia lata terminated in a broad tendinous expansion which spread up toward the anterior surface of the thigh to mingle with the fibres of the quadriceps. This band of fascia, through the muscular pull of the tensor vaginæ femoris, was acting in a similar manner to that in which the biceps femoris was exerting its pull. The inferior portion of it was therefore divided from its attachment and reflected over the superior portion, making its combined insertion close to that of the transplanted biceps. It was anticipated that this attachment might pull the patella over to the outer side of the joint, but it has not proved to be a serious complication. The incision was closed with silkworm gut and the leg put up in plaster-of-Paris. Use was allowed of the left limb in six weeks, but the ankle was kept fixed for three months.

On Aug. 1, 1902, the result was as follows: The malleoli of the right ankle are situated much further forward than they were before the operation, thus bringing the weight in a better plane than formerly. There is about 15° of motion in flexion at the joint between the tibia and scaphoid, and the foot is at right angles to the lower leg. The patient is just beginning to use the foot, wearing a sole plate in the boot, but the final functional result should not now be reported.

The result of the tendon transplantation is so eminently satisfactory, however, as to justify this early note. The patient walks with the foot in a normal position, and the biceps is able to extend the leg to within 10° of complete extension and to hold it there with the toes pointing upwards. The attachment seems good and the patella is pulled only slightly outwards. The patient herself is well satisfied with the improvement thus far, and of course more is to be expected as time goes on.

## Medical Progress.

### REPORT OF PROGRESS IN THORACIC DISEASE.

BY JOHN W. BARTOL, M.D., BOSTON.

#### POSTURE AND HEART MURMURS.

BASING his conclusions on what seems to be an entirely inadequate number of cases, although actual figures are not quoted, Gordon[1] states that recumbency seems to decrease the

[1] British Medical Journal, March 15, 1902.

intensity of the murmur of mitral stenosis and the venous hum, to leave unaffected the murmur of aortic regurgitation, while tending to increase all the hemic murmurs so called, and those of mitral regurgitation, tricuspic regurgitation and aortic stenosis. He goes on to some rather suggestive considerations as to how such effects can be explained. He claims, in the first place, that in an elastic thorax there may be as much as one inch diminution in the anteroposterior diameter when the individual lies down. If the diameter when erect is seven inches, and of this the sternum, spine, esophagus, and aorta represent four, then the space containing the heart may be rendered shallower by one-sixth of its depth by a change from the erect to the recumbent posture. Such an alteration must bring the listening ear appreciably closer to the murmur-producing orifice, and, as the nearer the valve to the front of the chest the more marked we should expect the change to be, the intensifying effect may be looked for in diminishing scale in the pulmonary, aortic, tricuspid, and mitral valves.

To this cause he gives partial credit, and seeks a completed solution in the effect of gravity already generally accepted as sufficient to account for the increased loudness of the venous hum in the erect position. Diagrams are presented showing that the flow of blood to or from any chamber of the heart will be increased or diminished according as the individual assumes one or the other of the two positions, and the conclusion is drawn that, taking the change of chest depth and gravity together, we should expect to find resulting the very effects which are noted above as the evidence of clinical observation.

The increase of the intensity of the hemic murmurs during recumbency is easily explained if we assume them to be actually produced at the orifices near which they are best heard. The fact that the murmur of aortic regurgitation is not diminished in intensity during recumbency is accounted for by the fact that the force producing the murmur is so powerful, and that in this instance the effect of chest depth is directly opposed to the effect of gravity.

### CHRONIC MYOCARDITIS.

Musser[2] notes the fact that, were it not for an associated myocarditis, most cases of valvutitis would give rise to few, if any, symptoms; to the former condition he ascribes a complex pathology and symptomatology, or, as he puts it, "it is not common to have chronic myocarditis without some hypertrophy, dilatation, atrophy, fatty degeneration or infiltration, singly or combined, or to have any of the latter conditions without myocarditis." He discusses the various familiar types of myocarditis with illustrative cases, and devotes especial attention to the clinical expressions of the fibrous form dependent on coronary artery disease, and occurring in middle life or later, chiefly in males whose career has been one of active strife or of ill-balanced indulgence.

Subjectively there is pain in some, in some serious dyspnea, in others distressing arrhythmia, or the Stokes-Adams syndrome. The same association of physical signs is common to all: a sallow pallid hue of the complexion which, coming on during the progress of general arterial degeneration, is practically proof of the involvement of the coronary arteries. The physical signs of the heart will be those of myocarditis alone, or in association with hypertrophy or dilatation. As most suggestive, he classes feeble or absent impulse, shown, when palpable, to be displaced to the left. Marked increase in the area of absolute cardiac dulness, and characteristic auscultatory phenomena, namely, a systolic shock greater than the force of the impulse would lead us to expect a valvular or else a feeble muscular sound; reduplication of the first or second sound, more frequently the former; late in the disease a systolic murmur, soft and low in pitch and very often heard best at fourth rib in parasternal line, due probably to muscular insufficiency. The supervention of dilatation brings the additional signs of this condition.

### RELATION OF ACUTE OVERSTRAINING OF THE HEART TO BLOOD PRESSURE.

Continuing his studies of several years ago, in which he showed the prompt and considerable effect of violent exercise in producing dilatation of the heart, both right and left sided, Schott[3] has made a preliminary investigation of the accompanying variation in the blood pressure as registered by Gaertner's tonometer. He was able to demonstrate that wrestling, not pushed to the point of dyspnea, produces a rise in blood pressure of from a few millimetres up to ten or more, whereas, with the appearance of well-marked dyspnea, that is, the onset of acute insufficiency of the heart, the pressure rapidly falls, the mercury in a type case showing a drop of 41 mm., after ten minutes wrestling, from the point which it registered after one minute. After cessation of dyspnea the pulse and pressure may return promptly to normal or they may take hours to do so; in other cases the pressure may reach normal, while the pulse and respiration are still high; in these latter instances the heart outlines will be found to have already returned to normal. The bearing of these experiments on the subject of the production of chronic cardiac overstrain is shown by the fact that when acute insufficiency has been produced by exercise in a healthy heart for the first time, the next experiment, if repeated after not too long a time, will show far less effort and far shorter duration of exercise sufficient to reproduce the cardiac insufficiency.

### CONGENITAL HYPOPLASIA OF THE AORTA.

A comprehensive paper by Burke[4] gives the results of his studies based on careful considera-

[2] Medical News, Jan. 11, 1902.

[3] New York Medical Journal, April 26, 1902.

[4] Deutsch. Arch. klin. Med., Bd. lxxi, H. 2 and 3.

tion and tabulation of nearly a hundred cases. The chief conclusions are :

(1) That from an etiological standpoint it may represent either an inherited condition, or else a deficiency of development.

(2) Its immediate effects are found in (*a*) the heart, where it produces hypertrophy of the left ventricle, followed later by dilatation and the usual sequence, and (*b*) the arteries, which in young individuals become sclerosed as result of the heightened blood tension. The clinical expression of these conditions is found to differ in men and women ; in the latter chlorosis or even pernicious anemia being relatively common without striking changes in the heart, while in the former the changes in the heart are of first importance.

(3) The significance of the condition as a predisposing cause of infectious disease rests simply on the fact that it naturally lowers the resisting power of the individual.

(4) The diagnosis of the underlying condition is a very difficult one, and must be based on general grounds, to wit. : The occurrence, in a pale, slender youth with evidence of deficient development, such as hypo- or epi-spadias, under-development of the genitals, etc., of disturbances in the circulation or heart's action for slight cause, while physical examination shows hypertrophy or dilatation in the absence of valvular disability, a high tension pulse and accentuation of the second pulmonis.

DISABILITIES OF THE HEART FROM TRAUMA.

Ercklentz, in a paper [5] which is chiefly a review of cases reported by other men, draws attention to the various effects which eternal violence to the thorax may have on the heart. In addition to the ordinarily recognized form of dilatation and rupture of the muscle he lays stress on the importance of remembering that the myocardium shows itself quite susceptible to further effects evidenced by succeeding degenerations, and then discusses valvular lesions and endocarditis, acute and chronic.

The aortic valve, as the great bearer of strain, of course is more likely to be ruptured than any other, but the mitral also is at times injured, and as a result of injuries to either one we may find not only insufficiency but, at times, stenosis. The genesis of an endocarditis hangs upon the direct damage to the surface of the endocardium or upon the occurrence of small endocardial hemorrhages with subsequent inflammatory changes.

The causal relation between the accident and the cardiac condition rests on factors generally difficult to substantiate, and consequently absolute proof is often difficult to establish, but before admitting a case to the category the following conditions must be fulfilled : The details of the accident to be accurately noted, proof of the soundness of the patient up to the time of injury to be established, the first sign of cardiac disturbance shown to have ensued shortly after the accident, and an immediate connection between the earlier signs and the succeeding ones proven beyond reasonable doubt.

[5] Zeitschr. f. klin Med., xliv.

BLOCKED SYSTOLE.

Wenckebach,[6] in a series of papers on irregularity of the pulse, suggested the possibility of the systolic impulse being blocked at the auriculoventricular orifice ; and following him, Belski [7] contributes a case with comments, to prove the occurrence of such a phenomenon in certain clinical constitutions, as, for example, the Stokes-Adams symptom-complex. He thinks that it will be most frequently observed in cases of advanced cardiosclerosis and other myocardial degenerations. His own patient presented evidence of arteriosclerosis, emphysema and venous congestion : A bigeminal pulse, alternation of bradycardia and tachycardia, and Cheyne-Stokes respiration. Further study of the heart and pulse revealed a constantly recurring group of associated symptoms in the following sequence : At the beginning of the apnœic interval, a condition of tachycardia gradually changing to bradycardia, with increasing emphasis of the bigeminal character of the pulse ; a lengthened systolic period with large pulse volume, loud first sound at apex and a rough murmur over the right ventricle ending with a sharply doubled second sound ; in the jugular vein the appearance of a systolic impulse ; following the long systole came a short, powerful one with small pulse wave and disappearance of the tricuspid murmur ; then ensued a long pause, during which the heart was to all auscultatory evidence absolutely quiet, although there were evident in the jugular vein a few weak pulsations corresponding in rhythm to the rate of the pulse during the tachycardia. Then again, came the long systole and a repetition of the same succession followed by the characteristically developed period of accelerated respiration.

This chain of phenomena were studied during the last twenty-four hours of the patient's life, and the conclusion was reached that there occurred during the period of apparent stillness of the heart a succession of weak systolic contractions of the right auricle, which were "blocked" at the boundary between auricle and ventricle.

Ascoli [8] also ranges himself on the side of those who believe in the occurrence of this phenomenon. His faith is based on the observation of three cases, in all of which the venous oscillations outnumbered the arterial pulsations and auscultatory signs of cardiac activity. In his cases there was no valvular disability, and the venous pulse was constantly negative.

MITRAL STENOSIS AS A SURGICAL AFFECTION.

No less an authority than Lauder Brunton spurs on the surgeons to new fields of possible fame by picturing the great relief that would ensue in the distressing symptoms caused by narrowing of the mitral orifice, if the opening could be restored to something like its normal dimensions, with the

[6] Zeitschr. klin Med., 1900-1901.
[7] Zeitschr. klin. Med., Bd. liv.
[8] Berl. klin. Woch., No. 16.

knife. He has himself tried a few not especially encouraging experiments, and is inclined to leave to other hands the achievement of the glorious prospect.

TUBERCULAR PERICARDITIS.

A case reported by Sabin [9] was tapped three times, with aspiration of 10 cc., 25 cc. and 50 cc. of fluid; tubercle bacilli were found in the exudate. Soon after followed a pleurisy, with aspiration of 20 litres in fourteen tappings. Nine months later patient's general condition was good in spite of the phthisis, and there were no signs of either pericardial or pleural effusion. Such findings have a possible bearing on the favorable course of many pleurisies, presumably of tubercular origin.

CONTRIBUTION TO THE STATISTICS OF PLEURISY.

Grober,[10] in a statistical study of 1,000 cases of phthisis, concludes that in 8.8% of all such, pleurisy is the preliminary symptom; and that of all cases of pleurisy a conservative estimate will class a minimum of 35.6% as of surely tubercular origin, a ratio which may be increased by cases of unknown, and therefore possibly tubercular, origin.

FLUCTUATION IN PLEURAL EFFUSIONS.

Stenitzer [11] seeks to revive interest in the investigation of this manifestation of fluid in the pleural cavity, which he claims is of much greater value for diagnostic purposes than is generally believed. By the proper technique a rather small-waved fluctuation can be elicited even in moderately small effusions, giving somewhat the same impression as the vibrations communicated by percussion, to a not too tense ascites. The details of technique consist of a palpatory percussion in which an assistant furnishes the plexiimeter fingers pressed firmly in the seventh, eighth and ninth intercostal spaces between spine and scapula, while the observer strikes these fingers with three of his, and palpates in the lower axillary area with his other hand. The possible value of the sign lies in the help which it may offer in discriminating between thickened pleura and effusion when the signs are obscure.

ACUTE SUFFOCATIVE PULMONARY EDEMA.

Steven [12] and Lissamen [13] have reported three striking cases which clinically seem to be well described under the above title. The symptoms common to all the cases were the sudden onset, without warning, of intense agonizing pain in the chest, frightful dyspnea, lividity of the face, profuse cold sweat, and what is a most important diagnostic point, the continuous and very free expectoration of a thin, pink seromucous fluid, which is so abundant that it seems to "flow up the trachea" and is ejected without cough; the total in one case reached 26 oz. in six and one-half hours, and in another, 42 oz. in eight hours.

In one patient who had always been well there was found to be an accompanying moderate albuminuria with casts, which cleared up with the attack, the first and only one seen in this patient; in a second patient who had three attacks and died in the last, there was endocarditis and nephritis; in the third, who has been observed in seventy-two attacks during two and a half years, varying only in intensity and duration, there have never been discovered any signs of organic disease. A tentative explanation offered by one of the observers is that it is a "wet asthma" caused by spasm of the pulmonary vein or efferent system, while in acute spasmodic asthma, "dry asthma," it is the pulmonary artery or afferent system which undergoes spasms.

An analogy is suggested between "dry asthma" and Raynaud's disease and between "wet asthma" and certain forms of erythromelalgia.

Chloroform inhalations have proved of marked value in the case already specified as having passed through so many attacks, the effect being to very much shorten the attacks and apparently to diminish their frequency.

SUDDEN DEATH IN AORTIC STENOSIS.

Anders [14] refers to the too common failure to recognize the precautions necessary before venturing a diagnosis of aortic stenosis, and attributes to carelessness in diagnosis the fact that this valvular lesion is not ordinarily considered a likely cause of sudden death. He reports two cases of his own in which sudden death did ensue (one while the patient was asleep), and has readily collected four others, making a total which, with the acknowledged rarity of the lesion existing by itself, renders it highly probable that sudden death is not an uncommon mode of termination.

One of his cases was extremely interesting anatomically owing to an aneurismatic dilatation of the aorta at its root and marked stenosis of the vessel beyond this dilatation.

[9] American Medicine, March 8, 1902.
[10] Centrbl. Inn. Med., No. 10.
[11] Wien. klin. Woch., No. 21.
[12] Lancet, Jan. 11, 1902.
[13] Lancet, Feb. 8, 1902.
[14] Medical News, May 10, 1902.

## Reports of Societies.

### AMERICAN NEUROLOGICAL ASSOCIATION.

Twenty-Eighth Annual Meeting, Held at the New York Academy of Medicine, June 5, 6 and 7, 1902, Dr. Joseph Collins of New York, President, in the Chair.

FIRST DAY.

[Concluded from No. 13, p. 359.]

COURSE OF THE SENSORY FIBRES IN THE CORD, AND SOME POINTS IN SPINAL LOCALIZATION.

This was the title of a paper and the report of a case by Dr. Morton Prince of Boston. The case was of value in that it showed the existence

of a pathway for sensory fibres other than in the posterior columns. The patient had been stabbed in the neck. The knife entered between the fifth and sixth cervical vertebræ and severed approximately the posterior half of the cord, the section being carried farther forward in the left half of the cord than in the right, so that both posterior columns were cut clear through, and the lateral columns on the right as far forward as the anterior boundary of the pyramidal tract, but on the left it extended ventrally, so as to include a portion of the anterolateral field. During life tactile sensation was preserved on the left half of the body, but abolished on the right half as high as the seat of the lesion.

As the posterior columns were completely severed, tactile impressions from the left half of the body must have ascended in the anterolateral field. It was evident also that they must have crossed to the opposite half of the cord, otherwise there was no way of explaining the anesthesia on the same side of the body as that on which the section of the cord was of the least extent. It would also appear that this path for tactile impressions, after crossing in the cervical region, must ascend somewhere in an area represented by a triangle, the posterior leg of which corresponds to the line of incision on the right side, and the anterior leg to the line of incision on the left side of the cord. The case also corroborated our knowledge of spinal localization, although the paralysis resulting from the lesion varied somewhat from the usually accepted view. There was absolute paralysis of the extensors of the forearm with preservation of the function of the flexor group, showing that the centres for the triceps do not extend above the seventh segment. The distribution of the sensory loss also presented some points of interest. The report of the case was a preliminary one, as the microscopic examination of the cord was not yet complete.

DR. MILLS said that aside from the motor conditions present, it would have been of great value to determine the muscular sense, and the pain, temperature and tactile senses.

DR. WILLIAM G. SPILLER of Philadelphia thought that Dr. Prince's case seemed to show that the tactile fibres were not confined to the posterior columns. He believed in the study of the pain and temperature senses, and felt quite sure that had a microscopic examination been made, the lesion would have been found to extend further anteriorly.

DR. PRINCE admitted that the tactile sense only was investigated in this patient, the pain and temperature senses being disregarded. The question at issue was that of operation. He was concerned solely with the idea of looking for the height of the lesion in the cord.

EXOPHTHALMIC GOITRE AFTER THYROIDECTOMY.

DR. J. ARTHUR BOOTH of New York read a paper with this title, and reported the results in eight cases of Graves' disease after partial thyroidectomy. All were females from seventeen to forty-two years of age. Exophthalmos, goitre, tachycardia and tremor were present in every case. One patient died twenty-four hours after the operation, but the seven others have been under observation since the operation for periods ranging from two to nine years. Three are cured and four are practically well, all of the prominent symptoms having more or less subsided, the pulse being from 80 to 84. The following conclusions were drawn: (1) Cases of Graves' disease are cured both by thyroidectomy and resection of the sympathetic; (2) sudden death may occur during or after the operation, which is due to either an already weakened heart, faulty technique of the operator, or nephritis; (3) in the majority of cases the thyroid gland dominates the disease.

DR. STARR believed in the importance of operation in such cases. He had recently seen a patient in whom the gland was enlarged downward and backward, and so did not produce so much protrusion as usual. The operation resulted favorably and the patient is in fairly good condition. He believed that the activity of the gland is responsible for this disease.

DR. DANA said that the statistics regarding this operation, and especially that of removal of the sympathetic, are very misleading. There is no evidence that removal of the sympathetic ganglion will cure Graves' disease. When one selects a series of seven cases treated medically and goes back six or seven years, he could report as good results as Dr. Booth has. It is most important to bear in mind that these patients can be improved more promptly by operation, provided you do not kill them. He thought the disease was essentially or primarily a psychosis, with some disturbances of the nerve centers and increased glandular activity. He had collected about twelve cases of Graves' disease in which death had occurred within three or four months, and nearly all had bulbar symptoms, facial palsy, etc.

DR. HIRSCH said that as a rule surgeons do not publish the unsuccessful or fatal cases.

DR. WILLIAM OSLER of Baltimore had personal knowledge of two patients dying during the operation, and he had heard of a third case. If there is any clinic from which reliable figures are to be had, it is from Kocher's clinic in Berne. He concludes that in the surgical treatment of the disease we have by far the best means at hand for curing a large percentage of cases. Osler thought that little is known as yet of the good that may be obtained in Graves' disease from surgery.

DR. B. SACHS said we should be more conservative in regard to surgical intervention, for many cases will get well by simpler means. Exophthalmic goitre was not such an unfavorable disease as it is generally supposed to be. He mentioned a patient who had been successfully operated upon eight years ago. In this case there was tremendous exophthalmos. Both the tachycardia and the exophthalmos diminished, and there was improvement in the general health.

ADIPOSIS DOLOROSA.

Drs. F. X. Dercum and D. J. McCarthy of Philadelphia reported the results of an autopsy in a case of adiposis dolorosa.

Dr. Spiller had made sections in the case reported, but did not find any affection of the hemolymph glands.

AMAUROTIC FAMILY IDIOCY.

Dr. B. Sachs of New York reported a case with the result of the autopsy, which showed degeneration in the gray matter throughout the entire central nervous system.

ASTHENIC BULBAR PARALYSIS.

Dr. William M. Leszynsky of New York presented two patients with this rare affection. The first patient was a girl, twenty years of age. She had been subject to frequent attacks of right-sided migraine without vomiting, but with transient obscuration of vision since her fourteenth year. Otherwise she was perfectly well until about a year ago, when she first noticed slight difficulty in speech while reading aloud, her voice becoming of a nasal quality. This gradually got worse, and a month later there was transient diplopia, and in attempts at swallowing, food would regurgitate through the nose. Six months ago the eyes did not close completely, and three months later there was occasional weakness and heaviness in the right arm and hand, and subsequently the left arm and hand became similarly affected. In the last six months there have been dysphagia and difficulty in mastication. She is now easily exhausted after talking or chewing for a short time. She therefore takes very little nourishment, and is losing weight. There were present incomplete bilateral lagophthalmos and facial paresis, paralysis of the palate, and the masseter muscles were paretic. The reflexes were easily exhausted. The second patient was a married woman, twenty-two years of age. From time to time during the year before coming under observation, she had suffered from attacks of dysphagia, in which fluid food regurgitated through the nose. Several times there had been transient paresis of the left arm and leg. Later she complained of headache, gastric pain, nausea and vertigo lasting three days. There was some fever but no vomiting. This was soon followed by vertigo, diplopia and ptosis of the left eye, from which she gradually recovered. During the next eight months she had several attacks of vertigo diplopia and ptosis alternating between the two eyes, from all of which she recovered spontaneously in a few days or a few weeks. At present there are partial ptosis of the left eye, bilateral facial paresis, nasal quality of the voice, difficulty in mastication due to rapid exhaustion of the masseters, paresis of the palate, dysphagia and regurgitation of food through the nose. After talking a short time she is unable to continue on account of rapid fatigue. On awaking, all of these symptoms have more or less subsided, but begin in a few hours, and increase during the day.

THE POSTERO-LATERAL SCLEROSES.

Drs. C. W. Burr and D. J. McCarthy read a report of nine cases of diffuse scleroses affecting the posterior and lateral columns of the cord, and presented a classification of combined disease of the spinal cord.

Dr. J. J. Putnam said that the variety of toxic conditions which give rise to this affection is considerable.

Dr. Walton thought that sufficient stress had not been laid on the ischæmic form due to arteriofibrosis. The parts of the cord usually attacked are those physiologically supplied with least blood, and it is reasonable to suppose that they might first succumb in the presence of even moderate arterial changes.

Dr. Spiller said that the disease is almost invariably a diffuse process when it is due to anemia.

TRANSVERSE LESION OF THE MIDTHORACIC SEGMENTS OF THE SPINAL CORD.

Dr. Adolf Meyer of New York reported a case of probably syphilitic myelitis of the fourth thoracic segment destroying the entire cross-section, with the exception of the greater part of the posterior columns (the most ventral part and the commissure were destroyed), a few pyramidal fibres, and the head of the dorsal horns. The symptoms were for one year before death: Analgesia and thermanesthesia below the sixth rib on the right, and the fifth rib on the left side; a zone of slight thermanesthesia over the fourth rib; paralysis below the thorax (slight movement of the thigh, and of the right toes occasionally possible); involuntary pulling up of the thighs, at times accompanied by shooting pains. No disorder of tactile sensibility, pressure sense, tickle sense, or sense of position.

Dr. Prince said that our anatomical knowledge as to the course of the fibres is far in excess of our physiological knowledge. We must admit that there are at least two tracts going up, carrying tactile and pain impressions.

SECOND DAY.

PARALYSIS OF ALL FOUR LIMBS AND ONE SIDE OF THE FACE, WITH DISSOCIATION OF SENSATION DEVELOPING IN A FEW HOURS, AND RESULTING FROM MENINGOMYELO-ENCEPHALITIS.

This was the report of a case by Drs. Charles K. Mills and William G. Spiller of Philadelphia.

Dr. Walton thought that such cases added materially to our knowledge of the reflex arc. The case confirmed the theory that any sudden cutting off of the upper portion of the cord produces a persistent loss of the knee jerk.

Dr. Mills said that in spite of the enormous obliteration of the spinal cord, tactile sense was present over the entire body, with a complete

loss of temperature and pain senses in the parts indicated.

PSEUDO MUSCULAR ATROPHY.

DR. G. M. HAMMOND of New York exhibited a boy nine years of age, who had been ailing for three years. There was at first a stage of muscular hypertrophy, but now the atrophic stage had developed. When first seen there was a condition of almost extreme helplessness, and the patient's general health was very poor. He was given three grains of thyroid extract three times a day, and he began to improve. He has gained five pounds in weight, his general condition is much better, and he is now able to walk up stairs. He considered the condition one of dystrophy, the result of glandular deficiency and degeneration of the muscles.

MULTIPLE NEUROFIBROMATOSIS.

This was the title of a paper by DRS. JOSEPH FRAENKEL and J. R. HUNT of New York. They dwelt upon the comparative rarity of the condition, stating that neurofibromatosis presents itself clinically under five different forms, as follows: (1) Tubercula dolorosa; painful tubercles (Wood); (2) multiple neuromata of the skin (Molluscum fibrosum; Recklinghausen's Disease); (3) neuromata or neurofibromata of a single peripheral nerve; (4) neuroma plexiforme; pachydermatocele and neuromatous elephantiasis; (5) generalized neurofibromatosis; neurofibromata of the skin, cerebrospinal, and sympathetic nerves.

Anatomically the disease is characterized by a fibrous hyperplasia particularly endo- and perineurial, very rarely epineurial. This fibrous tissue is very succulent and shows no tendency to contract. This is perhaps one of the reasons why most of the neurofibromata are without symptoms. Five cases were reported: A woman of thirty-one, who had been sick for ten years, and presented a clinical picture of transverse myelitis, in whom the autopsy revealed a large number of fibroneuromata and an isolated large neurofibroma within the vertebral canal. A young girl of eighteen afflicted with neuralgia and paralysis of one lower extremity, in whom the operative removal of fibromata of the peroneal nerve led to recovery. The other cases were examples of Recklinghausen's disease and of peripheral neuromata without symptoms.

DR. DERCUM believed that a very broad distinction should be made between neurofibromatosis and adiposis dolorosa. In the latter condition there may be an increase of fat which may be diffused, localized or nodular, together with pain. Typical cases present fatty deposits, pain, and always some intense mental impression. In some cases there are hysterical manifestations; in others, a great tendency to hemorrhages into mucous membranes; epistaxis, hemorrhages into the retina, etc.

DR. D. J. MCCARTHY said there were several types of adiposis dolorosa. One, in which the nodules appear to be more or less of a normal type but sensitive to pressure; another, in which the nodules are not sensitive to pressure; and a gouty type. He mentioned the case of a very fat woman, who has attacks of acute tumor formations of fat. With each recurring attack there is a slight rise in temperature and more or less pain. A week after the subsidence of the attack there is no trace of the disease.

DR. FRAENKEL had seen a patient with general adiposis who lost sixteen pounds during the development of tuberculosis. It has been noted that this condition is more likely to develop in alcoholists. The pathological examination of the fatty condition shows dilated lymph gland channels and enlarged lymph glands.

*(To be continued.)*

## Recent Literature.

*Saunders' American Year-book.* The American Year-Book of Medicine and Surgery for 1902. A yearly Digest of Scientific Progress and Authoritative Opinion in all branches of Medicine and Surgery, drawn from journals, monographs, and textbooks of the leading American and foreign authors and investigators. Arranged, with critical editorial comments, by eminent American specialists, under the editorial charge of GEORGE M. GOULD, A.M., M.D. In two volumes: Volume I, including "General Medicine," Octavo, 700 pp., illustrated; Volume II, "General Surgery," Octavo, 684 pp., illustrated. Philadelphia and London: W. B. Saunders & Co. 1902.

Two years ago the plan was inaugurated of issuing this year-book in two volumes. This plan has apparently met with general favor, since the edition of 1902 is published in the same way. Each volume is complete in itself and may be had separately, one being devoted to the general topic of surgery, and the other to medicine in an inclusive sense. We have frequently in past years commented upon the excellence of this yearly survey of medical progress. The volumes for 1902 are again printed under the editorial direction of men standing high in the various departments of medical practice. This fact, with the final editorial revision by Dr. George M. Gould, insures and will continue to insure a series of volumes in touch with the very latest advances in the broad field of medicine and surgery. The printing, typography and illustrations are essentially similar to those heretofore presented, and are a credit to the publishers.

THE ST. LOUIS ANTITOXIN-TETANUS EPIDEMIC RECALLED.—According to the *Medical Record* a woman in St. Louis has brought suit in the Circuit Court against the city and the Board of Health for $16,000 damages. She alleges that two of her children died last October of tetanus, resulting from the use of impure antitoxin furnished by the city.

THE BOSTON

# Medical and Surgical Journal.

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## THE HYGIENE OF DUST.

The harmful action of dust when breathed into the lungs has long been recognized, and especially that of the sharp and irritating dust of certain occupations. The Registrar-General of England has in several different annual reports published figures which conclusively show the effect of many industries evolving dust, as an exciting cause of phthisis. With reference to the action of outdoor dust, such as that of the public streets, highways and railway lines, definite proof of such injurious action cannot be so readily asserted. On general principles, however, there can be no doubt that the healthfulness of the atmosphere for respiration, so far as dust is concerned, varies inversely with the amount of such dust present in the air.

Within a few years past several railway lines have adopted the plan of oiling the road-beds by the application of petroleum two or three times during the season. The principal objection is the odor, which, however, is scarcely noticeable for more than one or two days after its application. This has been done on the main tracks of the Boston & Albany and the Boston & Maine railroads for the past two or three years, with the result of a very great improvement in the comfort and cleanliness thus secured to the traveling public. The contrast also with such extremely dusty lines as the Woods Hole Branch of the New York, New Haven & Hartford railroad is very great. The latter, traversing one of the most dusty regions in the State, has received no application of oil, and consequently its patrons are subjected to the annoyance of clouds of dust, filling the cars and settling in a dirty layer upon everything, passengers included.

Oiling of highways has also been carried out recently in Los Angeles, Cal., a dirty region where the water supply is deficient in summer. The experiment was first made in 1898 upon six miles of road. In 1900, fifty miles were oiled. Mr. Longden,[1] an engineer, in commenting upon the subject, says that well-oiled roads are practically dustless and are a boon to the people. The demand for dust-free roads is increasing. The superiority of oiling over watering consists in the lower cost of oiling, and in the fact that it can be employed in a country where water cannot be had or is not abundant. Such roads are free from dust in summer and from mud in winter, and require only two or three applications of oil in the first season. About sixty barrels of oil were used per mile for a space twelve feet wide in the first application. The second application required only forty barrels per mile, and the third still less. The oil costs $1.10 to $1.25 per barrel and twenty-five cents for delivering, the total cost being about $150 per mile for the first season.

In the *Revue d' Hygiène* for June, 1902, Dr. Guglielminetti[2] discusses the subject of dust from the sanitary standpoint, and especially the dust of highways and streets and the mode of preventing it. He dwells upon the well-known rôle of dust in promoting the spread of tuberculosis.

He draws a graphic picture of the changed condition of the public ways of Paris, due to the introduction of automobiles, one of which, according to M. Defrance, director of departmental affairs of the Seine, raises more dust than twenty coaches. The Champ Elysees and the Bois de Boulogne are now gray with dust, clouds of which obscure the air and make it almost irrespirable.

After discussing the various methods of dealing with the dust of roads, namely, sprinkling with water, fresh and salt, paving with stone, brick, asphalt, wood and macadam, and the application of petroleum, he gives the results of an experiment at Monaco, where a space of thirty-three and three-fourths square metres was treated with a thin coating of coal tar with excellent success. For a portion four metres wide (thirteen feet) and one kilometre in length (three-fifths of a mile) the cost would be about 300 francs, equal to about $100 per mile thirteen feet wide. He attributes the discovery of these properties of tar and petroleum to a gas-engineer (M. Christophe of Villefranche) who in 1880 treated a piece of roadway in the department of Gironde with a coating of tar. Further experiments are to be made in Paris with coal tar and with different qualities of petroleum, the results of which will be reported.

[1] Engineering Record, Nov. 24, 1900, p. 490.
[2] La poussière et les différents moyens de la combattre.

## OPENING OF THE MEDICAL SCHOOLS.

With certain misgivings, no doubt, a large number of young men are about beginning their medical study, in face of the increasing length of a professional education, and the inevitable popular warnings of the overcrowding of the professional ranks. In spite of the fact that entrance requirements are increasing in severity, even in some instances to the demanding of a preliminary A.B. degree, and the chances of speedy establishment in a lucrative practice are diminishing, there seems to be no permanent falling off in the numbers of men applying for admission to our medical schools in every part of the country. Evidently medicine offers attractions to those whose tastes lead them into scientific or semi-scientific lines of study, and it is from these men largely that medicine is being recruited. The easy path to a livelihood which some of our medical schools offered not many years ago, is gradually disappearing with the schools which originated that pernicious idea, and men are entering medicine more and more with the consciousness that the way is hard, and that ultimate complete success is not for the many. This means the inevitable and speedy elevation of medicine to its proper place of respect and dignity in the community. The inducements, therefore, to study medicine are of a somewhat different character now than they were a few decades ago, and the men entering upon it certainly represent a higher average of attainment.

The overcrowding of the profession is a bugbear which should deter no earnest student from the choice of medicine as a profession. There never was a time when men were more needed than now, that medicine is ramifying into innumerable branches requiring special investigation and special preliminary equipment. The ordinary branches of medical practice in our large cities have sufficient representatives to care for the general health of the community — of this there can be no doubt. We are overstocked with operative surgeons, and are certainly adequately supplied with physicians; we question also, whether the so-called specialists are all busy all the time. But what we must learn and what we should, above all, impress upon the coming classes of medical students is the fact that, important and indispensable as it is, practice does not represent the whole of medicine, and that where work is really needed, too often no workers are to be found. How many men have we, for example, working on physiological chemistry, how many on the special branches of pathology, how many on the subtle questions which lead beyond ordinary bacteriological technique to questions of immunity and like problems? The time has apparently not yet come, but we are confident that before very long a goodly proportion of students entering upon their medical work will look forward with less eagerness to the distinction of a large medical practice than to the accomplishment of a definite piece of scientific work as their contribution to their profession. Such reflections the opening of the schools force upon us.

## AN INVESTIGATION OF GAS POISONING.

A scientific investigation of illuminating gas poisoning is about to be undertaken by the Boston Board of Health. To this end circulars have been sent to physicians asking for any clinical evidence bearing on the general question of poisoning by gas. The circular is so worded and arranged that a large amount of information may be conveyed with an extremely small expenditure of time on the part of the person addressed. We would, therefore, urge upon the profession at large that they do not neglect this important matter, and so far as possible lend their aid to an elucidation of this eminently practical question. It will no doubt happen, however, that very many practitioners to whom these circulars are sent will have had no experience with acute illuminating gas poisoning. Such physicians are requested to at least make note of such obscure cases in their practice as have been characterized by indefinite symptoms, such as headache, depression, general though slight loss of vitality, and certain skin eruptions.

Investigations thus far prosecuted by the Board of Health have shown that leaking gas fixtures are extremely common, and it is, therefore, a fair supposition that certain cases in which a definite diagnosis seems impossible may be more or less attributable to the influence of escaping gas. In any event, it is altogether desirable that such practical researches should be prosecuted in the most thoroughly possible way. To this end we urge the heartiest co-operation on the part of the physicians in this effort, which the Board of Health is making, to gain practical knowledge of an increasingly important question in public hygiene.

## MEDICAL NOTES.

German Congress of Hygiene.— The twenty-seventh annual meeting was held in Munich Sept. 17 to 20. Dr. Gärtner, Jena, discussed the hygienic supervision of the water supply; Dr. Grassmann, Munich, the influence of quackery on the health of the population; Dr. Roth, Potsdam, the health relations between city and country;

Dr. Emmerich, Munich, the profession of baker from the hygienic standpoint; Dr. Ebeling, Dessau, the question of building construction, especially the problem of damp dwellings.— *Philadelphia Medical Journal.*

Cholera in Egypt.— Cholera is reported to be spreading through the whole of Egypt. Already 1,200 towns and villages are affected. An average of 1,500 new cases are reported daily. It has been suggested that a conference of the Powers be held to suppress the Mohammedan pilgrimage to Mecca, which is a most dangerous source of infection.

A Centenarian.— Miss Jane Elizabeth Hillyer, the oldest person in Essex County, died at Orange, N. J., on Sept. 19. She was 101 years old on Aug. 30. It is stated that her great-great-grandmother was also a centenarian, and that her great-grandmother lived to the age of 98.

### BOSTON AND NEW ENGLAND.

Acute Infectious Diseases in Boston.— For the week ending at noon, Oct. 1, 1902, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: Diphtheria 37, scarlatina 21, measles 4, typhoid fever 84,[1] smallpox 11.

Opening of Stillman Infirmary.— The Stillman Infirmary in Cambridge, connected with Harvard University, has been opened. Hereafter any student taken ill may go to the infirmary and have full use of all of its privileges, each patient being allowed to choose his physician. The following men will act as members of the overseers' committee of the infirmary: Dr. C. J. Blake, chairman, Dr. D. W. Cheever, Dr. G. B. Shattuck, Dr. M. Wyman and Mr. P. B. Howard. Miss Esther Dart, a graduate of the training-school of the Massachusetts General Hospital, will serve as matron, assisted by a head nurse and assistant nurses. Dr. M. H. Bailey, the college physician, is to have immediate supervision of the hospital.

Reappearance of Smallpox in Everett, Mass. — After a freedom of a month three new cases of smallpox have been discovered in Everett. One is very mild and the disease has already run its course. The other two patients have been removed to the smallpox hospitals.

Appointment of Dr. Maurice H. Richardson.— Dr. Maurice H. Richardson has been appointed associate professor of clinical surgery at the Harvard Medical School. He had for many years held the position of assistant professor of clinical surgery.

Tuberculosis in Vermont.— A conference on the general subject of tuberculosis was opened September 29, at Burlington, Vt., with the object of perfecting an organization for the study and prevention of the disease. One of the topics discussed was the need of a state sanatorium for consumptives.

[1] Forty-one cases of typhoid fever included in the above have been reported from hospitals during the month of September.

Death of Mr. L. G. Burnham.— In the death of Mr. L. G. Burnham, which occurred last week, the Boston City Hospital loses one of its trustees who has long served the institution with enthusiasm and fidelity.

### NEW YORK.

Roosevelt Hospital.— The thirtieth annual report of the Roosevelt Hospital, recently published, shows an increase of work in all the departments except the Out-Patient Department, in which there was some falling off of attendance. The number of cases treated in the emergency department, but not detained for ward treatment (8,118), was 504 larger than in the previous year, when the highest record up to that time was made for this service. The total number of visits to the department was 17,774. The calls upon the ambulance service, 5,630, were 935 in excess of the year before. The work of the ambulance department was mainly done with two automobile vehicles presented to the hospital late in the previous year. The service rendered by them gradually improved with their use, but at the same time it was not found possible to entirely dispense with the horse ambulance. The great value of the automobile vehicles was demonstrated during the heated term, which occurred on the first three days of July, 1901, when the hospital received and answered 216 ambulance calls. By improved telephone facilities it has been rendered possible to communicate with the hospital at any time during the day or night, and receive prompt attention, the bureau of information established during the year being supplied by a relay of three clerks during the twenty-four hours. For the fifth successive year there has been a deficit in the finances of the institution, this time amounting to $12,289, and it is stated, that an increase of at least $500,000 in the endowment fund of the hospital is urgently required for the maintenance of the highest standard of excellence.

The Bankruptcy Law as Applied to Mentally Incompetent Persons.— Judge Adams, of the United States District Court, has decided in favor of an application made by a certain business firm to set aside a petition in voluntary bankruptcy, which was filed on behalf of Joseph Eisenberg, who was formerly a fur dealer, on the ground that the court has no jurisdiction for such a petition, and that a lunatic cannot be adjudged a voluntary bankrupt. The judge held that a

person *non compos mentis*, or a committee of his person, cannot by voluntary petition receive the benefits of the bankruptcy law, and in his opinion stated: "It must be assumed that Congress was familiar with the difficulties that would be encountered by the courts in attempting to administer in bankruptcy the affairs of lunatics, and did not intend to include cases other than those mentioned in Paragraph 8, where provision is made for the continuance and settlement of estates of which the courts had acquired jurisdiction before the insanity occurred."

DAMAGES FOR LOSS OF A BEARD.— A novel suit for $10,000 damages has been brought by one Simon Kurtz against a New York street railway company, for injuries received on its line. In the complaint it is stated: "The plaintiff, by profession a cantor in a synagogue, avers that, by reason of the injuries aforesaid, deponent was compelled to have his beard shaved off, in consequence whereof he has been refused employment in the capacity of cantor, and sustained damages thereby." It appears that the principal injury which he had received was a wound of the chin, and that since this had healed his beard had been so "scraggly" that he was compelled to dispense with it altogether, with the result of the loss of his employment, in which a full beard is regarded as a necessary requirement.

TENEMENT HOUSES.— In the course of a recent public address, Mr. De Forest, Commissioner of the Department of Tenement Houses, made the following statement: "Under the new law there have been constructed since January 1, between 300 and 400 tenements, with ample space for light and air. Out of the 333 built before the new year, 31 covered a greater area than the law allowed. They are there, and there is no remedy except to tear them down. The greatest evil in the tenements, the disorderly places, is being wiped out."

A SINGLE HEAD FOR THE BELLEVUE HOSPITAL NURSES.— It is announced that all the nurses at Bellevue Hospital have been placed under the direction of a single matron, and that Miss Delano, previously in charge of the female nurses, has been appointed to that position. Hitherto the male and female nurses have served under separate heads. Dr. Brannan, president of the board of trustees, has given out that while a number of male nurses will be somewhat decreased, the training-school for male nurses will still be maintained.

WATER SUPPLY OF BOROUGH OF BROOKLYN.— The water supply of the Borough of Brooklyn is to be increased by the construction of three new pumping stations in Nassau County, Long Island, which has been authorized by the Board of Aldermen. The works are to cost about $155,000, and it is estimated that the daily supply of water will be increased from 10,000,000 to 12,000,000 gallons by them.

TETANUS CURED BY ANTITOXIN.— A second case of tetanus cured by antitoxin injections into the spinal cord is reported from Harlem Hospital. The patient was a lad seven years old, in whom the disease was carried by a cut in the hand from a broken bottle, and who was in a very serious condition for a week before his removal to the hospital.

## Miscellany.

### SEVENTEENTH ANNUAL CONVENTION OF THE BROTHERHOOD OF ST. ANDREW.

ONE of the most important and interesting sessions of the convention of the Brotherhood of St. Andrew, to be held Oct. 9 to 12, in Boston, will be the public meeting on Saturday evening, Oct. 11, in Symphony Hall. The topic for the evening will be "The Bible." Dr. Howard A. Kelly of Johns Hopkins University, Baltimore, will give an address on "Bible Study for Physicians," and Rev. W. A. Guerry, D.D., of the University of the South, will follow him on "The Bible and Education." Medical men especially will be interested in hearing what Dr. Kelly has to say to them regarding the influence of the study of the Bible on his own life and the importance of that study for every practitioner. No men, as a class, come so close to human nature as do doctors; no book throws so much light on human nature, in all its phases, as does the Bible. The mere fact that so busy a professional man as Dr. Kelly considers Bible study not only worth while, but absolutely essential, is a certain sign that what he has to say on the subject will be well worth listening to. Medical men, while cordially invited to attend any or all of the sessions of the convention, are especially urged to come and hear Dr. Kelly. Particulars will be found in the daily papers of the rest of the program of the convention, which includes among the speakers many prominent men.

## Correspondence.

### PROFESSOR FUCHS' OPHTHALMOLOGICAL CLINIC.

VIENNA, AUSTRIA.

MR. EDITOR: The following letter may interest former students at the Eye Clinic of the General Hospital in that city.

Professor Fuchs reaches the hospital soon after nine each morning and, having donned his long linen coat, proceeds to the business of examining the new cases who are waiting in the small room between the ambu-

latorium chamber and the large room where the refraction is done. Around him are some ten assistants, as well as any visiting physicians who may be present. This work is very quickly over; a rapid question and a quick glance suffices for the ordinary case, and the patient is directed to the proper room. When an interesting case presents itself the time accorded is longer, as the professor gives a short talk on the subject before the case is set aside for more careful examination, perhaps to be demonstrated in the morning lecture. Next the wards are visited, ophthalmoscopic cases examined, and the operations laid out for the day.

At quarter past ten comes the daily lecture. As the *Hofrath* enters everyone rises and bows, and remains standing till he is seated. Six cases chosen from the wards, ambulatorium, or from the patients of the day are demonstrated. A short history is read, the professor announces the physical examination, and then the cases are shown separately to groups of four or five students at a time. Meanwhile the professor talks on each case in succession, occasionally going to the blackboard to illustrate the condition he is explaining; he gives a full description of the disease in general and lays special stress on the points which the case in question particularly exhibits. He lectures entirely without notes and without knowing what his subjects are to be until his arrival. Beginning slowly he soon forgets his oft-made resolution to be considerate of the note takers and foreigners, and rushes ahead at a tremendous rate, in a style that is most interesting but rather disastrous at first to the stranger whose German is as yet imperfect. He is never at loss for something to say, and seldom repeats himself from one day to another, for although he may present twenty or more cases of interstitial keratitis during the semester, yet he has always something new and interesting to say on the subject. In this way seventy-five minutes are consumed, after which he adjourns to the operating room, where he finishes his morning's work in the hospital. On Saturday mornings he spends an hour demonstrating the pathology of the eye with the new projection apparatus, using his very large and complete collection of microscopic preparations. During the winter months, when the number of patients is not so large, a half-hour is given in the lectures to refraction. The examination of the students is very severe and entirely practical. They must pass in external diseases, refraction and the use of the ophthalmoscope. Professor Fuchs is looked on as a very exacting master. To visitors he is the soul of hospitality both in the clinic and in his family circle, and one is given every opportunity to see and learn.

The material of the clinic is very large indeed and offers great opportunity to the student, especially in the external diseases of the eye, to which much attention is paid. The cases are taken care of by one assistant and I have often seen him treat eighty or more during the morning, ordering the more interesting ones back in the afternoon for careful study or for demonstration in a private course. As regards treatment, subconjunctival injection of corrosive sublimate is used extensively in corneal ulcers, the electric cautery being used only as a last resort. Dionin is found most efficacious in combating the pain of iritis, and the powder is preferred to the weaker solutions. It is also used in clearing up corneal opacities. The new silver salt, itrol, is occasionally applied in corneal ulcers, and with some success in blenorrhea neonatorum. In separation of the retina, both subconjunctival injections of sterile salt solution and incision through the choroid is the usual treatment. Six or eight operations in one morning is by no means an unusual number. Extirpation of the lachrymal sac is always done when the nasal duct is impervious, and the results seem to be very good. For ptosis the Hess operation is the favorite, and recently that of Motais has been tried in several cases. For anterior synechiæ docent, Dr. Sachs, Professor Fuchs' first assistant, has recently operated a number of times in the following manner: He cuts a flap with the corneal trephine, turns it outward, looses the adhesions, and then replaces the flap in position. In extraction of cataract the cystitome has given place to the capsule forceps. Professor Fuchs does an iridectomy in two-thirds of his cases, while Dr. Sachs generally performs simple extraction. Their most recent statistics include a large number of cases and give fourteen per cent of iris prolapse.

To the student of ophthalmology Vienna offers many advantages, especially as regards the diagnosis of external diseases and the use of the ophthalmoscope. This is, moreover, true of the pathology of the eye and the operations. On all these subjects one is fairly embarrassed by the wealth of the material and the number of teachers to be found among the assistants. To refraction relatively little attention is paid, a mydriatic is seldom used, and skiascopy is rarely seen.

Truly yours,

George S. Derby, M.D.

## RECORD OF MORTALITY

For the Week ending Saturday, Sept. 20, 1902.

| Cities. | Population Estimated, 1902. | Reported deaths in each. | Deaths under five years. | Percentage of deaths from | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | Infectious diseases. | Acute lung diseases. | Diphtheria and croup. | Typhoid fever. | Diarrheal diseases. |
| New York | 3,665,352 | 1,216 | 488 | 33.47 | 8.55 | 2.57 | 1.64 | 16.77 |
| Chicago | 1,852,828 | — | — | — | — | — | — | — |
| Philadelphia | 1,349,624 | 336 | 99 | 26.36 | 7.05 | 2.45 | 3.67 | 2.14 |
| St. Louis | 603,717 | — | — | — | — | — | — | — |
| Baltimore | 525,330 | 193 | 71 | 30.05 | 7.25 | .52 | 4.65 | 8.30 |
| Cleveland | 411,826 | — | — | — | — | — | — | — |
| Buffalo | 375,742 | — | — | — | — | — | — | — |
| Pittsburg | 341,401 | 145 | 61 | 30.34 | 15.17 | 2.07 | 8.27 | 8.27 |
| Cincinnati | 332,032 | — | — | — | — | — | — | — |
| Milwaukee | 304,975 | — | — | — | — | — | — | — |
| Washington | 289,537 | — | — | — | — | — | — | — |
| Providence | 185,870 | 53 | 21 | 47.18 | — | 3.77 | 1.89 | 22.64 |
| Boston | 588,736 | 203 | 81 | 38.42 | 7.88 | 1.97 | 2.96 | 20.19 |
| Worcester | 127,337 | 24 | 6 | 29.16 | — | — | — | 8.33 |
| Fall River | 111,872 | 44 | 31 | 56.80 | 9.08 | — | — | 47.71 |
| Lowell | 99,574 | 31 | 13 | 29.03 | 6.45 | — | — | 12.90 |
| Cambridge | 96,334 | 30 | 9 | — | — | — | — | — |
| Lynn | 71,144 | 20 | 7 | 25.00 | — | — | 5.00 | 5.00 |
| Lawrence | 67,275 | 18 | 12 | 50.00 | 5.55 | — | — | 16.67 |
| Springfield | 66,854 | — | — | — | — | — | — | — |
| Somerville | 65,882 | 14 | 6 | 7.14 | 7.14 | — | — | — |
| New Bedford | 65,574 | 39 | 21 | 56.40 | 2.56 | — | 5.12 | 43.58 |
| Holyoke | 48,065 | 8 | 5 | 50.00 | — | — | 12.50 | 25.00 |
| Brockton | 43,208 | 9 | 3 | — | — | — | — | — |
| Haverhill | 40,392 | 16 | 3 | 18.75 | 6.25 | — | — | — |
| Salem | 36,567 | 9 | 3 | — | — | — | — | — |
| Newton | 36,336 | 6 | 2 | 16.67 | — | — | — | 16.67 |
| Malden | 35,390 | 9 | 1 | 22.22 | — | — | — | — |
| Chelsea | 35,264 | 12 | 4 | — | — | — | — | — |
| Fitchburg | 33,848 | 11 | 9 | — | — | — | — | — |
| Taunton | 32,759 | 14 | 4 | 35.70 | — | — | — | 21.14 |
| Everett | 27,114 | 8 | 5 | 12.50 | — | — | 12.50 | — |
| North Adams | 26,583 | 6 | — | 16.67 | — | — | 16.67 | — |
| Gloucester | 26,121 | — | — | — | — | — | — | — |
| Quincy | 25,307 | 4 | 1 | 25.00 | — | — | — | 25.00 |
| Waltham | 24,612 | 4 | — | 25.00 | — | — | 25.00 | — |
| Pittsfield | 22,311 | 6 | 1 | 16.67 | 16.67 | — | — | — |
| Brookline | 21,679 | — | — | — | — | — | — | — |
| Chicopee | 20,390 | 7 | 4 | 42.90 | — | 28.60 | — | 14.30 |
| Medford | 20,014 | 4 | 2 | 25.00 | — | — | — | 25.00 |
| Newburyport | 14,478 | 3 | 1 | 33.33 | — | — | — | 33.33 |
| Melrose | 13,384 | 2 | — | — | — | — | — | — |
| Westfield | 13,038 | 3 | — | — | — | — | — | — |
| Attleboro | 12,846 | — | — | — | — | — | — | — |
| Adams | 12,813 | — | — | — | — | — | — | — |
| Milford | 12,516 | — | — | — | — | — | — | — |
| Framingham | 12,109 | 5 | 2 | 60.00 | — | 20.00 | — | 40.00 |
| Peabody | 11,957 | — | — | — | — | — | — | — |
| Revere | 11,894 | 3 | — | 33.33 | — | — | — | — |
| Gardner | 11,544 | 4 | 1 | 50.00 | — | — | — | 50.00 |
| Weymouth | 11,337 | 3 | — | — | — | — | — | — |
| Southbridge | 10,838 | 7 | 5 | 71.50 | — | — | — | 42.90 |
| Watertown | 10,660 | 2 | — | — | — | — | — | — |
| Plymouth | 10,336 | — | — | — | — | — | — | — |

Deaths reported, 2,565; under five years of age, 986; principal infectious diseases (smallpox, measles, scarlet fever, cerebrospinal meningitis, diphtheria and croup, diarrheal diseases, whooping cough, erysipelas, fevers and consumption) 819, acute lung diseases 191, consumption 276, scarlet fever 13, whooping cough 27, cerebrospinal meningitis 5, smallpox 8, erysipelas 5, measles 3, typhoid fever 67, diarrheal diseases 360.

From whooping cough, New York 13, Philadelphia 6, Baltimore 1, Pittsburg 3, Boston 4. From measles, New York 1, Pittsburg 1, Lowell 1. From erysipelas, New York, Philadelphia and Pittsburg 1 each, Boston 2. From smallpox, New York 1, Pittsburg 6, Boston 1.

In the seventy-six great towns of England and Wales, with an estimated population of 14,862,379, for the week ending Sept. 6, the death-rate was 15.9. Deaths reported, 4,543; acute diseases of the respiratory organs (London) 123, whooping cough 84, diphtheria 49, measles 83, smallpox 5, scarlet fever 57.

The death-rate ranged from 5.5 in Hornsey to 24.9 in Burnley; London 16.8, West Ham 21.2, Brighton 13.5, Portsmouth 24.4, Southampton 11.6, Plymouth 19.9, Bristol 16.7, Birmingham 16.5, Leicester 9.9, Nottingham 15.2, Liverpool 22.5, Manchester 15.8, Salford 20.0, Bradford 11.8, Leeds 15.2, Hull 14.2, Newcastle-on-Tyne 18.6, Cardiff 14.5.

## METEOROLOGICAL RECORD

For the week ending Sept. 20, in Boston, according to observations furnished by Sergeant J. W. Smith of the United States Signal Corps:

| Date | Barometer. | Thermometer. | | | Relative humidity. | | | Direction of wind. | | Velocity of wind. | | We'th'r * | | Rainfall in inches. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Daily mean. | Daily mean. | Maximum. | Minimum. | 8.00 A.M. | 8.00 P.M. | Daily mean. | 8.00 A.M. | 8.00 P.M. | 8.00 A.M. | 8.00 P.M. | 8.00 A.M. | 8.00 P.M. | |
| S...14 | 30.14 | 60 | 67 | 52 | 70 | 63 | 66 | N W | N | 12 | 10 | C. | C. | 13 |
| M..15 | 30.22 | 54 | 60 | 47 | 65 | 62 | 64 | N W | S | 6 | 4 | C. | C. | |
| T..16 | 30.30 | 58 | 67 | 48 | 73 | 68 | 70 | N W | | 5 | — | F. | F. | |
| W.17 | 30.36 | 58 | 65 | 52 | 80 | 88 | 84 | N | N E | 5 | 8 | C. | O. | |
| T..18 | 30.30 | 60 | 62 | 58 | 91 | 94 | 92 | N E | N E | 15 | 12 | O. | R. | T. |
| F..19 | 30.25 | 63 | 66 | 60 | 100 | 94 | 97 | N E | E | 10 | 9 | G. | O. | .02 |
| S...20 | 30.34 | 61 | 63 | 59 | 97 | 100 | 98 | N E | N E | 9 | 9 | O. | R. | T. |
| ☞ | 30.27 | | 64 | 54 | | | 82 | | | | | | | .15 |

*O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow. †Indicates trace of rainfall. ☞ Mean for week.

## CHANGES IN THE MEDICAL CORPS OF THE NAVY FOR THE WEEK ENDING SEPT. 20, 1902.

W. G. FARWELL, medical director. Ordered to Philadelphia, Pa., for duty in connection with recruiting.

C. BIDDLE, surgeon. Detached from Naval Recruiting Station, Philadelphia, and to duty at York, Pa., with recruiting party.

C. D. BROWNELL, passed assistant surgeon. Detached from Naval Hospital, Chelsea, Mass., and ordered to the "Panther."

J. B. DENNIS, passed assistant surgeon. Detached from the "Hartford" and ordered to the "Brooklyn."

R. B. WILLIAMS, assistant surgeon. Discharged from treatment at Naval Hospital, Newport, R. I., and ordered to the U. S. torpedo boat "Decatur."

J. H. PAYNE, assistant surgeon. Detached from the "Brooklyn," and ordered to Naval Hospital, Newport, R. I.

F. M. MUNSON, assistant surgeon. Detached from duty on the "Decatur" and ordered to the Naval Hospital, Washington.

R. E. HOYT, assistant surgeon. Detached from Naval Hospital, Newport, R. I., and ordered to the Naval Academy.

J. W. ROSS, surgeon, retired. Detached from the Navy Yard, Pensacola, Fla., and ordered to the Museum of Hygiene and Medical School, Washington, D. C.

J. H. IDEN, assistant surgeon. Detached from the "Lancaster" and ordered to the "Topeka."

J. E. GARDNER, surgeon. Ordered to the Yokohama Hospital.

R. WAGGENER, pharmacist. Detached from Naval Station, Key West, Fla., and ordered to the Navy Yard, Pensacola, Fla.

A. M. D. MCCORMICK, surgeon. Detached from the Naval Academy, Annapolis, Md., Sept. 20, and ordered to the "Hartford."

## OFFICIAL LIST OF THE CHANGES OF STATION AND DUTIES OF COMMISSIONED AND NON-COMMISSIONED OFFICERS OF THE PUBLIC HEALTH AND MARINE HOSPITAL SERVICE FOR THE SEVEN DAYS ENDING SEPT. 11, 1902.

WHITE, J. H., assistant surgeon-general. Granted leave of absence for seven days from Sept. 7. Sept. 6, 1902.

VAUGHAN, G. T., assistant surgeon-general. Detailed to represent service at meeting of Medical Society of Virginia, to be held at Newport News, Va., Sept. 23-26, 1902. Sept. 11, 1902.

PETTUS, W. J., assistant surgeon-general. To proceed to Baltimore, Md., for special temporary duty. Sept. 11, 1902.

CARMICHAEL, D. A., surgeon. Granted two months' leave of absence from Sept. 9. Sept. 6, 1902.

WERTENBAKER, C. P., passed assistant surgeon. Granted fourteen days extension of leave of absence from Sept. 6, 1902. Sept. 10, 1902.

THOMAS, A. R., passed assistant surgeon. Granted leave of absence for ten days from Sept. 5 on account of sickness. Sept. 5, 1902.

COFER, L. C., passed assistant surgeon. Leave of absence granted by Department Letter of July 29, 1902, amended to take effect from Sept. 10, 1902, Sept. 8, 1902.

HEISER, V. G., assistant surgeon. Granted leave of absence for fifteen days. Sept. 9, 1902.

BERRY, T. D., assistant surgeon. Granted two months' extension of leave of absence from Sept. 3 on account of sickness. Sept. 5, 1902.

LLOYD, B. J., assistant surgeon. Relieved from duty at Nome, Alaska, on closure of navigation, and directed to proceed to San Francisco Quarantine, San Francisco, Cal., and report to medical officer in command for duty. Sept. 11, 1902.

BAILEY, C. W., acting assistant surgeon. Granted ten days' leave of absence from Aug. 27. Sept. 4, 1902.

BURFORD, HUGH, acting assistant surgeon. Granted leave of absence for twenty-eight days from Sept. 5. Sept. 10, 1902.

FRASER, A. C., acting assistant surgeon. Granted ten days' leave of absence from Sept. 15. Sept. 10, 1902.

GOLDSBOROUGH, B. W., acting assistant surgeon. Granted leave of absence for seven days from Sept. 16. Sept. 5, 1902.

MCGINNIS, R. H., acting assistant surgeon. Granted thirty days' leave of absence from Oct. 1. Sept. 10, 1902.

MASON, W. C., acting assistant surgeon. Granted leave of absence for five days from Sept. 15. Sept. 6, 1902.

SCOTT, E. B., pharmacist. Granted leave of absence for nineteen days from Sept. 6. Sept. 8, 1902.

### BOARD CONVENED.

Board convened to meet at Stapleton, N. Y., Sept. 11, 1902, for the purpose of examining revenue cutter officers on that date and from time to time thereafter. Detail for the Board: Surgeon P. H. Bailhache, chairman; Passed Assistant Surgeon A. C. Smith, and Assistant Surgeon A. M. Stimson, recorder.

## RECENT DEATH.

DR. THOMAS J. KEARNEY of New York died on Sept. 24 in the fifty-second year of his age. He was a graduate of Bellevue Hospital Medical College in 1874.

## BOOKS AND PAMPHLETS RECEIVED.

General Paresis. Practical and Clinical. By Robert Howland Chase, A.M., M.D. Illustrated. Philadelphia: P. Blakiston's Son & Co. 1902.

The Diseases of Infancy and Childhood. Designed for the Use of Students and Practitioners of Medicine. By Henry Koplik, M.D. Illustrated. New York and Philadelphia: Lea Brothers & Co. 1902.

Practical Diagnosis: The Use of Symptoms and Physical Signs in the Diagnosis of Disease. Fifth edition, revised and enlarged. By Hobart Amory Hare, M.D., B.Sc. Illustrated. Philadelphia and New York: Lea Brothers & Co. 1902.

Progressive Medicine, a Quarterly Digest of Advances, Discoveries and Improvements in the Medical and Surgical Sciences. Edited by Hobart Amory Hare, M.D., assisted by H. R. M. Landis, M.D. Vol. III. September, 1902. Illustrated. Philadelphia and New York: Lea Brothers & Co. 1902.

# Original Articles.

## ULTIMATE RESULTS OF OPERATIONS FOR APPENDICITIS.

BY HOMER GAGE, A.M., M.D., WORCESTER, MASS.

During the past four months I have tried to get into communication with each of the cases of appendicitis upon which I had operated prior to Oct. 1, 1901 — 300 in all. I thought that it would be a matter of considerable interest, at any rate, to see just what, if any, effect upon their general health had been produced by the operation, and that possibly I might stumble upon something that would be helpful to me in meeting future emergencies. I have succeeded in hearing from all but thirty-seven — most of whom were foreigners — hospital cases, whose residence was somewhat uncertain then, and is now hopelessly lost.

Before speaking of the results thus obtained, allow me to say just a word upon the subject in general, to explain in a way, the motives that have influenced me in operating and the methods I have followed. Although my opinions have been modified many times, I have never yet been able to bring myself to the conviction that every case of appendicitis should be operated upon at once. I have, however, progressed far enough in that direction to agree with Finney of Baltimore, that there is really but one kind of appendicitis, and that the kind that demands operation. Just when that interference should be advised, is a different question.

An operation undertaken within the first few hours after the beginning of an acute attack, is probably but little more dangerous than when done in an interval, and I readily agree that it is desirable that the family physician and the laity should be educated up to the idea, that then is the time to seek the advice of the surgeon and, if possible, to perform the operation. Unfortunately such an opportunity is seldom granted us. We see the patients later, when improvement has been so marked that a strictly interval operation seems safer, or when the condition has become so bad that the danger of converting a localized into a general peritonitis seems unnecessarily great. While in most of these cases I have operated as soon as seen, even if it was during that fatal period between the second and fifth days, in some I have preferred to delay long enough to get my patient to the hospital, where I felt that all conditions were more favorable; in a few I have waited a day or two for more perfect localization, — this class I find grows smaller and smaller,— and in a very few I have deferred operation altogether.

This latter class has been made up chiefly of cases of general peritonitis with paralysis of peristalsis, and excessive distention. I have come to look upon them as almost uniformly fatal when operated upon in that condition; I have, moreover, seen a number of instances when spontaneous relief was obtained from the distention, and the subsequent operation undertaken with much more favorable prospects, and I have seen a very few instances in which spontaneous recovery has taken place. Cases of general peritonitis without excessive distention, I have operated on as soon as possible, and shall refer to them again a little later.

With regard to acute processes seen within the first forty-eight hours, there should be now but little hesitation in urging immediate interference. With regard to acute processes seen later, where improvement has been marked, there should be no less hesitation — a strictly interval operation is certainly safer. In all others there is room for an honest difference of opinion and the exercise of much careful discrimination, but the tendency is to bring them more and more into the category of interval operations.

Most of the interval operations included in this series have been performed only after more than a single attack. The knowledge of two or three cases in which recurrence had not appeared after several years of immunity, and in fact has not until this day, made me cautious about interference in all cases. Larger experience seems to show that such instances are relatively rare and not to be relied upon. A well-marked case of appendicitis, about the diagnosis of which there can be no question, constitutes a menace much more serious than an appendectomy done after all evidences of acute inflammation have subsided. So with the interval cases as well as with the acute, I find my own opinions becoming more and more radical.

In thus extending the field of operative interference, we must be very careful not to become too radical. The removal of an appendix on mere suspicion is not to be thought of. The temptation is great because the danger is so small. But the result in the long run will inevitably be, to discredit surgery as well as the operator. Mistakes — honest errors of judgment — will of course occur occasionally in the practise of the most careful, but they should be guarded against in every possible way.

It is no part of my intention to go into the question of differential diagnosis. I will merely say that too much stress cannot be laid upon the association of tenderness and muscular rigidity with abdominal pain, in affording the justification for the operation. Without this tripod there can be rarely anything more than suspicion.

With regard to the technique employed in these operations, which I shall report, there is little to be said. I have never tried to see how small an incision I could make, but have preferred always to make one large enough to enable me to work easily and with as little danger as possible of injuring adherent structures or of spreading a localized infection.

In the interval cases I have made use of the so-called McBurney incision, splitting the abdominal muscles, while in the acute cases I have cut them freely, until I felt sure that I could securely

protect the general abdominal cavity, and remove the appendix with the least possible manipulation. In cases of localized abscess I have not tried to remove the appendix when it was not readily isolated, but of this I shall have something more to say later on. In closing the wound I have always sewed up layer by layer, leaving gauze drainage in the pus cases and in those where there has been much oozing from the separation of adhesions.

Of the 300 cases, 240 were operated upon in the course of an acute attack, and of these, 35, or almost exactly 15%, were fatal. It was some satisfaction to find that the mortality was about 17% in the first 100, about 14% in the second, and less than 13% in the third, showing a small but steady improvement. There were 173 cases in which the appendix was removed at the time of the operation, with a mortality of 13%, and 67 in which it was not removed, with a mortality of 19%. I think the mortality will always be a little larger in the latter class. In operating on the most desperate neglected cases, one often feels obliged to be content with simply opening and draining an abscess — in such, the mortality is necessarily high, no matter what course is followed. Another reason for the increased mortality is, that very often secondary abscesses are disclosed only by the removal of the appendix, and if both are left, the danger is correspondingly increased.

You must all of you have seen cases where the barrier which nature had carefully erected for the protection of the general peritoneal cavity, had been completely destroyed in the search for an appendix that was imbedded in it, and the local converted into a general peritonitis.

I am sure that increased familiarity with the conditions and a steady improvement in technique make it safe to complete the operation by the removal of the appendix in a great many cases where formerly I should not have thought it wise. But there will still always be some cases in which simple incision and drainage are to be preferred, and it must be remembered that in these the mortality is likely to be large.

There were twenty-six cases in which the inflammation was not limited at the time of operation, and although I do not mean to imply that every portion of the peritoneum was involved, there certainly was no successful effort at localization, and after removing the appendix, I passed my irrigating tube into every corner of the abdominal cavity, using always from three to four gallons of sterile salt solution. Eight, or nearly one-third, of these cases recovered, and as they represent what is to my mind the most hopeless of all appendix cases, the result seems to me very encouraging.

Among the sixty cases in which the operation was undertaken in the interval between attacks, there was one death. The patient was a young man who had had several attacks, the last, ten weeks before operation. He had made a good recovery, and seemed to be in favorable condition for the operation. The appendix was adherent and had evidently been perforated; a little inspissated pus was found about the scar of the old perforation, and I made what proved to be the fatal error, in closing the wound without drainage; it became infected, and he died of general peritonitis. A little more experience and a little better judgment would undoubtedly have saved him. It was among the earliest of my interval operations, and I was too anxious to secure primary union, and also to avoid the danger of hernia.

In two of these interval operations I was unable to find the appendix,— why, I cannot explain. Both recovered, but have been lost sight of.

Of the 228 cases whose subsequent history I have been able to trace, 42 have complaints of one sort or another to make, all more or less connected with the operation. I asked of each the following questions:

Have you been well since the operation?

Has it made any change in your general health — especially in regard to digestion?

Have you had any inconvenience from the operation?

Has there been any rupture through the scar? if so, how soon did it appear? and have you worn a support?

Had I had an opportunity of personally examining and questioning them, I am sure that the list of troubles, which could not have been in any way attributed to the operation, would have been considerably diminished, that is, after stating that "digestion has been very poor," a few add that it was never good; in others, painful menstruation is mentioned as having been made more painful; and a few replies contain complaints of different sorts that seem likely to have come on entirely independent of any possible post-operative influence.

Thirteen speak of "greater or less degrees of discomfort in the region of the scar"; "of a soreness caused by exercise"; "of pain on the approach of a storm"; "of a weakness noticeable most of the time," — almost all of them such as might be made of any scar in any part of the body.

One of these was to me of unusual interest, a young woman, teacher, whose appendix was removed in an interval, had severe pain almost all the time in the region of the scar; there was also some tenderness over its upper end. She became so much disabled that she could not continue her work, and was obliged to spend some days in bed. She suffered so much that she was eager for anything that offered a chance of relief. Accordingly, I reopened the abdomen in the median line. The only thing that I could find was an adhesion of the omentum to the under side of the upper end of the scar, covering an area not more than one-half inch square. I released this because I could see nothing else to do. The relief following this simple thing has been most remarkable — all pain and tenderness seem to have wholly disappeared, and she has resumed her occupation.

A somewhat similar experience was that of a woman thirty-five years old, who had been operated on by Dr. M. H. Richardson four months before, and who complained of great soreness and tenderness in the region of the scar, without any apparent cause; excision of the scar and freeing some omental adhesions was equally successful in her case. To what extent these troubles are real and to what imaginary, is hard to tell. These are the only two cases in which the disability has seemed serious enough to me to warrant interference. The results in both are exceedingly suggestive, though I think not convincing.

Many of the complaints contained in my replies seem of little consequence, because the respondents say that they have been well since the operation, and that it has made no difference in their general health. However, I thought it best to group them all under the one head of complaints.

In two cases, fecal fistulas have failed to close spontaneously; one has discharged for seven years, though not enough to interfere with the man's earning his living as a laborer. The other has been open for seven months, and shows no disposition to close. Both were advanced suppurative cases; in both the appendix was removed, and in both the opening is apparently in the cecum. A fecal fistula lasting a few days has occurred several times in pus cases; in all the other cases it has closed spontaneously. Its persistence in these two I cannot explain. They have made me more careful about predicting the result when such an opening appears, but they have not taught me how to avoid or when to expect it.

In one case of general purulent peritonitis, in which I removed a gangrenous appendix and which made an unexpected recovery, I was called upon one month later to operate for acute intestinal obstruction. The omentum and intestines were so adherent that I could not anywhere discover the exact point of constriction; it seemed to me that there were several. I separated them all as well as I could, and the patient promptly recovered. That was eight years ago, and he has been strong and robust ever since. It may be worth while mentioning in this connection that I have since operated on his mother for appendicitis, and found the only foreign body I have ever seen, namely, a black pin. Its presence there was wholly unsuspected. In one other instance in my experience, mother and daughter have been the victims of successive operations for acute appendicitis, and I have within two weeks operated on the second of two brothers for the same cause. These are the only instances that I have met with, occurring in the same family.

Out of the 228 replies, 19, or a little less than 9%, report the existence of a hernia through the scar. All of them occurred in cases that had been drained. Twelve of them appeared within the first six months, five within the second six months, and two within the second year. I have in addition found ten cases of hernia through the scar of an appendix wound, that have had a radical cure done by my colleagues at the hospital, and in eight of these it appeared within six months after the appendectomy, and in two, within the second six months. It would seem, therefore, that the danger of a hernia was chiefly within the first six months, that it was very much less during the second six months, and very slight after the first year.

Of my own nineteen cases of hernia, nine report that they wore a support continuously after convalescence; four did not wear one, and six failed to state whether they wore one or not. I do not believe that the ordinary abdominal supports are at all efficient to prevent the occurrence of hernia, and I no longer insist upon their being worn. They unquestionably do afford, in some cases, a good deal of comfort and support, but they cannot be applied with sufficient pressure or with enough accuracy to prevent hernia.

In nine instances there have been attacks simulating appendicitis, occurring after operation, and if you will pardon me, I will refer to them in a little more detail:

Case I. Male, twenty-one years old. Operation done during an acute attack. Only about one inch of the appendix removed. A subsequent illness with same symptoms reported six months later, and he has since been lost sight of.

Case II. Male, thirty years old. A large abscess opened and drained; appendix not removed. Reports that each year for three years a hard lump formed beneath the scar, associated with pain and fever; never discharged. Has had no recurrence now for three years.

Case III. Male, twenty-two years. Operation just at the end of an attack. Appendix so firmly bound down in pelvis that only about one-half inch could be removed; recurrence within two months, and at intervals for a year. None now for three years.

Case IV. Male, nine years. Acute suppurative appendicitis. Appendix removed. One year later a precisely similar attack, ending in an abscess which discharged through the operation scar. That was in June, 1898; no trouble since.

Case V. Male, sixteen years. Acute attack. Large tumor to be felt; contents of lower abdomen so firmly matted together that appendix could not be located, and no pus found. Recurrence seven months later, on recovery from which abdomen was reopened; appendix found and removed. No trouble now for two years.

Case VI. Male, thirteen years. Interval operation. Appendix removed. Reports that he had attacks of pain in his right side occurring at intervals for a year after operation; gradually growing less frequent, and has had none during past year.

Case VII. Female, thirty-one years. Interval operation. Appendix removed. Says that she has had the same pain and soreness at different times in different parts of the abdomen, until within the last six months.

Case VIII. Male, twenty-seven years. Abscess opened; appendix not removed. Secondary abscess formed two and one-half months later: well since.

Case IX. Male, thirty-eight years. Interval operation. Appendix removed; says that he had the same symptoms in the same place three months after the operation; well for last two years.

It will be observed that in three of these cases the appendix was not removed at all, and in two others very incompletely; so that all belong practically to the same class. You will remember that there were fifty-four acute cases that recov-

ered after operation without the removal of the appendix; recurrence has therefore occurred in less than 10% of them — not enough to deter me from following the same course in the future, where a prolonged search for the appendix would seem to jeopardize the patient's chances of recovery from the primary operation.

Case V was an illustration of how easy its removal may be effected later, and how completely time removes most of the adhesions which render it so difficult and dangerous at first. I am entirely at a loss to account for the reappearance of symptoms in the four cases where the appendix had been thoroughly removed. In the one case in which an abscess formed a year after the operation, I think it possible that a ligature may have been the source of reinfection, although none was discovered in the discharge. In the others I cannot even guess at the cause, but hope some of you may be able to explain it for me.

Among the favorable replies it was gratifying to note that as many as sixty had found their general health and digestion very much improved since their operation, and interesting to observe that in one this improvement did not begin until three months after the operation, in one was observed a year later, and in a third was not marked until three years later.

In the last two cases it may well be questioned whether they do not belong with the great majority who were relieved of their immediate difficulty, and whose general health remained as before the appendix became inflamed. Their late improvement was very likely wholly independent of their surgical experience.

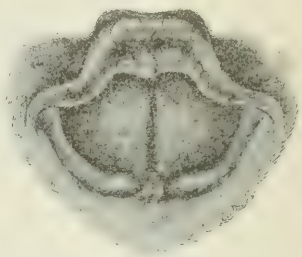
## CHRONIC LARYNGEAL OBSTRUCTION DUE TO ENLARGEMENT OF THE FALSE CORDS; TRACHEOTOMY; LATER PARTIAL EXCISION OF FALSE CORDS.

BY L. R. G. CRANDON, M.D., BOSTON.

This case is reported because the condition is relatively unusual, and because the result, after necessarily radical treatment, has been satisfactory. In November, 1900, the patient, an Italian of thirty years, came to the Boston City Hospital, on the service of Dr. Monks. By courtesy of Dr. Monks the treatment in the hospital is here recounted.

On the night of admission a history was obtained, that for the three previous years the patient had suffered from increasing hoarseness, and a laryngeal snore or stridulous inspiration when asleep. Rather frequently also, he had "colds," when he could not speak aloud and breathing at times was considerably impeded. A few days before coming to the hospital such a cold had come on, and at 9 P. M., three hours before admission, there had been a sudden attack of extreme difficulty in respiration which lasted about five minutes, but passed off without treatment.

Examination showed a healthy looking man, with calm face, breathing quietly and without effort. There was a marked odor of ozena, and the nasal fossæ showed an advanced condition of atrophic rhinitis. The laryngeal mirror revealed a somewhat elongated, thickened, red epiglottis, with dilated vessels on its under surface. The vocal cords could not be seen. The chink of the glottis was entirely bounded, even in deepest inspiration, by the false cords. These were dull red, almost purple in color, covered by a glairy excretion, and approached each other so closely in the middle line that, even during deep inspiration, when they should have been most widely separated, the aperture, or breathing space, was apparently only 1.5 to 2 mm. at its widest. On phonation, the edges of the false cords overlapped.



Laryngoscopic image showing chronically enlarged false cords, and their relatively close approximation even during inspiration.

Three hours later, after about five minutes increased difficulty of inspiration, breathing stopped. The patient became unconscious and cyanotic. I opened the trachea in the middle line just below the cricoid, and put in a silver canula. After about a minute of artificial respiration and stimulation, breathing was re-established through the tube.

On the second day the tracheal canula was removed. Breathing was easy, and when the wound healed the patient was discharged, taking 5 gr. of potassium iodide three times daily. For three months he was not seen, but then appeared at the hospital again suffering from laryngeal obstruction. This time it was not so severe, and was shortly relieved by water-vapor inhalations.

Two months later, the patient came to me asking relief from repeated attacks similar in kind to the two already described, but less in degree. For four months thereafter, once a week, 10% nitrate of silver was applied to the enlarged false cords, and the larynx was sprayed daily with

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|---|---|
| Menthol | gr. ii |
| Eucalyptol | mx. |
| Benzoinol | oz. j. |

and the nose washed out with Dobell's solution. The attacks continued, but with apparently somewhat diminished severity. In August, 1900, Dr. Lothrop saw the case in consultation, concurred as to the nature of the obstruction, and recommended the treatment which I subsequently carried out.

The operation was as follows: For several sittings, with 10% cocain spray anesthesia, a double-

ring laryngeal punch, which cuts vertically, was introduced into the larynx to get the patient accustomed to it. Then, once a week a semicircular piece of tissue (5 mm. in diameter) was bitten out of the enlarged false cords (ventricular bands) till four in all had been removed, two on each side. There was little bleeding, easily controlled by cocain spray. There was no pain; there was increased hoarseness for about two days after each excision. Subsequently the silver nitrate spray for the larynx and the cleansing and stimulating of the atrophic rhinitis was continued.

The result desired from thus removing part of the enlarged false cords is similar to that in burning enlarged turbinates, namely, to diminish their size by actual removal of tissue, and, furthermore, by the production of scar tissue and its subsequent contraction.

The result obtained has been satisfactory. The vocal cords, it is true, are only occasionally visible even now, but the false cords are lighter in color, less fleshy, thin at their edges, and leave a glottic aperture apparently 5 to 7 mm. wide at the widest part. The voice is clearer; there have been no attacks of acute obstruction since.

The *occurrence* of this variety of chronic laryngitis is, as has been said, somewhat unusual, although there have been described ninety-three cases.[11 28 29 33] In no case, however, was the obstruction so complete as to call for radical treatment, except one in which tracheotomy was done,[29] and that case was eventually proved to be tuberculous. Tauber collected eighty-two cases, of which fifty-seven were in men, twenty-five in women; twenty-four were people who used their voices more or less in public, and fifteen used their voices exceptionally little. The age varies from eighteen to fifty years.

The *etiology* of chronic enlargement of the false cords is most commonly a development secondary to atrophic or hypertrophic rhinitis, or post-nasal catarrh and dry pharyngitis, and is then the result of continued exposure of the larynx to unmoistened air. It appears also secondary to deviations of the septum and to enlarged tonsils. Sudden and frequent changes in temperature seem also to have an influence. Tauber's cases all came from one portion of the Ohio valley where such changes were common. Enlargement of the false cords is seen also in some people who use their voices much and improperly in public. This condition is known as "choked voice," and may be an effort of nature to supply vibrating tissue in place of disabled true cords, or may be due to some faulty intralaryngeal muscular action, whereby the glottis closes imperfectly. This is seen in second-rate singers who overforce their voices.[28] Chronic or excessive alcoholism or use of tobacco in some men seems to be a cause, and the rheumatic habit[12] may be mentioned.

The *morbid anatomical* condition seen is a result of a submucous exudation, increase in vessels, and proliferation of the submucous connective tissue; and in chronic laryngitis commonly affects all or part of the larynx above the vocal cords. A permanent enlargement of the epiglottis, for example, is common and very troublesome. Or the disease may show itself, not only in the epiglottis, but also in the false cords and at the arytenoid commissure. The swollen bands not only obliterate the ventricles of Morgagni and cover a large part of all of the vocal cords, but also considerably lessen the excursions of the latter during phonation.[29] Local enlargement of the false cords alone is but occasionally mentioned. In such cases, they stand out like shelves, well into the calibre of the glottis. The enlargement may be on both sides, but is more commonly on one side only. In Tauber's cases, fifty-two were on the right only, and eighteen were in both bands. There is frequently a glairy or dried excretion on the bands. It may appear granular.

The *symptoms* are well exemplified in the case already given. The hoarseness may appear only on straining the voice, or it may be marked with no evidence of disease of the vocal cords.

The *diagnosis* is made on laryngoscopic examination.

The *treatment*, inasmuch as the affection is usually secondary, consists of two parts: First, the correction, so far as is possible, of any abnormal condition of the air passages above the larynx. Second, in dealing with the laryngeal condition, local application of strong solutions of astringents — preferably silver nitrate, 10 to 20% — will slowly but eventually palliate most cases. Cases, however, where the individual lives in constant fear of acute obstructive attacks, demand more radical treatment, namely, the partial excision of the enlarged false cords.

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## THE MODERN OPERATION FOR RADICAL CURE OF UMBILICAL HERNIA.[1]

BY W. H. CONANT, M.D., BOSTON.

THE operation for umbilical hernia, or omphalectomy, has not received the attention which is given to most other surgical procedures. It is for this reason that it is thought wise to submit to this section a paper dealing in part with the subject as a whole, but more especially with that distressing and, in many cases, dangerous condition which we find in women who have passed the childbearing period. They have put on flesh, and present themselves in most cases with a large irreducible mass projecting from the umbilicus. It is done also because most of the textbooks are opposed to the operation. A few quotations will show the opinions of the authorities.

John Woods, in the "International Cyclopedia of Surgery," says: "In the most common cases of umbilical hernia attended with corpulence and a fatty condition of the omentum, and a general constitutional debility, these circumstances, as well as the age and habit of the patient, preclude any attempt at a radical cure of the rupture by operation."

Sir Astley Cooper says: "A congenital umbilical hernia common in both sexes and next in frequency to inguinal hernia." He advocates operation if in strangulated form, and in certain cases of irreducible umbilical hernia, and advises a pad in reducible.

Bull and Coley, in the *Annals of Surgery*, 1898, state that umbilical hernia in infants and children should, with rare exceptions, never be operated on. With regard to hernia in adults, they lay down the following rules: The younger the patient, the more favorable the prognosis of radical cure. A cure by wearing a truss is rare after maturity. As the operation has little risk and the prospect of a permanent cure is good, an operation is advised in every case of reducible hernia. All cases of irreducible hernia, if not too large or too old, best treated by operation. The contra-indication is operation on no person over sixty.

In Dennis' "Surgery," in an article by Bull and Coley, is the following: "The best result to be expected from palliative measures is to keep the hernia from becoming larger and, what is of far greater importance, from becoming irreducible. The strong tendency of these herniæ is to become irreducible and adherent in spite of careful treatment. At present it is impossible to lay down any definite rules as to how far radical-cure methods should be applied to reducible umbilical hernia in adults. The period of reducibility is manifestly the one during which operation should be undertaken, if at all, for the reasons that during this period the patient is younger, the abdomen is smaller, and the dangers attending the ligation of large masses of omentum and the separation of old adhesions are not present."

On the irreducible form they have the following: "Operation is not recommended in this form of hernia except in special cases, for the following reasons: The subjects are, as a rule, extremely unfavorable for operation; the abdomen is large and pendulous; a thick layer of subcutaneous fat interferes seriously with primary union; the muscular layers are atrophied; more important still, the necessity of ligating large masses of omentum and separating extensive adhesions, makes the operation one of decided risk to life. Finally, the operation, if successful, gives but little guarantee of permanent cure. Relapses in such cases are very frequent. On the other hand, small herniæ in persons with firm abdominal walls of moderate thickness may be properly subjected to operation, in the hope that even in the event of relapse the protrusion may be more readily controlled and kept reducible."

"American Textbook of Surgery" has the following: "The radical cure of umbilical hernia is rarely undertaken, because of the unsuitability of the subject of it, for operation. Should an operation be performed, it should be done, if possible, without opening the sac; the neck of the sac is dissected out and tied off after the return of the protruded bowel, and then the sac is removed. The pillars of the ring are now sutured with stout silk, the wound closed, a drainage tube inserted, and antiseptic dressings applied."

Dr. Maurice H. Richardson has an article in "Park's Surgery" in which he says: "The treatment of umbilical hernia in adults in most all cases should be operative because of the extreme difficulty of retaining the hernia in the abdominal cavity by any form of truss, and because of the danger of inducing inflammatory changes by any form of mechanical treatment."

Warren and Gould's "International Textbook of Surgery": "In the majority of cases of um-

[1] Read before the Suffolk District Medical Society, Section for Obstetrics and Diseases of Women, Feb. 26, 1902.

bilical hernia operation is not to be advised. In suitable cases the best method is as follows: An elliptical incision including umbilicus and redundant portions of the skin; free dissection of the sac until the aponeurosis covering the rectus muscle is clearly seen. Removal of sac and redundant skin with excisions of adherent omentum if present. Closure of the wound in three layers. Drainage is seldom necessary. Mortality may be stated to be not far from 5%."

It will be seen that Richardson and Bull and Coley are the most earnest advocates of operative measures.

Rainshoff states that there have been three improvements that make it possible to urge an operation: (1) The umbilical ring is excised; (2) the recti muscles are sutured; (3) the fascia and muscles are sutured to each other by separate layers of buried sutures. He employs a pure metallic suture.

There are three forms of umbilical hernia: First, congenital, due to faulty union of the visceral plates. Malgaigne states that this is not true hernia. The second form, infantile, occurs soon after birth, as a result of yielding of the umbilical cicatrix, and seldom persists beyond puberty. The third, or adult form, presents itself late in life, usually in women who have borne children.

We shall deal largely with this latter form in the discussion of this question. In these adult cases we usually see one of three conditions: (1) The reducible, which can be held more or less in place by the wearing of a truss; (2) the irreducible, or incarcerated; (3) the strangulated.

Practically all will agree that a strangulated hernia, wherever found, at whatever stage, demands some form of operative procedure if the patient is in a condition to stand any operation, and this means if the patient is not dying, because in a severe case of strangulated hernia, cocain can be used to enable one to do all necessary operating.

This leads us to discuss, therefore, the advisability of operation in reducible or irreducible. If the tumor is small, it can be easily put back and may be held back by a proper truss, and there is no doubt that the majority would prefer to have the discomfort of wearing a truss rather than to have an operation. In many of these cases the truss either does not fit properly or is not worn, and sooner or later there comes an irreducible hernia which steadily increases in size, or there is the more serious form of strangulated umbilical hernia. This latter condition is rare. There are not many cases on record compared to the whole number of cases of umbilical hernia, where it has been necessary to operate for strangulated hernia. There are, however, a large number of cases of irreducible hernia which give the history of starting as a small hernia, gradually becoming incarcerated, then irreducible, and accompanied with pain, distress, colic, interfering with motion, and seriously impairing the activity of the patients, thus causing them to put on flesh.

Logically, there can be no escape from the fact that a reducible, umbilical hernia should be operated on under the same general rule as an inguinal. Since the more improved methods of suturing the abdominal wall there is no reason why, in the early cases, an operation should not be advised where there is any difficulty in keeping the hernia back by use of a truss. The abdominal wall at this point can be sutured, provided the umbilical ring is thoroughly dissected out and the wound is closed as if it was entirely independent of the umbilicus. Except for the fact that the umbilicus is present, anatomically this is one of the strongest parts of the abdominal wall, and if the umbilicus is thoroughly dissected out and the belly wall sutured according to modern methods, there ought to be very little likelihood of a return.

In the majority of cases of irreducible hernia there can be very little doubt that they would not have occurred had an early operation been performed. In most of the cases the ring is small and the contents of the sac are largely omental. Occasionally there are intestines in the sac, but in the case of irreducible or incarcerated hernia it is rare to find intestines in the sac that cannot be reduced, and it is for this reason that there are so few cases of strangulated, umbilical hernia. The rings, many of them, are tough, and the omentum plugs it to a certain extent and prevents the entrance of the intestines. Such a hernia, unless relieved, is a very great annoyance, and by their steadily increasing size they become even a serious menace to life.

One objection to doing the operation is the fact that there is a great deal of bleeding from the tearing off of the adhesions of the omentum in the sac. Anyone who has opened many of these sacs recognizes the way in which the omentum lies, and it is oftentimes difficult to get the adhesions out without a great deal of hemorrhage of the tissue and exposure of the omentum for a long time, thus causing shock. Another objection against the operation is the length of time which is consumed in doing the operation.

The operation which is described does not require the tearing off of adhesions in the sac, and does away, therefore, in a measure, with both of these objections. It is possible to do these operations without using ether, and if they are not too extensive, cocain can be inserted under the skin and about the ring, and the operation can be successfully and quickly performed without the use of any anesthetic.

### OPERATION.

Special attention is paid to a careful preparation of the site of the operation, because the umbilicus, unless carefully prepared, may be a source of infection. The part, therefore, is given a thorough surgical bath the day before the operation, a corrosive pad is applied, and just at the time of operation the whole belly wall is thoroughly prepared again. A straight incision is then made over the mass and into the sac, to determine the condition

of the contents of the sac, how adherent it is, and whether there is any bowel in the sac. If the bowel is present it is reduced, if possible, without breaking up adhesions. Then an elliptical incision is made on each side of the umbilicus of about four inches in length. This incision goes outside the sac, and a dissection is made to the rings. The sac is then opened on either side, as close to the ring as possible, and the whole sac is then cut through at this point. The omentum is then tied off, and if the intestine is adherent it is tied off at the same time, and the tied-off omentum and intestines are pushed down through the ring after the ring has been enlarged. The tying off of the omentum and adhesions at this point takes but a very short time, and practically there is no bleeding. The stump is then dropped back and the umbilical ring is thoroughly dissected out. The peritoneum is sewed up with plain catgut. This closes the peritoneal cavity, and the rest of the operation becomes an external operation. The fascia is dissected back so as to show the recti muscles. If the muscles have retracted they are pulled together and sutured, overlapping one another in the median line. For this is used either kangaroo tendon or chromocized catgut. In closing the fascia one of two methods may be used, either the ordinary suturing of the fascia longitudinally — that is the most common; or by Mayo's method, which consists in overlapping the fascia horizontally, and then suturing, thus doing away in part with the pull which there is on the belly wall. This latter method has given excellent results in the cases where it has been used. Kangaroo or chromocized catgut is used, and in many cases it will be found wise to use a quilted suture. The skin is then closed with silkworm gut. Silver foil is applied over the wound; sterile gauze, and a pad held in place by a strip of gauze which is held to the abdominal wall by collodion, and then some sheet cotton and a binder are applied. The patient is kept to the bed for two weeks; at the end of that time is allowed to sit up in bed for three or four days. At the end of three weeks is out of bed in a chair. An abdominal belt without a pad of any sort is usually worn from six months to a year. If there is no sign of weakness of the abdominal wall at the end of a year, the patient goes without belt.

RECAPITULATION.

(1) Umbilical hernia in children as a general rule gets well with the use of a truss.

(2) Strangulated umbilical hernia to be operated on like any other hernia.

(3) Radical umbilical hernia to be operated on if the patient will give consent. Otherwise, well-fitting truss to be constantly worn, day and night.

(4) Irreducible hernia to be operated on unless there is some marked contra-indication like serious kidney or heart lesion. Age and size of tumor need be no bar to an operation.

(5) Operation to be preferred to combine rapidity of operation with diminution of shock, both by diminishing the hemorrhage and also the length of time that the patient has to be under an anesthetic.

(6) The use of cocain where ether is contra-indicated.

## SENSORY HALLUCINATION AND ITS ANALOGUES.

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[Concluded from No. 14, p. 381.]

### V.

The hallucinations of normal waking life, of hypnagogic states, and of disease occur sporadically. They are commonly associated with the momentary prevalence of a pronounced disposition to interpret sense-stimuli in particular forms, due to mental concentration, attitudes of expectancy and the like; but the existence of sensations susceptible of construction in this way is an accidental juxtaposition in the stream of experience. On the other hand, hallucinations may be systematically induced by the presentation of favorable sensory material and the concentration of attention upon it. To this group belong alike the suggested disturbances of perception in hypnosis and a variety of self-induced phenomena lying on the borderland of normal consciousness which are popularly subsumed under the term "crystal vision."

The observer fixes his gaze upon a smooth and brilliant or pellucid substance, and on its surface or in its depth appears a succession of objects and scenes which frequently exhibit the greatest complexity of make-up and vividness of coloring. The materials used to afford the necessary sense-stimulus, at once intense and vague, present great variety. The crystal globe, the ink-pool, the ruby, beryl and other stones, the surface of a metallic mirror, the shadowed water of a well, and still other objects have been employed. Among the most important characteristics which the crystal or its substitute must possess is that of translucent depth, for by means of the dimly visible interior of the ball or jewel the whole binocular-perspective series is added to extension on a plane surface, thus increasing immensely both the freedom of imaginative construction and the impression of reality in its results. The things which the crystal-gazer sees are not pictures, but miniatures in which the form, coloring and solidity of reality are mimicked with fidelity. These images are strictly illusions. They do not result from the sheer objectification of centrally excited ideas, but are due to the supplementation of a group of sensory facts immediately presented and belong to the same category as the figures and landscapes which one sees in the clouds or among the coals of a glowing fire. Like fire and cloud-forms the object upon which the crystal-gazer's vision is directed is at once brilliantly variegated and vague. It offers suggestions of a multitude of figures, but prescribes no definite forms. It

focalizes sensory attention and thereby leaves fancy the freer to construct its visionary scenes.

To the same category with crystal-gazing belong divination by the shell and allied forms of induced auditory hallucination. The range of such sensory media is indeed restricted only by the limits of representable sensation. That the faint odors of flowers should become the starting point of similarly associated hallucinations for peculiarly susceptible individuals is quite conceivable, or, to admit a fantastic situation, a like interpretation of raindrops falling upon the palm might be made by a telegraphic expert.

Crystal divination has been practised, anciently and in modern times, by the inhabitants of Egypt and Persia, among the Greeks and Romans, in India, China and the islands of the Pacific, as well as by European nations, among whom it attained its greatest popularity during the century following the Renaissance. Oracles of the shell and murmuring groves have likewise been resorted to by most of these peoples for the purpose of divination. It is a pastime today to listen for the roaring of sea and wind in the confined murmur of a shell, but the Hungarian gypsies still hear within it the voice of Nivasha, spirit of the air.

In both forms of induced hallucination, crystal-gazing and shell divination, a species of fascination is involved, closely akin to the mechanism by which the oncoming of hypnosis is facilitated. Attention is withdrawn from the medley of impressions which the external world affords, and centres upon a simple homogeneous sense-stimulus. The sensations thus aroused are ill-defined and transient, allowing the greatest scope for uncorrected constructive apperception. The ordinary activities of thought are replaced by an attitude of intense yet passive expectancy, in the highest degree predisposing to hallucination. The fragmentary echoes of past impressions and utterances, the dim chaos of light or sound centering in the globe and shell, the faint isolated images which scarcely flash into sight in normal life before they are again swept under the stream of intense stimulation and purposeful thought, are now thrown up sharply cut and clear in the silence and detachment of the mind.

Among the most interesting aspects of crystal-vision is the manner in which unnoticed and forgotten impressions are thus developed as upon a sensitive photographic plate. "I had carelessly destroyed a letter" runs the report of one such experience, "without preserving the address of my correspondent. I knew the county, and searching in a map recognized the name of the town, one unfamiliar to me, but which I was sure I should know when I saw it. But I had no clue to the name of house or street, till at last it struck me to test the value of the crystal as a means of recalling forgotten knowledge. A very short inspection supplied me with 'H —— House' (the entire word in gray letters on a white ground), and having nothing better to suggest from any other source, I risked posting my letter to the address so strangely supplied. A day or two brought me an answer, headed 'H —— House,' in gray letters on a white ground."

A curious feature of such phenomena is the occurrence of productive hallucination as distinguished from the re-emergence of sense impressions previously received. The images are here only suggested by some indifferent stimulus, a printed word, an expressive sound, an associated object or idea, and the mind gives incarnate shape to them as detailed and individual wholes. Oriental divination by the ink-pool and the shell is of this free type, but its slender thread of connection with reality is commonly undiscoverable. Frequently, no doubt, the imagination of the inquirer plays upon the reported visions of the seer in a hallucinatory manner, giving to their relative formlessness the definition determined by his own special interests and expectations. In the majority of cases also there is probably involved an important amount of suggestion from the manipulator to the susceptible child who becomes his medium. Withal, however, there is still left a wide margin for exploration before there is made known to us the sources of the crystal-gazer's visions, and their relation to the world of real objects and events. The following is one of many instances given by Lane in his "Customs of the Modern Egyptians": "A boy of eight or nine years old had been chosen at random from a number who happened to be passing in the street, and the magician, taking hold of his right hand, drew in the palm a magic square, . . . then, pouring ink into the centre, bade the boy look into it attentively. At first he could only see the face of the magician; but proceeding with his inspection while the other continued to drop written invocations into the chafing-dish, he at length described a man sweeping with a broom, then a scene in which flags and soldiers appeared; and finally Lane asked that Nelson should be called for. The boy described a man in European clothes of dark-blue, who had lost his left arm, but added, on looking more intently, 'No, it is placed to his breast.'" Lord Nelson generally had an empty sleeve attached to the breast of his coat, but, as it was the right arm he had lost, Lane adds: "Without saying that I suspected the boy had made a mistake, I asked the magician whether the objects appeared in the ink as if actually before the eyes, or as if in a glass, which makes the right appear left. He answered, they appeared as in a mirror. This rendered the boy's description faultless."[1]

## VI.

Hypnotic hallucinations differ from the visions of crystal-gazing chiefly in regard to the elements which determine the form taken by the projection of images or false construction of sensory experience. The predisposing conditions of motor passivity, narrowing of sensory attention and unfocalized expectancy are identical in the two cases; but while in self-induced hallucination the

[1] Parrish: Hallucinations and Illusions.

succession of pseudo-percepts occurs at random or in dependence upon performed images in the mind of the seer, the hallucinations of hypnosis take place under the direction of suggestion from another person.

The suggestion of the hypnotizer may affect one of the senses or many together, be either positive or negative, and produce hallucinations both during the trance and after it has passed away. Tell the subject that he shall see his portrait on a blank sheet of paper, that his boots are in the fruit dish, that the persons around him are transformed into dogs; suggest to him that he is in the ocean swimming for life, or that he is addressing a political gathering; direct him to see everything through green glass, change the imaginary spectacles for others of blue, red or yellow; in short, suggest any imaginable alteration in the actual appearance of the world, or in the relation of his activity to it, and immediately the transformation has taken place.

Hallucinations of sight are produced more easily with closed eyes than otherwise. With open eyes the suggestion frequently fails if no *point de repère* is used. In hallucinations of hearing, on the contrary, the result is more easily induced without stimulus. The cases recorded concerning the senses of taste and smell are much fewer and less striking. Still hallucinations of taste, and probably of smell also, are comparatively common, as when the subject eats an onion or potato for an apple at the hypnotist's suggestion.

Elaborate hallucinations are sometimes produced involving several senses at once. Thus Bernheim mentions a subject who at his suggestion saw a woman approach his bed with a basket of strawberries. He shook hands with her, bade her good-day, and ate the strawberries with evident relish, picking them from the basket daintily, sucking them with great apparent pleasure, and casting away the hulls one by one as he extracted the fruit. Sight, hearing, taste and touch were thus all involved. Similar cases might be cited in numbers from the experiments of Charcot, Binet, Moll, Fèré and others.

One group of suggested hallucinations has received at the hands of the Nancy School the name of "negative hallucinations." The subject is told by the hypnotizer that he shall not see or hear a certain person or thing actually before him, and immediately the presence of the prohibited object is effaced from his mind. He neither sees nor hears it. If it be a person he completely ignores his presence. If spoken to by him no reply is given; if touched or pricked, the contact is either not felt, or if felt is referred to some other source. The presence of the forbidden thing is resolutely and systematically overlooked. In these negative hallucinations the change is only apparently peripheral. There is no anesthesia of the end organs, no paralysis of the nerves of sense. Toward all other objects the senses act normally: the eyes see, the ears hear, the hands touch every object but the one thing, or system of things, effaced by the suggestion of the hypnotizer. It is as if in this state the mental furniture consisted of two systems of associated ideas, whose members are mutually assistive among themselves, but repulsive towards each other. In the normal state these two streams are parts of a unitary process the elements of which are bound together by intimate cross-references, so that there takes place among them a constant interaction and readjustment. An excitement aroused in any one part of the system tends to radiate into all connected centres; the fortune of any suggested idea therefore depends upon the relations of the supporting and inhibiting systems aroused. In the hypnotic trance it is as if this unitary system had been broken up by the closing of certain paths of connection, and two isolated groups established. An excitement aroused in either system now extends as before to the surrounding centers of that system, but fails to pass over to the other. Cross-references no longer exist; the idea arouses only consonant ideas.

As regards the mental process involved, negative hallucinations are simpler than positive. They are involved in the latter as constituents, since in order to substitute a new range of sensory phenomena the actually existing order must be simultaneously suppressed or ignored. Negative hallucinations may affect one sense alone or several senses together. They are frequently only partially successful. The subject fails in ignoring the excommunicated person; his voice may be heard or the presence of his body felt, but for the stimulus which he is thus compelled to recognize the subject invents an explanation consonant with his hallucination. In some cases this is difficult, and the subject may find himself in hopeless astonishment, as when one member of a company, whose presence had been tabooed by the hypnotizer, lighted a cigar which the hypnotized subject saw floating about the room and consuming away without visible agency. Negative suggestion in the case of color produces an apparent color-blindness. Cohn asserts that the opposite effect, of curing color-blindness, can be brought about during hypnosis; but other experimenters, notably Koenigshofer, deny this. That the phenomena of hallucination are of centric origin is further indicated by the fact that persons may have hallucinations who could not by any possible means have a true perception of the species to which the hallucination belongs. The blind may have hallucinations of sight and the deaf of hearing.

Suggestive hallucinations may be produced not only during the trance, but also after it has passed away. The latter phenomena are remarkable for the length of time which may intervene between the suggestion and its fulfilment — a week, a fortnight, a month, even a quarter of a year may thus elapse. During the intermediate period the suggestion remains dormant, the thought of the action never entering the subject's mind. Suggestion more frequently miscarries in the case of the post-hypnotic hallucinations than with those

occurring during the trance. The idea, not the verbal command, seems to be retained; and this, when the fulfilment is long delayed, may become distorted, be partially obliterated, or lapse wholly from memory. Bernheim mentions the case of a patient who smelled an odor of vinegar when cologne had been suggested. In this case, after the subject had been told that the odor was merely a suggested hallucination, the sensation still persisted.

## VII.

In addition to sensory hallucinations post-hypnotic delusions of memory and belief may be induced. The suggested fiction is often so firmly implanted that the subject conceives it, with all the accessories of reality, as vividly as the most significant events of his past life. These hallucinations have received the name "retroactive," for as in sensory hallucination the centrally excited ideas are projected into the surrounding world of immediate perception, so in this case the mind retrojects its false images into the data of authentic memory. The analogy between the two ranges of phenomena presents practical identity of relations. Erroneous elements are interpolated in the series of reproductions of actual experience, falsifying the interpretation of personal history, just as in sense illusion factors relevant to the material presented, but foreign in their origin, are substituted for parts of the sensory context, with the result that the nature of the object is thereby misapprehended. In neither case does the phenomenon lose in intimacy or strength because of the lack of genuineness in certain of its constituents. The groundlessness of a false memory is proved indirectly by the impossibility of social verification; but though this evidence be brought home in the most convincing manner possible, the illusion of reality may still persist undiminished. No system of memory images bears the hall-mark of truth intrinsically, and no degree of steadiness, vividness and detail is sufficient in itself to confirm the authenticity of the memory to which it attaches.

An hallucination is a strictly sensational form of consciousness, and as such does not involve the derangement of the higher mental processes. The impression may be recognized as false, even though it lose nothing of its sensorial vividness thereby. The mind acts normally upon the material presented, but that material is itself vicious. In delusions the vice is more radical. The higher faculties themselves are disordered and co-operate with the sensorial processes in their false report, or, as is more commonly the case, radically misconstrue the data of normal perceptional consciousness.

Following the analogy of sense experience in distinguishing classes of misapprehension, in virtue of the amount of context which is involved, hallucinations of memory may be discriminated from illusions of recollection. An hallucination of memory would then be the existence of a *floating* system of fictitious images which is apprehended as belonging somewhere in one's own past experience, but is not located by reference to specifically determined points in that personal history. In illusion of recollection, on the contrary, the web of remembered experience is unbroken, and the false memory-series receives a definite setting in the past life. It is thus a factor in a larger system of ideas which is in greater or less part true, and becomes a misrepresentation of experience only through the distortion of certain elements within it. Between these two forms of misinterpretation no definite line can be drawn; they shade indistinguishably into each other as their connections vary in the one direction or the other.

Among hallucinations of memory perhaps the most familiar is that sense of recognition — pervaded by an intenser feeling of strangeness — which sometimes accompanies an experience, a word, an action, a set of surroundings, which is precluded by circumstances from the possibility of having been an element in any previous occurrence. This peculiar experience is rarely if ever traced home to a specific historical setting; it comes to one as the echo of some familiar but irrecoverable past. The causes of this phenomenon are still doubtful. It is probable that the attitude of recognition arises justifiably in connection with certain elements of the experience, and thence passes over illusorily to their context as a whole.

The phenomena of memory hallucinations appear most frequently in connection with our dream-images. Most men have at one time or another been uncertain whether remembered events have happened in waking life or in dreams. This illusion persists with undiminished force up to a certain point of time, when in consequence of some subjective reconstruction too subtle for introspection to grasp, the whole fabric dissolves away like a mist and the illusion is relegated at once and forever to the limbo of dreams. The boundaries of such an illusion of recollection are usually vague, and it is in the attempt to clear up its connections with the rest of one's remembered life that its fictitious character is discovered.

To these false images the mind appears most susceptible in the first moments that follow waking from sleep. The ghosts of a dream linger among the personages of real life, but so timidly that the very winking of an eyelid startles them and they are gone ere it can be repeated. The recovery of consciousness after a fainting fit, or the application of anesthetics, is characterized by a similar confusion of reality and fiction in the apprehension of past experience. Like hypnagogic illusions these false memories are intangible and fleeting.

Physiologically it is probable that the general conditions which underlie such experiences consist of the isolation and inaction of certain parts of the nervous system which in normal memory, function continuously with the rest of the mechanism, and that this mode of functioning is a sym-

tom of fatigue or malnutrition. Hallucinations of memory occur less readily in fresh than exhausted states; they are characteristic of those phases of recovery from relative inaction which follow sleep and coma; the enfeebled constitution, whether suffering from passing illness or permanent derangement, is vastly more subject to them than the healthy and vigorous system. In all these states the images, judgments and impulses of the self are beginning to fall apart from the single, well-knit system which they compose in the sane and unexhausted individual. The personal reality-feeling is becoming less well grounded, and the looseness of imagination invades the hitherto integral system of relations which constitutes the consciousness of a real world and a true past. In this progressive disorganization the limits of the two regions may become as completely confused as were hallucinatory visions with perceptual objects, when Blake, in the streets of London, saluted the phantasms of his disordered brain and passed by his own acquaintances with a suspicious and challenging glance as the creations of his own fancy.

VIII.

From hallucinations of memory to those of belief is but a step. In so far as the fictitious image is regarded as congruous with the historical series in which it occurs, it is an hallucination of memory, but in so far as the subject appropriates it as the reproduction of a real event, and it becomes part of a system of will-objects with which the consciousness stands, or has stood, in immediate practical relations, it becomes an hallucination of belief. In every false memory, therefore, there is an element of false belief, for that which objectively is a series of mental images reproducing, or failing to reproduce, the successions of past experience, is subjectively a series of assertions or will-attitudes. It is not the likeness, partial or complete, of an ideal series to the events of a personal history which constitutes memory and its aberrations. The revery, the dream, the constructions of fancy which unwittingly borrow from personal experience, however their relation to reality should be stated, are not hallucinations of memory. Memory arises only when the mental images are specifically referred to one's own past experience. If such reference is historically correct, the memory is true; if it is incorrect, the memory is hallucinatory.

Hallucinations of belief form a more radical mental defect than do those of memory. The important fact in the former case is the misconstruction of data of the will. It is an hallucination concerning the meaning of things, a distortion of motive and causal relations. There is involved no necessary hallucination regarding the descriptive character of the event, but its purpose and significance are misapprehended. In its trivial and momentary forms we do not dignify this attitude by the name of hallucination; it is only when systematized and persistent, when the false construction interferes materially with one's rational adjustment to the more important facts of life, that the term is applied to such experiences. The phenomena of hallucinatory belief commonly include distortions of memory and are frequently accompanied by false perceptions, but these are only incidental to its nature. Its most important aspect is not the misapprehension of fact, but the misdirection of will in the subject's reaction upon the world. It thus penetrates mental synthesis more deeply than false perception or memory, and involves a fundamental disturbance of sanity in the individual. Chronic forms of hallucinatory belief, in which pronounced interference with the practical relations of the individual appears, are called *paranoia*, or delusional insanity. The facts of false belief are therefore wholly unlike those of illusion and hallucination in their symptomatic value. Sense illusion is the result of simple inattention, or mal-attention; hallucination, though farther removed from the routine of healthy perception, is commonly sporadic and insignificant; but delusions are among the sinister signs of an oncoming nervous degeneration which is likely to involve the whole mental individual in final ruin.

The many varieties of paranoia may be grouped in two general classes: delusions of persecution and delusions of exaltation. Persecutional insanity usually involves systematic hallucinations of perception, but should not be understood as a derangement resulting from the attempt to interpret systematically these deceptive sensations. The predisposition to hallucination of belief is the exciting condition which lifts out of their obscurity organic sensations which in the normal individual would not rise above the threshold of discriminative consciousness, projects them into the external world, and weaves them into portentous and grotesque systems of experience. The subjective nature of these phenomena is indicated by the fact that it is the sense of hearing which is regularly concerned, and that in the preliminary stages of the disease these ill-defined auditory sensations are interpreted as "inner voices." When later they have become objectified, the subject of this self-originated persecution walks in a world ensouled and demonic. Voices issue from the walls and furniture; they leap out at him from open doors and the mouths of vessels; they speak to him from the dark when he is in bed, and out of the solitude when he is alone. With these phantom voices is more and more organically associated as the disease progresses a misconstruction of actions and events. The accidental relations of commonplace objects in space, simple names, words and numbers casually seen or overheard, inconsequential remarks and gestures, the actions of churches and governments, the phenomena of the weather and astronomical changes, "the whole choir of heaven and furniture of earth" become charged with new and ominous meaning, and minister to the tragedy of this self-centred deception. The ordinary interests and occupations of the patient are one by one given up, control and resistance diminish, he listens with

increasing readiness to the burden of the voices, and finally, if restraint be not imposed, the insanity culminates in an outbreak of homicidal mania or in systematically planned revenge or suicide.

Delusions of grandeur take a less harrowing, if equally pathetic, course. The hallucination is as widespread and persistent, the subversion of normal relations as great as in the preceding type, but the content of these perversions and their bearing upon the emotional and active life of the subject are diametrically opposed to those of persecutional insanity. The patient is in a state of mental exaltation. His physical powers, his social importance, his control over nature and man are grotesquely exaggerated. He believes that his body is gigantic, that his limbs are made of brass and iron, that he shakes the earth with his tread, and can crumble it to dust in his palm. He is a monarch and decks himself with tinsel and gewgaws to befit his kingly station; he calls his ward a palace, his attendants courtiers, and the hospital yard his kingdom; he confers decorations and gives orders to armies and navies. Or, ascending higher, he is a lesser or greater god, and controls the forces of nature and the events of the world.

These states of mind are directly connected with nutritive conditions in the body characteristic of the earlier stages of general paralysis. That the eutrophic state of the vital processes is not only provocative of physical and mental exaltation, but also related to the fluctuations in degree of the patient's delusions of grandeur, is made apparent by the effects consequent upon a lowering of the nervous tone through temporary or protracted exhaustion. The imaginary powers of the body diminish, the range of the patient's hallucinatory control is restricted, he puts aside his godship and claims only to be the Prince of Wales (Clouston). The whole trend of the delusion is thus away from fear, despair and suicide. The patient lives in a world of fantastic delights, impotent but content, and the history of the case commonly follows the course of progressive paralysis, uncomplicated by the violent interruptions to which insanity of persecution is subject.

Between sensory hallucination and these more sinister analogues, therefore, the chief distinctions to be observed are the different degrees in which the higher and lower mental processes are involved in the two cases, the systematized and chronic nature of the latter phenomena, their symptomatic values and the relation of the disturbance to the whole subsequent fortune of the individual. Sense deception is transient, adventitious and insignificant; false memory and belief are intrinsic, persistent distortions of the self, indicating an underlying nervous degeneration which threatens the whole efficiency of the psychophysical organism.

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Dr. Wm. H. Welch of Baltimore, who is to deliver the Huxley Lecture at the Charing Cross Hospital, has sailed for England for that purpose.

## MASSAGE IN FRACTURE TREATMENT.

BY EDWARD A. TRACY, M.D., BOSTON.

In the *Journal of the American Medical Association*, July 8, 1899, the writer published a brief paper entitled "The Modern Treatment of Fractures." In that paper he showed that the principle of fixation in the treatment of fractures could not be safely discarded, and also called attention to the importance of the employment of massage in fracture treatment. In this paper the matter of massage will be further elaborated and an attempt made to describe its application.

The writer has used massage in fracture cases for several years previous to the publication of the paper referred to above, and he is pleased to note that since its publication other practitioners have published strong confirmatory advice for the more general adoption of the practice.

In massage, at least, as applied to fractures, there is no need of special instruction. Some physiologic knowledge of the lymphatic and general circulation, together with a little tact, are all sufficient.

The lymphatics permeate the tissues, and have for their main function the carrying on of the nutritional processes that support the tissues. The flow of blood in the veins is toward the heart, and in general the lymph fluid in the lymphatics has the same direction of flow. Its speed is not to be compared with that of the blood-flow, for there is no machine analogous to the heart in the lymph circulatory apparatus. The lymph circulation is a secondary one, dependent upon the primary blood-flow.

If pressure be made upon a limb, in the direction of the blood and lymph flow, the progress of the blood and lymph towards the heart is aided and hastened. Upon this fact mainly is based the uses of massage. The manner of producing this pressure is important. With a normal limb it might suffice to make long strokes, with the hand pressing upon the limb, commencing the stroke at the distal end of the extremity and bringing it towards the centre of circulation — the heart. When there is swelling, as is always present, more or less, in a case of fracture, the swelling being due to edema, to extravasated blood and tissue detritus, and to cell proliferation, the case is different. To make pressure strokes from the distal end of such a limb would only aggravate the condition of swelling present about the fracture by adding fresh elements of obstruction to the already surcharged parts. To take an illustration that may crudely represent the mechanics of the case, let us suppose the wheels or runners of a heavy dray are obstructed by soil or snow. Before exerting efforts that would otherwise prove useless to further the progress of his load, the sensible driver has the obstructve material removed. And so with the surgeon. He commences by removing what he can of the obstructive material. To do this he commences at the proximal end of the swollen tissues, that is, the end nearest the heart. He gently grasps the limb in his two

hands, and gives the tissues a gentle but firm squeeze. This drives a considerable quantity of the blood and lymph out of the tissues, there being no obstruction to such an outflow.

The grasp should now be relaxed, and about a half-inch below, the tissues should again be grasped and squeezed, gently but firmly. The blood and lymph will be pressed forward to occupy the space made for them by the previous pressure; and so on, we should proceed until we reach the lower border of the swelling. After this has been repeated two or three times consecutively, the limb can be held at its distal extremity by one hand, while a pressure stroke along the limb is made with the other hand in the direction of the blood-flow.

Massage may be applied from the commencement of attendance upon a fracture case. When properly performed it has a quiescent effect on pain, and is therefore pleasing to the patient. It quickly removes obstruction to the circulation, hastens the absorption of exudates and tissue detritus, increases proliferation of cellular elements by the stimuli of increased nutrition, prevents muscular atrophy for the same reason, and speeds the reunition of the bony fragments.

An important corollary to the adoption of massage in the treatment of fractures, is the necessary use of fixation appliances that will permit of its ready application. Massage cannot be applied through a stone wall, nor through the plaster-of-Paris bandage. This is one of the advantages over plaster-of-Paris that is given by the use of a wood-plastic splint moulded upon the parts. Another advantage is that the fixation is superior, because the fixative appliance, the wood-plastic splint, lies directly upon the skin, its fixative efficiency not being impaired by the use of cotton batting or other padding. Still another advantage: the surgeon can examine the parts treated at any time by simply unwinding the retentive bandage.

## Medical Progress.

### RECENT PROGRESS IN OPHTHALMOLOGY.

BY MYLES STANDISH, M.D., AND WM. D. HALL, M.D., BOSTON.

#### TOXIC AMBLYOPIAS.

De Schweinitz:[1] The first case of methyl-alcohol amaurosis was probably reported by Viger in 1877, and the next case was probably observed by Dr. Ray, who described it at a local medical society meeting in 1896. The reports of other cases followed in rapid succession. The pathway of entrance has usually been by the stomach, the methyl alcohol replacing ordinary alcoholic drinks. Cases of blindness resulting from the inhalation of methyl alcohol have been reported by the author and others. The amount of wood alcohol necessary to cause blindness varies in different cases, as the ingestion of from 2 to 5 dr. has resulted in atrophy, while recovery from a comatose condition resulting from drinking half a pint of this liquor has happened without visual disturbance. Methyl alcohol is used variously, combined with other substances, as, for instance, ordinary alcohol, wood alcohol and capsicum, or methyl alcohol with rye whiskey, or as the supernatant liquid derived from the precipitation of the gums in varnish by water. Also when used in the manufacture of bay rum or Jamaica ginger when they are taken to replace other alcoholic beverages.

The symptoms of this toxemia very briefly summarized are as follows: Intense gastro-intestinal disturbance, headache, dizziness, coma, rapid failure of sight followed by improvement and then relapses, contraction of the visual field, central scotoma, and finally, total or nearly total blindness. The variations noticed in the visual acuity from time to time are remarkable. The ophthalmoscopic changes consist in a blurring of the edges of the optic disc, sometimes a positive neuritis and sometimes a complete atrophy without antecedant inflammatory changes. There may be pain upon moving or by pressing upon the lids. There is no other form of blindness with an exactly similar clinical picture. The prognosis is very bad, being over 90% of reported cases. In view of the fact that this substance is used so much in the arts either as such, or as "Columbian Spirits," which latter is a liquid, containing about 95% of methyl alcohol, it seems proper that this drug should be labelled "poison," especially when the danger of gradual absorption and accumulation in the system of the unsuspecting artesan is considered. According to Burnett, workers in this substance are liable to dangers similar to those which surround workers in lead, bisulphide of carbon and dinitrobenzole. In 1897 Dr. Thompson reported the first of the Jamaica ginger cases, and about the same time attention was directed to the danger arising from the excessive use of the essence of peppermint which was then very prevalent in sections of this country. In 1898 Dr. Woods made the subject of Jamaica ginger blindness the subject of a report before the Baltimore Ophthalmological Society, in which he ascribes the blindness to a neuritis of toxic origin, and suggests the possibility of alcohol being the basis of it. In 1900 Dr. Harlan, aided by an expert chemist, demonstrated that it was neither the ginger nor the peppermint, but that the methyl alcohol was the cause of the blindness. It was found that the alcohol proportion which went to make up these essences was 75% methylic and 25% ethylic. The symptoms would seem to indicate a retrobulbar neuritis, but there is probably not the slightest doubt that in animals methyl alcohol like quinin and several other toxic agents acts upon the ganglion cells of the retina, and that the optic nerve changes are secondary. The same pathogenesis probably obtains in human beings.

Much attention has recently been paid to the pathogenesis of chronic alcohol and nicotine amblyopia and the apparently well-established path-

[1] Ophthalmological Record, April, 1902.

ological lesions of axial degeneration of the nerve following a neuritis have been disputed. In 1895 Nuel contended that the central toxic scotoma is not caused primarily by a neuritis of the macular bundle, but by a disease of the macula lutea, causing a degeneration of the ganglion cells, and that the optic nerve changes are secondary to the destruction of the nerve cells of the macula. Uhthoff strongly disputes this statement, however. Quite recently, however, Birsch-Hirschfeld has stated that he believes that there is no ground for the assumption of a primary interstitial inflammation of the optic nerve, as his investigations point rather toward a primary involvement of the nervous elements of the retina and nerve as a result of a specific action of the poison, with an accompanying proliferation of the glia, with a moderate increase in the connective tissue. Holden's demonstrations in 1898, that quinin blindness depends upon a degeneration of the ganglion cells, which causes an ascending degeneration of the optic nerve, and which he attributes to an ischemia produced by the drug, have been confirmed by Birsch-Hirschfeld in 1900. A few cases of blindness following the ingestion of salicylate of sodium, and very recently Snell reports absolute blindness in a girl of nine years who had taken from 140 to 160 gr. of the drug in sixty hours. Salicin santonin, thyroid preparations, the extract of hydrastis canadensis and felix mas have likewise caused visual disturbances. Cases of blindness ascribed to exposure to the fumes of exploded dynamite, sulphurous acid, illuminating gas, bisulphide of carbon and absorption of iodoform are receiving occasional mention.

ADRENALIN CHLORIDE IN OPHTHALMIC SURGERY.

G. A. Ferdinans, M.D.:[2] In 1896 Bates published his experiences with the solution of suprarenal extract as a hemostatic in ophthalmic surgery. Later Dor, Darier and others recorded their experiences, which proved that some more stable preparation was needed. John Abel separated an alkaloid which he named epinephrin, and found to cause conjunctival anemia and slight anesthesia. Bates found that it lessened congestion and promoted absorption. Wolffberg also reports the use of atrabilin, another preparation of the suprarenal bodies. Dr. Jokichi Takamine has separated an active principle of these bodies which he calls adrenalin, which is used as a solution in the form of a chloride. A convenient form for use is $\frac{1}{1000}$ in normal salt solution. It is colorless, odorless, sterile and stable if protected from light, heat and particularly oxidization. When instilled into a healthy eye there is at first a slight smarting, followed by blanching of the conjunctiva, which reaches a maximum in five minutes. It is non-irritating; does not cause mydriasis or anesthesia to any extent, nor does it affect the accommodation. Königstein noticed a mydriasis after the use of a 10% solution of the extract. When applied to an inflamed conjunctiva it gives relief by checking the congestion, acting somewhat like weak cocain solution. Several instillations may be necessary if the inflammation is acute. Chronic inflammations yield more readily to its action. The eye resumes its injected appearance in about fifteen minutes. It is absorbed into the anterior chamber and relieves the congestion of the iris. It in this way aids the action of atropin. It seems to promote absorption of serous exudates and corneal deposits. It also reduces tension according to Zimmerman, although Landolt differs with him in this respect. In operations it lessens the hemorrhage, especially if injected beneath the conjunctiva. After the constricting effect has passed away, increased hyperemia has been noticed. Although no toxic effect has been noticed, there is no reason why large doses introduced beneath the conjunctiva should not give rise to unpleasant symptoms. In action it seems to contract the muscular coats of the blood vessels, and by controlling hemorrhage aids in absorption. According to Grünbaum it does not cause clotting; consequently, in those cases where coagulation seems to take place more readily, it is probably because the bleeding has been scanty. It may be combined with atropin and cocain, but it had better be used alone and avoided in cases of scanty nutrition.

[2] British Medical Journal, March 22, 1902.

A NEW LOCALIZER FOR DETERMINING THE POSITION OF FOREIGN BODIES IN THE EYE BY THE RŒNTGEN RAYS.

L. W. Fox:[3] In order to minimize the difficulty experienced in determining from some finder of localizer opaque to the Rœntgen rays and placed outside the eye, the exact position of the foreign body, the author has devised a localizer which comes in contact with the anterior half of the eye, the geometrical shadow of which, projected on a photographic plate, aids in locating the foreign body in the orbit or eyeball. "This device consists of an oval band of gold or silver about .75 mm. wide, and so shaped as to conform to the shape and curves of the eyeball, and provided with gold strands crossing in front and dividing the instrument into quadrants. I sometimes form the localizer of different shape, using two concentric bands or circles with cross-wires, leaving a round clear space for the cornea." It is applied directly to a cocainized eye without impeding its rotation or following movement. The crossed wires are brought directly over the centre of the cornea, the photographic plate is placed in contact with the temple of the injured side, and the Crookes' tube is then placed so that the rays shall fall as nearly as possible perpendicularly upon the plate. If the foreign body lies within the shadow of the localizer it must be in front of the equator of the eyeball. Its distance behind the shadow of the instrument also determines its location either in the posterior part of the globe or orbit. A control test may be made by placing the plate in front of the eye and making the rays pass through the head. If the foreign body is very small and should lie below the shadow of

[3] Philadelphia Medical Journal, Feb. 1, 1902.

the localizer, an additional temporal occipito-frontal picture must be taken with the source of rays at a diverging angle and not perpendicular.

THE DIAGNOSIS OF LATENT FRONTAL SINUSITIS.

Shambaugh:[4] The condition is often unrecognized and lasts for years without giving rise to acute symptoms. There are several symptoms which should cause suspicion. A frontal headache, dull or throbbing, coming on in the morning and passing away toward noon, and relieved by cocain applied at the duct in middle meatus, is sometimes present. Tenderness over the affected side is of greater significance, though it may not be noticed if pus is found in the nose. Transillumination is apt to be negative. In old cases secondary degenerative changes are found to affect the mucous membrane about the nasofrontal duct of the middle meatus. Polypoid degeneration frequently affects the anterior end of the middle turbinate and a corresponding point of the septum. Along the concave edge will frequently be seen a red odematous area that may be reduced by a drop of cocain. A discharge of pus in the morning followed by cessation for a number of hours is rather significant for anatomical reasons. With the middle meatus freely opened by resection of the anterior end of the middle turbinate, or by snaring of polyps if any are present, the presence of pus in the sinus may be determined by catheter and irrigation, by exclusion or by exploratory opening.

The writer describes carefully the method of introducing a probe, followed by a catheter, and how to avoid various obstacles that may be encountered. Where the catheter cannot be introduced into the frontal sinus, he eliminates the maxillary sinus as a factor by either irrigating the sinus through its normal opening or introducing a curved trocar just above the inferior turbinate. After washing thoroughly and drying the nose, and waiting a few minutes if pus is still found, it must come either from the anterior ethmoid cells or the frontal sinus. The opening into the anterior ethmoid cells, placed in the angle between the bulla and the base of the middle turbinate, is separated far enough from the ostium frontalis, so that pus coming from the former can be distinguished from that coming from the opening in the nasofrontal duct. He advises an exploratory puncture when the other methods fail to give satisfactory results, thinks the nasal operation too dangerous, and advises an incision beneath the inner end of the eyebrow.

IODIPIN IN OCULAR THERAPEUTICS.

Von Hymmen:[5] calls attention to the discomforts attendant upon the use of large doses of iodide of potash, and recommends the combination of oil of sesame and iodine, known as iodipin. The drug can be borne for long periods of time. Its elimination is so very slow that traces of it can be found in the urine fifty-three days after administration. It may be given by the mouth in 10% strength, six teaspoonfuls a day, or as the oil enclosed in capsules. It may be given subcutaneously in 10 or 15 cgm. doses of 25% strength solution every two or three days. It may also be given by inunction. It can be given in all conditions where iodide of potash has been found useful, and has succeeded better in syphilitic affections, tumors, chronic inflammatory exudates and paralyses.

Bartholow[6] has been prescribing a combination of iodipin and phosphorus, $\frac{1}{50}$ gr. of phosphorus in 10 minims of iodipin of 25% strength. It is a dark reddish-brown liquid, having an odor of garlic. It can be used internally in doses three or four times as large as when employed hypodermically, but is far more effective by the latter method. It causes some smarting and burning along the site of the injection, which does not last very long and does not give rise to inflammatory nodules. The depression on each side of the spinal column is recommended as the best place for the injections. The liquid, being somewhat viscid, must be slightly warmed, as also must be the syringe, which should be provided with a needle of rather larger calibre than usual and with a good cutting point. It has been observed on the Continent that the largest doses of iodipin do not cause iodism, which is explained by the character of the combination of the iodin and sesame oil, whereby the former is given out so slowly that symptoms of iodism do not appear. Toxic symptoms of the drug have not been noticed, although he has given $\frac{1}{10}$ gr. repeatedly. It seems to promote the nutrition, to increase the body weight, and to modify the symptoms of various nervous affections.

OPHTHALMIA A NOTIFIABLE DISEASE.[7]

The Board of Health (New York) has declared ophthalmia, both acute and chronic, to be a contagious disease, under which decision physicians will be required to report promptly to the Health Department all cases of the disease that they may find. The Board of Education will be asked to lend its aid toward stamping the disease out of the public schools, where it is now prevalent.

THE PATHOLOGY OF AMAUROTIC FAMILY IDIOCY.

Shaffer:[8] This is the case of a child, of Jewish parentage, whose birth was normal. When ten months the extremities became rigid and a well-marked apathy developed. The presence of cerebral diplegia could be determined with contracture of the flexors of the upper extremity. The fundus was typical; papillæ normal, bluish-gray spot, two disk diameters in size, with indefinite margins and red central spot. Family history negative; brothers and sisters healthy. Macroscopically, nothing abnormal was noticed about the brain or spinal cord. Weigert's stain revealed extensive degeneration in the cortex of the cerebrum and in the lateral pyramidal tracts

[4] American Journal Medical Sciences, March, 1902.
[5] La Clinique Ophthal., Jan. 10, 1902.
[6] American Medicine, July 26, 1902.
[7] Medical Record, June 14, 1902.
[8] Wien. klin. Rundsch., April 20, 1902.

of the cord, and only the ascending spinal, bulbar and cerebellar tracts approached normal.

PARALYSIS OF THE EXTERNAL OCULOMOTOR NERVE AS THE ONLY SYMPTOM OF A TRAUMATIC RUPTURE OF THE INTERNAL CAROTID ARTERY IN THE CAVERNOUS SINUS.

Nuel:[9] Immediately after an injury at internal angle of left eye by pointed end of an umbrella, a boy of fourteen became unconscious, with vertigo, vomiting and headache. There was ecchymosis of both lids, especially the lower. Three weeks later there was diplopia and strabismus. Objectively there could be nothing observed but a complete paralysis of the external rectus and a slight scar. The fundus was not examined. In three months the patient died of an apoplectiform attack without developing other symptoms. The post-mortem developed a profuse hemorrhage at the base, especially on the left, with a slight invasion of the lateral ventricles. Upon lifting the brain there was found a varicose dilatation of the left cavernous sinus backward, a rupture of which had produced the fatal hemorrhage. Detailed dissection of the varicosity revealed a perforation in the anterior and posterior areas of the internal carotid cavity within the sinus. The abducens nerve was fixed on the posterior surface of the sack and was atrophied from elongation. The various veins leading from the sinus and surrounding osseous structures were normal. The author believes that the artery was injured directly at the time of the accident, with later development of an arteriovenous aneurism.

A review of the literature on this subject shows that this form of paralysis is very frequent and often the earliest symptom of vascular dilatation situated in this region, either with or without exophthalmos, subjective or objective bruits, and palsy of the other ocular nerves. In head injuries, paralysis of the abducens has been held to indicate fracture of the petrous bone, yet there are only four cases on record where the condition could be thus explained, and in which there was absence of lesion of the carotid artery.

THE METHOD OF DOR IN DETACHMENT OF THE RETINA.

Gallus:[10] In 1895 Dor reported his method of treating this condition, which consisted cauterizing the sclera over the point of detachment, and at the same time injecting salt solution under the conjunctiva. Finally the artificial leech was employed; also rest in bed. He reported fifteen cases and nine cures. Gallus has tried it in eight cases with reattachment in every case within about eight days after commencement of treatment. Generally the vision improved. Treatment was of benefit in relapses. He is sceptical as to permanency, as some of his cases suffered relapses.

*(To be continued.)*

[9] Archiv. d'Ophthal., December, 1901.
[10] Zeitschr. f. Augenheilk., December, 1901.

# Reports of Societies.

## SUFFOLK DISTRICT MEDICAL SOCIETY. SECTION FOR OBSTETRICS AND DISEASES OF WOMEN.

W. H. GRANT, M.D., SECRETARY.

Regular meeting, Feb. 26, 1902, Dr. E. S. Boland in the chair.

Dr. W. H. Conant read a paper entitled

THE MODERN OPERATION FOR RADICAL CURE OF UMBILICAL HERNIA.[1]

Dr. C. G. Cumston: I endorse all that has been said. I have always considered the operation indicated in umbilical as well as in any other variety of hernia. Up to August last I had been doing the flap-splitting operation for umbilical hernia, but since reading Dr. Mayo's article I have been following his method, which I consider the best, with possibly the exception of that proposed this evening by Dr. Conant. In Mayo's operation the sac is not opened until the ring has been reached, and this is possibly better, as there is no intra-abdominal manipulation. I have operated on four cases by Mayo's technique, and they have all done well. One, a child of three years, made a perfect recovery. This is a much more rapid operation, and requires less stitching than the Basini. The first case I ever operated on for the radical cure of umbilical hernia died septic, and I believe that the intense erythema of the skin was the cause of infection.

Dr. E. W. Cushing: I heartily support Dr. Conant's views, and always operate before a bad condition is reached. I consider this the safest abdominal operation that can be done, and think the profession are not cognizant of the good results to be obtained from it. Where the intestines are adherent, there separation is not as easy as Dr. Conant would imply. It requires considerable caution to get into the sac, and skill to dissect out its contents. As for dissecting the whole sac out from the surrounding fat, that is often extremely difficult or impossible, owing to the existence of diverticular or pockets. In closing the wound when the abdominal wall is very thick, I have found Segond's figure-of-eight stitch very good, as the upper loop goes outside of all the various pockets and pulls them together, while the lower loop holds the edges of the fascia well together. The first operation ever performed in this city caused considerable trouble in the medical fraternity, concerning which I may speak at some future time.

Dr. Boland: Like cancer of the breast, women say nothing about it until safety of operation in these cases is past. In the last ten years I have seen five cases, in one of which the consulting physician advised the application of ice poultices, and the patient died. Two cases required two operations before recovery, but they are now well. The other two were each cured by one

[1] See page 400 of the Journal.

operation. The profession seems to be very slow to appreciate that these cases are operable and curable. I find women wearing uncomfortable belts or trusses which are a constant source of danger to their lives.

DR. CONANT: I wish to speak of one thing in closing. My operation deals only with the omental form. When the intestines are adherent it is entirely different, as there is nothing to be done but the slow operation. In one case where rapid method was used, while the operation was successful, I would not do it again. I have only seen two or three cases in which the intestines were in the sac; this is not counting in two cases of strangulation. As soon as the plugs of the omentum are free the intestines slip into the abdomen. In a third case, which was very severe, intestinal strangulation and obstruction existed, and only patience and extreme tying off succeeded.

## AMERICAN NEUROLOGICAL ASSOCIATION.

TWENTY-EIGHTH ANNUAL MEETING, HELD AT THE NEW YORK ACADEMY OF MEDICINE, JUNE 5, 6 AND 7, 1902, DR. JOSEPH COLLINS OF NEW YORK, PRESIDENT, IN THE CHAIR.

### SECOND DAY.

(Concluded from No. 14, p. 385.)

### SARCOMA OF THE THIRD CERVICAL SEGMENT OF THE SPINAL CORD. OPERATION. RECOVERY.

THIS was the report of a case by DRS. JAMES W. PUTNAM and WILLIAM C. KRAUSS of Buffalo. The patient was a man forty-five years of age. He had always been in good health and without history of injury. Two years ago he had attacks of sharp pain in the back of the neck radiating to the occiput. These increased in frequency, and were at times accompanied by vertigo. Later, numbness and weakness developed in both hands and arms. Then the legs became similarly affected until he was unable to walk. Motion was entirely lost in the muscles of the left arm and leg. There was some power in all of the muscles of the right arm and right leg. No muscular rigidity. All of the reflexes were highly exaggerated, with the presence of patellar and ankle clonus and the Babinski reflex. Loss of control over the bladder and rectum. Total loss of sensation on both sides from the clavicle down. The vision was good and the pupils reacted readily to light. The diagnosis was made of tumor of the cervical portion of the cord and operation advised. This was done by Dr. Roswell Park, April 28, 1902, and a sarcoma involving the third cervical segment was found and removed. During the five weeks since the operation there has been some improvement, which still continues. The writers claim this case to be unique for the following reasons:

(1) It is the only tumor of the spinal cord affecting the upper cervical region which has been so far recorded.

(2) It is the only cervical cord tumor which has gone on to an uninterrupted course toward recovery.

(3) It was definitely located and quickly removed without sacrifice of spinous processes and laminæ and the short incision made a remarkably rapid closure.

(4) From the surgeon's standpoint it was located in the most inaccessible portion of the spinal cord,— by virtue of the cervical curvature of the spinal column,— offering a concave field for operation instead of a convex field.

(5) It is the only tumor of the cervical segment of the cord in which distinct phrenic nerve disturbances were noted.

DR. J. H. LLOYD of Philadelphia said that tumors of the spinal cord are rare, and therefore operations for their relief must be correspondingly rare. The subject of operation upon spinal tumors has been a matter of recent development. He had had two cases that were operated upon for spinal tumor. The case reported was an unusually successful one when we consider that the operation was done in a dangerous region of the cord.

DR. WALTON said that his experience in a continuous series of cases properly located showed that the operation had not been attended with very good results. The readers of the paper had shown that the posture of the patient during the operation embarrassed the respiration. It seemed to him that in some of these cases of embarrassed respiration that it must be laid to another cause, which is most likely pressure upon the phrenic nerve.

DR. FRAENKEL referred to a tumor which was supposed to be situated at a certain portion of the spinal cord. The tumor was not found at the time of the operation, because it was performed one-quarter of an inch below the tumor. The patient died two days later and the tumor was found near the entrance of the foramen magnum. He thought that caudal tumors were more important than tumors situated in other parts of the cord, because we can offer a much better prognosis.

DR. J. J. PUTNAM of Boston mentioned three cases that had been operated upon in the Massachusetts General Hospital. In one case the tumor proved to be a sarcoma surrounding the dura like a collar, at the junction of the cervical and dorsal cord. This patient was very stout and had embarrassed breathing during the operation. He died. Another case proved to be a cancer in the lower dorsal region. This also surrounded the dura like a collar, growing anteriorly. This patient suffered much pain. The nerve roots were severed and the pain was lessened. In the third patient the symptoms of tumor were perfectly characteristic, yet the tumor was not found. The nerve roots were severed, from which much relief followed.

DR. J. W. PUTNAM in closing said that when the tumor was removed from the cord it showed that compression had been exerted upon the cord

by a cup-like depression which was on both sides of the median line. The delay before operation was due to the obstinacy of the family physician, who insisted that there was no tumor present, but that it was a case of hysteria. The patient is going on to incomplete recovery.

### HYSTERIA MAJOR AND ITS DIFFERENTIATION FROM ORGANIC DISEASE.

Dr. C. L. Dana of New York reported three cases of major hysteria combined with organic disease. One was that of a woman who suffered from paralysis of all four extremities, due apparently to alcoholism and neuritis, but really a typical case of hysterical paralysis with contractures. Another case was that of a woman who had fracture of the spine and crushing of the first lumbar segment of the cord, with paraplegia, but who had in addition anesthesias extending over all of one side of the body and involving the special senses, with other evidences of a complicating hysteria. The third case was a tunnel accident patient who had fracture of the ribs and burning of the hand, with complicating anesthetic hysteria.

The speaker divided the syndrome of hysteria into five groups: (1) Anesthesia; (2) paralysis and tremor; (3) contractures; (4) attacks or crisis; (5) the mental state.

The characteristics of the anesthesias were their appearance in the hemi-anesthetic type and in the segmental type. He did not believe in the so-called "spots of anesthesia." The anesthesias were generally diffused, but did not usually have such sharp differentiation as in syringomyelia, though the loss of pain sense was generally more complete than that of touch. There was very rarely any loss of deep sensibility, with ataxia or astereognosis. The contractures when of a fixed type were very severe and persistent and rarely disappeared in sleep. They were not accompanied by pain or cramps or exaggeration of reflexes. The speaker spoke at some length on the peculiar and, as he believed, characteristic mental state of the major hysterical.

Dr. Knapp did not believe that anesthesia was a less grave and less permanent condition than the paralysis and contracture of hysteria. He had seen a considerable number of cases in which the anesthesia was one of the chief stigmata of the disease without any paralysis or contracture. Of course, anesthesia is often absent. He had never observed anesthesia involving the middle segment of the body. Hysterical paraplegia was an extremely rare condition.

Dr. B. Onuf of New York had seen two cases of hysterical paraplegia, one being associated with loss of all forms of sensation in the lower extremities.

Dr. Prince agreed with Dr. Dana that isolated scattered areas of anesthesia were extremely rare. With regard to the nature of hysteria, he believed that some time in the future we shall be able to show a cerebral localization just as we now show in many cases of organic paralysis.

Dr. Mills said that the differentiation between the symptom-complex of organic disease and hysteria had to do with the persistence of the phenomena. In hysteria he had found a distinct feature to be hyperesthesia rather than anesthesia. In hysterical cases the anesthesia is more likely to affect the proximal portion of the limb. It was rare for him to see cases of hysterical paraplegia. Persistent contractures are rare in true hysteria. There may be pseudo-contractures. The deep reflexes are often exaggerated, but never extremely so, without the presence of ankle clonus. We may therefore have anything and everything in hysteria.

Dr. J. J. Putnam of Boston was in full accord with what had been stated. When we have an organic lesion in some part of the nervous system, we are not able to explain the anatomical distribution of the anesthesia. He thought we could not explain the anesthesia of distal portions of the limbs on anatomical grounds.

Dr. Joseph Fraenkel of New York mentioned the fact that in organic anesthesia the skin reflexes were absent in that area, while in hysterical anesthesia the reflexes were usually increased.

Dr. Dana, in closing, said he firmly believed that major hysteria may be recognized and differentiated from organic disease. Organic disease does not present a picture like it, and it is time for us to accentuate that fact. The idea that hysteria may simulate everything is not true. It is quite true and characteristic, however, to have a reduction of the tactile sense in hysteria.

### FOCAL LESION OF THE UPPER CERVICAL CORD.

Dr. F. X. Dercum of Philadelphia reported a case of progressive paralysis of all of the extremities from a focal lesion of the upper cervical cord.

### RAYNAUD'S DISEASE.

Dr. B. Onuf of Brooklyn read a paper on this subject, with special reference to the etiology, pathogenesis and nosology.

### THE MECHANISM OF THE PLANTAR REFLEX.

Dr. P. C. Knapp of Boston read a paper on this subject in which he stated that the normal plantar reflex is dependent upon a reflex arc extending to the cerebral cortex, and disappears when a certain portion of that arc is destroyed. A wholly new reflex (the Babinski reflex) may take its place under such circumstances. He also spoke of the crossed plantar reflex, and its possible significance, when the normal uncrossed reflex has disappeared.

Dr. Walton was in full accord with the present views, that crossed reflexes depend upon the diffusion of stimuli through the commissural fibres in the cord and in the pons and subthalamic region, without reference to the cortex.

### CEREBRAL ABSCESS.

Dr. William M. Leszynsky of New York read a report and exhibited the brains from two cases of cerebral abscess. The first case was that

of a women thirty years of age. On admission to the hospital, there was evidence of purulent mastoid disease, which was successfully subjected to surgical operation. One week later, there occurred headache and a general convulsion followed by hebetude. The next day she had nine general convulsions and remained semi-comatose for several hours. The pupils, optic axes and eye-grounds were normal. There were no signs of focal brain disease. The temperature ranged from 100° to 103° F., pulse 82 to 112. The following day she was able to answer questions, the hebetude cleared, she took nourishment well, and the pulse and temperature became normal. She remained in a clear state of mind for five days and seemed to be improving. She then gradually became comatose, and died. On account of the decided improvement, exploratory operation had been delayed. The autopsy revealed an otitic abscess in the left temporosphenoidal lobe communicating with a larger abscess cavity in the frontal lobe.

The second case was in a man thirty-one years of age. After exposure to cold there had been chills, fever, profuse sweating, severe frontal and temporal headache, followed by acute rhinitis, and cough with slight mucous expectoration. Six days later he entered the hospital. There was no history or evidence of ear disease. Temperature 102°, pulse 98. There was extreme tenderness over the frontal bone and a muco-purulent discharge from the left nostril. Both frontal sinuses were opened but no pus was found. Dr. Leszynsky saw him the following day (one week after admission to the hospital). He was much emaciated, with a rapid, feeble pulse, and in a condition of marked mental hebetude. There were motor aphasia and right hemiplegia, with exaggerated reflexes and ankle clonus. The diagnosis was made of a cerebral abscess situated either in the frontal or temporal lobe on the left side, and immediate operation was advised.

The operation was attempted but not completed. Death took place four hours later. The autopsy showed purulent meningitis over the left convexity, involving the frontal and temporal lobes, and an abscess in the anterior portion of the left temperosphenoid lobe. This abscess, probably of metastatic origin, had ruptured through the cortex, thus causing the purulent meningitis. There was no evidence of cranial bone disease. A large empyema was found in the right pleural cavity.

### PARTIAL INTERNAL HYDROCEPHALUS.

DR. WILLIAM G. SPILLER of Philadelphia reported two cases, one resulting from partial closure of the foramen of Monro by an inflammatory exudate; the other, from occlusion of the aqueduct of Sylvius by proliferation of the neuroglia. He also spoke of the existence of intense bilateral contracture in the first case, resulting from an unilateral cerebral lesion — a condition very little known — and of symptoms of cerebellar tumor in the second case, caused by the internal hydrocephalus.

### ACROMEGALY WITH DIABETES.

DR. ADOLF MEYER reported a case with the usual tumor of the hypophysis. The growth of the tumor had separated a portion of the nervous part of the hypophysis from the rest, which remained connected with the tuber cinerium.

DR. MEYER also reported six instances of a peculiar terminal disorder in cases of melancholia, depressive hallucinosis and alcoholicosenile delirium. After a course not different from that in other cases, the patients develop weakness, rigidity of all the muscles to passive motion, and a jerking tremor and grimacing, usually with diarrhea, irregular temperature, accentuation of the delirious condition, and finally, termination with bronchopneumonia. It is not unlike certain forms of gastric tetany. The condition is one of parenchymatous alteration, chiefly of central elements, analogous to what happens in the peripheral nerves in parenchymatous peripheral neuritis, and for the sake of brevity the provisional term central neuritis may be used. Whether the disease begins in the fibres or the cell-bodies, or whether a definite toxic agent can be found, must be left to further investigation.

### ARTERIOSCLEROSIS OF THE SPINAL CORD.

This was the title of a paper by DR. WILLIAM HIRSCH of New York. He considered arteriosclerosis of the spinal cord a condition which is only rarely diagnosticated. The clinical symptoms may vary according to the affection of the blood vessels. The anterior half of the cord is apt to suffer more from sclerotic changes in the arteries than the posterior part, and the lower more than the upper part. This is due to the peculiarity of the blood supply of the spinal cord, the anastomosis of the posterior half being more abundant than that of the anterior half, so that in case of an obstruction the cells can derive their nutrition from other sources. Nine cases were reported in which the diagnosis of spinal arteriosclerosis was made during life. Some of them were combined with sclerosis of the cerebral arteries. In one case an autopsy was performed which revealed arteriosclerosis throughout the entire central nervous system. The motor cells of the anterior horns showed a marked increase of pigmentation, while the cells of the posterior horns appeared perfectly normal.

DR. J. J. PUTNAM said that such cases had been described in a group of cases seen by him. Atrophic optic nerves were observed once or twice in diffusive spinal degeneration.

DR. SPILLER had been interested in this subject for several years. He said that the reader of the paper had not spoken of paralysis agitans, which has been regarded as a senile form of disease. In many such cases he had found arteriosclerosis. He was surprised to hear it said that the anterior half of the cord was more affected than the posterior, for that had not been his experience. Sometimes, undoubtedly, there is an arteriosclerosis in the lower extremities, but that

can hardly be explained by any greater involvment of the lower portion of the spinal cord.

Dr. Leszynsky said that in people at an advanced age, and in others with arteriosclerosis, it was not unusual to find evidence of degeneration in the peripheral nerves. This would often explain the loss of the knee jerks and many other symptoms affecting the lower extremities. In his opinion it was always safe to make a diagnosis of spinal arteriosclerosis in the presence of generalized arteriosclerosis.

Dr. Hirsch, in closing, said he did not mention paralysis agitans because it could be excluded in the differential diagnosis.

### ACUTE HEMORRHAGIC CORTICAL ENCEPHALITIS.

This was the title of a paper by Dr. Herman H. Hoppe of Cincinnati. He said that the study of cortical encephalitis is more necessary and of more practical utility than that of Wernicke's form of pontine encephalitis. The cause of the disease is usually one of the acute infectious diseases, measles and influenza being the most frequent, the bacillus of the latter disease having been found in the hemorrhagic areas. Alcohol, ptomaine poisoning and the various metallic poisonings are doubtful etiological factors. Early childhood is the most frequent age. The clinical history was illustrated by three cases: Case 1: Acute hemorrhagic influenza encephalitis ending in death on the fourteenth day. Case 2: General delirium, with aphasia and paraphasia; paresis of right side of face and arm. Recovery with defective speech. Case 3: Complication in third week of typhoid fever. Sudden onset of delirium with hallucinations. Paresis of right side of face, tongue and arm; amnesic aphasia. Recovery, with defective speech.

The author said that the diagnosis of true encephalitis is not always made by the clinical history. The diagnosis of toxemia without a true encephalitis would better explain several of the cases recorded as occurring in connection with typhoid fever. He would not regard cases as encephalitis which, on post-mortem examination, did not show the evidences of that condition.

### DIVISION OF THE POSTERIOR SPINAL ROOTS FOR AMPUTATION NEURALGIA.

This was the report of a case by Dr. P. C. Knapp of Boston, who said that this is sometimes the only effectual operation, but it is not devoid of danger. His case resulted fatally. Removal of neuromata or resection of the nerves sometimes gives no relief, and degeneration in the distal end of the severed nerves is not complete. There may be preservation of sensibility, with relief of pain after division of the four posterior spinal roots.

Dr. Spiller has seen a case almost exactly like the one just reported. The man had had an injury of the upper limb which had been amputated near the shoulder. Three operations had been done for the relief of pain in the stump. There were also involuntary jerkings in the stump. Division of the posterior roots was advised, but the operation was not urged, for it has been shown to be serious. One patient died upon the table, and another was not benefited.

### HERPES ZOSTER AND PARALYSIS.

Dr. P. C. Knapp of Boston exhibited diagrams of a case of zoster, with eruption, hyperesthesia and degenerative paralysis in the region supplied by the fifth and sixth cervical segments.

## THIRD DAY.

### PSEUDO-EPILEPSIES AND THE RELIEF OF SOME FORMS BY THYROID.

This was the title of a paper by Dr. William Browning of Brooklyn. Details of a few cases were given and some of the points made were summarized as follows: In the young there occurs a class of cases characterized by recurrent attacks of heterogeneous type, that may be called "pseudo-epilepsy." This form of trouble is curable. The cases studied were due to, or associated with disturbances in the general tissue metabolism of the body. Some of these are in whole or in part of rachitic origin. Troubles of this kind when due to rachitis are amenable to thyroid treatment. True epilepsy is not remedied by thyroid, even in a person who was once rachitic. It is evident that in many cases there is a closer relationship between rachitis and athyrosis than has heretofore been recognized. There must be a relative inadequacy of the thyroid function in these cases associated with rickets. Either, as one of the cases indicated, there is a serious impairment of the activity of the gland, or thyroid feeding serves to burn up harmful material at large in the system.

Dr. D. D. Fisher of New York said that children without real symptoms of myxedema or cretinism seem to improve under thyroid treatment. He thought the use of thyroid was deserving of trial in the class of cases reported by Dr. Browning.

Dr. Langdon expressed the view that in such cases of epilepsy, the convulsions not being due to injury or to a toxemia, occurring in the developmental age, are in some measure due to defects in the neuron or a chemical condition. The phenomena seem to indicate a defect in structure, and we must look for improvement or recovery in the direction of complete development.

Dr. J. J. Putnam referred to the case of a girl, sixteen years old, who had been treated with bromides for so-called epilepsy. When she came under his care he found in association with her convulsive seizures a condition of ichthyosis. After the ichthyosis had been vigorously treated for a few days locally and with thyroid extract, and cessation of the bromide treatment, she began to improve, and the interval between the seizures increased by several weeks. He was of the opinion that so-called epilepsy is often the result

of nutritional changes. These cases should not be classed as epilepsy until the convulsive habit has lasted long after the original cause has been eliminated.

PSYCHOMOTOR EPILEPSY.

Dr. Ira Van Giesen of New York read a paper with this title. The work had been carried out at the Pathological Institute of the New York State hospitals under his directorship. The research consisted in reinstating into the patient's consciousness a series of upheavals of subconscious intervals accompanied by classical manifestations of epilepsy of which there was complete amnesia. The case related to a man, thirty-three years of age, who some months before coming under investigation had been having progressively frequent attacks of epilepsy and occasional attacks of petit mal. The attacks were preceded by an aura, consisting of a foul taste in the mouth, with a bad odor. At the time of admission there was also a tendency toward continuous amnesia in the epileptic interval. Under hypnosis patiently carried out, the patient succeeded in resurrecting the psychic content of the first attack, all of which it was possible to verify from eye-witnesses. It was found that the aura had its genesis in the patient's taking a piece of stale meat from a lunch counter and in his falling in the epileptic attack immediately afterwards. As one by one, starting from the first attack, the subsequent ones were thus synthesized into the patient's consciousness, the new attacks became correspondingly fewer. In all, about fifty of the attacks were reassociated with the patient's consciousness. As the series of fusion became complete, the attacks disappeared, the confusion and mild stupor in the interepileptic periods vanished, and for some months the patient has been back at his work and has had no attacks. The speaker announced that a volume of the "Archives of Neurology and Psychopathology" would shortly appear containing a detailed account of this case.

INSANITY WITH PECULIAR MOTOR MANIFESTATIONS.

This was the title of a paper by Dr. H. A. Tomlinson of St. Peter. The paper dealt with the motor manifestations in three cases of insanity, which simulated those resulting from organic disease. They illustrated in an extreme degree the usual forms of motor disturbance among the insane. Pseudo-catalepsy, spastic tremor, and subsequent rigidity in the first case, illustrated the irritative form; while blindness and paraplegia in the second case illustrated the paretic form. The entire annihilation of speech and voluntary movement in the third case, which was that of an idiot, suggested the pathology of these forms of motor involvement and their mode of origin; while the complete motor recovery in all of them showed that the functions of the motor area may be seriously interfered with or almost entirely annihilated without permanent lesion.

## Recent Literature.

*Sanatoria for Consumptives.* A Critical and Detailed Description, together with an Exposition of The Open-Air or Hygienic Treatment of Phthisis. By F. Rufenacht Walters, M.D., M.R.C.P., Fellow of the Royal College of Surgeons; Physician to the North London Hospital for Consumption and Diseases of the Chest. With an Introduction by Sir Richard Douglas Powell (Bart.), M.D., F.R.C.P. Second edition. London: Swan, Sonnenschein & Co. Ltd.; New York: E. P. Dutton & Co. 1902.

The present volume is an enlarged and partly rewritten edition of one published in 1899.

The last five years have seen a number of books dealing with the same subject, and compiling, more or less completely, descriptions of the various sanatoria devoted to the care of consumptives in Europe and America.

Dr. Walters' book gives the list of all the well-known institutions, and an unusually full account of many of the smaller establishments. His claim to especial merit, however, is the unusual clearness with which he sets forth the individuality of the different institutions, in construction and methods of administration. The fulness of detail and the many ground plans given of the smaller hospitals make the book of great help to one interested in the establishment of such a set of buildings.

As is inevitable in a book whose facts must at times be gathered second hand, some errors have now and then slipped in, for instance, speaking of the home in Denver, he says: "The Rocky Mountains protect it to the West." As it is twelve miles to foothills even, the protection is geographic rather than domiciliary.

The first sixteen chapters condense into eighty-three pages as clear and concise a statement of the principles involved in the sanatorium treatment of consumptives, and the fundamentals to be kept in mind in considering the sites for sanatoria, the sanatorium grounds, the construction, the cleansing, the management, the cost.

To anyone interested in the construction, equipment or management of a sanatorium, large or small, the volume will be of great interest.

*The Medical Students' Manual of Chemistry.* By R. A. Witthaus, A.M., M.D., Professor of Chemistry and Toxicology in Cornell University Medical School, New York. Fifth revised edition. Pp. 650, octavo, illustrated by wood engravings. New York: Wm. Wood & Co. 1902.

This book contains sections on physics, inorganic and organic chemistry, qualitative and quantitative analysis, physiological chemistry and toxicology. On account of the magnitude of these sciences it is obviously impossible to treat them at all adequately in a single textbook. It is, therefore, difficult to see why this sort of book is written when there are so many good and concise ones on each of these subjects.

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## INFANT MORTALITY IN FRANCE.

A prime contributing factor to the strength of nations is the birth-rate; still more may the excess of the birth-rate over the death-rate be considered an index of natural strength. The excess of the birth-rate over the death-rate in England, Russia, Germany and in the Scandinavian countries in the past twenty years or more has amounted to about ten or twelve in each thousand of the population. The birth-rate of England for the twenty-five years (1874-1898), for example, was 32.6 per 1,000 and the death-rate in the same time 19.4, leaving a substantial annual gain of 13.2 in the population. In France, on the contrary, the birth-rate during the same period of twenty-five years exceeded the death-rate by only 1.8 per 1,000, and in the most recent years the deaths have several times actually exceeded the births.

This deplorable condition must sooner or later reduce France to a second-rate position among the nations of the world unless successful measures are taken to remedy the depletion of the country. The subject has attracted the attention of political economists, and various scientific bodies have entered upon the discussion of the question, with a view to securing a satisfactory solution.

Among the measures suggested are the establishment of a system of national awards to the parents of large families of children, the amount increasing with the number born beyond a specified number, the establishment of *crêches* for the saving of infant life, and greater attention to the diminution of the death-rate from preventable diseases.

Among the more noted savants who have given attention to the subject is Dr. Bertillon, who, in the *Revue d'Hygiéne* for August, 1902,[1] discusses the subject of infant mortality among the infants in France who are supported at public charge. It appears that a law entitled "La loi Théophile Roussel," in honor of its author, had been enacted requiring an annual publication, under the charge of the minister of the interior, of a detailed statement "of the mortality of infants under one year old, and especially of those who are placed out to nurse, to be weaned or brought up by hand," at the public expense. The publication of this useful information had been neglected, and it is the intention of Dr. Bertillon in this paper to present the facts for the information of the public.

These statistics relate chiefly to those infants who are between the ages of ten days and one year.

The mortality of this class of infants in France was 203 per 1,000, while that of infants in general throughout the country, at the same ages, was only 128, so that the excess among this class over such infants generally throughout the country was nearly 60%.

The mortality among all infants under one year had increased from 160 per 1,000 births in the period 1840-1849, to 212 in the two years 1870-1871, and had again diminished to 161 in the five years 1894-1898.

The following table is presented, showing the infant mortality in different countries for two successive periods.

Deaths of Infants Under 1 Year per 1,000 Births.

| Countries. | 1874-1883 | 1884-1893. | Countries. | 1874-1883. | 1884-1893. |
|---|---|---|---|---|---|
| England and Wales | 143.9 | 146.4 | Switzerland | 186.4 | 159.3 |
| Scotland | 119.8 | 122.3 | Prussia | 215.7 | 207.5 |
| Ireland | 96.8 | 96.4 | Bavaria | 298.3 | 279.0 |
| Denmark | 140.6 | 136.1 | Holland | 204.3 | 174.5 |
| Norway | 103.7 | 96.3 | Belgium | 153.1 | 162.9 |
| Sweden | 128.0 | 107.1 | France | 165.4 | 168.3 |
| Russia | 265.4 | 268.6 | Spain | 191.7 | —— |
| Austria | 250.8 | 247.3 | Italy | 207.9 | 190.4 |

From the foregoing table it appears that in the majority of these countries, and especially among the Scandinavian nations, there has been a considerable diminution of the infantile death-rate, comparing the early and later periods.

A noteworthy fact in relation to the mortality at different periods of life is to be found in the figures presented for the different ages, wherein it appears that, contrary to the ordinary tables the greatest mortality occurs, not in the first days of infant life, but in the second and third weeks. That of infants in general occurs in the

[1] Du dégré d'efficacite de la loi du 24 Decembre, 1874; sur la mortalité des enfants du premier âge, Rev. d' Hygiéne, 1902, p. 690..

first week of life. The following table illustrates this:

Infant Mortality by Age Periods. France, 1898.

| Ages. | Deaths per day out of each 1,000. | |
|---|---|---|
| | Infants supported at public expense. | Infants in general. |
| 0-4 days old | 0.67 | 3.75 |
| 5-9 " " | 1.38 | 1.80 |
| 10-14 " " | 3.10 | 1.84 |
| 15-29 " " | 2.57 | 1.23 |
| 30-90 " " | 1.16 | 0.65 |
| 91-180 " " | 0.71 | 0.43 |
| 181-365 " " | 0.39 | 0.28 |

Dr. Bertillon explains this paradox by stating that parents having newborn children who are at the point of death, hesitate to send them out to be nursed or weaned, believing that their chances of dying would thereby become greater.

Among the causes of death, diarrhea appears to be the prominent cause, and next in order are unknown causes, acute lung diseases, congenital debility and convulsions. The mortality from diarrhea among infants ten to twenty days old is ten times as great as that of infants five months old and over. The mortality of illegitimate infants at each age period during the first year is about twice that of legitimate infants.

Five excellent graphic charts accompany this monograph, illustrating the comparative mortality of this class of infants in each of the Departments of France, at different periods of time from 1840 to 1898.

## PANCREATITIS.

At the last meeting of the American Medical Association Dr. Wm. J. Mayo read before the section in surgery and anatomy, a paper entitled "The Surgical Aspects of Pancreatitis," which has recently appeared in the journal of the association. After considering the history of the now well-recognized disease, which dates from Balzer's work in 1879, and the various researches of an experimental sort which have thrown light on the general question, Dr. Mayo concludes that biliary calculi occupy the most important position in the causation of pancreatitis, and that the form of the disease depends largely upon the degree of obstruction and of infection or chemical irritation which takes place. Gallstones, for example, occurred in ten out of thirteen cases of acute pancreatitis recently operated upon.

It is also well recognized that pancreatitis may occur independently of gallstone disease, by infections from the gastro-intestinal tract, and that at times no external cause can be found. Attention is drawn to the fact, which is of much importance, that our records are probably inaccurate as regards the mortality of the disease. Comparatively few cases operated on have recovered, and it is supposed that various hitherto unexplained complications in operations on the biliary tract, in which the patients have eventually recovered, may have been due to an unrecognized pancreatitis. From this it is concluded that probably pancreatitis is not so fatal a disease as our hitherto limited knowledge would lead us to believe. Owing to the fact that the affection is often marked by hemorrhage into or about the pancreas, it has been called acute hemorrhagic pancreatitis, and this without regard to whether the hemorrhage was a prominent factor or not; in other cases fat necrosis has entered so largely into the pathological appearances that the pancreas, as such, has been ignored. In the hemorrhagic form death usually results in a few days or even hours. If the patient survives this critical period, drainage is often called for and affords the best chance for relief. In the few cases of recovery which have been reported, drainage was prolonged from weeks to months. A common and interesting phenomenon associated with acute pancreatitis is fat necrosis, which may coexist with hemorrhage or may occur in the non-hemorrhagic form. The treatment of chronic pancreatitis urged by Dr. Mayo is drainage by way of the gall bladder. In seven well-marked cases all recovered — four treated by cholecystostomy and three by cholecystenterostomy.

In the discussion which followed the reading of the paper, Dr. J. C. Munro of Boston agreed with Dr. Mayo that pancreatitis is probably more common than the books teach, and alluded to the fact that a certain proportion of cases recover spontaneously. He quoted cases seen by himself, and by Drs. Paul Thorndike and F. B. Lund, in which there had been several recoveries following operation. In the hope of encouraging an early diagnosis without recourse to time-taking laboratory methods Dr. Munro made the following suggestions: A history of preceding attacks; vomiting, with sudden acute abdominal pain in fat patients; abdominal distention with moderate spasm; tenderness in upper abdomen; the facies, not peritonitic; slight or fleeting jaundice; previous history of gallstones.

The discussion on the part of various other surgeons showed a considerable amount of personal experience, and emphasized the fact that pancreatitis is coming to the forefront of medical interest. This means, no doubt, more accurate diagnosis and consequent prompt operation when operation is required, with the usual reduction in mortality which comes from this combination.

## MEDICAL NOTES.

Changes in Medical Faculty at University of Pennsylvania.— Dr. Charles H. Frazier has been appointed dean of the medical school, to succeed Dr. John Marshall. It is announced that Dr. Frazier will retain his position as professor of clinical surgery. Dr. George de Schweinitz will enter upon his duties as professor of ophthalmology.— *American Medicine.*

Slow Growth of Population in France.— It is said that at a recent meeting of the Academy of Moral Sciences in Paris, statistics were presented showing that since 1801 the population of France has increased by only 44%, while that of the rest of Europe has increased by 129%.

A Centenarian.— Mrs. Eva Devoe died in Syracuse, N. Y., Oct. 6, at the reputed age of 100 years and 3 months. Until the last few weeks she had been in comparatively good health, with faculties keen.

Cholera in Egypt.— It is reported that the cholera epidemic in Egypt is rapidly disappearing. Several of the large cities are now almost free of the disease as well as the province of Assouan.

### BOSTON AND NEW ENGLAND.

Acute Infectious Diseases in Boston.— For the week ending at noon, Oct. 8, 1902, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: Diphtheria 41, scarlatina 42, measles 2, typhoid fever 44, smallpox 9.

Appropriations for Hospital Improvements. — Among the items of the loan bill recently passed by the Boston City Government are the following: Ambulance station and equipment, East Boston, $18,000; furnishing of three new buildings, City Hospital, $35,500; completing, furnishing and fitting a hospital wing and nurses' home at the Long Island Hospital, $11,000; for a mortuary and receiving-room at the same institution, $10,000. The hospital for epidemic diseases under the jurisdiction of the Board of Health also receives $4,000 for various improvements.

Lowell (Mass.) Board of Health Includes Consumption Among Contagious Diseases.— The Lowell Board of Health has included tuberculosis in the list of contagious diseases, and requires physicians to report every case. Notifications to this effect have been sent to physicians throughout the city. Dr. Holbrook of the Health Board is reported to have said: "The insertion of 'tuberculosis' in our by-laws merely means that the department shall be aware of the number of cases in the city and have the authority to regulate the method of treatment. After our system gets into proper working order we may provide receptacles for the sputum of the consumptive and make other such provisions, so as to prevent a spread of the disease."

Typhoid Fever in Cambridge.— During the month of September there were only five cases of typhoid fever reported to the Cambridge Board of Health against twenty-seven cases reported during the corresponding month last year. For the nine months of this year there have been ninety cases reported, while for the first nine months of last year there were only thirty-five cases reported. Although there were ninety-six cases for the year of 1901, there were forty-five during the months of September and October, when typhoid fever is ordinarily prevalent, which is accountable for the large total.

A Confusion of Terms.— The daily papers are apparently having somewhat unusual difficulties in stating a medical fact. One of our reliable Boston contemporaries has made the statement that Dr. Maurice H. Richardson has been appointed "associate professor of clinical medicine," and another in the West has honored him with an appointment to the chair of "criminal surgery." As stated in our issue of last week the actual appointment is "associate professor of clinical surgery."

A Centenarian.— Mrs. Adeline Dorette Walker, said to have been 102 years and five months old, died at Peak's Island, Portland Harbor, last week. She was born in Philadelphia, April 6, 1800. She was the mother of twelve children.

John R. Ham, M.D.— Dr. John R. Ham, who has practised in Dover, N. H., since his muster out as surgeon in the Civil War, has removed to Malabar, Florida, where he will combine the practice of medicine with the raising of citrus fruits.

Bequest to Massachusetts Eye and Ear Infirmary.— Among the bequests for charity of the late Susan J. White, the Massachusetts Eye and Ear Infirmary receives $10,000.

### NEW YORK.

An Appeal for Improved Management of Public Institutions.— The presidents of a number of prominent charitable societies have sent a communication to the chairman of the Republican and Democratic State Committees, urging the recognition by their respective parties of the following points: (1) That the administration of the state hospitals for the insane, state charitable and reformatory institutions, and state prisons be absolutely free from partisan influences of every

description; (2) that these institutions be conducted on progressive lines (with due regard to economy), particularly of that form which is to be secured by scientific improvement of administration and for the welfare of the inmates and the protection of the state against the evils of disease, dependency and crime; (3) that citizens acquainted by service and experience with the philanthropic activities of the state should be invited to share in the management of these institutions as a means of preserving them from the danger of political influences.

IMPROVEMENT IN THE AMBULANCE SERVICE AT BELLEVUE HOSPITAL.— In order to increase the efficiency of the service, the trustees of Bellevue and its allied hospitals have issued an order to the effect that hereafter all ambulance surgeons shall be taken from the senior assistants of the house staffs, instead of from the inexperienced junior assistants, as heretofore.

GRADUATION OF NURSES AT ST. MARK'S HOSPITAL.— At the tenth graduation exercises of the Training School for Nurses at St. Mark's Hospital, held Sept. 30, there were six graduates, and addresses were made by Dr. Carl Beck, president of the hospital, and other physicians connected with the institution.

BEQUEST TO ST. LUKE'S HOSPITAL.— By the will of the late Samuel D. Babcock, among numerous other charitable bequests, $20,000 is left to St. Luke's Hospital, of the board of managers of which he was formerly a member.

A DIFFICULT DEATH.— It took 590 gr. of potassium cyanide fifty-four minutes to kill a vicious elephant at the Central Park Menagerie, the poison being administered with his food in capsules.

## Miscellany.

### A FUND FOR THE STUDY AND PREVENTION OF TUBERCULOSIS.

THE Charity Organization Society of New York has thus far received almost $3,500 in response to a public appeal for $10,000 made the middle of September by its Committee on the Prevention of Tuberculosis. It is purposed to expend the subscriptions to this fund for the following main objects:

(1) Research into the social aspects of the disease. For example, into the relations between the disease and overcrowding, infected tenements and unhealthy occupations, and also into the influence, upon recovery, of improved diet and hygienic living.

(2) Education: The publication of leaflets and pamphlets and giving of lectures embodying the results of scientific research and of modern treatment both in sanatoria and at home, and the promulgation in every possible way of the fact that tuberculosis is a communicable and preventable disease.

(3) The encouragement of movements for suitable public and private sanatoria both for advanced and for incipient cases.

(4) The relief of indigent consumptives by the provision of suitable food and medicines, by the payment of rent when this is necessary to secure adequate light and air, and by transportation and maintenance at a distance, when, in the judgment of the committee, this is essential.

The labors of the committee, which are not intended to be merely temporary, will be directed not only towards the amelioration of the large class of consumptives, but also towards the benefit of the community as a whole, in which it feels there is encouraging reason to believe that tuberculosis may be practically eradicated. The president of the New York Board of Health is a member of this committee, which also includes a number of prominent physicians, among whom may be mentioned Drs. H. M. Biggs, J. D. Bryant, E. G. Janeway, H. P. Loomis, T. M. Prudden, Andrew H. Smith and E. L. Trudeau.

Some interesting statistics in regard to tuberculosis in Manhattan and the Bronx, New York City, prepared by Dr. L. Brandt, are given. Thus, while in 1881 the phthisis death-rate was 4.27, the general death-rate being 31.04, in 1901, the phthisis death-rate was 2.50, the general death-rate being 20.66. While the death-rate from consumption has thus fallen out of all proportion to the decrease in the general death-rate, the figures also show that there has been a greater improvement in New York City than in the United States in general, since there the phthisis death-rate has fallen 70.8%, while the decrease in five eastern states and ten additional cities has been only 46%.

This decrease in the country at large and in New York City in particular is regarded as of significance in indicating what results may be expected in the next twenty years from further sanitary and medical progress, coupled with further education of the public intelligence in regard to the real nature of the disease and methods for preventing it. The statistics for 1900 show that the general death-rate was 40% greater in New York City than in the rural districts of New York State (excluding towns of 25,000 inhabitants and over), and that the mortality from consumption was almost twice as great. While it is indisputable that the country has a decided advantage over the city in this regard, its superiority, it is pointed out, is not so great as would seem at first sight to be indicated by the figures. For the mortality from consumption is more than twice as great for negroes as for the white population, and more than four times as great between the ages of twenty and forty as it is below the age of twenty, while in comparison with other diseases this is an unimportant cause of death beyond the age of

sixty. It is thus manifestly unfair to ascribe the whole difference to city conditions, when comparing the population of Manhattan, with its considerable negro element and abnormal proportion of both men and women in the middle-age periods, with the population of rural New York, with its small proportion of the races especially susceptible to the disease and its lack of young people of both sexes by reason of the tendency of this class to move cityward. After making due allowance, however, for these differences in the composition of the population, there remains a distinct disadvantage in the city which may be attributed to the evils arising from the massing of large numbers on small areas.

## NEW JERSEY STATE MEDICAL EXAMINATION.

At a meeting of the State Board of Medical Examiners of New Jersey, held at Newark, N.J., Oct. 1, twenty-three of the twenty-eight physicians who took the State examination held at Trenton, N.J., Sept. 16-17, were duly licensed to practice medicine in New Jersey.

The following medical colleges were represented by the candidates:

| | |
|---|---|
| Baltimore Medical College, | 3 |
| College of Physicians and Surgeons of Baltimore, | 3 |
| Columbian University, Medical Department, | 3 |
| Baltimore University, School of Medicine, | 2 |
| Hahnemann Medical College and Hospital of Phila., | 2 |
| Jefferson Medical College, | 2 |
| University of Naples, Italy, | 2 |
| Boston University, School of Medicine, | 1 |
| Columbian University, Medical Department, | 1 |
| Dartmouth Medical College, | 1 |
| Medico-Chirurgical College of Philadelphia, | 1 |
| Shaw University, Medical Department, | 1 |
| University of Montpellier, France, | 1 |
| University of the South, Medical Department, | 1 |
| University of Turin, Italy, | 1 |
| University of Vermont, Medical Department, | 1 |
| Woman's Medical College of Pennsylvania, | 1 |
| Yale University, Medical Department, | 1 |
| | 28 |

The percentage of rejections for the September examination was 18.

Beginning with the examination in June, 1903, each applicant for examination will be required to file with his application a recent photograph of himself, with autograph signature, duly attested before and under the seal of a notary.

In the matter of interstate reciprocity of medical license, the policy of the board in endorsing the licenses issued by other states whose examining requirements are substantially the same as those of New Jersey, provided that the applicant fully meets the academic and medical requirements of the State, is gaining favor both with the profession and with other state boards. This policy places the admission of an applicant upon the basis of his personal fitness and the thoroughness of his examination, which is believed to be the fairest and the most equable method of endorsement so far devised.

## METEOROLOGICAL RECORD

For the week ending Sept. 27, in Boston, according to observations furnished by Sergeant J. W. Smith of the United States Signal Corps:

| Date | Barometer. Daily mean. | Thermometer. Daily mean. | Thermometer. Maximum. | Thermometer. Minimum. | Relative humidity. 8.00 A.M. | Relative humidity. 8.00 P.M. | Relative humidity. Daily mean. | Direction of wind. 8.00 A.M. | Direction of wind. 8.00 P.M. | Velocity of wind. 8.00 A.M. | Velocity of wind. 8.00 P.M. | Weth'r *. 8.00 A.M. | Weth'r *. 8.00 P.M. | Rainfall in inches. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S...21 | 30.34 | 60 | 62 | 58 | 94 | 97 | 96 | N E | N E | 6 | 6 | O. | O. | T. |
| M..22 | 30.14 | 61 | 63 | 59 | 89 | 97 | 93 | E | E | 8 | 4 | O | O. | |
| T..23 | 29.95 | 63 | 70 | 56 | 98 | 83 | 90 | N E | S | 1 | 8 | G. | C. | |
| W..24 | 30.04 | 59 | 68 | 50 | 76 | 55 | 66 | N | N | 15 | 14 | O. | C. | |
| T..25 | 30.29 | 52 | 56 | 47 | 69 | 73 | 71 | N | S E | 5 | 5 | O. | O. | |
| F..26 | 30 18 | 56 | 60 | 53 | 74 | 89 | 82 | S E | E | 7 | 9 | O. | O | T. |
| S...27 | 29.89 | 62 | 64 | 60 | 97 | 100 | 98 | N E | E | 9 | 4 | O. | G. | .32 |
| ☞ | 30.12 | | 63 | 55 | | | 85 | | | | | | | .32 |

*O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow. †Indicates trace of rainfall.
☞ Mean for week.

## RECORD OF MORTALITY

For the Week ending Saturday, Sept. 27, 1902.

| Cities. | Population Estimated, 1902. | Reported deaths in each. | Deaths under five years. | Percentage of deaths from: Infectious diseases. | Acute lung diseases. | Diphtheria and croup. | Typhoid fever. | Diarrheal diseases. |
|---|---|---|---|---|---|---|---|---|
| New York . . | 3,665,352 | 1,112 | 413 | 31.74 | 9.89 | 2.29 | 2.06 | 13.04 |
| Chicago . . | 1,852,828 | 446 | 133 | 29.37 | 9.41 | 2.46 | 5.60 | 11.66 |
| Philadelphia. | 1,349,624 | 422 | 106 | 16.82 | 9.00 | 1.42 | 2.37 | 1.42 |
| St. Louis . . | 603,717 | — | — | — | — | — | — | — |
| Baltimore . . | 525,330 | 173 | 53 | 34.64 | 8.66 | .57 | 8.66 | 7.50 |
| Cleveland . . | 411,826 | — | — | — | — | — | — | — |
| Buffalo . . . | 376,742 | — | — | — | — | — | — | — |
| Pittsburg . . | 341,401 | 138 | 49 | 28.98 | 18.11 | 2.17 | 7.24 | 4.34 |
| Cincinnati . | 332,032 | — | — | — | — | — | — | — |
| Milwaukee . | 304,975 | — | — | — | — | — | — | — |
| Washington . | 289,537 | — | — | — | — | — | — | — |
| Providence . | 185,870 | 50 | 23 | 26.00 | 2.00 | 4.00 | — | 14.00 |
| Boston . . . | 588,736 | 196 | 58 | 32.65 | 8.16 | 1.02 | 2.04 | 14.79 |
| Worcester. . | 127.337 | 33 | 8 | 18.18 | — | — | — | 9.09 |
| Fall River. . | 111,872 | 37 | 17 | 24.32 | 10.81 | — | — | 8.11 |
| Lowell . . . | 99,574 | 45 | 19 | 24.44 | 11.11 | — | 2.22 | 13.33 |
| Cambridge . | 96,334 | 23 | 9 | — | — | — | — | — |
| Lynn. . . . | 71,144 | 24 | 9 | 16.66 | — | 4.16 | 4.16 | 8.33 |
| Lawrence . . | 67,275 | 19 | 10 | 36.84 | 10.52 | — | 5.26 | 10.52 |
| Springfield . | 66,854 | 13 | 5 | 15.40 | 15.40 | 7.70 | — | — |
| Somerville . | 65,882 | 8 | 2 | — | — | — | — | — |
| New Bedford. | 65,574 | 29 | 17 | 34.48 | 6.90 | — | 3.44 | 27.58 |
| Holyoke . . | 48,065 | 16 | 4 | 37.50 | — | — | — | 18.75 |
| Brockton . . | 43,208 | 5 | 1 | 20.00 | — | — | — | — |
| Haverhill . . | 40,392 | 9 | 2 | 33.33 | — | 11.11 | — | 11.11 |
| Salem . . . | 36,567 | — | — | — | — | — | — | — |
| Newton. . . | 36,336 | 10 | 3 | 10.00 | 20.00 | — | — | 10.00 |
| Malden . . . | 35,390 | 4 | 1 | 25.00 | — | — | 25.00 | — |
| Chelsea. . . | 35,264 | 7 | 2 | 28.60 | — | — | — | — |
| Fitchburg. . | 33,848 | 7 | 4 | — | — | — | — | — |
| Taunton . . | 32,759 | 12 | 1 | 41.65 | — | — | — | 16.67 |
| Everett. . . | 27,114 | 3 | 3 | — | — | — | — | — |
| North Adams | 26,583 | 3 | 1 | 33.33 | — | — | — | — |
| Gloucester . | 26,121 | 2 | 1 | 100.00 | — | — | — | — |
| Quincy . . . | 25,307 | 9 | — | 66.67 | — | — | — | 55.55 |
| Waltham . . | 24,612 | 7 | 2 | 28.60 | — | — | 14.30 | — |
| Pittsfield . . | 22,311 | 5 | 1 | 20.00 | — | — | 20.00 | — |
| Brookline. . | 21,679 | 4 | 2 | — | — | — | — | — |
| Chicopee . . | 20,390 | 10 | 7 | 10.00 | — | — | — | 10.00 |
| Medford . . | 20,014 | 7 | 3 | — | — | — | — | — |
| Newburyport | 14,478 | — | — | — | — | — | — | — |
| Melrose . . | 13,384 | — | — | — | — | — | — | — |
| Westfield . . | 13,038 | 3 | 2 | 33.33 | — | — | — | 33.33 |
| Attleboro . . | 12,846 | — | — | — | — | — | — | — |
| Adams . . . | 12,813 | — | — | — | — | — | — | — |
| Milford . . | 12,516 | — | — | — | — | — | — | — |
| Framingham | 12,109 | — | — | — | — | — | — | — |
| Peabody . . | 11,957 | — | — | — | — | — | — | — |
| Revere . . . | 11,894 | 1 | — | — | — | — | — | — |
| Gardner . . | 11,544 | 3 | 1 | 33.33 | — | — | — | 33.33 |
| Weymouth . | 11,337 | 2 | — | 50.00 | — | — | — | — |
| Southbridge . | 10,838 | 2 | 1 | — | — | — | — | — |
| Watertown . | 10,600 | 5 | 1 | 20.00 | 20.00 | — | — | 20.00 |
| Plymouth . . | 10,336 | — | — | — | — | — | — | — |

Deaths reported, 2,912; under five years of age, 976; principal infectious diseases (smallpox, measles, scarlet fever, cerebrospinal meningitis, diphtheria and croup, diarrheal diseases, whooping cough, erysipelas, fevers and consumption) 818, acute lung diseases 265, consumption 314, scarlet fever 10, whooping cough 20, cerebrospinal meningitis 7, smallpox 10, erysipelas 3, measles 5, typhoid fever 94, diarrheal diseases 298.

From whooping cough, New York 10, Philadelphia 3, Pittsburg 3, Providence 1, Boston 2, Lawrence 1. From measles, Chicago 2, Pittsburg 2, Lawrence 1. From erysipelas, New York 2, Philadelphia 1. From smallpox, New York 1, Pittsburg 7, Boston 2.

In the seventy-six great towns of England and Wales, with an estimated population of 14,862,379, for the week ending Sept. 13, the death-rate was 16.4. Deaths reported, 4,683; acute diseases of the respiratory organs (London) 134, whooping cough 107, diphtheria 63, measles 85, smallpox 4, scarlet fever 45.

The death-rate ranged from 6.9 in Kings Norton same also in Halifax to 26.6 in Merthyr Tydfil; London 16.8, West Ham 20.4, Brighton 11.7, Portsmouth 25.5, Southampton 15.0, Plymouth 20.8, Bristol 18.2, Birmingham 15.7, Leicester 8.9, Nottingham 17.8, Liverpool 23.9, Manchester 20.3, Salford 18.2, Bradford 11.8, Leeds 15.9, Hull 19.5, Newcastle-on-Tyne 17.1, Cardiff 16.4.

## CHANGES IN THE MEDICAL CORPS OF THE NAVY FOR THE WEEK ENDING SEPT. 27, 1902.

L. G. HENEBERGER, medical inspector. Detached from the "Brooklyn" and ordered home to wait orders.

W. M. GARTON, passed assistant surgeon. Detached from the "Columbia" and ordered home to wait orders.

J. B. DENNIS, passed assistant surgeon. Detached from the "Brooklyn" and ordered home and to wait orders.

E. S. BOGERT, medical director, retired. Ordered to the Marine Recruiting Rendezvous, New York.

N. M. FEREBEE, medical director. Detached from the Naval Hospital, Norfolk, Va., and ordered to the Navy Yard, Washington, D. C.

R. C. PERSONS, medical director. Detached from the Marine Recruiting Rendezvous, New York, and ordered to the Naval Hospital, Norfolk, Va.

C. G. HERNDON, medical inspector. Detached from the Navy Yard, Washington, D. C., and ordered to the Naval Hospital, Yokohama, Japan, sailing from San Francisco Oct. 22.

G. E. H. HARMON, medical inspector. Detached from the Naval Hospital, Yokohama, Japan, and ordered home to wait orders.

G. PICKRELL, surgeon. Detached from the Naval Dispensary, Washington, D. C., and Naval Hospital, and ordered to the Naval Academy, Annapolis, Md.

C. BIDDLE, surgeon. Detached from recruiting duty in the field, and ordered to the Naval Recruiting Rendezvous, Philadelphia.

J. B. DENNIS, passed assistant surgeon. Ordered to the "Detroit."

W. M. GARTON, passed assistant surgeon. Ordered to the "Columbia."

T. A. BERRYHILL, surgeon. Ordered to the Pensacola Navy Yard.

L. G. HENEBERGER, medical inspector. Ordered to the "Olympia."

H. E. AMES, surgeon. Detached from the "Olympia" and ordered home and to wait orders.

T. McC. LIPPITT, assistant surgeon. Retired from active service by reason of physical disability,—gunshot wound received in action at Pekin, China.

## OFFICIAL LIST OF THE CHANGES OF STATION AND DUTIES OF COMMISSIONED AND NON-COMMISSIONED OFFICERS OF THE PUBLIC HEALTH AND MARINE HOSPITAL SERVICE FOR THE SEVEN DAYS ENDING SEPT. 18, 1902.

GLENNAN, A. H., surgeon. Granted leave of absence for six days from Sept. 15, 1902. Sept. 15, 1902.

GARDNER, C. K., passed assistant surgeon. Granted leave of absence for one day, Sept. 18, 1902. Sept. 16, 1902.

MCMULLEN, JOHN, passed assistant surgeon. Relieved from duty in office of Consul-General of the United States at London, Eng., and directed to proceed to Hong Kong, China, as inspector for a period of two weeks; then to assume command of service at that port, relieving Assistant Surgeon J. J. KERR. Sept. 15, 1902.

THOMAS, A. R., passed assistant surgeon. Directed to proceed to San Francisco, Cal., and report to medical officer in command for duty and assignment to quarters. Sept. 16, 1902.

LAMUS, CARL, assistant surgeon. Granted leave of absence for one month from Sept. 25, 1902. Sept. 16, 1902.

FOX, CARROLL, assistant surgeon. Granted leave of absence for three days from Sept. 15, 1902. Sept. 13, 1902.

FOX, CARROLL, assistant surgeon. Relieved from duty in office of United States Consul at Liverpool, Eng., and directed to proceed to Manila, P. I., and report to the chief quarantine officer for duty. Sept. 15, 1902.

VOGEL, C. W., assistant surgeon. Relieved from duty at Dutch Harbor, Alaska, to take effect upon departure from that port of last revenue cutter, and directed to proceed to San Francisco, Cal., and report to the medical officer in command for duty and assignment to quarters. Sept. 15, 1902.

BEAN, L. C., acting assistant surgeon. Granted leave of absence for one day from Sept. 14, 1902. Sept. 13, 1902.

CLEAVES, F. H., acting assistant surgeon. Granted leave of absence for fourteen days from Sept. 9, 1902. Sept. 15, 1902.

ALLEN, G. C., pharmacist. To report to medical officer in command at Baltimore, M.D., for temporary duty during the absence on leave of Pharmacist E. B. Scott. Sept. 13, 1902.

MASON, M. R., pharmacist. Relieved from duty at Dutch Harbor, Alaska, upon closing of station and directed to proceed to San Francisco, Cal., and report to the medical officer in command for duty and assignment to quarters. Sept. 15, 1902.

BOARD CONVENED.

Board convened to meet at the U. S. Marine Hospital, Chelsea, Mass., Sept. 23, 1902, for the physical examination of an officer of the Revenue Cutter Service. Detail for the Board: Surgeon J. M. Woodward, chairman; Assistant Surgeon W. K. Ward, recorder.

## RECENT DEATHS.

SILAS SWIFT GIFFORD, M.D., M.M.S.S., died in Avon Sept. 18, 1902, aged seventy-eight years.

DR. EDWARD MILLER CAMERON of New York died on Sept. 28, at the age of seventy-three years. He was graduated from the College of Physicians and Surgeons, New York, in 1853, and was consulting physician to Trinity Hospital.

DR. JOHN BYRNE of Brooklyn, New York, died at Montreux, Switzerland, on Oct. 1. He was born in Ireland in 1825 and was graduated in Edinburgh in 1846 and from the New York Medical College in 1852. He was one of the founders of the Long Island College Hospital, in which he held a professorship for many years, and of St. Mary's Female Hospital and St. Mary's General Hospital in Brooklyn. He was widely known both as a teacher and a writer, as an authority on gynecology.

## BOOKS AND PAMPHLETS RECEIVED.

Elementary Hygiene for the Tropics. By Azel Ames, M.D. (Harv. 1871). Illustrated. Boston: D. C. Heath & Co. 1902.

The Force of Mind, or the Mental Factor in Medicine. By Alfred T. Schofield, M.D., M.R.C.S. Philadelphia: P. Blakiston's Son & Co. 1902.

Dott. Giovanni Palleroni. Vari Metodi Anestesicie Loro Indigazioni. Manuale Teorico-Pratico per Medicie Studenti. III Parts. Napoli. 1902.

Studies in Neurological Diagnosis. By James J. Putnam, M.D., and George A. Waterman, M.D. Illustrated. Boston: George H. Ellis & Co. 1902.

The Treatment of Fractures. By Charles Locke Scudder, M.D. Third edition, thoroughly revised. Illustrated. Philadelphia and London: W. B. Saunders & Co. 1902.

Anatomy and Histology of the Mouth and Teeth. By I. Norman Broomell, D.D.S. Second edition, revised and enlarged. Illustrated. Philadelphia: P. Blakiston's Son & Co. 1902.

Disinfection and Disinfectants. A Practical Guide for Sanitarians, Health and Quarantine Officers. By M. J. Rosenau, M.D. Illustrated. Philadelphia: P. Blakiston's Son & Co. 1902.

The International Textbook of Surgery. By American and British Authors. Edited by J. Collins Warren, M.D., LL.D., Hon. F.R.C.S. (Eng.), and A. Pearce Gould, M.S., F.R.C.S. Second edition, thoroughly revised. Illustrated. Vols. I and II. Philadelphia and London: W. B. Saunders & Co. 1902.

# Address.

## ANNUAL ORATION BEFORE THE MAINE MEDICAL ASSOCIATION.[1]

BY JAMES R. CHADWICK, M.D., BOSTON.

Last year it was incumbent upon me as librarian to deliver an address at the dedication of the new building of the Boston Medical Library. A reporter in one of the daily papers the next morning alluded to me, with evident intent to be complimentary, as the "venerable librarian." Unfortunately for my peace of mind, the epithet reminded me of this paragraph in an address which Dr. Oliver Wendell Holmes delivered to the same association in 1878:

"A great many books may be found in every large collection, which remind us of those apostolic-looking old men who figure on the platform at our political and other assemblages. Some of them have spoken words of wisdom in their day, but they have ceased to be oracles; some of them never had any particular important message for humanity, but they add dignity to the meetings by their presence; they look wise, whether they are so or not, and no one grudges them their places of honor. Venerable figureheads, what would our platforms be without you."

I need not explain the suggestion which comes to me from these two sources. Nothing controverted my inevitable inference until your president called upon me a month ago and invited me to say a few words to you at your annual meeting upon the subject of "Medical Libraries." With this mental prepossession on my part, it required very little exercise of his winsome smile and hypnotic power to elicit from me a favorable response to his request. I have come here determined to tell you all I know about medical libraries, and if I do not tell you more than I know it will be from no inherent modesty in me.

I realize that you are all prepared to admit the importance of having the literature of medicine accessible to every member of your association, but probably few of you appreciate the urgent need of conjoint action on your part, as I do, who have been for twenty-six years striving to meet the reasonable demands of the medical profession of Boston and its vicinity.

The health and longevity of life in any community is dependent in great measure upon the knowledge of its medical practitioners. The diploma of M.D. merely certifies that its possessor has laid the foundation of the knowledge essential to enable him to combat disease and death; upon the superstructure he must labor to the end of his days.

In the early years of practice few men can afford to buy or even give shelf-room to a tenth part of the books that they need; no man, whatever his means, can possibly acquire all. A library is consequently indispensable in every centre of population, or the health and lives of the community will be jeopardized by the ignorance of its medical practitioners.

In the first place, I must make evident to you the radical change which has taken place in the character of the medical publications that were in demand at the beginning of this century, as compared with those in the early years of the last. Despite the opinion enunciated, over a hundred years ago, by Priestly, that "we should accept no man's opinion, however respectable," medical men did accept freely and fully the opinions of the fathers in medicine, and their later exponents. The recognized authorities in medicine were studied and restudied, and most practitioners could afford to have on the shelves of their libraries the fifty or a hundred volumes which constituted the sum total of medical knowledge. These, when well absorbed and properly digested, supplied them with their equipment for the treatment of their patients.

In illustration of the extent to which this dependence upon authority was carried, Dr. Robert Fletcher recently told me that the bibliography of the separate works, editions, commentaries, etc., of Hippocrates in the library of the Surgeon-General's office, numbers over eight hundred. From a recent lecture of his he has since sent me this extract:

"The first printed edition of his complete works in the original Greek was issued by the famous Aldine press at Venice in 1526. It is a beautiful specimen of early typography. Many subsequent editions of the "Opera Omnia" have appeared, and they have been translated into many languages. In this library there are fifty-one different editions of these complete works. They are in Greek, in Latin, in Italian, in Spanish, in French, in English, in German. Next in order come books which contain two or more of the separate treatises of Hippocrates. Of these the library possesses fifty-six copies or editions. The next division comprises single treatises of Hippocrates, many of which were printed separately, with or without notes, and many are contained in the collected works of old authors who have included them for the purpose of adding their own notes and glosses at the foot of each page. Of these single works there are in this library 371 editions. Lastly come general commentaries upon the works and doctrines of Hippocrates, bibliographical and biographical articles, and these number 396 treatises. The total number of the works of Hippocrates with commentaries as above described, now in this library, is 874. Some of these are only pamphlets, but all are independent publications.

In the course of the century we have learned to question every man's title to credence. Even entire systems of medicine have risen, had their day, and been laid to rest. No man's authority is now accepted, but the grounds for his expressed belief are scrutinized, and accepted or rejected, only after his facts have been tested in the crucible of science.

[1] Delivered June 6, 1902.

An old Greek poet once said: "Gray hairs are wisdom if you hold your tongue, speak and they are but hairs, as in the young"; which means, that in his day, if a gray-haired man gave his opinion only, it had weight, but if he gave his reasons, his reasons were worth no more than a young man's reasons. While we can all see that there is a germ of truth in this generalization, we hardly listen to the gray-haired man today unless he gives his reasons.

The purpose of this brief argument is to impress upon you the unquestionable fact that the form of literature demanded today by the physician is the periodical literature — the journals and transactions which contain the crude facts of each man's experience.

Daniel Drake, who was one of the most learned and philosophical medical men which this country has produced, said in an address before the Cincinnati Medical Library Association half a century ago: "Since the emancipation of mind from a slavish devotion to the mind which went before it, periodical literature, in every department of knowledge, has waxed greater and greater in volume and originality, until, not only in medicine but in all the sciences, it has become a paramount element. It is not only the first to present all discoveries and inventions, but actually supplies to the masses almost everything they read."

The tendency of the times which was perceptible in 1852 to an alert mind like that of Dr. Drake, has become a fact manifest to the dullest of us. To bring home to you the magnitude of this change in medical literature, I can quote from a catalogue of the Second Social or Boston Medical Library, dated 1808, which, founded in 1805, transferred its collection of books in 1826 to the Boston Athenæum: "The Library receives all the periodical publications of Great Britain that relate to medical subjects," amounting to the imposing total of seven; furthermore, "The publications of American physicians have been procured without any exceptions." This last paragraph may be interpreted as indicating that the library had been in receipt of (1) *The Medical Repository*, which, founded in New York on July 26, 1797, was conducted as a quarterly journal until 1824; (2) the *Philadelphia Medical and Physical Journal*, which issued first on Nov. 1, 1804, ended with the third volume in May, 1809; and finally (3), the *Medical and Agricultural Register*, for the years 1806-1807, of Boston, only one volume of which was published. These three were the only medical periodicals which had been published on this continent up to the year 1808. We have thus a total of ten journals printed in the English language prior to 1808. I cannot tell you how many are now issued in the English language, but I know that the library of the Surgeon-General's office in Washington, which aims to have all the periodicals published in all the languages of the world, receives regularly over 1,200, not including the transactions of societies, the clinical reports of hospitals; the reports of laboratories, boards of health, etc., etc. This is the form of literature which is in constant demand in the library under my charge. You may very properly object that nine-tenths of these serials are of very little value, which is true, but you never can tell in how obscure and generally worthless a journal there may have been reported a single case parallel to the one which you have under your care, which report you need to peruse in order to guide your treatment.

Another factor in exaggerating the gravity of our situation today, is the existence of a guide to this immense mass of periodicals in the "Index Catalogue" of the incomparable library of the Surgeon-General's office in Washington. I must dwell briefly upon the scope of this work, which is unique, not only in medical, but all science.

In 1880 the library of the Surgeon-General's office in Washington, under the charge of an army surgeon, Dr. John S. Billings, began the publication of an index catalogue of its collections, which comprised practically all medical literature up to that date. The first series of sixteen volumes, quarto, was completed in 1895; the new series, comprising accessions to the library since the publication of the first series, has already reached the sixth volume.

Its value to medical scholars is inestimable, superseding, as it does, all the time-wasting labor that used to be expended in bibliographical research. By its aid we obtain a reference to every rare case that has been recorded since printing was discovered in A.D. 1450. But by indexing the articles and reports of cases in the 40,000 volumes of periodicals, past and present, obscure and famous, this catalogue has immensely extended the scope of medical research and created a demand for an array of books, and especially of periodicals, that is simply appalling.

What is an earnest seeker after knowledge to do when he has, for instance, a case of inflammation of the pancreas and refers to this catalogue for the writings on the subject, when he discovers a reference to a case in the Medicinische Jahresbericht von Peter-Pauls Hospital in St. Petersburg, to another in the Bulletino di scienzia medica di Bologna, to another in the Moniteur scientifique, and to another in the Zeitschrift fur die gesammte Medizin of Hamburg, and so on, *ad infinitum?* He cannot possibly have complete files of these various periodicals upon his own shelves. He must have within reach a library in which most, if not all, these volumes may be found, or he will fail to learn all that can be learned about this subject, and as a consequence, his patient will suffer from treatment based on half-knowledge.

Not content with opening to our ken the treasures of the past medical literature, Dr. Billings conceived the idea, and Dr. Fletcher, the assistant librarian, as editor, carried out the plan, of publishing from the cards made daily in the Surgeon-General's library, the "Index Medicus," a periodical issued monthly, by subscription, giving a classified index catalogue of every publication

and every article in all the periodicals of the world, within a month of their appearance, thus enabling students to obtain prompt reference to all current literature. This most admirable scheme, admirably executed, was continued for twenty-one years, and finally, through lack of pecuniary support, was discontinued in April, 1899.

The loss of this means of reference was so much felt that an attempt to fill its place was made in Paris, France, with the "Bibliographia Medica," which, while not as comprehensive as the American "Index Medicus," was fairly complete with regard to French, English and German publications, but much less so with American and other nationalities. This ran two years, but proved to be so costly that it appears to have closed its career with the year 1901.

The cessation of these last two indexes to current medical literature is a serious blow to the advancement of medical science, which will be felt the world over.

These considerations make manifest the necessity of combined action on the part of the physicians to establish libraries in every great centre of population in the country. The time has arrived when few men subscribe to more than the local journals and possibly two or three others. Some of the specialists, in their ardor to keep abreast of the advances in their special branches in the different countries, may subscribe to all the journals in their special lines of work. But the multiplication even of special journals is so great as soon to deter these students. My personal experience must be that of many other specialists. During the fifteen early years of my practice I sacrificed much money in subscribing to every periodical in my department of obstetrics and gynecology in all languages. Twelve years ago I suddenly came to appreciate that I was receiving forty-three journals and reading only three or four of them. In addition to the cost of the subscription I had to have them bound and then give them shelf-room. I promptly relinquished my ambitious task, and discontinued all but three or four of them, and now resort to the Boston Medical Library on the few occasions when I need to consult any of them. My experience and my action are the same as have been those of many other specialists in Boston. Incidentally I may say that my zeal in collecting periodicals, and that of my colleagues in Boston, is enuring to the benefit of our library, for the reason that these special collections are steadily gravitating to our shelves by bequest of their owners, and often by gift during their life-time.

It is interesting to speculate upon the sources of support of medical periodicals at the present day. This must be primarily in the group of physicians in and around the place of publication; then the 120 medical libraries in the country subscribe for a certain number of the most important ones. Outside of these sources of support, it is hard to see how the majority of them can draw any appreciable revenue from this source, yet very few, if any, can meet the expenses of editing, printing, and distributing with such returns. Under such conditions one would suppose that most of them would discontinue publication. But here comes in an element to defeat the usual law governing supply and demand. Many of them are supported by individual men or groups of men because they feel that their ambitions, their reputations or their purses are indirectly fed by such an organ. Other journals, and these I believe to be the greater number, are supported by publishing houses, by drug firms, instruments makers, etc., etc., simply as mediums in which to advertise their goods. Certainly the numbers of pages of advertisements in such journals as the *British Medical Journal* and the *Medical Record* of New York, make it evident that these sources of income accruing to such journals make them independent of the returns from subscribers.

Of course many of these journals do not have at their command the literary ability or commercial sagacity to succeed, and infant mortality is prevalent among them. Those that survive must show a large circulation in order to secure insertions in their advertising columns, and must, under present conditions, be distributed to a great extent gratuitously. Many periodicals, containing the contributions of the greatest permanent value, appeal to a very small number of readers, and are issued in very small editions. It will become increasingly difficult for medical libraries to secure complete files of these journals a few years after their publication, so that newly-to-be-created libraries will soon find the task of supplying their public with what they demand, proportionately more onerous.

The next most important literature which libraries should collect is pamphlets, because, while more ephemeral, they are yet the more important in their relations to the evolution of thought and the preservation of facts than the more imposing publications which we designate as "books." Miles Davies, in his "Icon Libellorum," more than 180 years ago said, quaintly: "From pamphlets may be learned the genius of the age, the debates of the learned, the follies of the ignorant, the bevues of the government, and the mistakes of the courtiers. There is scarce any class of people but may think themselves interested enough to be concerned with what is published in pamphlets, either as to their private instructions, curiosity and reputation, or to the public advantage and credit. Pamphlets become more and more daily amusements to the curious, idle and inquisitive; pastime to gallants and coquettes; chat to the talkative; catchword to informers; fuel to the envious; poison to the unfortunate; balsam to the wounded; employ to the lazy, and fabulous; materials to romancers and novelists."

To show the extent to which the collections of pamphlets may be carried, I would cite George Thomason, a bookseller of London, who in 1641 began to collect pamphlets relating to the Civil War in England, and prosecuted his task so in-

dustriously for twenty years, that when he died in 1666 he had accumulated, arranged and bound in 2,220 volumes, over 33,000 separate publications, which were finally purchased by George III, and given to the British Museum. The various historical societies in America pride themselves in many instances, more upon their collections of pamphlets than upon their array of books. The reason is not far to seek, for the latter can usually be obtained at short notice, when money to pay for them is at command, but pamphlets, many of which, as soon as read, are consigned to the waste paper basket, either cannot be obtained at all, or only after long and patient waiting, and then at prices which are often prohibitive. Everything which has ever appeared in print, even if it be only a patent medicine advertisement, may be of use or interest to someone.

Let me illustrate by two incidents that recently occurred:

Dr. Howard of the Bureau of Agriculture in Washington, who wrote last year a book on mosquitoes, was lecturing in Boston this winter on the same subject, and seeking to make a complete bibliography of the relations of mosquitoes to malaria, I was able to call his attention to a pamphlet in the Boston Medical Library by Dr. Samuel W. Francis of Newport, published twenty years ago, in which Dr. Francis claimed to have discovered the purpose of the Creator in creating mosquitoes. He claimed to have discovered that mosquitoes had been created to drive mankind from malarial districts. "When, however," he said, "mankind refused to leave malarial districts when the warning was given in humming accents, what happened? Then the mosquito proceeded to insert his proboscis under the skin of the human being and inject a minute secretion," which Dr. Francis had, "by his chemical and microscopic analysis, discovered was an antidote to malaria."

Again, in the pamphlets of the Boston Public Library, I recently discovered an advertising circular of Eau de Cologne, approved by the Faculty of Medicine in Paris in 1727, from which I learned that what we know as exclusively an article of toilette, was originally put upon the market as a quack medicine, having the power "to restore the parts of the body that are attacked by any disease or predisposition to the same, of fortifying and re-establishing their natural functions; of insinuating into them a moderate and living warmth, which, sympathizing with their own, reanimates their vital forces, aids the coctions, and forcibly expels all the excrements." This circular was even more specific, saying that "ten drops taken internally would diffuse a very gentle warmth throughout the vitals and corroborate the stomach."

To show that I am not alone in the value which I put upon pamphlets, I would add the facts that the library of the Surgeon-General's office, on Jan. 1, 1902, contained 142,490 books and 238,772 pamphlets. In the Boston Medical Library we have about as many pamphlets as books, to wit, about 35,000.

Coming now to books, the third category of publications, which a library must collect, you will readily appreciate that most of those coming from the press today are handbooks, comprised chiefly for the use of students, which embody the state of medicine as a whole, or some of its specialties, at the time they are written, but are superseded within a year or two by others, or by new editions of the same books, and therefore cease to have value. There are, of course, the classics of medicine, special monographs, etc., which have permanent value, but they are few compared with the handbooks.

Perhaps in seeking to cater to a busy generation, I have lost my sense of appreciation of the fathers of medicine, together with my knowledge of the Latin and Greek in which they wrote; yet I always recall with delight listening to Dr. Holmes dilate with gusto upon the early writers with which he and men of his generations were still familiar:

"And apart from any practical use to be derived from the other medical authors, is there not a true pleasure in reading the accounts of great discoverers in their own words? I do not pretend to hoist up the 'Bibliotheca Anatomica of Mangetus' and spread it on my table every day. I do not get out my great 'Albinus' before every lecture on the muscles, nor disturb the majestic repose of Vesalius every time I speak of the bones he has so admirably described and figured. But it does please me to read the first descriptions of parts to which the names of their discoverers, or those who have first described them, have become so joined that not even modern science can part them; to listen to the talk of my old volume as Willis describes his circle, and Fallopius his aqueduct, and Vesalius his bridge, and Eustachius his tube, and Monro his foramen — all so well known to us in the human body; it does please me to know the very words in which Winslow described the opening which bears his name, and Glisson his capsule and De Graaf his vesicle; I am not content until I know in what language Harvey announced his discovery of the circulation, and how Spigelius made the liver his perpetual memorial and Malpighi found a monument more enduring than brass in the corpuscles of the spleen and the kidney.

"There are practical books among these ancient volumes which can never grow old. Would you know how to recognize 'male hysteria' and to treat it? take down your Sydenham; would you read the experience of a physician who was the subject of asthma and who, notwithstanding that, in the words of Dr. Johnson, 'panted on till ninety?' you will find it in the venerable treatise of Sir John Floyer; would you listen to the story of the King's Evil cured by the royal touch, as told by a famous chirurgeon who fully believed in it? go to Wiseman; would you get at first hand the description of the spinal disease, which long bore his name? do not be startled if I tell you to go to Pott — to Percival Pott, the great surgeon of the last century."

You see, gentlemen, that I am borrowing not only plumes, but figures of rhetoric, from my forebears. Though you may not recognize the fact, I have taken from past writings of my own upon this theme, paragraphs which the circumstances seemed to warrant. But I have not done so for the reason alleged by Professor Woodhouse, who said of his Introductory Lecture, after delivering it for the twelfth time, that "I find new beauties in it every time."

Everyone likes to feel that he has a mission in life; for this half-hour it is mine to rouse you to an appreciation of what advantages you would reap from having in this city a library supported by the medical profession.

The experience of one of my friends in coming to your State has been so impressed upon my mind, that I shall not venture to indicate precisely what steps you should take to achieve this result. He was an electrical expert in the employ of the American Bell Telephone Co., and was brought two years ago to Skowhegan, to testify in court in the interest of a fire insurance company seeking to escape its liability for a building which had been burned in consequence of being struck by lightning. He made a good case for the company in his direct evidence, but when it came to cross-examination the lawyer for the plaintiff said: "Mr. Stone, you call yourself an expert in electricity." "Yes, sir, I am here in that capacity," replied the witness. "Well now, Mr. Stone, I suppose you think you know a good deal about lightning and thunderstorms, but I want to ask you, sir, at the outset, if you ever saw a Maine thunderstorm?" "No, sir, I cannot honestly assert that I have." "Hah, gentlemen of the jury, what can this so-called expert from Massachusetts tell us about this particular case when he never saw a Maine thunderstorm." The jury gave a verdict for the plaintiff without retiring.

I recognize, gentlemen, I too am in danger of being thrown out of court if I undertake to be too explicit in my advice to you. I may, however, offer you a few suggestions derived from my own experience and that of others.

I am told that your condition with regard to medical books here is much the same as that which pertained in Boston twenty-seven years ago, when we inaugurated the movement for the formation of the Boston Medical Library. Several societies and corporate bodies had collections of books, for the most part inaccessible, all of them antiquated. So you have several collections which could, if combined, be made a very respectable nucleus of a library. The Maine Medical Association has accumulated gradually, by exchange, for its transactions, many hundred volumes of the transactions of the other state societies. The Maine Academy of Medicine and Science is said to have a library of 1,200 volumes, to which a hundred volumes are added yearly, besides about 125 journals received by exchange for its organ, the *Journal of Medicine and Science*. The Library of the Medical School of Maine, consisting of 3,700 volumes, to which but few accessions have been made of late years, must contain the greater part of the medical classics, and could undoubtedly be loaned to any reading-room in this city, where they could be properly cared for and made available for use. As soon as the Boston Medical Library made evident that it was to be a permanent institution, the Harvard Medical School in Boston transferred to its keeping its whole medical library of about 4,000 volumes, with the exception of such volumes as were needed for the working libraries connected with each of the laboratories. Within a month the university in Cambridge has asked permission to deposit in the Boston Medical Library the collection of medical books, to the number of 4,500 volumes, which had been accumulating for more than a century in its library in Cambridge.

In 1875, after we had hired two rooms and a custodian, brought together and catalogued these several collections of books, I was then authorized to make a series of raids upon all the private libraries in Boston; the result was that within a few years nearly all the medical books in Boston were on our shelves. The one essential to success in such an undertaking is that one man, with tastes or habits of a collector, should put energy and time into the work.

The completeness of our files of journals and transactions I attribute largely to the existence of the volumes which I hold in my hand, my "want book," wherein, upon the left hand page, is entered every periodical of which we have any part, while on the opposite page is entered every volume or number needed to complete the file of that particular journal. By invariably carrying this with me upon my travels, in this country and Europe, I have been able gradually, at a trifling expenditure of money, to complete the files of all the leading periodicals of the world. I submit this to your special attention if you wish to know how to build up a medical library with practically no funds for the purchase of books.

I have given you a few hints to indicate the methods whereby we have been able to build up a medical library in Boston until it has exceeded in volume and size all others in the country with three exceptions, that of the Army Medical Department in Washington, the College of Physicians in Philadelphia and the Academy of Medicine in New York; the complete story has been told elsewhere more than once. It does not follow that our form of procedure would be applicable to another community; in fact, I question whether the size of your city and the number of practitioners of medicine residing in or near it, would warrant so bold a step as we took in Boston. I cannot do better in closing than to quote a few paragraphs from a paper on the "Medical Library of the United States," by Dr. C. D. Spivak of Denver, a most ardent and sagacious advocate of my theme.

"Owing to the zeal of many accomplished librarians, medical departments have been organized in forty-five public libraries. The youngest creation in medical libraries is the offspring

of state and local boards of health, of which we have at least five."

"There is no necessity in having more than one library in any one city. Boston, Chicago and New York have gained much by adopting such a plan."

"*How to organize new medical libraries.*— There are two ways: A library can be organized in connection with an existing medical society, or in connection with a public library. If the medical society is large enough to pay rent, salary to a librarian, subscribe to journals and buy books, then by all means this is the better plan. In Denver the Colorado Medical Library Association subscribes to all the journals, and pays for the binding, and the Public Library, besides cataloguing and taking care of the property, buys all the books and binds them. The Library Association owns all the periodicals, reprints and translations, and the Public Library owns all the books."

These quotations from one of the most accomplished and experienced librarians of the country may suggest the means which you will adopt. For I venture to predict that before the year is out you will realize that you cannot afford to be backward in the movement which has acquired such an impetus in the past few years.

"He is the most reliable prophet, who resolves to fulfil his own prophesies," Gentlemen, I am in position just now to help fulfil my above prophesy, for I am distributing to other libraries several thousand duplicates, and should be pleased to divert them in your direction, should you give evidence, in the course of the coming summer, that they will be the means of stimulating you to start a library under any auspices that promise permanancy.

## Original Articles.

### PELVIC CELLULITIS AS A COMPLICATION OF UTERINE FIBROIDS.

BY A. T. CABOT, A.M., M.D., BOSTON,

*Surgeon to the Massachusetts General Hospital.*

In these days of surgical success, when a large proportion of our deaths after operation result from complications rather than from any injury inflicted by the surgical procedure, it is of the utmost importance that cases of death should be carefully studied and fully reported, so that unusual complications may be understood and if possible recognized or, at least, suspected before operation.

This is my reason for reporting two cases of death after hysterectomy for fibroids that have occurred in my practice within the past three years, in both of which the same complicating condition existed. This condition was a cellulitis of the pelvic wall which when awakened to activity by the operation led rapidly to a fatal issue.

Case I. Mrs. C. was a married woman of middle age who had a uterine fibroid about as large as a child's head. I saw her in consultation with Dr. G. K. Sabine in December, 1898, previous to which time she had had one or two attacks of pain in the lower part of the abdomen with moderate fever. These attacks had been associated with tenderness just above the right groin. They had not been of great severity, and had subsided with rest. The last one had been about two months previous to the consultation.

I operated on her in January, 1899. The operation was not a difficult one, and the fibroid presented no unusual appearance. The uterus was amputated through the cervix. The cervical canal was cauterized, the stump was tightly closed by chromicized catgut stitches, and the peritoneum was closely united over it by a continuous stitch of catgut. The temperature was normal at the time of operation. Immediately following the operation the temperature rose to above 100° F., and the following day she had a chill followed by a temperature above 103° F. The abdomen was soft and not unduly sensitive or painful. As the "grippe" was prevalent about her home, it was thought possible that she had come down with that disease at this unfortunate time.

The temperature, however, did not abate, and assumed the characteristics of a septic fever, with occasional chilly sensations and irregular exacerbations. Careful examinations of the abdomen and of the pelvis gave no clue to the source of the sepsis.

Finally, on the third day, as the patient's condition was getting steadily worse, it was thought wise after consultation to put drainage into the pelvis, as the stump of the uterus was the only possible source of infection that could be thought of, and even in the absence of the orthodox symptoms it was thought that an atypical peritonitis might be present. With a few whiffs of ether sufficient primary anesthesia was obtained to open the lower part of the incision and to introduce a gauze drain into the pelvis.

No sign of peritonitis was seen, and no fluid except a very little blood-stained serum was obtained. This drainage was followed by no improvement, and the patient died a few hours later, three and a half days after the primary operation.

AUTOPSY BY DR. W. F. WHITNEY.

The post-mortem examination showed the lungs to be in good order. The heart and parenchymatous organs showed a considerable degree of cloudy swelling. In the pelvis, the line of incision through the peritoneum was firmly united. The stump of the uterus was in good condition, with some slight infiltration of blood in the subperitoneal tissue about it. Beneath the parietal peritoneum on the right side of the pelvis was an abscess containing about one-half an ounce of pus. It was without distinct walls, so that the pus was somewhat diffused into the connective tissue, and was so small that it was at first overlooked, and was only found by accident when incising the peritoneum to see if any septic condition existed along the vessels.

This abscess was separated from the wound about the uterus by an inch of healthy tissues which showed no sign of infiltration with pus. The finding of this abscess led me to make inquiry as to the condition of the fibroid removed. Dr. J. H. Wright, to whom it had been sent, reported that it contained two or three pockets of yellow, thick purulent fluid. These little abscesses seemed to be situated in the remains of uterine tissue rather than in the tumor proper. Cultures from this purulent fluid in the tumor showed the presence in it of a few bacilli, while the cultures made by Dr. Whitney of the pus obtained from the abscess were overgrown with

colon bacillus. Cover-glass preparations from this pus showed a few indeterminate micrococci.

Case II. Mrs. H. C. B., sixty-six years of age, seen by me with Dr. W. N. Tenney on Oct. 1, 1901. She was a frail woman who had suffered from backache for seven or eight years. She was operated upon last winter for hemorrhoids, and while under ether a pedunculated mass of fibroids on the back of the uterus could be made out. The operation for hemorrhoids did not give her full relief, and she continued to have mucus from the rectum, with some tenesmus. At the time that I saw her these symptoms had disappeared. She had some vaginal discharge, but no flowing. The only discomforts were the continued backaches. An examination without ether showed two or three fibroids which seemed about the size of large grapes behind the uterus. In view of her age and the present condition of reasonable comfort, it was decided to wait until we were sure whether the fibroids were increasing in size or causing pain sufficient to justify operation. Towards the end of November, Mrs. B., having been very well in the meantime, began to have some pronounced difficulty with the bowels, with some pain in the lower abdomen, and constipation which was evidently due to obstruction of the bowel. At this time there was a moderate rise of temperature varying from 100° to 101°. I saw her Dec. 2, and finding a fibroid about as large as a mandarin orange wedged between the rectum and the uterus, I advised interference, and operated the following day.

The operation was a very easy one, not taking more than an hour. On the top of the uterus was a fibroid about as large as a mandarin orange, pedunculated, very dark in color, with its narrow pedicle encircled by a filament-like pedicle of a little fibroid not larger than a currant. On the posterior surface of the uterus were one or two other fibroids about as large as grapes. The uterus was amputated at about the middle of the cervix. The cervical canal was cauterized, and the stump was closed by interrupted stitches of chromic catgut, the peritoneum being drawn over the stump finally by a continuous catgut suture. The loss of blood was trifling, and the patient bore the operation very well. That night she had a slight chill, and the temperature rose to 104° F., with a little distention of the abdomen. This was relieved by a free passage of gas. The temperature was down the following morning to 99°, but again rose that night to 104.2°. Through the day following operation the bowels acted freely, there being many small liquid dejections. The abdomen was soft, and no evidence of any peritoneal inflammation could be made out. The patient, however, did not gain strength, the bowels though open remained distended, and she gradually failed, with symptoms of sepsis, the urine being suppressed towards the end of life. She died three and one-half days after the operation.

A partial autopsy was made by Dr. Tenney, and the following pelvic condition was found:

The peritoneal wound was well united and there was no sign of general peritonitis. The large intestine was dilated while the small intestine was empty and collapsed.

The stump of the uterus was in good condition with the peritoneum well united over it.

Against the right wall of the pelvis outside of the peritoneum was a pus cavity "about as large as an egg," and infiltration of pus could be traced in the tissues along the brim of the pelvis and into the prevesical space. This pus was separated from the stump of the uterus and from the surrounding wound by a considerable space, in which the tissues were free from evidences of inflammation.

In both of these cases the striking clinical feature was the sudden access of fever immediately following the operation and leading on into a condition of profound septicemia.

This prompt appearance of a full-fledged septic condition after an operation admits of but two possible explanations: Either septic material has been introduced at the time of the operation, or some septic process, already present, but inactive, has been waked up and made active by the manipulations. In both of the cases reported a careful post-mortem examination failed to show any inflammation of the operative wounds or of the peritoneal cavity. There is, therefore, no evidence of sepsis introduced at the time of operation, and we are left with the belief that in both of them an inflammation already existed in the pelvic wall outside of the peritoneum, which was stirred into activity by the operative procedure. In both of them, too, it was shown that a degree of inflammation existed in the fibroids which might well give rise to secondary abscesses. By what road the inflammation extended from the fibroids to the pelvic wall, whether through the blood vessels or through the lymphatics, may be doubtful. It is probable, however, that this extension was through the lymphatic system. In Case I a careful post-mortem examination failed to show any secondary embolic abscesses or infection of the endocardium such as would be expected in a case of pylephlebitis, and in Case II the clinical symptoms did not suggest infarctions in the lungs or elsewhere.

Moreover, the lymphatic system is a much more frequent conveyor of inflammation than the veins.

What clinical lessons can be learned from these cases? I think we can at least conclude that it is wise in any case of hysterectomy, for fibroids that are or have recently been inflamed, to inspect the pelvic wall with great care to see if any swelling or induration can be discovered. This search should be directed especially towards the bases of the broad ligaments, where they spread out on the pelvic wall, and where their lymphatics enter the glands that lie along the iliac vessels.

That this search may often prove unavailing, even where a serious inflammation exists, must, perhaps, be expected in view of the difficulty of discovering the abscess in Case I at a thorough autopsy, when the amount of pus was doubtless larger than at the time of operation.

Whether a special attempt of this sort would have discovered a focus of inflammation in Case II is also doubtful. It is certain that the operation was in a good light, and no appearance suggesting such a condition was noticed by myself or my assistant. Also, I can positively assert that in tying the ovarian and uterine arteries the walls of the pelvis were pretty thoroughly palpated without any suspicion of induration being discovered.

With the experience of these two cases in mind, however, I should under similar circumstances make a thorough search such as I have indicated, in the hope of finding evidences of inflammation, if such existed.

The sudden appearance of a highly septic condition immediately after a clean operation should

strongly suggest the condition above described, especially if there was sloughing or abscess formation in any part of the fibroid removed.

The differential diagnosis between the condition described and a peritonitis may be difficult to make, but ought, I think, to be possible.

In the cases of peritonitis following uterine operations that I have known about, the onset has not been so rapid, and the abdominal tenderness and rigidity have been almost pathognomonic.

It is true that in the first case some fear was felt that a peritonitis of low grade might be present, even though characteristic symptoms were absent. The closest examination, however, failed to support such a view, and it was only the inability to otherwise account for the course of the case that led us finally to open the peritoneum as a last despairing effort to help a patient rapidly failing. In the second case the similarity of the symptoms to those in the previous case were so striking that I suspected from the start that we might have a similar pathological condition.

Examination failed to give any indication of the situation of the pus, so that there was no guide for surgical intervention. At the autopsy it was shown that the pus was working forward towards the prevesical space; so that in this case we may believe that had the patient had greater strength to withstand the septic poison, we might soon have had the pus presenting at a point where it could have been reached and drained.

The importance of keeping a close watch in such cases for the appearance of induration or great tenderness is evident. Both the abdominal surface and the pelvic cavity should be kept under close scrutiny for the early detection of a cake or fluctuating swelling.

That these cases are rare ones is shown by the fact that a careful search through the clinical histories and the autopsy records of the Massachusetts General Hospital fails to discover a single instance of a similar condition.

## Clinical Department.

### MASSACHUSETTS GENERAL HOSPITAL. CLINICAL MEETING OF THE STAFF.

Regular meeting, May 9, 1902, the president, Dr. C. B. Porter, in the chair.

Dr. Walton showed a case of

#### INTENTION SPASM.

The chief interest of the case lies in the diagnosis from other disorders of the neuromuscular mechanism which interfere with voluntary motion. The only symptom in this patient, a man of middle age, is the disturbance of gait, which has remained practically unchanged for five years. As long as he is sitting still there is nothing abnormal about him, the muscles are normal, free from spasm, and the reflexes are not increased, so that lateral sclerosis may be excluded. As soon as he rises to walk the muscles of the lower extremities, particularly the quadratus femoris, become tense, and this curious, "woodeny" gait appears, resembling that of a man who has lost his toes. The physical examination is otherwise negative as regards motion, sensation and nutrition, nor has there been any disorder of genito-urinary function other than the presence of sugar in the urine without sign of diabetes.

We are tempted to call it a case of hysteria, but we are loth to make this diagnosis from a symptom which has persisted five years without change in a man with no psychopathic or neuropathic taint. Tetany may be considered, but in tetany the spasm, though increased on attempted motion, persists irrespective of such attempt, and is paroxysmal. Nor are any of the recognized causes of tetany present, such as debilitating digestive disorder or removal of thyroid. Myotonia acquisita, or acquired Thomsen's disease, must be considered, but in this disease the spasms which appear on attempted motion gradually disappear as motion is continued, whereas in this case the gait remains unchanged. Then there are here none of the characteristic tetanic contractions upon application of the faradic current such as occur in Thomsen's disease, nor is there increased mechanical irritability.

We come then by exclusion to the diagnosis *intention spasm*, which is, of course, merely giving the name of the symptom. What is the cause? Probably not the glycosuria, for this is presumably of recent appearance and without other symptoms of diabetes. He complains of tenderness of the bottom of the feet, and examination shows that flat-foot is present, and Dr. Painter has fitted him with plates. No definite result has appeared as yet, though insufficient time has elapsed to decide the question absolutely whether this is of importance in the etiology. Even if some such mechanical disorder originated the spasm, the symptom has persisted for so long a time that correction of that disorder could hardly be expected to cause immediate relief.

Dr. James J. Putnam: I agree with the diagnosis, and the case is of interest as an example of one of the many neuroses which are, so to speak, crystallized exaggerations of the normal. The stiffness seen in this case may be only an extreme form of that stiffness of which neurasthenic patients often complain.

#### FIBRINOUS BRONCHITIS.

Dr. James J. Minot showed a specimen of a bronchial cast from a case of fibrinous bronchitis in a woman of forty-five years, who for three years has had asthmatic attacks about every four weeks, lasting from a few hours to a day. The day after one of these attacks he found dulness and a few crackles at the base of the left lung, where she complained of having pain during the attack.

X-RAY TREATMENT OF MALIGNANT DISEASE.

Dr. Seabury Allen presented a series of cases, with photographs illustrating the x-ray treatment of malignant disease.



Fig. 1. Epithelioma. Twelve years' duration.

Here are three cases, a man and two women. The man has not been treated until the last two



Fig. 2. Same as Fig. 1, after 6 exposures (in 2 weeks).

days and shows an epithelial cancer at the inner corner of the eye which is now in just the condition which was present in the other two cases before treatment. The other two patients, both women, show the favorable results of treatment.



Fig. 3. Same case as that shown in Figs. 1 and 2, after 1 month's treatment, a total exposure of three hours and 2 minutes. Perfect result. No recurrence after 5 months. (The dark area is due to reddening of the skin from a slight burn.)

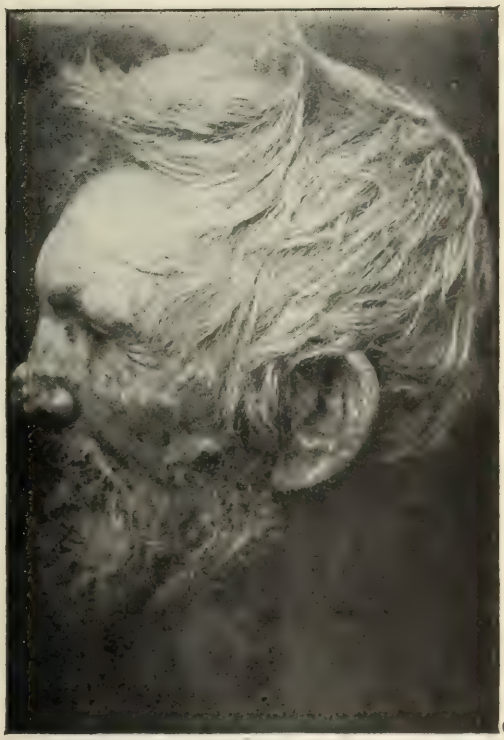


Fig. 4. Epithelioma of nose (25 years' duration) and cheek (25 years' duration) before treatment.

Both were epidermoid cancer and both had been advised against operation; the first by surgeons

at the Boston Dispensary, and the second by surgeons at the Carney Hospital. In the first, (see Figs. 1, 2 and 3) the disease (of seven years' standing) covered the end of the nose; she has had sixteen treatments of five minutes each. In

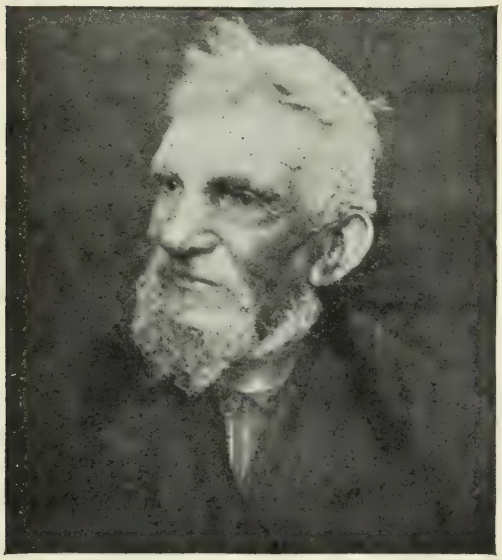


FIG. 5. Same as in Fig. 4, after 2 hours and 20 minutes' total exposure.

the second the disease (of nine years' standing) had destroyed the outer canthus of one eye and a part of the cheek; she had twenty-five treatments of five minutes each. No histological examination has been made. I would like to call attention particularly to the quality of the scar in these two cases.

I will show next four cases in which we have had histological examination. The first, a woman

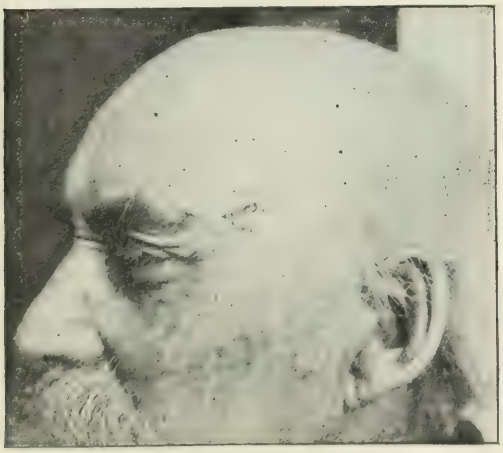


FIG. 6. Epithelioma (duration unknown). Had been operated on 5 weeks previously; x-rays used to promote healing and prevent recurrence.

with a rodent ulcer of eight years' duration, has had in all two hours and twenty-five minutes' exposure to the x-ray, and next, this man, who has had two hours and fifteen minutes in all (see Figs. 4 and 5). He had an epithelial cancer of twenty-five years' duration, involving the nose, cheek, forehead and parts about the eye. Both cases have been cured. The next patient has a squamous cell carcinoma of the tongue. After forty-five minutes' total exposure, he shows no diminution at all in the amount of the disease, but his pain has been entirely relieved and he can speak and eat much better.

Next is a case of a sarcoma of the tonsil, in which, as may be seen in the photograph, there was a large bulging tumor externally, and in which eating and talking were very difficult. The bunch is now gone and he can eat and talk perfectly well. We had a histological diagnosis here and we feel no doubt about it. The glands are still present, and on the inside the ulceration in the throat shows no considerable change.

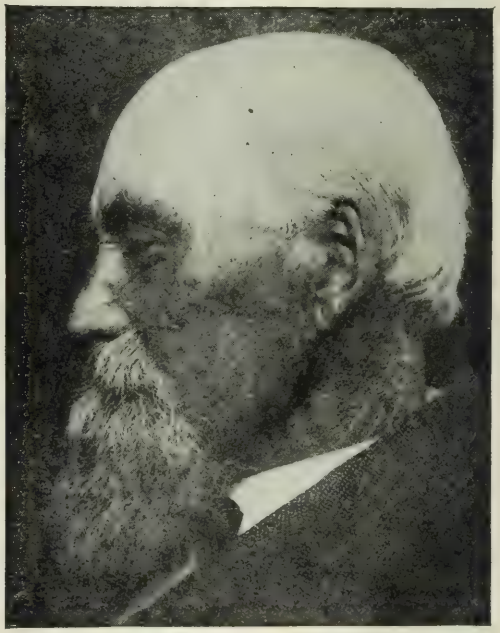


FIG. 7. Same case as in Fig. 6, after a total exposure of 20 minutes. No recurrence after 4 months.

MR. WALTER J. DODD showed a woman with cancer of the breast, operated on two years ago by Dr. Harrington, but recurring one year ago with great pain, edema, and loss of motion in the left arm.

She was taking, when she came here, 25 gr. of morphin a day. Now the tumor is one-half its former size, though still very tender. The edema has gone. The pain was relieved after five exposures, recurred when we stopped treatment, and ceased again when treatment was resumed. She can now use the arm perfectly well, and her general condition is greatly improved. At present she uses only 2 gr. of morphia a day.

There are several other patients who have not come this evening (see Figs. 6-12). One of these was operated on by Dr. Beach in 1891, for

cancer of the breast, and by Dr. Warren in 1894, for recurrence of the same. The affected area was about seven inches in diameter; it is now only 2½ inches across, a mere granulating surface, and, although she is seventy-six years old, and was at first hardly able to get to the hospital for treatment, she now comes here without any attendance, is relieved of her pain, has gained 10 lbs., and is quite free from the foul discharge previously present.

There are twelve other cases under treatment, four of which may be considered absolute failures; one, an epithelioma of the cheek, was checked for about a month, then grew larger, and in eight weeks was twice as large as at the start. The

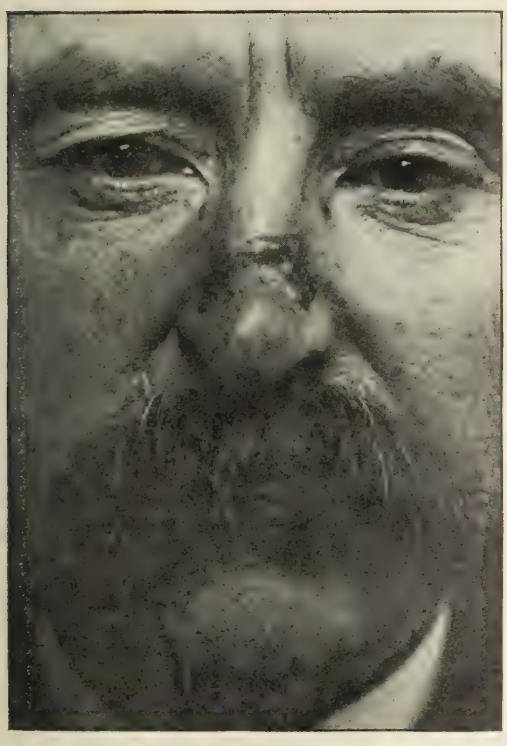


Fig. 8. Epithelioma (7 years' duration). Before treatment.

other three were far-advanced cases of cancer of the jaw.

Dr. C. B. Porter said in reference to the last case of cancer of the breast, as shown by Mr. Dodd, that the patient came in to his clinic recently, vigorous and spry, with what had been a great sloughing tumor now reduced to the level of the ribs, and a metastatic gland in the neck which had formerly prevented sleeping on account of pain, but which now caused no pain.

Mr. Dodd: In a case of cancer of the neck, on which Dr. Maurice H. Richardson did a partial operation March 15, a large mass was left in the neck and afterward increased much in size. After ten exposures the growth became smaller, softer, and is now almost gone. I show you a photograph taken after two weeks' treatment. In the course of five weeks the patient has had two

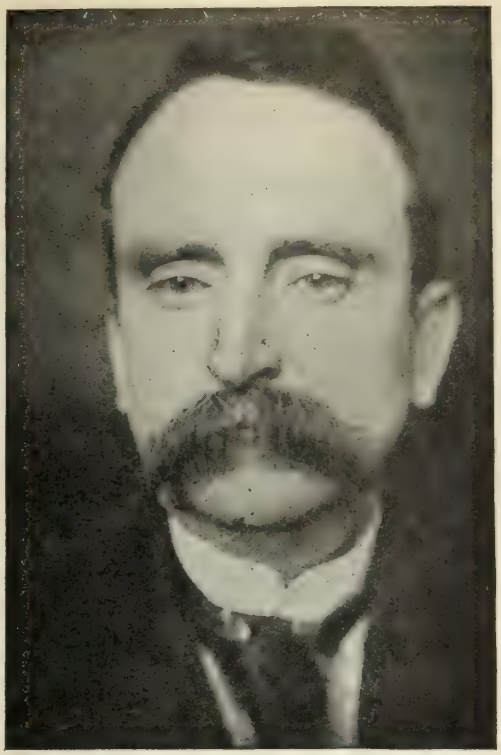


Fig. 9. Same case as in Fig. 8, after a total exposure of 40 minutes. One week after this photograph was taken healing was perfect.

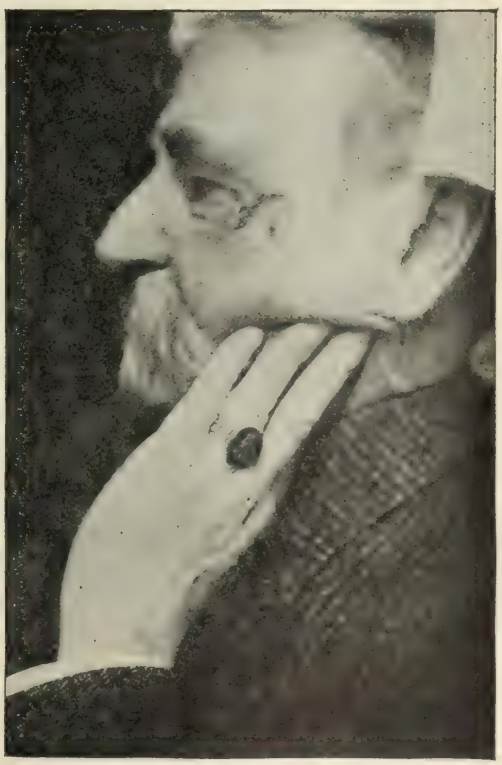


Fig. 10. Epithelioma. Eight to nine years' duration. Before treatment.

hours' exposure in all, and the ulcerating surface is nearly healed.

DR. JAMES C. WHITE spoke of the results of x-ray treatment in cutaneous .tuberculosis and sycosis: In the former its effects are slowly favorable, but in the latter the treatment works like a charm. In four cases which had been under treatment for nearly a year, by ordinary remedies, without yielding, six exposures to the x-ray caused great improvement within a few weeks, and in two cases the disease was cured. In cases of alopecia areata the treatment is said to have restored a growth of hair; yet, curiously enough, it is also used to remove hair from women's faces. There was a case of superficial epithelioma of the forehead under our observation in which, during x-ray treatment, the hair on that side of the head was wholly lost, but the cheek, which also was not shielded, has since become covered with a strong growth of hair. The hair upon the head had also grown again since the treatment was omitted.

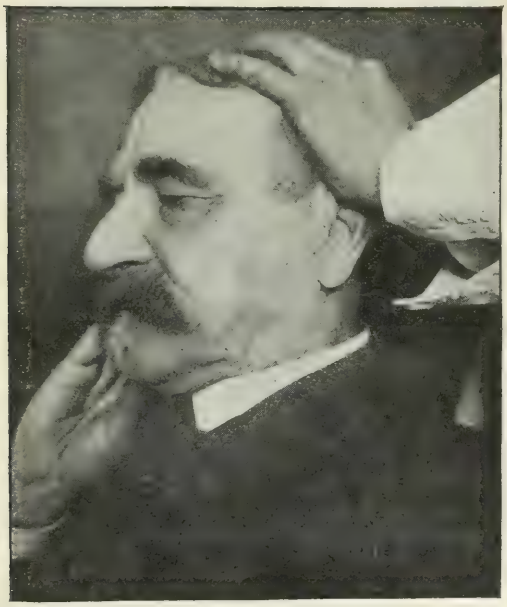


FIG. 11. Same case shown in Fig. 10, after 60 minutes' total exposure.



FIG. 12. Epidermoid cancer. Result after total exposure of 2 hours and 7 minutes. Large healed area may be seen; no photograph taken before treatment.

*(To be continued.)*

## Medical Progress.

### RECENT PROGRESS IN OPHTHALMOLOGY.

BY MYLES STANDISH, M.D., AND WM. D. HALL, M.D., BOSTON.

(Concluded from No. 15, p. 411.)

#### THE CHALAZION BACILLUS.

Hala:[11] As a result of analysis of twelve cases of chalazion where bacteriological and histological examinations were made, together with experiments on animals, the author concludes that the process from an etiological point of view is an infective one, and that the bacilli, which are regularly found in large numbers, are in every way identical with the so-called xerosis bacillus described by Kuschbert, Neisser and Leber. This bacillus, which is so often found in the normal conjunctival sac and in the various forms of conjunctivitis, probably got into the tissues by rubbing, and when once there, grew, and thus caused the process called chalazion. It is not a retention cyst and has no connection with tuberculosis.

#### PARAFFIN INJECTIONS IN OPHTHALMOLOGY.

Rohmer and Dianoux[12] have made several communications on the value of vaseline injections into the orbit to fill the space occupied by the eye which has been taken out. The principal objection which has been urged against this procedure is the danger of getting a pulmonary edema, two cases of which have been reported. For this reason Eckstein has tried paraffin, which hardens so rapidly after the injection that the possibility of getting emboli is very slight. Brokaert reports one case where he had injected paraffin under the skin over the root of the nose, to relieve a marked epicanthus, with a brilliant result

#### TREATMENT OF TRACHOMA WITH IODINE.

Melconian:[13] The use of a solution of metallic iodine in fluid vaseline (0.05 to 10 gr.) is advised. If a recent case, or the eyes are sensitive, a more dilute solution may be used. The application is to the everted lid, and the substance should be thoroughly rubbed in. There is a slight stinging which lasts but a few minutes. The application should be made twice daily, with an instillation during the day. Continue treatment

[11] Zeitschr. f. Augenheilk, November, 1901.
[12] Woch. f. Therap. u Hyg. des Auges, No. 21, 1902.
[13] Klin. Therap. Woch., 8, 1902.

till the pannus has disappeared and the lids have regained a normal appearance. It takes more time than "blue stone," is more reliable, and leaves no scars behind.

TINCTURE OF IODINE AS A SUBSTITUTE FOR IODIDE OF POTASH.

Paul:[14] The author regards the tincture of iodine as a very satisfactory substitute for iodide of potash. He gives thirty drops and over, three times daily. It is taken with less discomfort and is very much cheaper. He considers the therapeutic action to be identical.

AMBLYOPIA OF HEPATIC ORIGIN.

Jacqueau:[15] The author has observed that individuals who are subject to disease of the liver have likewise disorders of vision at first purely functional, but which tend to become actual fundus lesions if the disease of the liver is prolonged. These visual disorders are of two sorts: the hemeralopias, which are the most frequent and which can almost always be considered as indicating incomplete action of the hepatic cell, and the amblyopias proper, some of which by presence of a scotoma suggest alcohol. They are at times accompanied by secondary symptoms, such as, for example, paralysis of the ciliary muscle. Amaurosis may finally supervene. The prognosis is of course dependent upon the condition of the liver. The following is offered to explain the relation between the two conditions. An arrest in the functions of the liver cells permits the presence in the blood of organic toxins that otherwise would have been removed. This causes an "intoxication" of the retinal cells, which in a slight degree becomes merely "torpeur," inducing a hemeralopia; a "coma" more accentuated, with or without lesions, explains the amblyopia, while a greater degree of coma with actual fundus lesions, may be considered to explain the amaurosis.

INJECTIONS OF AIR INTO THE ANTERIOR CHAMBER AS TREATMENT OF OCULAR TUBERCULOSIS.

Koster:[16] Two patients, who had tuberculosis of the iris, received injections of air into the anterior chamber. The author advises an ordinary Pravaz syringe half full of air that has been filtered through sterilized cotton. The needle is then introduced into the anterior chamber, which is emptied of the aqueous humor. The syringe is depressed so as to allow the fluid to flow to the proximal end, after which pressure upon the piston causes the sterile air to enter. It is claimed that in the case of the first patient there was complete recovery after three injections, with clearing of the media and an ultimate vision of $\frac{6}{12}$. The second case was that of an iris tumor filling the anterior chamber, which resisted all treatment until seven injections had been practised. There was gradual diminution in volume of the tumor, and finally it disappeared. A third case was that of a boy of eighteen years who had parenchymatous keratitis, and afterwards developed tubercles of the bulbar conjunctiva. Although the ordinary treatment was without avail, the process finally yielded to four injections of air.

CUPROL.

This is a new remedy described by v. Sicherer[17] of Munich. It is an organic combination of copper and nucleinic acid, containing about 6% of copper. The nucleinic acid is obtained from yeast cells. Cuprol is readily soluble in water, especially hot; yields a clear mixture with albuminous liquids; there is no coagulation, and alkalis cause no precipitation. The best preparation for use is a 10% solution containing $\frac{1}{2}$% chloreton, a chemical combination of chloroform and aceton. This solution is more easily prepared with warm water. It causes little or no pain or irritation of tissue, and in this respect is better than the sulphate of copper or protargol. It may be used to advantage in acute and chronic catarrh of the conjunctiva in the form of a solution, and in phlyctenular conjunctivitis, as a powder, it may be dusted on, as was calomel formerly. Snell has used it to advantage in trachoma and thinks that it penetrates more deeply and causes less irritation than the copper salt. Cocain is superfluous. In the intervals a 5% solution may be used at home.

Romage[18] has lately used ethyl chloride more than one hundred times without ill effects. He prefers a cone of cloth covered with paper, at the bottom of which is a pad of cotton wool, and upon the latter is sprinkled several cubic centimetres of the anesthetic. By inhalation of from 2 to 5 cc. he obtains a rapid and gentle anesthesia at the end of from fifteen to twenty seconds; rarely is a longer time necessary. The odor is agreeable. Muscular relaxation goes on to mydriasis if it is pushed. Pulse is regular but frequent. There is no cyanosis. The anesthesia lasts from one to three minutes, but for prolonged narcosis it is necessary to spray on a few centimetres more. With from 10 to 20 cc. operations lasting from five to fifteen minutes have been made. The recovery is rapid, therefore the patient must be watched. There are no after-effects; the patient can get up and go away. All operations have been done with the patient lying down. It is not indicated where cocain is indicated, but is preferable to chloroform. It is indicated for the minor ophthalmic operating and for children.

SCHNEIDERLEIN NARCOSIS.

Korff:[19] Of eighty cases in which this method was practised according to Schneiderlein's directions there was but one in which alarming symptoms developed. This person had a pulse of forty-six for twenty-four hours. This narcosis is accomplished by repeated hypodermic injections of scopolaminum hydrobromate in doses of from

[14] Deutsch. Aertze Zeit., No. 4, 1902.
[15] Soc. Francaise d'Opthal., Mai, 1902.
[16] Rep. Ophth. Soc. Netherlands, Dec. 15, 1901.
[17] The Therapeutic Gazette, March, 1902.
[18] Therapeutic Gazette, March, 1902.
[19] Münch. Med. Woch., 1901, No. 29.

4 to 5 gr. associated with morphin in doses of $\frac{1}{6}$ gr. These are repeated two or three times with two hourly intervals between. If the anesthesia is not sufficiently pronounced Schinzinger employs a few drops of chloroform, at the most never more than one-third of the quantity ordinarily used. This treatment is said to produce a quiet narcosis without vomiting, and is followed by a sleep from which the patient awakens feeling perfectly well.

ACETATE OF BETA-EUCAIN.

Cohn [20] reports observations with a 2% solution on twenty sound and eighty diseased eyes from the clinic of Professor Silex. He finds that it has the same anesthetic power as the muriate of beta-eucain and cocain. No toxic influence, alteration of accommodation, mydriasis or change in tension were observed, though it caused a slight burning and hyperemia. It is not decomposed by boiling and is cheaper than cocain. Both the muriate and the acetate are excellent anesthetics.

SUBCONJUNCTIVAL INJECTIONS OF GELATIN.

DeWecker,[21] having noticed the remarkable results obtained by gelatin injections in aneurism of the aorta, has been led to employ the same material either alone or in combination with 3 to 5% solution of sodium chloride subconjunctivally instead of the painful injection of 10 to 20% solutions of salt. He favors this method of modifying the osmotic currents more particularly in cases of ocular hemorrhage. In one of his cases with poor light perception resulting from repeated hemorrhages into each vitreous, after a six weeks' treatment with biweekly injections of a syringe full of a $2\frac{1}{2}$% strength of gelatin solution, the vision arose to $\frac{1}{10}$ of the normal in one eye and to nearly $\frac{1}{4}$ in the other. One year later the same treatment was instituted, with improvement to $\frac{1}{6}$ and $\frac{1}{2}$. The fundus of one eye could then be seen, and showed the remains of a proliferating retinitis. Injections are painless and not followed by reaction if properly sterilized solutions of isinglass and not bone gelatin are used. If these conditions are not possible, simple sodium chloride solution is much better.

LACHRYMAL SOUNDS OF GELATIN PROTARGOL.

Antonelli [22] advises the use of these sounds in various affections of the lachrymal passages. A more or less complete section of the canaliculus is indispensable. Gelatin is to be preferred on account of its strength, flexibility and solubility. In size they correspond to a No. 4 sound, and are used after removal of a No. 5 or No. 6 metallic sound. He prefers them to injections, and medicates with even 50%.

AIR AND WATER MASSAGE FOR THE EYE.

Kauffmann: [23] In this form of massage the anteroposterior movability of the eye is utilized. The apparatus is a sort of a suction arrangement resembling a syringe, which fits snugly into a cup capable of being closely applied to the lid. A backward and forward movement of the globe is thus possible which can be regulated by the will of the operator. When water massage is to be used the cup is filled with water of the desired temperature, the force being applied to the eye through the water. The sittings should be daily and lasting eight minutes. The method is suggested as being especially applicable to cases of embolus of the central artery, to disease of the optic nerve, and to paralyses of the ocular muscles.

THE CLEARING OF CORNEAL OPACITIES DUE TO LIME.

Guillery: [24] The author employs chloride of ammonium as a solvent of the organic compound albuminate of lime, of which the corneal opacity following an injury from lime is composed. He advises its use as a from 2 to 20% solution applied as an eye-bath one-half to three-quarters of an hour daily for animal experimentation, but for general use would not advise anything stronger than 2%. He believes the solution of albuminate of calcium in the living human eye to be possible.

NERVOCIDIN, A NEW LOCAL ANESTHETIC.

A recent number of the *Lancet* describes a new anesthetic obtained from a plant named "gasubasu," a native of India. The active principle is an alkaloid from which a salt is made by treatment with hydrochloric acid. Weak solutions produce marked corneal anesthesia in warm-blooded animals lasting several hours. Subcutaneous injections have not yet produced local anesthesia in animals. The general action upon the system is that of a toxic which produces death by paralyzing motor centres and peripheral nerves. It has the advantage over cocain in that a $\frac{1}{5}$% solution sustains an anesthesia lasting two or three days. The objections are local irritation, slowness of action and a liability to cause nausea, vomiting, salivation and other symptoms of general poisoning.

CHLOROSIS AND ITS RELATION TO THE EYE.

G. F. Suker: [25] Although this disease has been associated with the female sex the author thinks that it is often met with in male subjects and in persons over thirty. He considers it to be "an oligochromenia dependent upon a faulty hemopoiesis, the latter being due to a deficient hemoglobingenesis. In other words we can call it autotoxemia, and the lesions in the fundus are the result of this toxemia." The paper closes with the following conclusions: "Optic atrophy, papilloretinitis, and pseudo-albuminuric spots can and do have a chlorosis as their causative factor. Double optic atrophy associated with chlorosis may simulate brain tumor to a marked degree. Headaches due to a refractive error or to astheno-

[20] Med. Woch., Sept. 9, 1901.
[21] La clin. ophthal., November, 1901.
[22] Ann. d'ocul., October, 1901.
[23] Woch. f. Therap. u. Hyg. des Auges, No. 22, 1902.
[24] Arch. f. Augenh, xliv.
[25] Medicine, May, 1902.

pia are of a severer type and are often aggravated by the chlorosis. Arterial pulsation in the retina is indicative of the severity of the disease, as is also the venous pulse. The fundus lesions in chlorosis are the result of an autotoxemia. The prognosis, in nearly every case, is favorable, considering the severity of the hemic lesion, excepting the optic atrophy. The foci of fatty degeneration in the retina deserve special attention, so as not to be mistaken for albuminuric spots."

KINESCOPY.

Holt, Sweden :[26] The principle of application is the fact that, when fixed objects are observed through a slit in a moving disc, there is an apparent movement contrary to the disc in hypermetropes, and, with the disc in myopes, the refractive error being indicated by the lens that renders the motion *nil*. It is well to determine the axes of the astigmatism by the ophthalmometer. The instrument consists of a peripherally perforated movable disc armed with lenses, to which is attached a truncated cone containing a slit at its apex, arranged so as to admit of rotation to either side of the disc, according to which eye is to be examined. A black disc of 30 cc. in diameter, on one face of which is a white disc of 5 to 10 cc. diameter, and on the other a white revolving linear index, serves for fixation.

THE READY DETECTION OF COLOR SCOTOMATA.

C. A. Oliver, M.D. :[27] This contrivance, which is a modification of the "Abney pellet test," consists of a wooden disc upon which tinted spherical pellets are loosely laid, the whole being covered by a transparent lid. The disc should be placed upon a black surface, one eye being occluded. The green pellet is removed from the rest and examined by the patient, who is watched to see if he holds it excentrically. He is then told to direct his exposed eye toward the tray, from a distance above of about 40 cc., and then to drop the pellet into the tray, which is given a twist to change the position of the pellets. A central scotoma 2° in diameter, will prevent his regaining the green pellet. The other colors may be tried in succession.

MYASTHENIA AND OPHTHALMOPLEGIA.

W. R. Gowers :[28] There are given the histories of three cases with pronounced eye symptoms. This disease is characterized by general feebleness of muscles, quick exhaustion, with quick renewal of power on rest, and is met with chiefly in young subjects. Although general it is especially marked in the lips, palate, pharynx, and often in the muscles of mastication. The bulbar weakness was the first to attract attention to the condition. The course of the disease presents curious variations, is seldom progressive, and does not greatly improve. When accompanied by ophthalmoplegia the loss of power strongly resembles that due to nuclear degeneration. It differs, however, in the fact that the muscles moving the eye downward are more apt to escape, and the muscles moving the eyeballs upward are affected in varying degree. The lateral muscles are also affected in varying degree. The iris light reflex has been perfect in all of the cases noted. Observations in regard to the accommodation are uncertain. Ptosis was marked, but there was no correspondence between its degree and the impairment in the upward movement of the eyes. There was also weakness of the orbicularis and frontalis.

MERCURIAL INJECTIONS IN THE TREATMENT OF SPECIFIC OCULAR AFFECTIONS.

Armaignac,[29] after using the various mercurial salts in the form of hypodermic injection, has come to the conclusion that with the exception of the benzoate, the local reaction is too severe to warrant their use. For the two and a half years that he has used the benzoate he has had no unpleasant incidents, and has found that his results are fully as good, when he has used it in specific disease, as has been obtained by using other mercury salts. He mentions using it in an intense irido-cyclitis which followed a paralysis of an inferior rectus that had yielded to the iodide of potash. He obtained a rapid cure of a gumma of the iris. A papillitis, probably syphilitic, followed by distinct atrophic changes in the nerve, with considerable loss of vision, improved after the use of the drug.

INTRA-OCULAR GALVANO-CAUTERIZATION.

Roscher :[30] Three years ago Van Millingen reported sucessfully employing this method in cases of panophthalmitis. After general anesthesia the glowing end of the platinum point is carried into the vitreous, after the edges of the wound have been cauterized, moved to and fro, and promptly withdrawn. The time employed is from three to four seconds and the depth from 4 to 8 mm. The scleral wound is sutured, then atropin and bandage. The vision was in these cases 0.50, 1.00 and 0.20 respectively. The author has had recourse to this method in two cases of severe injury. One came to enucleation, and in the second case a sightless but shapely eye was preserved. Eversbuch and others have, however, used this method with good results.

POISONING BY OXIDE AND DIOXIDE OF CHLORINE.

Graefe :[31] After use of a "flashlight" in a small room, an individual became unconscious, with pulse of 50, temporal and occipital pain, numbness of hands and feet, much difficulty in breathing; bilateral mydriasis, *ad maximum*, and paralysis of the abducens; equator of both lenses opaque with intermittent light; also dark streaks, and a diffuse opacity in the centre; fundus apparently normal (Snellen XXX), uncertain at ten inches. This preparation contains magnesia and chlorate of potash, which develop by explosion ox-

[26] Ann. d'oculist, April, 1902.
[27] Annals of Ophthalmology, July, 1902.
[28] British Medical Journal, March, 1902.
[29] Recueil d' Ophthal., March, 1902.
[30] Münch. Med. Woch., March, 1902.
[31] Deutsch. Med. Woch., No. 11, 1902.

ide and dioxide chlorin, which are very poisonous. After nine weeks, paralyses of abducens and accommodation subsided, and mydriasis diminished. The opacities of the lenses disappeared except a few radiating striæ at the equator, which may have existed previously. Treatment: Roborants, alcohol and dark glasses.

## Reports of Societies.

### MAINE MEDICAL ASSOCIATION.

FIFTIETH ANNUAL MEETING, HELD AT PORTLAND, JUNE 4, 5 AND 6, 1902.

FIRST DAY.—MORNING SESSION.

THE meeting was called to order under the presidency of DR. FREDERIC HENRY GERRISH of Portland.

After the disposal of routine business, DR. FRANK N. WHITTIER, professor of bacteriology in the Medical School of Maine, read a paper entitled

CULTURE METHODS IN DIPHTHERIA.

The advantages of cultures are twofold: (1) They give an early and certain diagnosis, and (2) they provide the best method of determining the time when quarantine may be safely raised.

Attention was called to the fact that although a certain proportion of cultures were negative, even in the presence of typical clinical symptoms, perhaps 10% of subsequent cultures rarely failed to demonstrate the bacillus. Failures to find the bacillus were attributed to errors of technique in swabbing the throat, or somewhere in the laboratory. In communities where diphtheria is prevailing, the bacillus may be found in possibly 1% of the throats of well people. It was not likely to be found under other conditions.

Attention was called to the difficulties under which the bacteriologist labors, in not controlling all the steps necessary, and in being likely to have his work negatived by the carelessness of others.

The various forms of bacteria likely to be mistaken for diphtheria bacilli were described and plates were shown illustrating mouth and throat organisms.

DR. G. M. CAMPBELL of Augusta queried, if the routine use of antitoxin, unless indicated by a positive culture, was not unnecessary as well as unscientific. He thought the wire loop for obtaining the infective material was easier for the average physician to use than the swab.

DR. ADDISON S. THAYER of Portland protested against the delay in the use of antitoxin to await the result of a culture. He thought it best in all suspicious cases to administer the serum at once, and then make the culture and get the advantage of the antitoxin while the culture was maturing. This was often a great saving of time and could do no possible harm.

DR. R. D. SMALL of Portland read a paper on

LEUCOCYTOSIS AS AN INDICATION FOR OPERATION IN APPENDICITIS.

Cabot's definition of leucocytosis was accepted as meaning an increase of the leucocytes in the peripheral circulation, over the number normally found there. Not an actual increase in the whole blood, but a change in distribution. The leucocyte count was regarded as of special significance in those cases of abscess not easily detected by palpation, and which affect the pulse and temperature no more than severe catarrhal cases. To be of undoubted value to the surgeon, two or more counts were advised to be taken on successive days. The increase of white cells is to be regarded as a symptom, just as is pain and vomiting. In patients overwhelmed by the septic condition, leucocytosis is often absent. Whether the sign alone is of any value is too early to determine. An ascending leucocytosis indicates operation, because it means a suppurating process. Its true significance at present must be regarded as of value when confirmatory of other signs. In all cases it is to be considered a valuable aid to diagnosis.

DR. S. C. GORDON of Portland said that the leucocyte count was of great assistance in the case of women, in whom it was not always easy to differentiate between appendicitis and the suppurative conditions often found in the female pelvis. It should as a rule be comparatively easy to diagnose appendicitis in men. The profession was apt to overlook the fact that both temperature and pulse sometimes fail as guides. In these cases the blood count is worth a great deal, especially if positive.

DR. E. M. FULLER of Bath read a paper on

THE ANATOMY OF THE PARATHYROID GLANDS.

The writer stated that it had been his good fortune to first dissect out and demonstrate human parathyroid glands on this side of the Atlantic. These bodies were said to be entirely distinct and independent in structure from the thyroids; to be constant in their number and position, and at no stage of their development to correspond in structure to the thyroid. They are called the superior internal and inferior external parathyroid glands because of their relation to the inferior thyroid artery and recurrent laryngeal nerve, two being superior and internal and two being inferior and external to these structures. The usual size was stated to be 6 or 7 mm. in length, 3 or 4 mm. in breadth, and 1.5 or 2 mm. in thickness; occasionally they have been found twice this size. Their stalk-like attachment to the thyroid was offered, not as evidence of their thyroid nature, but as throwing a possible light upon their function, which may be to furnish some essential material to the thyroid, since removal of the parathyroids is invariably rapidly fatal, and the fatal result of thyroid removal is hastened if the parathyroids are also removed. Although sometimes found associated with accessory thy-

roids which are detached portions of thyroid tissue, they are structurally distinct, and the two kinds of tissue are separated by a fibrous septum. There is never any continuity of tissue nor any evidence of the conversion of parathyroid into thyroid tissue.

FIRST DAY.— AFTERNOON SESSION.

The association met at 2.30 o'clock, with Dr. J. L. M. Willis of Eliot, first vice-president in the chair.

The president, Dr. F. H. Gerrish, then delivered the

ANNUAL ADDRESS.

The address confined itself to matters intimately concerning the welfare of the association, and questions affecting the interests of the State.

Suggestions were made as to the observance of the semicentenary, which occurs in June, 1903.

The application of the plan of reorganization of State societies to this association, as proposed by the American Medical Association, was regarded as unnecessary and as objectionable, because it would involve the entire change of a form of organization which time and experience have shown to be best adapted to existing conditions in this State; and as conferring no additional advantages.

It was recommended that the association make a money contribution from the funds in its treasury to the Maine Sanatorium Association.

Attention was called to existing defects in the present laws of Maine, both with reference to the commitment of the insane by municipal officers, and their release from the insane hospitals; it was also recommended that a committee be appointed to urge upon the next legislature such changes in the laws as seem to be demanded.

The association was urged to use its influence with the members of the next legislature to secure for the State Board of Health a chemical and bacteriological laboratory, much needed in its work and hitherto unsuccessfully sought.

It was recommended that a committee be appointed to seek appropriate legislation by means of which a patient who wishes to overcome a drug addiction shall be able to relinquish his liberty for a stated period and put himself under the control of a physician without endangering the pocket or reputation of the latter by a suit for false imprisonment.

It was recommended that a committee be appointed to report at the next meeting on the expediency of seeking legislation which shall add syphilis and gonorrhea to the list of diseases required to be reported to the Board of Health; shall provide free hospital treatment for persons afflicted with either of these diseases, and shall restrict the marriage of such persons.

The report was referred to a special committee, which later reported, approving the recommendations of the address, and the association appointed the standing committee suggested, and appropriated as a gift to the Sanatorium Association the sum of $1,000.

It was also voted to make suitable observance of the semicentenary, and a sum of money was placed at the disposal of the Business Committee for that purpose.

The standing Committee on the Abuse of Medical Charities made report to the effect that it had held conferences with representatives of the management of the various state and local hospitals with reference to devising some plan by which those able to pay a reasonable fee in addition to the regular charges for board and nursing be required to do so. The committee stated that it had made the request of the directors of the several institutions that all patients who are not charity patients, but who desire free treatment, shall be required to sign a statement that they are unable to pay for more than board and nursing; that all patients who can furnish satisfactory proof to the superintendent that they are without means shall be accepted as charity patients and entitled to a free bed. The committee recommended the adoption by the several hospitals of a table of fixed fees for medical and surgical services.

This report was referred to a special committee, which later made a report reiterating the suggestions of the standing committee. The association accepted the report, but took no further action other than to continue the original committee.

After the appointment of the usual nominating committee, Dr. Charles D. Smith of Portland, permanent secretary since 1883, presented his resignation, to take effect at the next annual meeting. The resignation was accepted with an expression of the regret of the association, and a vote of thanks to Dr. Smith for long and efficient service.

Dr. William B. Small of Lewiston read a paper on

TUBERCULOSIS, FROM THE STANDPOINT OF ITS MODERN TREATMENT.

The three stages of the disease were said to be: (1) That condition in which the bacillus alone attacks the organism; (2) that in which the pus-producing organisms were added to the tubercle bacillus; (3) that in which the tissues are overwhelmed by the pus-producing bacteria and the body is actually in a condition of sepsis.

Heredity was admitted to the extent of the transmission from parent to offspring of tissues of feeble resistent powers, which allow the bacilli successfully to invade them. Direct transmission of the disease was said to be practically unknown from father to child, and very rarely from the mother.

Cases which have recovered, as shown by autopsies upon bodies dead from other causes, owe their escape from consumption to the fact that every living organism has, within itself, the inherent power of freeing itself from disease-producing matter.

To successfully carry out all the hygienic and preventive measures, laid down as essential for the eradication of this disease, cannot be looked for in a day. They will only be secured, if at all, after years of education, and intelligent co-operation between the public, the authorities and the medical profession.

The secret of successful treatment is "immunity." Any treatment directed to the cure of the disease must act by the production of this resisting power of immunity. We must treat the individual; and as individuals differ, so must the treatment differ for every case. Especially is this fact conspicuously shown in the matters of climate and food. Medicines which act favorably in some cases fail in others because of the failure to recognize the personal element which effects every case.

From year to year the reports of the various sanatoria show, more and more positively, that pulmonary tuberculosis is not in a large majority of cases necessarily a fatal disease. The percentage of cures is increasing every year, and it is believed that in the beginning of the incipient stage nearly every case might be cured unless there be some underlying hereditary influences which render *nil* the power of recuperation or resistance. Even this sanatorium treatment is in danger of coming under the baneful influence of routine.

The impression which comes to the sick one from these reports of sanatorium cures is, often, that a few months' residence in a sanatorium will eradicate the disease permanently. Considering what we know of the conditions predisposing to this disease, can we admit that this predisposition will be permanently removed in a few months. The lesson of regular habits, good food and fresh air, learned at the sanatorium, must be practised all the rest of his life, since, as there is no disease more often arrested than tuberculosis, so there is none which oftener suffers relapse. The principles of the sanatorium can be successfully introduced into the home and there carried out. The time is coming when consumption will be as well under control as is typhoid fever today.

DR. G. M. ELLIOTT of Brunswick read a paper on

SYPHILIS.

The public should be taught that syphilis is not necessarily a venereal disease, and that innocent persons may be infected by other means than sexual congress, and should be instructed to take certain precautions against possible sources of infection. Since syphilis is an infectious disease with effects on the human economy far more wide-reaching than any other with which we have to do, it should be made subject to sanitary regulation and restriction. The present attitude of the profession is inconsistent.

DR. B. B. FOSTER of Portland advocated the use of hot baths in connection with internal treatment as a valuable adjunct to eliminative measures. He thought that the various specialists in other diseases needed information on the pathology of syphilis, quite as much as the general practitioner. Syphilis has been called by an eminent specialist in this line of work, "internal, external and eternal." He protested against the idea that syphilis was incurable. Treatment faithfully followed will cure.

He considered gonorrhea as more far reaching in its evil effects than syphilis, and if syphilis were to be subject to sanitary supervision, gonorrhea certainly should be included. He doubted the practicability of such proposals.

DR. G. A. PUDOR thought the infectiousness of syphilis had been overrated. If it were as virulent as stated, and as undoubtedly believed, there would be much more of it.

DR. HENRY B. PALMER of Farmington read a paper upon the topic

DO WE SEND TOO MANY OF OUR PATIENTS TO THE HOSPITALS.

This the reader answered in the affirmative, emphasizing the facts that the supposedly greater advantages of hospital treatment could, in fact, be secured in the homes of anyone able to go to a hospital and occupy a private room, and that such people could afford to pay their local physician a fair fee, and should do so. He offered as a solution of the question of hospital competition that physicians should cease advising their patients, who were able to pay, to go to hospitals, and that the hospitals should adopt a scale of fees in addition to hospital charges which such people should be required to pay.

Discussion seemed to emphasize the opinion that, if patients thought they would receive more service for their money in hospitals, and that their chances of recovery from serious operations were greater in the hospital than in the average home, they would be likely to continue to consult their own interests and convenience.

*(To be continued.)*

## Recent Literature.

*Twenty-fifth Annual Report of the Board of Health of the State of New Jersey, and Report of the Bureau of Vital Statistics.* Trenton, N. J., 1902.

This report contains the transactions of the State Board of Health of New Jersey for the official year ending June 30, 1901, the vital statistics of the State for the same year, and the doings of the New Jersey Sanitary Association at its last annual meeting in December, 1900.

The report in general shows commendable sanitary progress in New Jersey in common with the nine progressive states of the Union. In its report upon infectious diseases it appears that the mortality from typhoid fever has diminished in the State from an average of 4.7 per 10,000 of the population in the five years 1879-1883, to 2.3 per

10,000 in the five years 1897-1901. Scarlet fever from 6.5 per 10,000 to 1.1, in the same periods. Diphtheria from 10.7 to 5.3, and consumption from 26.4 to 18.5.

An important law requiring the reporting of communicable diseases was enacted in 1895, the results of which are published on page 42. In order to make this work comparable with that of other states it would be an improvement to make the reports for calendar years instead of ending them with the mid-year. On page 132 it appears that the vital statistics of the State are hereafter to be reported for the calendar years, according to the usual custom of other states and countries.

In the report upon communicable diseases it appears that there were 3,444 cases of diphtheria in the reporting towns and 426 deaths from the same cause, thus giving a fatality of 12.4%, and in the preceding year there were 3,794 cases and 544 deaths, or 14.3%. These figures are in strong contrast with the earlier records in regard to this disease, which often showed a fatality of 25 to 30%, and are undoubtedly due to the general introduction of antitoxin treatment.

On page 325 occurs a vigorous but unfortunately well-deserved criticism of the methods now in use in Massachusetts, where the vital statistics of the State are still collected and published by a political officer whose published reports give sufficient evidence of the truthfulness of the numerous criticisms to which they are frequently subjected.

*The Methods of the Conveyance of Yellow Fever Infection.* By Surgeon H. R. Carter. Washington: Government Printing Office. 1902.

This pamphlet constitutes *Bulletin* No. 10, of the Yellow Fever Institute, and is a logical argument in support of the theory of infection of yellow fever through the agency of the *stegomyia fasciata.*

The writer concludes that yellow fever is not in nature propagated by material conveyed directly from the sick to the well; that some material after leaving the body of the patient *undergoes some change* outside of his body, and *after* this change produces yellow fever in one susceptible to that disease.

He then proposes the following hypotheses:

(*a*) A change in physical condition of the excretion containing the micro-organism, rendering it able to reach the proper atrium for the infection of others, analogous to the drying and pulverization of tubercular sputum, etc.

(*b*) The infection of a host, by which host (or its offspring) the micro-organism is transmitted analogous to the transmission of malarial fever or the Texas fever of cattle. This may involve no change in the organism itself. It may simply place the organism in a position to enter the human organism by the necessary atrium, as directly into the circulation or lymph spaces. Of course it does not negative such change.

(*c*) A change in the micro-organism itself, it undergoing development outside of the human body into some stage different from that in which it leaves the body. This last has been the theory accepted by most of the writers who have considered this subject, but there is no analogy with the propagation of any other disease, so far as is known to the writer.

The second of these hypotheses the author believes is the only one which is "not incompatible with the facts which we know of the propagation of yellow fever, and we have seen previously that it is *entirely compatible* with them."

In conclusion he says: For the belief that yellow fever is conveyed in nature *only*, by a host, and doubtless by a mosquito host, we have, (1) The analogy of other diseases conveyed by insect hosts; (2) that all facts observed about the propagation of yellow fever agree with the necessary deductions of this theory; (3) no other theory explains all the facts observed of its propagation.

*An Introduction to Physiology.* Part IV: "Physiological Optics." By William Townsend Porter, M.D. Paper; pp. 99. University Press: Cambridge, Mass. 1902.

Dr. Porter describes a series of experiments carried on before the students of the Harvard Medical School in order to explain the fundamental principles which underlie the theories relating to physiological optics. To this end a beam of light from a suitable lantern is made to pass through the smoky interior of an ingeniously constructed glass box. By the interposition of mirrors, prisms, lenses and diaphragms the direction of this ray may be changed at will, and thus give the student of elementary optics an admirable demonstration of the course of the rays of light and a very much easier comprehension of the laws governing reflection and refraction than can be obtained by study of the usual formulæ intended to elucidate the same. Such formulæ as have been considered to be essential to the text have been introduced from time to time. The second chapter, in which the eye is considered as a camera obscura, explains so clearly the laws governing the behavior of light in relation to its media, that such problems as calculation of the position of cardinal points of dioptric systems taken singly or combined and determination of the size and position of dioptric and retinal images become very simple even for those who may not enjoy especial familiarity with the subject. This effort of Dr. Porter is worthy of hearty commendation, and it is to be hoped that this little book will finally reach those who have not hitherto found the subject of physiological optics to be especially attractive.

*Ophthalmic Myology.* By G. C. Savage, M.D. One volume, pp. 567. Nashville, Tenn.: Gospel Advocate Publishing Company. 1902.

Dr. Savage's book should be in the hands of every practising ophthalmologist. Although many of the statements contained therein will not meet with the approval of all who read, and may not be in accord with the experience of office routine,

still much that it contains is undeniable and bears witness to the painstaking investigation of one who is thoroughly interested and conversant with the subject. The volume is of convenient size, contains 567 pages of typographical excellence. The subdivisions are logical, with a chapter assigned to each topic. In the first, which deals with the fundamental principles of ocular motion, the author is in opposition to the hitherto generally accepted doctrine of Listing's plane, as he states that there is an axis of rotation well within the equatorial plane of the eye; he is likewise a non-believer in the Helmholtz law of direction and position, since he considers the intersecting point for the centre of retinal curvature and the centre of rotation of the eye to be coincident. It is not at all unlikely that many will be inclined to disagree with some of Dr. Savage's statements regarding the heterophorias, and how exceedingly small a deviation from a muscular balance may be sufficient to set up an unpleasant symptom complex. The unreliability of the Maddox rod, his suggestions as to a properly constructed double prism and the superiority of the monocular type of phorometer are sustained by the experience of the careful worker. Rhythmic exercise of muscles with low degree prisms are endorsed, while strong prism exercise is condemned. Operative procedure is described with minuteness. The chapter on cyclophoria and its treatment by cylinders is certainly interesting and well worth careful reading, and here again will be found without doubt those who do not quite agree with the author's views on compensation. After eliminating what may reasonably be considered *sub judice*, so much remains of value as to make this treatise on ocular muscles worthy of serious consideration.

*Nothnagel's Encyclopedia of Practical Medicine.* Diphtheria: By William P. Northrup, M.D. Measles, scarlatina, German measles: By Theodor von Jurgensen, M.D., Professor of Medicine at the University of Tübingen. Edited, with additions, by William P. Northrup, M.D., Professor of Pediatrics in the University and Bellevue Hospital Medical College, New York, etc. Authorized translation from the German, under the editorial supervision of Alfred Stengel, M.D., Professor of Clinical Medicine in the University of Pennsylvania. Philadelphia and London: W. B. Saunders & Co. 1902.

We have already in a previous notice expressed our appreciation of the marked merits of Professor Nothnagel's "Encyclopedia of Practical Medicine." The authorized American translation, under the editorship of Prof. Alfred Stengel, is worthy of the original.

The present volume deals with three important diseases to which childhood is especially subject; diphtheria, measles and scarlatina.

The article on diphtheria has been written especially for this American edition by Dr. W. P. Northrup, as the German article, owing to some previous arrangement, could not be used. The volume has evidently sustained no loss by this arrangement. Considerable space has been devoted to the subjects of intubation and croup.

At the end of this volume some pages are devoted to the subject of German measles, of which, under the head of Diagnosis, the writer says: "If we collect all the facts, we cannot, in my opinion, recognize the right to independence of this disease, which is called "*Rötheln*." To this statement the American editor takes exception.

*A Guide to the Microscopic Examination of the Eye.* By Prof. R. Greeff. Translated from the second German edition by Hugh Walker, M.D., M.B., C.M. In one volume; pp. 171. Philadelphia: P. Blakiston's Son & Co. 1902.

This handy little volume seems to answer very well the purpose for which it is intended and to sustain the reputation already acquired by the former edition, as the book has been translated into Japanese and a French edition is in course of preparation. This English edition has been very carefully translated by a former pupil of the author, who has not hesitated to amplify the description of the various processes when such has seemed advisable. The first part comprises about three-fourths of the book, and deals with the processes employed in preparing the eyeball for examination, describes the method of application of the different staining reagents and identification of definite substances and tissue elements. The second part, which deals with the tissues themselves, contains a chapter on the retina which is especially good. The subject has been so well presented that the absence of illustrations in no way detracts from its value.

*Hygiene: A Manual of Personal and Public Health.* By Arthur Newsholme, M.D., F.R.C.P. London: Geo. Gill & Sons. 1902.

This admirable manual appears in a new edition, in which a large amount of new matter has been introduced, and the comments on each subject represent the most recent and authoritative knowledge upon it.

The different topics are concisely treated and yet with sufficient detail to make the work an extremely valuable one for the medical student as well as for the general practitioner.

The use of heavy type at the beginning of paragraphs, to indicate the principal topics treated, greatly facilitates the use of the book as a work of reference.

Altogether it is the best of the English works of its kind we have yet seen, and deserves to be republished in an American edition, since it is well adapted for general introduction as a textbook for medical students and sanitary inspectors.

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Officers of Oregon State Medical Society. — The newly elected president and secretary of the Oregon State Medical Society are respectively Dr. Henry Waldo Coe of Portland, Oregon, and Dr. A. D. Mackenzie, also of Portland.

THE BOSTON

# Medical and Surgical Journal.

THURSDAY, OCTOBER 16, 1902.

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## THE ALLEGED INCREASE IN CANCER.

We have been hearing much of late, of the increase of cancer, as shown by statistics in various parts of the world. With the renewed interest which recent studies in etiology have given the general subject, the statisticians have been busy proving that cancer never was so prevalent as now, and that its alarming increase demands immediate and thorough-going investigation. The picture is sufficiently gloomy at best, but it is a positive relief to turn from these statistics to others, equally carefully prepared, which go to show that the whole matter has been exaggerated and that many of these statistics accompanying the present interest in cancer research prove too much, as statistics, even in conscientious hands, are apt to do.

Professor R. de Bovis of the Reims School of Medicine has recently sent a communication on the subject of cancer statistics to *La Semaine Médicale*, which has been in part republished and editorially commented on in the *British Medical Journal* for Oct. 4. Professor de Bovis maintains that the statistics of the last twenty years alone are of value, and that the most trustworthy are those coming from England, Norway and Prussia. In discussing the recent alleged increase of the disease, it is pointed out that earlier statistics were notoriously incomplete, and that diagnosis, especially with the advent of bolder surgical measures, has markedly increased in accuracy. This would be particularly true of the recognition of malignant disease of internal organs, which formerly often went unnoticed. A classification of cancer of different parts of the body, as first carried out by King and Newsholme, has also done much toward bringing about increased statistical accuracy. Quoting the statistics of various countries the following conclusions are drawn: Cancer of the rectum appears to be at least stationary; uterine cancer shows a sensible decline; cancer of the breast shows a still more marked decline; cancer of the mouth and its annexes are perhaps increasing; cancers of the extremities have diminished; the increase of cancer is consequently above all due to the increase in deaths from visceral cancer.

This analysis seems to show that external cancer is stationary and that visceral cancer appears to be increasing in frequency, but an investigation of all the facts leads to the assumption that this increase, as shown by statistics, is much greater than the reality. A careful study of the supposed excessive incidence of cancer in urban communities indicates that here again the facts show a slightly greater proportion of cases in towns than in country districts, but by no means in the proportion usually supposed. Again, the supposed increase of cancer in males is thought to be due to the frequent greater inaccessibility of the growth in men than in women, hence an apparent rather than a real increase. The final conclusion from the whole investigation is that a careful study of statistics contradicts more than it confirms the supposed alarming increase of cancerous affections.

Such a conclusion from a man of recognized authority should carry weight, and do something toward removing the sense of alarm into which recent researches have brought us. A dispassionate study of statistics as such, which the present work appears to be, should be of much value toward controlling the work of the special and often overenthusiastic statistical student.

## THE MICRO-ORGANISMS OF STREETS.

The experiments undertaken by Dr. Woodbury, commissioner of street cleaning in New York, to determine the respective influences of dirt and cleanliness upon the number of micro-organisms in the air of the city's streets, are of interest, and if pursued to a conclusion will no doubt have considerable scientific value. The microscopical and bacteriological investigations were carried on in the laboratory of Cornell University Medical College, under the direction of Dr. James Ewing, professor of pathology in that institution. Among the points established by the results thus far reached is the fact that air taken at or near the curb level is much more heavily laden with what Dr. Ewing describes as the rich bacterial flora of the localities than that taken at a level of six feet or more above the sidewalk. Obviously, therefore, unclean streets are very unsafe playgrounds for small children. Another conclusion is that the charac-

ter of the street traffic determines in great degree the distribution of bacteria in air currents. The vibrations and disturbances caused by the passage of slow-moving trucks, especially, have the effect of loosening the dust and the street dirt in the interstices of the pavement and on the surface, while light and rapid traffic creates air currents which pick up the dust and dirt and foul the air. Rapid and heavy traffic, such as street cars, acts both as a loosener and distributer of the dirt. The surface of the streets, therefore, should not only be as clean as possible, but the dust should be so treated as to resist the effect of traffic in disseminating it. From comparisons of results in different localities it is concluded that adequate, but not too copious street flushing is the method which most effectually minimized the organisms carried by the air. Confirmation of the obvious general conclusion, that clean asphalt streets in orderly residential neighborhoods are traversed by purer air than that to be gathered among the push-carts and above the filth-laden pavements of the crowded tenement districts, is found in a count of bacterial colonies on plates given exposure in clean and unclean neighborhoods. When, for example, a plate exposed for half an hour in a neighborhood of the former kind shows but five isolated pinhead colonies after an enlargement of 700 diameters, while one exposed for the same length of time, and under identical conditions of hour and weather, in a neighborhood of the latter kind, shows nearly 10,000 confluent colonies, some as large as the print of a man's thumb, covering the whole microscopic field, the difference in the healthfulness of the two localities is readily accounted for. It is plain, therefore, that if such plates demonstrate anything, it is that clean streets are worth all that they cost, and that negligence in the care of streets is criminal extravagance. The next step in the investigation, it is stated, will be to segregate and count the bacilli of special diseases, such as diphtheria and tuberculosis.

The *British Medical Journal* of Sept. 27 coincidently says in an editorial: "At the recent Sanitary Congress at Manchester attention was again called to the danger of airborne dust, organic and inorganic, pathogenic, or acting mechanically as a pulmonary irritant. Analogy, by no means fanciful, was also drawn between water pollution and air pollution, between the sewage of the atmosphere and the sewage of our streams. Legislation has been busy with means for preventing the pollution of rivers, but except in very gross and palpable instances has anything been done to prevent the not less formidable pollution of the air?

"Sanitarians have reminded us of the sewage derived from healthy and diseased lungs of animals and men as well as from the household hearth and from innumerable factories, locomotives, steamboats, etc. They have calculated in hogsheads the effete materials discharged by individuals into the circumambient atmosphere. It is true that, thanks to the mechanical effects of diffusion and beneficent operations of vegetable life, some of the commoner contaminations of the air are diluted and counterbalanced. Yet in the stagnant air of mean and close streets, and in the over-crowded tenements of the poor, aërial sewage is readily detectable in dangerous amount alike by the delicate analyses of the chemist as by the olfactory organ of the average man, which de Chaumont showed to be a wonderfully accurate gauge."

## TUBERCULOSIS IN VERMONT.

We have before alluded briefly to the fact that Vermont has taken definite steps to combat tuberculosis by the formation of a society which shall have for its object the study and prevention of the disease, within the limits of the State. The example is so good a one, and the matter in general of such importance, that we take this opportunity to speak of the action taken at the first meeting of the society, held the latter part of last month. Resolutions were adopted recognizing the widespread prevalence of the disease, and laying stress upon the fact that it is responsible for more suffering and deaths in Vermont than all other transmissible diseases combined.

It was resolved that the Vermont Society for the Study and Prevention of Tuberculosis earnestly urge and recommend the establishment of a State sanitarium for the proper care of consumptives; and that every legitimate means be used to insure the passage of a bill providing for such a sanitarium; also that there should be no relaxation in the attempts now being made to eradicate bovine tuberculosis.

The report of the Committee on Constitution of the Society provided that any person of legal age and resident in Vermont may, other things being equal, become a member by the payment of the annual dues, which are placed at $1. It is a wise move on the part of the inaugurators of this new society that they make the membership open to the laity as well as to physicians. This will certainly tend to excite and keep alive public interest as a more limited and exclusive membership could not, and it is, after all, largely through the efforts and co-operation of the non-professional portion of the community that progress toward the eradication of the disease is ultimately to be made. Vermont should be a state relatively free from tuberculosis; it is away from the sea,

has much high land and few large cities. We have no doubt the new society will do much toward ameliorating existing conditions.

## MEDICAL NOTES.

Professor Lorenz a Registered Practitioner of Illinois.— The State Board of Health of Illinois is reported to have served a summons on Prof. Adolf Lorenz of Vienna, who has recently come to the United States for professional purposes. This action was taken because of the number of appeals which have been made him to operate for congenital dislocation of the hip, the operation for which he came to this country. Dr. Lorenz is said to have complied with the law, and has secured a license to practise his profession in Illinois.

Northwestern University.— Elaborate preparations have been made by Northwestern University, Chicago, to celebrate the inauguration of Edmund Janes James, as president of the university. On Wednesday, Oct. 15, the Faculty of the Medical Department held a special medical and surgical clinic at Mercy Hospital, Chicago, in which various distinguished clinicians from various parts of the country participated. Professor Lorenz of Vienna gave a lecture and clinic in the amphitheatre of Mercy Hospital, in the evening, on the subject: "The Principles of Bloodless Reduction of Congenital Dislocations of the Hip Joint and the Principles of Reduction of Deformities."

Typhoid Fever in Washington.— According to *American Medicine*, an encouraging decrease is noted in the number of cases reported. For the week ending Sept. 27 there were fifty-seven new cases reported and seventy-seven cases discharged, making a grand total of 365 cases under medical supervision at the end of the week.

### BOSTON AND NEW ENGLAND.

Acute Infectious Diseases in Boston.— For the week ending at noon, Oct. 15, 1902, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: Diphtheria 38, scarlatina 14, measles 6, typhoid fever 47, smallpox 12.

The Boston Dispensary.—The annual meeting of the Boston Dispensary was held Oct. 9. Dr. E. O. Otis, the superintendent, dwelt upon the need of more room to carry on the increasing medical work, and made a strong plea for an extension to the present building, although its capacity was doubled about three years ago. In Dr. Otis's report an idea of the work done by the institution during the past year and since its foundation in 1796, is given in the following figures: Since October, 1796, 1,585,879 patients have been treated. During the year just finished the number of patients, old and new, at the central office was 89,207, an average daily attendance of 293. This is a decided gain over last year, when the figures were 81,719, making an average of 269 per day. The number of visits made by district physicians during 1901-1902 was 19,689. New patients in the same year numbered 29,248, as against 27,319 in the previous year. The largest number of patients during one day this year was 724, and the smallest 47. The number of prescriptions put up was 83,439. A board of managers was elected for the year, as follows: Messrs. Arthur Lincoln, Edwin S. Grew, F. W. Lawrence, C. W. Amory, Charles G. Weld, E. Pierson Beebe, Henry Pickering, R. A. Boit, Wolcott Johnson, Lawrence M. Stockton, Moses Williams, Jr., and William S. Patten. Mr. Patten succeeds Mr. Francis W. Hunnewell, who was on the board last year. Mr. Lawrence was chosen president, Mr. Lincoln treasurer, and Mr. Williams secretary.

Diphtheria in Milton, Mass.— Diphtheria in a somewhat malignant form is reported in Milton, near the Mattapan line, and has caused considerable anxiety among the residents of the vicinity and the town authorities. The disease broke out shortly after school opened, among the pupils of a school on the Blue Hill Parkway, and has since spread to such a degree that the school has been closed for the present. There were twenty-eight cases in the immediate neighborhood.

A Hearing on the Subject of a New Sanatorium for Massachusetts Consumptives.— The Massachusetts State Board of Charity will hold a hearing at Room 38, State House, on Friday, 17th inst., at 10 A.M., in the matter of Chapter 126, Resolves of 1902, being a "Resolve to provide for an investigation and a report by the State Board of Charity as to a new Sanatorium for Consumptives."

### NEW YORK.

Mortality Statistics.— The death-rate in the city for the month of September was 16.99, against 18.73 in August and 19.33 in September, 1901. The corrected death-rate (excluding non-residents and infants under one week old) was 16.15. During the week ending Sept. 27, the death-rate was only 15.97, which is the lowest mark reached for a very long period. The mortality from diphtheria, scarlet fever, measles and whooping cough still continues low, the number of deaths from all these affections being about the same as in August. Among the diseases which showed a decline in mortality were the following: The weekly average of deaths from

diarrheal diseases decreased from 276 in August to 185.8 in September; the weekly average from diarrheal diseases in children under five years, from 254.5 to 165.8; from diseases of the urinary organs, 101.25 to 92.6; from cancer, 49.5 to 45.2; and from pulmonary tuberculosis, 131.5 to 127.6. Among the diseases which showed an increased mortality were the following: The weekly average of deaths from pneumonia increased from 54 to 70.4; from bronchitis, 18.75 to 24.4; and from typhoid fever, 19.75 to 22.8. There was an average of about one death a week from smallpox, as was the case in August, but in two of the weeks of September there was not a single death from this disease. Previous to September there had not been a week without any death from smallpox since the middle of November, 1900.

Meeting to Discuss Typhoid Fever.— A meeting of the New York Academy of Medicine, section in general medicine, to be held Oct. 21, is to have for its subject of discussion "Typhoid Fever." The following communications will be made: "The Etiology and Prevention," by Herman M. Biggs, M.D.; "The Symptomatology and Clinical Diagnosis," by Charles E. Nammack, M.D.; "Laboratory Aids to the Clinician," by E. E. Smith, M.D.; "The Chemical Nature of the Typhoid Bacillus," by Lewis R. Morris, M.D.; "The Treatment," by Hobart A. Hare, M.D., of Philadelphia.

Fund for Emergency Purposes in Abatement of Nuisances.— The president of the Board of Health has secured the provision of a fund of $5,000 for emergency purposes in the abatement of nuisances. With this fund at its command, it will be enabled to serve summonses and complaints in suits for the penalties prescribed by law, and thus in the future will not be subject to hostile criticism in cases of this kind, from which it has hitherto unjustly suffered.

Wesley M. Carpenter Lecture.— The Wesley M. Carpenter Lecture before the New York Academy of Medicine was delivered on Oct. 2 by Dr. John H. Huddleston, who took for his subject "The Relations of Physical Chemistry to Medicine."

A Centenarian.— Mrs. Eva De Voe of East Syracuse, N. Y., died on Oct. 6 at the age of one hundred years. It is stated that she celebrated her hundredth birthday on the seventh of June last, by taking a ride in an automobile.

## Miscellany.

### TYPHOID FEVER IN CHICAGO.

The *Bulletin* of the Health Department of the city of Chicago for the week ending Oct. 11 says in regard to the recent epidemic of typhoid fever in that city:

"There has been nothing in the weather conditions, the character of the water supply or any of the other factors affecting the public health, to account for the remarkably low death-rate of the past week. It must be attributed solely to the campaign of education against typhoid fever carried on during the last three months, which has led to greater attention being paid primarily to the prevention of that disease, but also, and quite as usefully, to the increased care of health generally caused thereby.

"The number of typhoid deaths — twenty-two — was exactly the same as during the previous week and as in the corresponding week last year, but the duration of the disease in the fatal cases shows that the epidemic is practically at an end and that the continuous pollution of the water supply has been offset by the precautions taken in its use. During August the average duration of the fatal cases was 18.5 days; in September it was 24.3 days; since Oct. 1 it has been 31 days — one case being of 90 days, one of 74 days and more than half being of a duration which shows that the disease was contracted in July and August. Returns from various hospitals show 11% fewer cases under treatment at the close of the week than at the close of the previous week."

### PATHOLOGICAL DEPARTMENTS IN ENGLAND AND THE UNITED STATES.

In a recent address at Leeds, England, on "The Advance of Surgery During Thirty Years," and printed in the *Lancet*, Mr. A. W. Mayo Robson compared the facilities for pathological study in England and America as follows:

"Do not be in too great a hurry to begin practice before you have done post-graduate work at other hospitals and schools at home and abroad, and if you can possibly afford it give some time to laboratory work and pathology before settling down, as these will be accomplished only with difficulty and at great sacrifice in later life. When I was in America last year I saw a great deal of excellent surgical work, though I must say no better than can be seen in our own infirmary, but I came back full of admiration for their pathological departments, especially in the Johns Hopkins Hospital at Baltimore, in the Massachusetts Hospital at Boston, and in the New York State Laboratory at Buffalo. There, no means are spared to gain perfection, and thanks to the liberality of wealthy citizens in some cases and state aid in others, the means appear to be forthcoming whenever required. I cannot help contrasting our own comparatively poorly supported department, where not even sufficient support is given to endow a chair. Yet you must not think that pathology with us is neglected, for if you will look round our pathological museum, laboratories,

bacteriological annex, and lecture theatre you will see that, so far as the teaching of students is concerned, all is there that can be required, and my colleague, Dr. Trevelyan, gives up a great part of his time and energy to the department; in fact, more than can reasonably be expected of any physician engaged in practice.

"There are, however, many problems of immense importance to the public awaiting elucidation which have to be carried out by careful research in pathological laboratories, and for this to be done effectually in any school there must be a skilled head of the department whose time is wholly given up to the work and whose mind is freed from the cares and anxieties of practice; in other words, a professor of pathology who, while pursuing research work, will have time to aid and supervise others working in his department. In matters of education the old masters believed in Sir Walter Scott's maxim, 'The best part of every man's education is that which he gives himself,' and students were expected to use their powers of observation unaided and to rely on themselves much more than in the present day, perhaps not altogether to their disadvantage."

## Obituary.

### MORRIS J. ASCH, M.D.

Dr. Morris J. Asch of New York died on Oct. 5, from the remote effects of cerebral apoplexy, in the 70th year of his age. He was a native of Philadelphia, and was graduated from the Jefferson Medical College in that city in 1855. He was a laryngologist of distinguished attainments, and was attending surgeon to the throat departments of the New York Eye and Ear Infirmary and the Manhattan Eye and Ear Hospital. For many years he was also fleet surgeon of the New York Yacht Club.

### ABEL MIX PHELPS, M.D.

Dr. Abel Mix Phelps, ex-president of the Medical Society of the State of New York, an orthopedic surgeon of note, died at the New York Post-Graduate Hospital on Oct. 6, of abdominal cancer. He was graduated from the medical department of the University of Michigan in 1873, and was fifty-two years of age. He was attending surgeon to the New York Post-Graduate Hospital and the City Hospital on Blackwell's Island. Dr. Phelps was eminently successful as a teacher, and at the time of his death was professor of orthopedic surgery in the New York Post-Graduate Medical College and in the medical department of the University of Vermont.

## Correspondence.

### APPENDICITIS AND SEEDS.

Fall River, Mass., Oct. 10, 1902.

Mr. Editor: In olden times seeds were said to cause appendicitis; this view is now pretty well given up because it is rare to find them in the appendix. It has happened in a number of my acute cases of appendicitis that seeds seem to play a part in the stoppage. Never have I found a seed in the appendix; yet in one case a woman passed a large quantity of huckleberries after the movements of the bowels were renewed. In another case a boy passed a quantity of dried currents. In my last case a man passed a quantity of grape seeds. I have had other cases pass seeds. It seems to me we must have our nurses report accurately on the contents of the dejections after our operations, and by statistics determine what part seeds take in causing the stoppage of appendicitis, and directly or indirectly causing acute appendicitis or acute exacerbations.

Truly yours,

N. B. Aldrich, M.D.

## RECORD OF MORTALITY

For the Week ending Saturday, Oct. 4, 1902.

| Cities. | Population Estimated, 1902. | Reported deaths in each. | Deaths under five years. | Percentage of deaths from | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | Infectious diseases. | Acute lung diseases. | Diphtheria and croup. | Typhoid fever. | Diarrheal diseases. |
| New York | 3,665,352 | 1,142 | 435 | 29.24 | 9.81 | 2.28 | 2.10 | 12.96 |
| Chicago | 1,852,828 | 471 | 129 | 28.02 | 7.64 | 1.06 | 4.67 | 10.61 |
| Philadelphia | 1,349,624 | 323 | 77 | 18.26 | 7.74 | 1.23 | 3.09 | 1.55 |
| St. Louis | 603,717 | — | — | — | — | — | — | — |
| Baltimore | 525,330 | 166 | 51 | 27.71 | 3.61 | 2.40 | 6.63 | 4.61 |
| Cleveland | 411,826 | — | — | — | — | — | — | — |
| Buffalo | 376,742 | — | — | — | — | — | — | — |
| Pittsburg | 341,401 | 122 | 47 | 31.97 | 18.85 | 4.09 | 7.38 | 9.83 |
| Cincinnati | 332,032 | — | — | — | — | — | — | — |
| Milwaukee | 304,975 | — | — | — | — | — | — | — |
| Washington | 289,537 | — | — | — | — | — | — | — |
| Providence | 185,870 | 56 | 21 | 39.28 | 5.35 | 5.35 | 1.78 | 16.07 |
| Boston | 588,736 | 225 | 87 | 28.88 | 8.44 | .89 | 2.66 | 11.55 |
| Worcester | 127,337 | 34 | 11 | 23.53 | 2.94 | — | 2.94 | 8.82 |
| Fall River | 111,872 | 36 | 24 | 27.77 | 11.11 | — | — | 16.67 |
| Lowell | 99,574 | 26 | 7 | 26.95 | 19.25 | 7.70 | 3.85 | 7.70 |
| Cambridge | 96,334 | 22 | 9 | — | — | — | — | — |
| Lynn | 71,144 | 16 | 4 | 6.25 | — | — | — | — |
| Lawrence | 67,275 | 25 | 15 | 20.00 | 8.00 | — | — | 16.00 |
| Springfield | 66,854 | 25 | 5 | 20.00 | 4.00 | — | 4.00 | 8.00 |
| Somerville | 65,882 | — | — | — | — | — | — | — |
| New Bedford | 65,574 | 32 | 21 | 37.50 | 9.37 | — | 6.25 | 25.00 |
| Holyoke | 48,065 | 11 | 4 | 36.36 | 9.09 | — | — | — |
| Brockton | 43,208 | 9 | 1 | 11.11 | — | — | — | — |
| Haverhill | 40,392 | 12 | 1 | 25.00 | — | — | — | 8.33 |
| Salem | 36,567 | 13 | 6 | 30.80 | — | — | — | — |
| Newton | 36,336 | 4 | 1 | 25.00 | — | — | — | — |
| Malden | 35,390 | 11 | 3 | 18.18 | — | — | — | — |
| Chelsea | 35,264 | 21 | 9 | 9.52 | 4.76 | — | — | — |
| Fitchburg | 33,848 | 10 | 5 | 40.00 | 10.00 | — | 20.00 | — |
| Taunton | 32,759 | 14 | 3 | 21.42 | — | — | — | 21.42 |
| Everett | 27,114 | 9 | 4 | 22.22 | 11.11 | — | — | — |
| North Adams | 26,583 | 6 | 1 | 33.33 | 16.67 | — | — | — |
| Gloucester | 26,121 | 3 | 2 | 33.33 | — | 33.33 | — | — |
| Quincy | 25,307 | 8 | 3 | 37.50 | 12.50 | 12.50 | — | 12.50 |
| Waltham | 24,612 | 3 | — | 33.33 | — | — | — | — |
| Pittsfield | 22,311 | 6 | — | 16.67 | — | — | — | — |
| Brookline | 21,679 | — | — | — | — | — | — | — |
| Chicopee | 20,390 | 6 | 4 | — | 16.67 | — | — | — |
| Medford | 20,014 | 3 | 2 | — | — | — | — | — |
| Newburyport | 14,478 | 4 | 1 | 25.00 | — | — | — | 25.00 |
| Melrose | 13,384 | 6 | — | 33.33 | 16.67 | — | — | 16.67 |
| Westfield | 13,038 | 7 | 7 | 14.30 | 42.90 | 14.30 | — | — |
| Attleboro | 12,846 | — | — | — | — | — | — | — |
| Adams | 12,813 | — | — | — | — | — | — | — |
| Milford | 12,516 | — | — | — | — | — | — | — |
| Framingham | 12,109 | 8 | 1 | 12.50 | — | — | — | — |
| Peabody | 11,957 | — | — | — | — | — | — | — |
| Revere | 11,894 | 1 | — | 100.00 | — | — | 100.00 | — |
| Gardner | 11,544 | 1 | 1 | 100.00 | — | — | — | — |
| Weymouth | 11,337 | — | — | — | — | — | — | — |
| Southbridge | 10,838 | 5 | 1 | 60.00 | 20.00 | — | 20.00 | 20.00 |
| Watertown | 10,600 | 3 | 3 | 33.33 | — | — | — | 33.33 |
| Plymouth | 10,336 | — | — | — | — | — | — | — |

Deaths reported, 2,923; under five years of age, 1,007; principal infectious diseases (smallpox, measles, scarlet fever, cerebrospinal meningitis, diphtheria and croup, diarrheal diseases, whooping cough, erysipelas, fevers and consumption) 794, acute lung diseases 253, consumption 280, scarlet fever 19, whooping cough 27, cerebrospinal meningitis 4, smallpox 11, erysipelas 2, measles 3, typhoid fever 93, diarrheal diseases 294.

From whooping cough, New York 9, Chicago and Philadelphia 2 each, Baltimore 1, Pittsburg 4, Providence 1, Boston 6, Lawrence 1, Everett 1. From measles, New York, Philadelphia and Fitchburg 1 each. From erysipelas, New York and Baltimore 1 each. From smallpox, Baltimore 1, Pittsburg 6, Boston 3, Everett 1.

In the seventy-six great towns of England and Wales, with an estimated population of 14,862,053, for the week ending Sept. 20, the death-rate was 17.7. Deaths reported, 5,053; acute diseases of the respiratory organs (London) 139, whooping cough 75, diphtheria 54, measles 72, smallpox 3, scarlet fever 52.

The death-rate ranged from 5.5 in Hornsey to 26.0 in Liverpool; London 17.3, West Ham 18.9, Brighton 14.7, Portsmouth 19.3, Southampton 15.5, Plymouth 19.9, Bristol 16.0, Birmingham 21.2, Leicester 16.1, Nottingham 19.3, Bolton 17.1, Manchester 23.4, Salford 23.7, Bradford 11.8, Leeds 19.4, Hull 19.3, Newcastle-on-Tyne 17.9, Cardiff 21.0.

## METEOROLOGICAL RECORD

For the week ending Oct. 4, in Boston, according to observations furnished by Sergeant J. W. Smith of the United States Signal Corps:

| Date | Barometer. | Thermometer. | | | Relative humidity. | | | Direction of wind. | | Velocity of wind. | | Weather* | | Rainfall in inches. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Daily mean. | Daily mean. | Maximum. | Minimum. | 8.00 A.M. | 8.00 P.M. | Daily mean. | 8.00 A.M. | 8.00 P.M. | 8.00 A.M. | 8.00 P.M. | 8.00 A.M. | 8.00 P.M. | Rainfall in inches. |
| S...28 | 29.78 | 63 | 66 | 60 | 100 | 95 | 98 | W | E | 3 | 7 | O. | O. | .01 |
| M..29 | 29.76 | 62 | 66 | 58 | 100 | 97 | 98 | E | N | 7 | 10 | G. | R. | .53 |
| T ..30 | 29.78 | 60 | 63 | 58 | 94 | 98 | 96 | N E | N E | 15 | 7 | O. | R. | T. |
| W..1 | 29.72 | 59 | 60 | 58 | 100 | 94 | 97 | N E | N E | 14 | 8 | R. | O. | .62 |
| T...2 | 29.98 | 64 | 70 | 58 | 92 | 76 | 84 | N | E | 5 | 2 | O. | O. | |
| F...3 | 30.05 | 62 | 65 | 58 | 68 | 79 | 74 | N W | S E | 8 | 2 | F. | O | |
| S....4 | 30.08 | 58 | 62 | 54 | 54 | 60 | 57 | N | S | 12 | 6 | F. | C. | |
| ☞ | 29.88 | | 65 | 58 | | | 86 | | | | | | | 1.16 |

*O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow. †Indicates trace of rainfall. ☞ Mean for week.

## OFFICIAL LIST OF THE CHANGES OF STATION AND DUTIES OF COMMISSIONED AND NON-COMMISSIONED OFFICERS OF THE PUBLIC HEALTH AND MARINE HOSPITAL SERVICE FOR THE SEVEN DAYS ENDING SEPT. 25, 1902.

VAUGHAN, G. T., assistant surgeon general. Granted leave of absence for one month from Oct. 1. Sept. 19, 1902.

GLENNAN, A. H., surgeon. Granted five days' extension of leave of absence from Sept. 22. Sept. 20, 1902.

BROOKS, S. D., surgeon. Granted leave of absence for fifteen days from Sept. 27. Sept. 20, 1902.

STONER, J. B., passed assistant surgeon. To proceed to Washington, D. C., and report to chairman of board of examiners for examination to determine his fitness for promotion to the grade of surgeon. Sept. 19, 1902.

FRICKS, L. D., assistant surgeon. Relieved from temporary duty at Savannah quarantine, and directed to proceed to Savannah, Ga., and assume command of the station. Sept. 19, 1902.

KERR, J. W., assistant surgeon. Granted leave of absence for two months and fifteen days upon being relieved from duty at Hong Kong, China. Sept. 20, 1902.

ALTREE, G. H., acting assistant surgeon. Granted leave of absence for twenty-six days from Sept. 15. Sept. 20, 1902.

BAILEY, C. W., acting assistant surgeon. Department letter of Sept. 4, 1902, granting Acting Assistant Surgeon Bailey leave of absence, amended so that said leave shall be for a period of two days from Aug. 27. Sept. 16, 1902.

RESIGNATION.

Surgeon T. B. Perry resigned, to take effect Sept. 15, 1902.

BOARDS CONVENED.

Board convened to meet at the Bureau, Washington, D. C., at 10 o'clock A. M., Sept. 20, 1902, for the physical examination of an officer of the revenue cutter service. Detail for the Board: Assistant Surgeon-General W. J. Pettus, Chairman; Assistant Surgeon-General H. D. Geddings, recorder.

Board convened to meet at the Bureau, Washington, D. C., at 12 o'clock, Sept. 20, 1902, for the physical examination of Captain O. S. Willey, Revenue Cutter Service. Detail for the Board: Assistant Surgeon-General G. T. Vaughan, chairman; Assistant Surgeon B. S. Warren, recorder.

Board convened to meet at the Bureau, Washington, D. C., at 10 o'clock A.M., Sept. 29, 1902, for the examination of Passed Assistant Surgeon J. B. Stoner, to determine his fitness for promotion to the grade of surgeon. Detail for the Board: Assistant Surgeon-General L. L. Williams, chairman; Assistant Surgeon-General W. J. Pettus, Assistant Surgeon-General H. D. Geddings, recorder.

## SOCIETY NOTICES.

SOUTHERN SURGICAL AND GYNECOLOGICAL ASSOCIATION. — The fifteenth annual meeting of this association will meet at Cincinnati, Ohio, Nov. 11, 12 and 13, 1902.

MEETING OF THE CONFERENCE OF STATE AND PROVINCIAL BOARDS OF HEALTH OF NORTH AMERICA. — The seventeenth annual meeting of the Conference of State and Provincial Boards of Health of North America will be held at New Haven, Conn., on Tuesday and Wednesday, Oct. 28 and 29, 1902.

## RECENT DEATHS.

DR. THOMAS WILDE, a leading practitioner of Brooklyn, N. Y., died on Oct. 6. He was graduated from Bellevue Hospital Medical College in 1866.

EDWIN AUGUSTUS WARREN HARLOW, M.D., M.M.S.S., died in Wollaston, Oct. 12, 1902, aged eighty-nine years.

CHARLES WESLEY BOWEN, M.D., M.M.S.S., died in Westfield, Oct. 10, 1902, aged fifty-eight years.

## BOOKS AND PAMPHLETS RECEIVED.

Transactions of the Medical Society of the State of New York for the Year 1902.

The Medical Directory of New York, New Jersey and Connecticut. Vol. IV. 1902-1903.

The Care of the Teeth. By Samuel A. Hopkins, M.D., D.D.S. Illustrated. New York: D. Appleton & Co. 1902.

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# Original Articles.

## THE TEACHING OF SURGERY.[1]

BY HERBERT L. BURRELL, M.D., BOSTON.

The subject of the teaching of surgery is one in which I have been keenly interested for many years, and the more I study it the less definite my conclusions become. There are undoubtedly underlying principles which govern the teaching of surgery, but what those principles are I have not yet determined. The vagueness of my impressions and the lack of positive conclusions led me at first to decline the invitation to present a paper on this subject extended by the president and secretary; but, impressed as I am with the importance of the subject, I decided to give such opinions as I have with the hope that they will stimulate discussion, and thus be made a step in progress toward the solution of the problem — what constitute the best methods of teaching surgery?

I think we all appreciate that our impressions and conclusions as to methods of education are at present being revised; whether wisely or not time alone can tell, for it is only by experience that the value of methods of teaching can be determined.

My experience as a teacher of surgery has covered too short a period for me to see the end-results of methods, and it has been too limited in time and methods for me to speak with authority. I am entirely convinced that the method of teaching adopted by an individual teacher is to him the most effective. Individual pupils will select one method, others will prefer another. Some will develop rapidly, others slowly. Some prefer to do their work spasmodically, lying fallow at times, while others prefer to work systematically. All of this makes it important that there should be a number of different methods for studying surgery.

Methods are incidental to the teaching of surgery. What should be required and given to pupils in surgery are: (1) The minimum required fundamental knowledge; (2) the maximum opportunity to acquire knowledge by personal contact with cases; (3) atmosphere and enthusiasm — which mean environment and men.

I shall take up the following methods of teaching surgery, which are in more or less common use, and shall consider certain subjects that are co-ordinate with teaching surgery:

1. Didactic lectures. 2. Recitations. 3. Surgical anatomy. 4. Surgical physiology. 5. Surgical pathology. 6. Surgical technique. 7. Physical diagnosis. 8. Demonstrations of clinical material to (*a*) large classes; (*b*) sections; (*c*) ward visits. 9. (*a*) Conferences; (*b*) reports of cases; (*c*) surgical tutors. 10. Diagnosis clinics. 11. Out-patient and bedside work. 12. Case teaching. 13. Operative surgery — (*a*) cadaver; (*b*) animals. 14. Original work. 15. Hospitals. 16. Dispensaries. 17. Organization. 18. Association and co-operation of departments.

In January, 1901, the following circular letter, in English, French and German, was sent to the different medical schools in the world:

22 Newbury Street, Boston, Mass., U. S. A.

My Dear Sir: I am desirous of obtaining information regarding the teaching of surgery in the various medical centres. Will you be good enough to answer the following questions as far as practicable?

Any information that you may give me will be used to improve the teaching of surgery in Harvard University.

Very truly yours,

Herbert L. Burrell, M.D.,
Assistant Professor of Surgery, Harvard University.

To ———

(1) What is your corps of instructors in the department of surgery, and about what is the proportion of instructors to students?

(2) What is the entire time (in hours) given to instruction in surgery?

(3) What are the approximate gross expenses in the department of surgery?

(4) How is the instruction divided in time, under the following heads? (*a*) Lectures; (*b*) recitations; (*c*) demonstrations; (*d*) clinical instruction; (*e*) laboratory work; (*f*) sections of students.

(5) What, if any, textbook or textbooks do you use?

(6) What is the amount of required,[2] elective,[3] and optional[4] work (in hours) in surgery?

(7) Briefly describe your method of teaching (*a*) operative surgery, (*b*) surgical technique.

(8) What opportunity is afforded special students to do original work in surgery?

(9) What teaching relation exists between the department of surgery and that of gynecology, syphilis, genito-urinary surgery, orthopedic surgery, otology or ophthalmology?

(10) What number of (*a*) bed and (*b*) walking surgical patients are available for use in your school?

(11) What number of (*a*) bed and (*b*) walking surgical patients are directly under the control of your school?

(12) Briefly describe your method of examinations and your system of marking?

(13) Is any special instruction given in the pathology of surgical diseases? If so, is any laboratory course given in connection with it, and what is the number of hours for such instruction?

(14) Is there a laboratory course, required,[2] elective,[3] or optional,[4] in surgical anatomy, and what is the character and scope of the instruction given?

### REMARKS.

I received replies from approximately 80% of those addressed. In the majority of cases the information received was interesting, suggestive, and valuable, but the questions were not answered.

I sent this letter with the desire to benefit the teaching in Harvard, and while the replies could not intelligently be used statistically, yet their value to me individually was inestimable in that my opinions were modified, controlled, and occasionally changed by the mass of information.

I shall try and give you the impressions I have formed.

(1) *Lectures.*— The advantages of systematic or didactic lectures are economy in the teacher's time in presenting a subject to a large body of

[1] Read before the American Surgical Association, in Albany, June 4, 1902.

[2] Required work is necessary for a degree.
[3] Elective work *may* count for a degree.
[4] Optional work does not count for a degree.

men, economy in the student's time in having a subject predigested, the essentials and non-essentials pointed out by a man of ripe experience, and the inspiration that comes from the "spoken word."

The disadvantages are: The receptive condition of the student and his not being forced to acquire knowledge; the danger of lectures becoming perfunctory from lack of competition in that usually one man gives them; the fact that there are but very few good lecturers and the lack of stimulus to the teacher in lecturing, for he gives out and does not receive.

The lecture which simply gives the knowledge that can be readily obtained in a textbook is a waste of time for both teacher and student. The lecture which is critical, analytical, which presents new knowledge and awakens in the student a latent enthusiasm for work, is rare, but of great value.

The present fashion is to condemn the lecture, but it has a place, and will always be given in some form.

It is impossible to cover the whole field of surgery in a course of lectures, but selected subjects can be given to great advantage to teacher and student. A syllabus of the whole of surgery should be prepared for the students and printed. By means of this syllabus the teacher can point out the knowledge that they should possess.

A system which has been used for a number of years at Harvard has advantages. Lectures are given on the afternoons of Monday and Wednesday, and on the mornings of Tuesday and Thursday the clinical material is massed at the two great hospitals, illustrating the subject of these lectures. These exercises in turn are followed by a recitation on the subject of the lectures and clinics. The student thus receives and acquires knowledge on the individual subject from a number of different standpoints.

The demonstrations of surgical specimens to illustrate the systematic lectures is time-honored. The custom has been to describe to the student what the lecturer sees in a specimen, then to pass it around and to proceed with his lecture. By the time the specimen has reached the middle of the class the lecturer is speaking of some entirely different subject.

For a number of years at Harvard the lectures have been given, and at the end of every second or third exercise the students are taken into the museum, and at different tables the instructors demonstrate the specimens illustrating the preceding lectures. This works fairly well.

In general it may be said that in the smaller schools, which lack clinical material, lectures predominate. Unless they are illustrated by clinical material they are an acknowledgment that the school is not strong.

To summarize: Lectures are of value if illustrated by lantern-slides, charts, diagrams, specimens, and clinics, and if there is a good lecturer.

(2) *Recitations.* — The recitation has of late been out of fashion, but it seems to me a most valuable exercise. The student in this exercise takes the active part, and is no longer simply receptive; he can summarize his knowledge, test its scope and value, and the teacher can find out what knowledge has been acquired, explain mooted questions, and clear up obscure points; perhaps the most valuable part of the exercise is the facility it gives the students to ask questions.

Sarcasm on the part of the teacher is effective as a means of driving home a point, but its chilling effect on the body of students is marked. If the student hesitates in replying to a question, the whole class may be kept on the alert by putting the question to "anyone" in the whole class or selecting any individual student to answer.

A method which is in use at Harvard is as follows: Three teachers assemble with the students, one having prepared a list of important questions to be asked from the two or three preceding lectures. One calls the roll, another asks the questions, and the third teacher stands at the blackboard, and as the question is asked the salient points of the answer are written on the board as the students bring them out. This serves to emphasize the important things to be remembered. At times the teachers differ in their opinions; for example, in reference to abdominal drainage, and an informal discussion ensues between the students and teachers, one with the other. The result is a thoroughly enjoyable exercise to both students and teachers.

The subject of the recitation should be that of the preceding lectures or the syllabus, and the student may use any textbook.

Summary: Recitations are of value to both student and teacher if they are made a means of clearing up vague or mooted points, and they serve to summarize the student's information — that is, they make him explicit in that he himself must put his knowledge into words.

(3) *Surgical anatomy.* — This is a subject of great importance, as it forms one of the foundation stones on which a thorough knowledge of surgery should rest. The modern laboratory anatomist is not competent to teach surgical anatomy. The actual anatomical needs of the surgeon are best presented by one familiar with surgery.

In Lausanne, in the University of Minnesota, in St. Louis, in the College of Physicians and Surgeons, New York; in Syracuse, in Erlangen, in Prague, under Beyer and under Wollfler; in Krakow, under Trzebicky; in Canada, under Bell and Armstrong; in Sheffield, under Pye-Smith, and in Aberdeen, under Ogston, there is no surgical anatomy taught except that given by anatomists.

In Copenhagen, under Plum; in Padua, under Bassini; in Genoa, under Morisani; in Strasburg, under Madelung; in Cincinnati, under Dandridge; in Heidelberg, under Czerny; in Bristol, under Swain, and in Birmingham, under Barling, there are excellent courses in surgical anatomy which are mostly elective or optional.

In the University of Liege, Winniwarter, the professor of surgery teaches surgical anatomy; in

Rome, Occhini makes a very strong point of having surgical anatomy taught apart from anatomy. At Ann Arbor there is a course in surgical anatomy, also at the University of Pennsylvania and at Cornell. At the Western Reserve, under Allen, there are excellent demonstration courses in anatomy, and at Stockholm, under Akerman and Berg, there is an excellent system, which should be imitated—that of conducting the operative surgery on the cadaver to illustrate surgical anatomy. At Harvard, Richardson gives an admirable optional course. Dwight, professor of anatomy, who was formerly a surgeon, gives an excellent course in topographical anatomy.

Provision should be made for the teaching of surgical anatomy of the chest and abdomen at the autopsy-table. The relative position of the organs, their color and consistency, can, with great advantage to the students, be taught at an autopsy-table. I believe that surgical anatomy should be taught by men who have had surgical experience. The work should be done in small classes, under instructors; demonstrations should be made by the professor and repeated by the classes.

(4) *Surgical physiology.*—The work which Horsley and Macewen did in physiological research as applied to surgery was of great value. Methods of physiological research have been strangely neglected — in fact, overshadowed — by surgical anatomy and surgical pathology. There has not until recently been a thorough training of men in physiology, and this knowledge has never been sufficiently applied to clinical problems. Of late the brilliant work of Crile and Harvey Cushing has given an impetus to methods of physiological research. In the future it may be necessary to give additional instruction in the principles of physiology which are applicable to surgery. The same may be said in the future of physiological chemistry.

(5) *Surgical pathology.*—This is another foundation-stone on which the knowledge of surgery should rest. Every student, after acquiring a knowledge of pathology, should be obliged to study the pathology of injury, infection and repair, and the course should give the fine and gross pathological conditions in the various tissues. The course given at Harvard by Dr. Nichols, which I illustrate, has been of great advantage to students in laying the foundation of the principles of surgery. The students are shown in a laboratory sections from a rabbit's ear and from human skin healing at the end of the first, third, fifth, seventh, tenth days, etc. On the following day, or on the preceding morning, they are shown the same processes going on in the living human being. By a succession of similar exercises they are carried through the various injuries to the individual tissues throughout the body, and at the end of a month, they possess a sound foundation-knowledge of surgical pathology.

The study of surgical pathology should not be confined to the histological changes which are seen under the microscope; it is of equal, if not of greater, importance that a course in surgical pathology should be given which covers the gross pathological changes. These are the conditions which are continually presented to the surgeon, which he is obliged to interpret, and if his instruction has continually correlated his gross and fine pathology, he is properly equipped.

This instruction in gross surgical pathology should be given as an elective course later in the curriculum. An excellent course can with advantage be given in any school on the gross and microscopical examination of tumors.

The custom of definitely considering the surgical pathology of each individual case is more common in Germany than with us. In many places in this country and abroad there is no special course in surgical pathology. So far as I can ascertain there is no surgical pathology, as such, at Lausanne, Stockholm, Prague, or in several of the larger schools of this country.

In Padua, under Bassini, there is a special course given, which is elective, with demonstrations. In Canada, under Bell and Armstrong, an excellent course is given in the demonstration of surgical pathological specimens from patients previously shown at clinics. There is, however, no special course in surgical pathology. In Krakow, surgical pathological demonstrations are given by *privat-docents*. In Heidelberg, under Czerny, surgical pathology is given by *privat-docents*, with laboratory work.

In Copenhagen, under Plum, an excellent systematic course in surgical pathology is given. In Sheffield and Birmingham, surgical pathology is taught systematically. In Chicago, under Holmes, a special course is given. In Cincinnati, under Dandridge, a sixty-hour course is given in surgical pathology and the examination of tumors. Excellent courses are given at the University of Minnesota, at the Western Reserve, and at Ann Arbor. A capital optional course on the examination of tumors is given at Harvard, by Dr. William F. Whitney.

The study of surgical pathology is of such importance that, although it seems obvious that a minimum required course of instruction should be given in this subject as well as in others, in addition teachers of surgery should be so well grounded in the subject that they can by their instruction carry the teaching of surgical pathology throughout the whole curriculum.

(6) *Surgical technique.*—This course usually means the application of bandages and surgical apparatus. It should be expanded to cover a larger field. The bandaging of wooden legs is relatively of but little value compared to the bandaging of living models. The use of gauze bandages has largely done away with the complex bandages which were commonly in use twenty years ago. But there are times when a practitioner can control a spreading infection on an arm by skilful application of a roller bandage. The art of bandaging should be taught, and not be lost. In this course the student should be

taught to do an aseptic dressing upon a living model; for example, two students may be made to change the dressing upon a supposed abdominal operation upon a living model. They can be made to sterilize the material and to go through the operation of changing a dressing with the same care they would exercise on an actual case. They should be taught the various ways of making a bed, of feeding patients, of passing bedpans and urinals, and the administration of enemata. In short, they should be taught many of the details by which surgical patients are made comfortable which at present are frequently relegated to a nurse.

In such a course the student should be taught how to use the ordinary implements of a carpenter's bench; he should know how to saw, he should know how to make a wooden splint, and how to make a tin or aluminum splint. The various non-operative technical measures can in this way be taught on models and carried out by the student before he comes in contact with the patient, and he will then be fitted to do his out-patient and ward work.

In the majority of places surgical technique is taught in the wards or out-patient departments upon a patient, and, while this method has very definite advantages, I believe the preliminary drill upon models is a distinct addition. Excellent courses are given in Philadelphia, New York, Ann Arbor, Cleveland and in other places.

(7) *Physical Diagnosis.*— At about the same time that the student is taught surgical technique he should be taught, on living models, the methods of examining patients from a surgical point of view. The course should be co-ordinate and supplementary to that given on auscultation and percussion, or physical diagnosis as given by medical instructors. The various anatomical landmarks can in this way be emphasized; the method of examining a fracture (for example, abnormal mobility and crepitus) should be taught on the fractured thigh of a dead dog rather than upon a human being; fluctuation, the examination of cavities — mouth, rectum, etc.— can by means of such a diagnosis course be taught on living models rather than upon patients. The students should be taught in sections and shown how they can easily acquire knowledge. In this way they can be fitted to enter an out-patient department or the wards of a hospital and be of real value as assistants.

(8) *Demonstrations of operative and clinical material.*— (*a*) Operative clinics: The student sees the best operators, but is not sufficiently near to see the operation. I question whether they are of much specific value apart from familiarizing the student with the customs and habits of operators. (*b*) Massing material: A very instructive method of presenting cases, especially if used in connection with lectures and recitations — for example, to show to a class of students a series of cases illustrating the various stages of cancer of the breast or diseases of the knee-joint, including the end-results of operations — is of incalculable value. In fact, at times, such valuable material is collected that it makes a most instructive investigation to the instructor. The use of lantern-slides to supplement stages of disease in a clinic is of value, but they are more appropriately used in connection with a lecture. (*c*) Section work: The value of section work is very great. The closer that one reaches the ideal of individual instruction, the better; the great advantage of small sections is that the instructor can give to the student the *opportunity to acquire knowledge.* Section work should be confined to classes of not more than twenty men, and in this manner the student is brought very close to the instructor. (*d*) Ward visits: These still take place in many places, and the "walking the wards" of a hospital is time honored. The actual value of a ward visit is very slight, particularly if a section of more than ten men accompanies the surgeon. The listening to a description of what has taken place, and seeing the results of operations from the outside of bandages, does not constitute instruction.

The German system of amphitheatre clinics given by the professor connected with a university under State support is very widely in use everywhere. It has very definite advantages, but it does not equal the system of small sections taught by individual instructors. It, however, will always maintain as an economical system of instruction in which there is an appeal to the dramatic sense of both teacher and student.

Wherever it is practicable and there are enough clinical material and a sufficient number of instructors, small sections are very desirable. In a few places almost individual instruction is given, but this is where there are small classes of students and a large number of instructors.

(9) *Conferences.*—(*a*) The conventional conference; (*b*) reports of cases; (*c*) surgical tutors.

(*a*) The conventional conference, which is elaborated by the student after the fashion of a French thesis, is of real value to the student in that he is trained in research in medical literature. The student should be given a case, should present a complete history and physical examination, should give the literature of the subject, should draw his deductions, and they should be criticised by his fellow students and the instructor. Frequently conferences are conducted in such a manner that they are of but little value to the student, for often students prefer to have the mature opinion of the instructor rather than the immature opinion of their classmates.

(*b*) The reports of surgical cases are of value, particularly if they are carefully criticised as themes. In Montreal, under Bell and Armstrong, each student reports at least ten cases, and in Stockholm case-instruction forms a very important part of surgical instruction.

(*c*) Surgical tutors: A number of surgical tutors would be of real value to a school. They should be relatively young men who are close in years to the students. One of the principal defects in practically all the schools in this country,

so far as I know, except the Johns Hopkins and possibly Ann Arbor, is the absence of personal interest in the individual student. The student should have some one to whom he can go at practically any time to talk with about his work. A spirit of comradeship should be established between instructors and students, which would be of great value to both. The closer the intimacy between student and teacher the more likely the teacher is to know the defects of his teaching, and the student can, by informal conferences with his instructor, obtain not alone knowledge, but inspiration for his work. I have been impressed at Johns Hopkins with the feeling students have that they are an integral part of the school and hospital. I dare say it exists in other places, but it has not been my fortune to see it. I would suggest, where there is a large number of instructors, that during the third and fourth years the students be assigned to tutors. It would not be burdensome to the instructors; in fact, it would be enjoyable for them to be brought in contact with bright minds.

(10) *Diagnosis Clinics.*— These are of a good deal of value if conducted before a whole class, and better before small sections. To place the student before a case, to have him extract the information from a patient, and, although at times this is done clumsily, it is of real value both to the individual student and to his classmates, for we learn more by our blunders than by our successes, and if we are intelligent we learn by the blunders of others. The elaborate eliminative diagnosis which is used by many instructors is at times unnecessarily cumbersome. It is frequently of great value to bring before students a case in which the diagnosis cannot be made, and to have them work out by asking questions and making suggestions, the fact that a diagnosis cannot be made. This teaches them that every patient cannot be dubbed with the name of a disease.

*(To be continued.)*

## DECIDUOMA MALIGNUM; REPORT OF A CASE.[1]

BY J. C. HUBBARD, M.D., BOSTON,

*Third Assistant Visiting Surgeon, Boston City Hospital; Surgeon to Out-Patients, Carney Hospital; Assistant Surgeon to Out-Patients, Free Hospital for Women.*

Last February I saw in consultation with Dr. Ring, to whom I am indebted for many of the notes, the following case:

Mrs. G., thirty-four years old; married. Her mother had a malignant growth, her mother's sister a cancer of the breast, and another sister uterine polyps. She had five children, the oldest twelve years and the youngest two. While carrying the last child she began to flow and expected to miscarry, but went to term. After the labor it took her longer than usual to regain her strength and get about. She has had two abortions performed, and since the last child has been so fearful of again becoming pregnant that she has used everything on the market to prevent conception.

[1] Case reported Sept. 18, 1902, at the semi-annual meeting of the Bristol North District Medical Society.

In May, 1901, her period was delayed seventeen days, and the flow was only then induced by the use of drugs, douches and a sound. She had what she considered a miscarraige. At each of the following four periods she ran over from two to four days and flowed excessively.

She was first seen in October by Dr. Ring, when he found her in bed and flowing freely. Rest and packing controlled the flow sufficiently for her to go to the doctor's office, when he made a thorough examination. He found the uterus enlarged to over three inches by measurement; soft, boggy and sensitive, and the left tube thickened and very tender. He gave electricity within the uterus for some time without much success.

About Nov. 20 the patient had a severe hemorrhage, and the doctor shortly after that curetted the uterus. For the following three weeks she was better; then came a hemorrhage which almost killed her — with this flowing there were some contraction pains.

She was then seen in consultation by a doctor from the neighborhood of Boston. He examined her under ether, and came upon a large uterine polyp which bled so freely that he packed the uterus. A week later, on Jan. 12, he curetted away the polyp which was very friable. Patient then did nicely till Jan. 28, when she had another profuse hemorrhage. As this occurred at about the time for a regular menstrual period, the vagina alone was packed.

On Feb. 9 there was another severe hemorrhage, with a slight rise in the temperature. At this time the uterus itself was packed. From then, until Feb. 28, when I saw the patient, the uterus had been constantly packed, the packing having been changed every few days.

The salient features of this history are in a few words as follows:

An abortion was done in May. The following periods were soon accompanied by excessive flowing, which in October was sufficient to send the patient to bed. The hemorrhages continued, gradually increasing, and were not affected at all by curettages in December and January.

When I saw the patient I found an extremely pale, almost exsanguinated woman, with a poor pulse of 120 and a slight temperature. She had what seemed a phlebitis of the right internal saphenous and femoral veins. The uterus was enlarged, was soft and boggy, and there was some tenderness on the right side of the pelvis, with a possibly enlarged right Fallopian tube.

Under ether a hysterectomy by the abdominal route was done as rapidly as possible. During the operation the patient was given, because of a failing pulse, stimulants and a quart of Ringer's solution by intravenous injection. Although the woman was in a critical condition for some days, the convalescence was uneventful. The phlebitis cleared up, and on Sept. 12, six and a half months after the operation, she wrote to me as follows: "I am gaining all the time. I can sweep a little, cook some, and iron a short time, although I don't make a practice of doing the latter much. This week I have stitched some. Have taken care of my five children since May. I weigh as much as I did before the operation."

The specimen was given to Dr. J. H. Wright of the clinico-pathological laboratory of the Massachusetts General Hospital, who gave the following report:

The specimen consists of the corpus and fundus of a uterus with oviducts and ovaries attached. The cervical portion of the uterus is absent and has apparently been cut away.

The portion of the uterus included in the specimen is larger than normal, its extreme length in the hardened specimen being about 6 cm. The wall of the cor-

pus is about 2 cm. thick in its thicker portions. The uterine cavity is larger than normal and contains an elongated tumor mass, which is attached by a broad pedicle to the posterior wall and adjacent portions of the fundus of the uterus.

This tumor mass has dimensions of about 4 by 2 by 1 cm. Its long axis corresponds to the long axis of the uterine cavity. Its surface is somewhat irregular or obscurely lobulated. At one point it presents an irregular fissure, and its surface in the neighborhood of this is of a greenish color and necrotic looking. Its surface elsewhere is of a grayish and reddish color. The tumor mass is fairly firm in consistence. On section, the cut surface shows bands and streaks of grayish fibrous-like tissue, enclosing islands of translucent reddish tissue and small masses of what seems to be clotted blood. The fibrous-like tissue appears to be continuous with the muscular wall of the uterus, from which, for this reason, the mass of the tumor is not sharply defined. The tumor appears to be attached to the uterine wall over a length in the hardened specimen of between 3 and 3 1-3 cm.

Upon further dissection there is found in the posterior wall of the uterus, in the region of the attachment of the tumor and near the point of junction of the fundus with the posterior uterine wall, a spheroidal tumor mass about 12 mm. in greatest diameter. This tumor, on section, in the formalin hardened condition, is of a generally brownish color, and of a shreddy or spongy appearance in its peripheral portions, while in its central portions it shows grayish homogeneous ill-defined areas. This tumor is separated from the tumor mass attached to the endometrium by a layer of uterine muscular tissue at least 2 mm. thick. It is also separated from the serous surface of the uterus by a layer of uterine tissue about 1½ mm. thick.

In the right ovary, which is about normal size, there is a doubtful corpus luteum, presenting a layer of yellow opaque tissue at its periphery about 1 mm. thick. Ovaries and oviducts not otherwise remarkable.

Microscopic examination of sections from each of the tumor masses shows the following:

Each tumor mass consists essentially of cells and a considerable amount of necrotic, more or less fibrin-like material, which in places is infiltrated with leucocytes. The cells of the tumors are generally of medium to large size, and are frequently arranged in columns or masses separated by clefts and splits in the tissue. There is no connective tissue stroma. The cells are of peculiar appearance, and among them two chief kinds may be recognized:

One kind, and probably the predominating, has an oval or rounded, well-formed vesicular nucleus and a variable amount of cytoplasm with definite outlines, which doesn't stain deeply with eosin and is of spongy structure.

The other kind of cell appears usually as elongated masses or short bands of rather deep staining homogenous dense protoplasm, in which generally elongated dark staining nuclei are imbedded. In a single mass of protoplasm a number of nuclei may be present. This second kind of cell shows a tendency to be applied closely to the exterior of masses of the first mentioned kind of cell in such a manner as to form an imperfect layer covering them.

A comparison of these two kinds of cells with the two kinds of cells which cover the chorionic villi shows with reasonable certainty that they are identical with them. The first mentioned kind of cell has great resemblance to the cells forming the inner layer of the covering of the villus, the so-called layer of Langhans. The second kind of cell is evidently identical with the external layer of the covering of the villus, the so-called syncytium. As has been pointed out above, the syncytium-like cells of the tumor show a tendency to be closely applied to, and to cover or enclose, masses of the tumor cells, which are like the inner layer of the villus covering. This tendency of the syncytium-like cells may be regarded as inherited from their assumed progenitors, the cells of the syncytium, whose function is to form the external covering of the villi.

The necrotic material above referred to as occurring in the tumors, is like certain necrotic material which is observed in the normal placenta, and which is regarded as resulting from the degeneration of the cellular coverings of the villi.

It is remarkable that the tumors have no blood vessels of their own.

In view of the similarity of the cells of the tumors to the cells covering the chorionic villi, not only in their morphology, but in their arrangement and degenerative processes, it seems reasonable to conclude that the tumors in this case have grown from cells of the villus coverings which have gained entrance to the uterine wall. In as much as the cells covering the villi are regarded by the best authorities as derived from fetal ectoderm, this tumor must be regarded as an epithelial tumor, originating from the fetal and not from the maternal tissues, and is to be classed with the carcinomata rather than the sarcomata.

Deciduoma malignum was first described by Chiari in 1877, though to Sänger apparently belongs the credit of having called the attention of the general medical public to this form of tumor. It has appeared under various names, according to the interpretation of its histology by the different observers. Chorio-epithelioma, decidual-cell sarcoma, syncytial carcinoma and decidnoma malignum are some of its many synonyms.

It occurs after any form of conception whatsoever; after normal uterine pregnancy or extra-uterine pregnancy; after abortion and hydatidiform mole. It follows a mole most frequently, the nature of the pregnancy rather than its number being a direct etiological factor, for in a series of 128 cases collected by Ladinski[2] it followed a mole in 51, abortion in 42, labor at term 28, premature labor 4, tubal pregnancy 3; while in 90 cases he found that the average number of the pregnancy which the deciduoma malignum followed was 4.2, which corresponds to the average number of pregnancies of parturient women in general.

As it follows a pregnancy of some form, it occurs in women during the period of their greatest sexual activity, the average age, in 124 cases being thirty-two years (Ladinski). The ordinary symptom complex is as follows: Soon after the discharge of a mole, an abortion, or a normal labor, there develops a tendency to uterine hemorrhages, which may show itself insidiously, perhaps by a little dribbling constantly increasing, or suddenly by a well-marked flow. This metorrhagia stops perhaps now and then for a time, but returns at ever shorter intervals with increasing severity until the loss of blood at any hemorrhage may be sufficient to prostrate the patient. The hemorrhage does not yield to the treatment for subinvolution metritis or retained portions of the pregnancy. With the flowing there may or not be uterine cramps, with the expulsion of bits of tissue. There is marked and rapidly progressive emaciation and weakness out of proportion to the loss of blood. Then grave septic symptoms are added: fever, dusky skin, rigors, and even delirium. Metastases rapidly develop, especially in the lungs, as shown by hemoptysis, and death

[2] American Journal Obstetrics, April, 1902.

soon occurs. In 52 cases collected by Dorland [3] death occurred in almost 79% within six months of the appearance of the symptoms.

The reason that deciduoma malignum follows a mole most frequently may be found in the histology of a mole, which, according to Marchand,[4] is formed by an increased growth of syncytium and proliferation of Langhans cells, so that the change from a mole to a deciduoma is comparatively slight, and in fact, Neuman [5] considers that all moles are not necessarily benign. Deciduoma malignum differs from carcinoma of the uterus, in that it grows into the blood spaces and sinuses of the uterus, through which metastases are formed sooner than through the lymph channels, as in carcinoma.

Examination early in the course of the disease reveals a uterus somewhat enlarged and soft with the os perhaps patulous. If it is possible to explore the uterine cavity with the finger, a soft very easily bleeding, friable, fungoid mass will be felt. As the case progresses the examination becomes more and more definite. This form of tumor is said to be the most malignant of all tumors, and metastases appear early, so early, in fact, that in several cases a metastasis in the vagina has been the first indication of the primary tumor. Williams [6] reports a case where a vaginal metastasis appeared within two weeks of delivery and before the development of any other symptoms. Croom [7] also reports a case where the microscopic examination of a tumor, which had been considered a retention cyst of Bartolini's gland, but proved to be solid, gave the true diagnosis of a large uterine tumor the exact nature of which up to that time had been unknown. Metastases occur, as I have said, through the circulation, most frequently in the vagina and lungs. In 132 cases tabulated by Ladinski metastases occurred in the lungs in 47 and in the vagina in 40. As metastases occur in from 70 (Dorland) to 90% (Metoz) [8] of the cases they are found in almost every organ in addition to the lungs and vagina, spleen, kidneys, ovary, liver, broad ligament, brain, colon, diaphragm, ribs, abdominal wall, bladder, mesenteric and prevertebral glands, face, stomach, pancreas, etc.

The diagnosis is made from the excessive hemorrhages following soon after some form of conception, and not yielding to the treatment appropriate for retained portions of the pregnancy, endometritis, metritis or subinvolution, the marked cachexia, a uterus enlarged and boggy, containing a friable, soft, easily bleeding tumor, and from the microscopic examination of a bit of the tissue.

As this form of tumor is the most malignant of all malignant tumors, the prognosis is essentially bad. Its malignancy shows itself in its very rapid development, and the early formation of metastases soon followed by death in the unoperated cases. The only hope, then, of cure is in an early diagnosis, with the institution forthwith of the proper treatment, for Williams [9] reported in 1898 that all cases not operated on had died. It may prove fatal in a few days after the cessation of the pregnancy, though ordinarily death does not come for from three to six months. In fifty-two cases collected in 1897 by Dorland the mortality was 73%. Ladinski in 1902 increased the collection of published cases to 124, and found the death-rate reduced to 59%. This change in the death-rate gives an idea what a proper understanding of the disease and a radical operation will do toward saving life. Even this percentage can be lowered by operating immediately on all cases, for of sixty-six patients on whom a radical operation was done, fifty recovered, making a death-rate of but 24%.

The treatment is most necessarily radical, and anything short of that after the diagnosis is once made is not justifiable. The fact that such a form of tumor does exist makes it absolutely necessary to submit to a pathologist any curettings from the uterus where there is the least doubt of the diagnosis, for the possibility of a cure depends on an early recognition. A hysterectomy offers the only hope. Whether it shall be by the vaginal or abdominal route must depend on the choice of the operator and the peculiarities of the individual case. Nothing less radical offers the least hope of cure, and is only wasting valuable time.

[3] University Medical Magazine, Philadelphia, 1896-1897, ix.
[4] Monats. f. Geb. u. Gynäk, 1895, Bd. i.
[5] Loc. cit., 1897, iv.
[6] American Journal of Obstetrics, 1898.
[7] Medical Press and Circular, June 25, 1902.
[8] Du Duciuoma Malin, Paris, 1900.

## Clinical Department.

### MASSACHUSETTS GENERAL HOSPITAL. CLINICAL MEETING OF THE STAFF.

Regular meeting, May 9, 1902, the president, Dr. C. B. Porter, in the chair.

[Concluded from No. 16, p. 434.]

Dr. E. G. Cutler reported the following cases:

#### MEDIASTINAL LYMPHOSARCOMA WITH X-RAY DERMATITIS.

Case I. I show a case of a supposed mediastinal lymphosarcoma with glands above the clavicle; one of the glands has been excised, and diagnosis made by histological examination. The patient came for pressure symptoms, which were as follows: Edema of the arm and face, the veins standing out upon the chest; dyspnea and hoarseness, which was shown not to be due to paralysis of the vocal cords; cough and general discomfort. Four exposures of ten minutes each at a distance of 10 inches were made by Dr. Codman's directions, all in the course of six days. She now shows a marked dermatitis, but says she is no better except that her voice is improved. When she came it was like the voice of a street hawker. The dulness beneath the sternum is unchanged. The glands are no smaller; indeed, since the edema has declined we notice them more, but the hand is less cyanotic.

#### GRAVES' DISEASE WITH PIGMENTATION.

Case II. An exophthalmic goitre showing the usual symptoms, struma, rapid heart, tremor, sweating, exophthalmos, Von Graefe's sign, Stelwag's sign; also that

[9] American Journal of Obstetrics, 1898.

sudden giving way of the muscles when she tries to do anything, which we often see in such cases. I present her here tonight on account of the marked *pigmentation* which is present. The parts especially affected are the eyelids, the front of the neck, the nipples, axillæ, and bends of the elbow. There is also a curious marking in streaks up and down the abdomen, apparently where the clothes have made pressure. About the genitals and anus the pigmentation is extreme. Between the pigmented spots the natural skin shows a marked contrast of color. This is the usual distribution of pigment as reported in the literature.

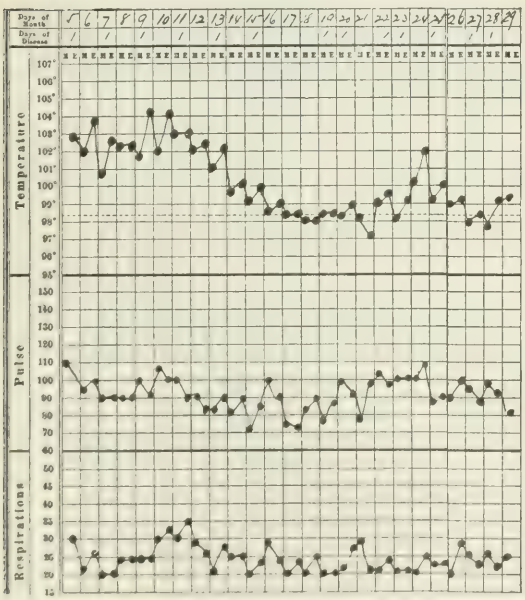
TRICHINIASIS.

CASE III. A groom came to the hospital complaining only of a bad cold, chilliness, and slight cough with expectoration and malaise. He kept at work until twenty-four hours before admission. The physical examination was negative except for moderate fever, and it seemed like a case of grippe, but on making the routine examination for iodophilia, Dr. Locke noticed a great increase of eosinophiles, 27% in a count of 400 leucocytes. This was on the third day after entrance, the eighth of the month. From this condition of the blood we predicted that symptoms referable to the muscles would make themselves manifest later, and after forty-eight hours a tenderness appeared in the arms and legs, but was not marked until the fifth day. Then all motions became very painful, and the muscular bellies very tender. The man seemed quite sick, and had a hard, dry cough. At this time a bit of muscle from the calf was excised and trichinæ demonstrated in it by Dr. Wright. The blood counts are as follows:

| | | | | |
|---|---|---|---|---|
| April 8, | Leucocytes, | 12,000; | eosinophiles, | 21.4%. |
| " 9, | " | 16,200; | " | 27 %. |
| " 11, | " | | " | 34 %. |
| " 13, | " | 18,800; | " | 46 %. |
| " 16, | " | 17,400; | " | 55.5%. |

The patient now feels much better.

| | | | | |
|---|---|---|---|---|
| April 17, | Leucocytes, | ; | eosinophiles, | 54 %. |
| " 18, | " | 10,800; | " | 49 %. |
| " 19, | " | 9,000; | " | 44 %. |
| " 21, | " | ; | " | 35 %. |
| " 24, | " | 14,800; | " | 19 %. |




At the present time the eosinophiles are 26% and the leucocytes are about normal in number. The man is perfectly well except for a certain amount of weakness in his legs. He has lost 20 lbs., but his appetite is now good and he is gaining flesh. His eyelids were never swollen. Our treatment was probably of no effect, as he did not come here until the ninth day after eating the pork which presumably caused the trouble. The sequence of events in such cases is this:

A patient eats a piece of pork containing trichinæ; the meat is digested, but the trichinæ, male and female, are left in the stomach. In the course of three days the female has a brood of about five hundred embryos, which penetrate the intestines and are carried thence through the blood and lymph channels to the voluntary muscles. The male dies at once in the stomach or intestine after copulation with the female. The female remains, and may breed as many as a thousand embryos in all, according to Leuchart. After the third day from the time the pork was eaten there is nothing to do but clear out the intestines in the hope that we may get rid of the female worm before she has produced all of her 1,000 embryos. It is rare that we see cases in time to expel the adult worms from the intestines.

In this case the stools were negative. The case is a mild one, and presumably this patient got but a small dose of trichinæ. The chief interest of the case is that by virtue of our routine blood examination of all fever cases we were able to predict in this case that muscle symptoms would be present some days before they appeared.

I will now speak briefly of some of the cases of decapsulation of the kidney which will be shown later by Dr. Cabot and Dr. Elliot.

CASE I. Ellen Welsh, thirty-three years old; entered the hospital Nov. 5, 1901, and has been here ever since suffering from what we believe to be a chronic glomerular nephritis. When she was transferred to the surgical side three weeks ago she was in a desperate condition, and I thought she would certainly die unless something were done. I believe she would not have been living today without the operation. She had been pretty steadily going down hill from November to April, and the urine had got down to a very small amount.

CASE II. A man, operated on by Dr. Elliot, entered the hospital March 10, with what, at first, seemed to be an acute nephritis with edema, a great deal of blood and albumin in the urine. The total amount of urine was very small. He went on from bad to worse, had several convulsions, improved a little after bleeding and transfusion, but showed a marked change in the condition of the urine, such that we now believe the condition of the kidney to be one of chronic nephritis with an acute exacerbation. He was, therefore, transferred to Dr. Elliot for operation, and now seems to me distinctly better than before the operation.

CASE III. A boy of ten, who had scarlet fever at four, and has now had a chronic glomerular nephritis for some time. He was very badly off, and it seemed a good case for operation. Since the operation he says he is better; at any rate he is happy and notices things more. He does *not* look better.

DR. A. T. CABOT reported two cases of

DECAPSULATION OF THE KIDNEYS.

He said that it was too early to come to any positive conclusion regarding the results of these operations, but as this was the last meeting of the year it seemed to him worth while to report briefly his experience with them.

His patients were both operated upon on the 27th of March, and were as far as he was aware the first that had been thus treated in this city. He said that the operation, as suggested by Dr. Edebohls, was simply the stripping off of the capsule, after which the kidney was dropped back into place. He corroborated Dr. Edebohls's statement that the operation was easy, quick and not dangerous, and said that Edebohls claimed benefit from it, especially in cases of chronic interstitial nephritis.

His patients were a man and woman, both in middle life. The clinical history of the man suggested an interstitial nephritis, while the woman seemed to be suffering from a chronic parenchymatous nephritis. He said that in spite of these differences in clinical diagnosis, the kidneys had very much the same appearance in the two cases. They were of about normal size, dark purple or plum colored, and with a somewhat granular surface. The capsules were thin and stripped off readily, except that here and there they were somewhat adherent in the depressions between the lobes of the organs.

Case I. The man, whose symptoms suggested interstitial nephritis, had had six convulsions about a week before the operation. Following this he remained in a stupid, at times delirious, condition up to the date of operation. The operation was done under ether, and lasted a little over half an hour. It was well borne, and the patient made a good recovery from the ether. In the evening he had a short convulsion, but from that time the convalescence progressed favorably. While before the operation, he had had great difficulty in taking food, he soon began to be hungry and to have what for him was a ravenous appetite. The wounds healed quickly, and in less than a month he was sitting up a part of each day. That the operation had benefited him there was no doubt.

(Eight days after this case was reported the patient died suddenly, without warning, having been as well as usual with the exception of a reappearance of irregularity and intermittency in the pulse. A partial examination was made. The condition of the kidneys was found to be markedly arteriosclerotic. The heart was dilated and firmly fixed in the pericardium, as the result of an old adhesive pericarditis.)

Case II. This case, which is the patient treated in the hospital and shown at the meeting, was a pale, flabby woman, with much ascites. In her case also the operation was borne perfectly well and improvement set in soon after, but was less marked than in the case of the man. Headache which had been persistent before the operation disappeared, and the ascites which had required aspiration at short intervals before operation was much slower to collect afterwards. She was able to take food better and recovered a certain amount of strength.

This patient was shown, and was regarded by those who had seen her before operation as distinctly improved. Dr. Cabot said that he felt able to say that she certainly was no worse, but that it could not as yet be stated that the operation had been a great success.

After both operations the quantity of urine was increased and the number of casts was diminished, but in neither had the casts or albumin wholly disappeared.

Dr. Edebohls believes that the improvement following this operation is due to increased nourishment of the kidney through a new supply of blood vessels between the fat capsule and the substance of the organ. As this new formation of blood vessels is a comparatively slow process, he does not look to see improvement under two to three weeks after operation.

In Dr. Cabot's cases and in others reported there was an early improvement following the operation, which must have been due to some other agency than that indicated. Whether this primary effect of the operation is due to counter-irritation, to blood letting, or to the relief of tension by incision of the capsule is yet to be determined. The change in the blood tension in these cases was rather interesting on account of the contradiction involved. In the man the tension immediately after the operation was 210, and fell in the course of the next fortnight to 170, whereas in the case of the woman, the tension before operation was not high (about 110), and rose after operation to about 160. This observation, however, is of but little value, as the patient was taking heart stimulants during this time.

Dr. J. W. Elliot reported the following cases:

DECAPITULATION OF THE KIDNEY FOR NEPHRITIS.

Case I. A man, transferred from Dr. Cutler's service, had had convulsions, vomiting and edema, and came to us in very poor shape. There were at least two inches of edematous tissue on his back, and, as we cut down upon the kidney, the bleeding was very profuse. Many of the vessels we met bled like a radial artery. One kidney was double its normal size, embedded in an inflamed, fatty tissue, in which there were a great many new blood vessels. A piece of kidney substance was excised and sent to Dr. Wright, who pronounced it subacute glomerulo nephritis, a type not supposed to be the best for operative treatment. The entire capsule was removed from both kidneys.

Since the operation the patient has improved very much, the edema and headache are gone, there have been no convulsions, and he feels splendidly. The blood tension seems to be lower. The amount of urea runs along rather low, but is not remarkable for a man who is in bed. We have not yet allowed him to sit up. Improvement began within two weeks.

Case II. A boy, seen with Dr. Cutler, and operated upon by Dr. Brooks, for me. It was a case of post-scarlatinal nephritis. At operation no kidney substance was taken out for diagnosis. This should always be done, as the urinary diagnosis gives us no certain information regarding the type of nephritis. There has been little or no improvement in the patient since operation, except that he seems brighter.

The operation itself is very simple — just peeling off the capsule. In both cases the capsule was thin and the kidney smooth. The first case had already taken up from the surrounding tissues a large blood supply, and I felt as if I might be doing harm in destroying these blood vessels. A curious point in these cases was that ether seemed to do them no harm. We used to be afraid to give ether in cases showing kidney trouble, especially in those with edema, but in these cases, although they were of the worst type, the operation did not upset the patients at all. The total

amount of urine was reduced for only one day after the operation, but after that returned to normal. On the whole the operation seems to be a safe experiment.

Two weeks later the second case also showed some improvement.

DR. CUTLER: I notice none of the odor which was present when these patients were in the medical wards. They smelled almost as if they had been dipped in the urine; now there is no odor.

DR. CABOT: In my cases the kidneys were not large, the capsule was thin, and the surface granular beneath it; in both cases the surface was plum colored.

DR. HEWES: I have had the opportunity of studying the urine in these cases where decapsulation has been performed, both before and after operation. In all cases the time which has elapsed since operation is so short that any definite change in the condition of the kidneys is not to be expected. Nevertheless, the urine in the period following operation shows some variation from its preoperative state, and evidences some definite post-operative features which are of great interest. The most notable features which appear in the urine directly following the day of operation are: (1) An increase in the twenty-four hour quantity, appearing by the second or third day in all these cases; (2) the presence in the sediment of an excess of leucocytes and some increase in the number of red blood corpuscles, and (3) the presence of excessive numbers (in proportion to the preoperative findings in these cases, with chronic parenchymatous changes) of fatty elements, fatty cells and casts. There seems to be a perfect shower of these fatty elements during the first week or two, as if these degenerated portions of the renal tissue were being thrown off under the influence of the increased blood supply. The number of casts begin to diminish soon after operation, the proportional diminution appearing to be about one-fourth or one-half, even allowing for the increased dilution consequent upon the increased quantity of urine. The total solids in the secretion are increased to some extent, yet the diagnosis which would be arrived at by the examination of the urine a month after operation would, except for the influence of the increased quantity of urine, be the same as that made from the urine seen before operation.

DR. J. W. ELLIOT reported a case of

EXTIRPATION OF THE LARYNX.

Dr. Coolidge saw this patient ten years ago, removed a typical benign papilloma from the vocal cords, with great improvement of the voice, but it recurred and was removed again several times. A year and a half ago there was a slight recurrence, and this time the microscope showed cancer. When I saw her the growth was about the size of the end of the finger, and was causing much disturbance to respiration.

On Dec. 20 I opened the larynx by dividing the thyroid cartilage along the middle line (thyrotomy) and removed a cancerous growth which covered the left vocal cord and extended up beside the epiglottis. At that time all the soft parts were easily stripped off of the thyroid cartilage, leaving its inner surface white and healthy. The patient made a good recovery, but the growth recurred. We therefore determined to remove the larynx. On Feb. 20 I again opened the larnyx, and found that the disease had returned in the thyroid cartilage and had extended into the pharynx. I therefore removed the disease and the whole larynx except a part of the cricoid cartilage, which was used to fasten the trachea to the skin.

As you see, the patient still wears the tracheotomy tube, but an opening remains where the larynx formerly was, so that air can be forced up from the trachea into the mouth. In this way she can make herself understood by loud whispering. I believe this is the first successful case of removal of the larnyx ever done in this hospital.

A year ago I showed a case of thyrotomy for cancer of the vocal cord, and I have since done another for Dr. Coolidge in private practice. Neither of these cases have had a recurrence of the disease. We believe that the chance of permanent cure of cancer of the vocal cord is good if the larynx is opened and the cord excised in the early stages. In the later stages the larynx must be removed, but the results of this operation are less encouraging.

These operations are done with a Trendelenburg canula in the trachea, which is simply a tube surrounded by an inflated rubber bulb, which when in place prevents blood from entering the trachea alongside the tube. With this one can operate freely without fear of filling the trachea and lungs.

DR. ELLIOT also reported a case of

RUPTURED TRACHEA.

This man, while lying flat on a moving elevator with his head pushed out to look down the shaft, was caught between the elevator and the next landing in such a manner that his head was bent violently forward over the side of the elevator. He entered the hospital syanosed and with great dyspnea, the skin of his throat being infiltrated with air. The house officer, Dr. Emerson, diagnosed at once a rupture of the trachea. The ends of the trachea could be felt bobbing past one another. He did a tracheotomy and sewed the ends of the trachea together. The tracheotomy tube is still in place. It was taken out once, but dyspnea rapidly occurred, and it had to be replaced. On examination Dr. Coolidge found paralysis of the cords. The laryngeal nerves were therefore injured or ruptured by the accident.

DR. COOLIDGE: In this case the recurrent laryngeal nerves which run between the gullet and the windpipe and supply the muscles of the larynx, except the crico-thyroid, were probably broken or severely injured. There resulted an immobility of the glottis; and hence the vocal cords, though they will admit air enough for quiet

breathing, do not admit enough for heavy breathing. Later there will probably be some atrophy of the muscles and the breathing will improve, but until then the tracheotomy tube must be kept in. The patient can talk somewhat on account of the narrow space between the vocal cords, aided by extrinsic muscles not dependent on the recurrent nerves. It is possible that the nerves are not wholly ruptured, and so that motion may be restored to the laryngeal muscles.

## Reports of Societies.

### MAINE MEDICAL ASSOCIATION.

Fiftieth Annual Meeting, Held at Portland, June 4, 5 and 6, 1902.

(Concluded from No. 16, p. 440.)

FIRST DAY.— EVENING SESSION.

The evening session was devoted mainly to a discussion between representatives of the Cumberland Bar and the Association, of

THE LEGAL *vs.* THE MEDICAL TEST OF RESPONSIBILITY.

Dr. George W. Foster of Bangor, superintendent of the Eastern Maine Insane Hospital, opened the discussion with a paper on

RESPONSIBILITY IN MENTAL DISEASE.

A fact too often lost sight of by the non-medical mind, or not known, is that the insane are not necessarily, or often, exempt from the same passions of human nature as the sound in mind. For the purposes of the paper the writer considered the insane under two classes: those insane with delusions, and those without delusions. These two classes must be judged by different standards, and the latter class presents peculiar difficulties to the non-medical observer from the absence of delusions, and on account of the apparent integrity of the reasoning faculties. It is not probable, however, that either set of faculties is ever exclusively involved in disease. The test of responsibility involved in the ability to distinguish between right and wrong is inapplicable in this class unless supplemented by the inquiry, whether or not the insane person has through disease lost the power of self-control with relation to the specific act in question. This inquiry should in fact be joined with the original right and wrong test in all cases, and should have equal weight in determining responsibility.

It is a law of the retrograde change, that the more complex and highly specialized organization has, proportionally, the less power of resistance against degenerative influences.

In the gradual reductions of cerebral disease, the higher intellectual and moral centres suffer first, uncovering gradually the lower centres of organic life, which, released from control, become a law unto themselves.

In affective insanity, or that without delusions, the loss of this higher control may take place either through primary loss of function of the higher centres, by disease affecting the higher and lower centres coincidently by their inhibition, due to explosive functional discharge from any lower centre; from functional exhaustion due to persistent excitation transmitted from lower centres, whose activities are under a high degree of morbid tension; or, in some cases, from a combination of these causes. The victim of diseased impulse may realize the quality of an act; may reason upon it, and while it is abhorrent to his moral nature, perhaps after resisting with agonizing struggle for self-control, he may at last succumb to the persistency of its constant recurrence through the overtaxed centre of control.

In establishing the plea of insanity the crime must be correlated with the history of the case, for it must rarely occur that the first and last expression of the insanity would be a criminal act. Thus the objection that this reasoning opens a wide door for fraud is fairly answered. Affective insanities with dangerous tendencies were grouped under four forms: Epileptic insanity, simple melancholia, mania without delusions, and moral insanity, and, perhaps, the early stages of paresis.

The paper closed with a quotation from an eminent jurist, Judge Doe of New Hampshire, that "That cannot be a fact in law which is not a fact in science; that cannot be health in law which is disease in fact. And it is unfortunate that courts should maintain a contest with science and the laws of nature, upon a question of fact which is within the province of science and outside the domain of law."

Dr. B. T. Sanborn of Augusta, superintendent of the Maine Insane Hospital, followed with a paper setting forth the opinions of twenty-four superintendents of hospitals for the insane from all parts of the country, as given by W. H. Parry of Ann Arbor, Michigan. Twenty-three of the twenty-four denounced the so-called McNaughten test and advocated the "power of control" test.

The legal test was stated to be, in the courts of Great Britain and in most of those in this country, the "McNaughten test," or the ability to distinguish between right and wrong. The medical profession contends that the determination of responsibility should rest upon the power of "control," and offers as its reason for such opinion that disease of the mind so subjugates the will and the judgment, and the inhibitory centres are so much impaired, that the person is unable to resist the wrong act. In other words, the alienist claims that the real test of responsibility is not a knowledge of right and wrong with reference to the particular act, but knowing the right and knowing the wrong, the man has not the power, in consequence of mental disease, to choose the right and avoid the wrong. In the clinical observation of the patient the test of the knowledge of right and wrong proves a fallacy. Scores of patients are under care in every institution,

some of them highly homicidal and suicidal, who know the difference between right and wrong as well as any person outside the walls of hospitals who is considered sane.

DR. S. C. GORDON of Portland said that the difficulty in settling this question upon the basis assumed to be right by the medical profession, was that the matter rested upon a question of fact, and that questions of fact were for juries to settle. Juries cannot be expected to enter into or understand the intricacies of physiological theories or fine psychological distinctions. It is a fact that a large proportion of cases are first pronounced insane by non-experts, and often the relatives and associates have a better opportunity of judging early symptoms than experts who see the patient late and after the disease is established. Juries will consider the opinion of associates as to whether the accused had shown evidence of mental disturbance or appeared different from ordinary. He thought the rule of the courts must be adopted at present because there was nothing better offered. If the courts were compelled to select experts many of these differences of opinion could be harmonized.

DR. ADDISON S. THAYER of Portland said the opinion stated by Dr. Gordon as to the capacity of the friends and associates of the insane to recognize insanity before others, does not represent the opinion of the medical profession; it does not represent that of the men in the profession best fitted to judge and express an opinion.

Dr. Parry says that he began his investigation with the same view that Dr. Gordon has expressed, and he wrote to the men he addressed because he thought they knew most about the subject. Twenty-three of these superintendents agree with Drs. Foster and Sanborn; the twenty-fourth with the opinion expressed by Dr. Gordon. Parry says he wrote this gentleman and asked him if he were a medical man. He replied that he was, but wished he were a lawyer. Every man who has intimate knowledge of these cases knows that there are insane people who know perfectly well the right, but are unable to do it. We want truth, not alone harmony. A great injustice has been done in this State to irresponsible insane people; not one has escaped, but all who have been indicted for murder have been sent to prison as responsible criminals instead of to a hospital as irresponsible lunatics. "This so-called legal test is wrong, and the time will come when it will be repudiated by the courts as surely as the darkness tonight will change to daylight tomorrow."

RICHARD WEBB, ESQ., of Portland read a paper entitled

LEGAL TESTS OF RESPONSIBILITY.

The courts have tried to fix upon some test of responsibility in the interest of justice and the protection of the community, but none has yet been found which is wholly acceptable either to the courts themselves or to those members of the medical profession specially qualified in diseases of the mind. The great difficulty comes when we approach the debatable line between sanity and insanity. This first difficulty arises from the fact of insufficient knowledge of mental disease, and the improbability that such knowledge will ever be attained. The courts have not sought to establish a test by which the presence or absence of disease can be positively determined. Whether a person is sane or insane is a question of fact to be determined by a jury from the evidence given them, both expert and non-expert. But insanity being proved, it is not in itself a sufficient defense unless it appears that the alleged crime was the direct outcome of the diseased condition of the mind, or that but for the insanity of the defendant the crime would not have been committed. Thus in every case there is a double issue. The legal test has been adopted for the purpose of assisting the jury to reach a proper conclusion upon the second issue, that of responsibility.

It may be urged that it is a familiar legal principle that criminality depends upon volition. If a man is not a free agent, then he should not be held responsible for a criminal act. This proves too much, for if the impulse under which a man acts be really irresistible, he has ceased to be a free agent whether the weakness of will arises from disease or otherwise. Such a rule is obviously impossible under human conditions; for human law must inflict punishment in proportion to the nature of the offense, and not to the actual moral responsibility of the individual.

Some of the reasons which induce the judges to hold to their opinions are:

(1) The conflicting views of physicians themselves upon many subjects. The tendency among some physicians to brand almost any crime as an act of insanity would be a dangerous and absurd doctrine to embody in our laws. There is good medical authority sustaining the view of the courts.[1] "If a man is not acting under a recognizable and formulated delirium when he commits a crime, he is clearly responsible and ought to be held, unless he is unquestionably, and on other grounds than those arising out of or associated with his crime, shown to be insane."

(2) Judges feel that they are the guardians of the public safety, and that it is their duty to protect society from criminals and wrong-doers.

(3) This defense is usually offered by those caught red handed and to whom no other resort is open.

(4) Because the doctrine, that a criminal act may be excused upon the notion of an irresistible impulse to commit it where the offender has the ability to discover his legal and moral duty in respect to it, has no place in the law.

(5) Because, for example, no imaginary inspiration to do a personal or private wrong under a delusion or belief that some great public benefit will flow from it, where the nature of the act done and its probable consequences, and that it is itself wrong, are known to the actor, can amount to that insanity which in law disarms the act of criminal-

[1] London Lancet, December, 1881.

ity. Under such notions of legal insanity, life property and rights would be altogether insecure.

AUGUSTUS F. MOULTON, Esq., of the Cumberland Bar followed with remarks which strongly supported the contention of the alienists.

He said that often the question which devolved upon the courts to settle was not that of insanity alone, which was often practically conceded, but whether it had progressed to the extent that it abolished responsibility. The courts often have as much difficulty in determining degrees of homicide as they do the question of insanity.

Every man has the right to establish his case by the evidence of experts, and these experts he has the right to introduce. The proposition to place the selection of experts in the hands of the court, as Dr. Gordon suggests, would abrogate this right and break down the whole system of jurisprudence. The difficulty of holding people down to facts has been experienced by every physician. Ministers on the witness stand are exceedingly prone to mistake their opinions for facts, and lawyers as witnesses are the worst of all; they can rarely hold themselves down to facts. The theory of the law is to bring all the facts before a jury and let it form an opinion.

The difference between the legal and medical tests is not so very wide when we come to the question of impulse. There are cases of impulse due to voluntary action on the part of a man, as, for example, when he gets drunk and murders someone.

On the other hand, if a man can distinguish right from wrong, yet cannot control his will by reason of disease, that may excuse the crime. A case was cited of a prominent lawyer who, of brilliant intellect and sane in every other respect, came before the authorities and begged to be sent to an asylum lest he do his family bodily harm. He afterward died insane. When a man has reached this point he is no more responsible than the mother who kills her newborn infant in a fit of puerperal insanity.

Juries are often influenced by collateral facts.

The right and wrong test is a good one, but it should be qualified by the addition of some provision by which, if it can be shown that the act was the result of a diseased mind, the accused shall be adjudged not responsible.

It was apparent that Mr. Moulton's opinion was that of all jurists who had had an opportunity of studying insane cases in company with medical men.

A paper by ROBERT T. WHITEHOUSE, ESQ., county attorney for Cumberland County, was in the main a support of the position of Mr. Webb, except that it went to the extent of saying that, "when will was affected or destroyed by disease there could be no question of irresistible impulse. There is no will for it to act upon. The act is done without will. Where, however, there is any will, no matter how weak by nature or weakened by disease, and that will acts, though in obedience to an impulse however strong, then the act is the result of the will, and the doer of the act must be held responsible criminally as well as civilly, provided of course he possesses the necessary powers of reasoning and understanding. There is and always will be great difficulty in squaring legal rules necessary for the protection of society, with the medical theory, although so ably advocated.

SECOND DAY.—MORNING SESSION.

The committee to which was referred the report of the Committee on the Abuse of Medical Charity, reported, advising that the standing committee make effort to induce the hospitals to adopt a fixed fee for services rendered to persons able to pay more than the ordinary fees for board and nursing.

DR. D. A. ROBINSON of Bangor read a paper on

APPENDICITIS.

This urged the view that every case was surgical, and that immediate operation in the vast majority of cases gives the greatest measure of safety to the patient and satisfaction to the doctor. Appendicitis should never be left to medical treatment alone.

DR. A. G. YOUNG of Augusta, secretary of the State Board of Health, read a paper upon

THE MANAGEMENT OF INFECTIOUS DISEASES.

The most successful management begins with a correct diagnosis. The State has put certain obligations upon the medical profession, and certain restrictions upon certain diseases, and it owes it to the profession to give a needed assistance, in the prompt recognition of diphtheria, tuberculosis and typhoid fever, which a well-equipped chemical and bacteriological laboratory would supply.

The next important factor is the prompt notification of cases as soon as they come to the attention of the attending physicians. Isolation and quarantine as early measures of protection were urged as precautionary procedures, while further investigation is being made or pending the result of the laboratory examination.

Although pulmonary tuberculosis is a reportable disease, it is so, not for purposes of quarantine or unnecessary notice to the public, but that through the medium of the attending physician, the patient and family may receive adequate information for the sanitary care of the infected and the protection of the well. Without trustworthy disinfection, houses occupied by consumptives should not be vacated and then occupied by other families, and furniture, clothing and other articles used by them should not be allowed to go to rummage sales or any other sales.

Release from quarantine for diphtheria and scarlatina should not be based upon an arbitrary fixed time, but in the case of the first should be determined by the fact that successive cultures from both nose and throat show an absence of the Klebs-Lœffler bacillus; and in the latter upon the absence of any desquamation.

Failure to diagnosticate smallpox is partly dependent upon inexperience, but largely upon the

tendency to make the diagnosis from the appearance of the eruption alone, to the exclusion or total neglect of the clinical history. There is not a single point taken alone upon which a diagnosis between some cases of smallpox and some cases of chicken-pox can be made. When in doubt, it is always possible to isolate and take time for observation. In the sanitary management of the present atypical form of smallpox, more than half the battle is won when a correct diagnosis is made.

DR. GEORGE H. CUMMINGS, chairman of the Portland Board of Health, gave an account of the recent epidemic of smallpox in that city. He said that he had no faith in gaseous disinfection in smallpox, especially by sulphur, and thought that destruction by fire was the only thing that promised any safety.

DR. W. B. MOULTON of Portland read a paper on

THE DIAGNOSIS OF COMMON OCULAR DISEASES.

This presented in tabular form, with comments, the significance of the symptoms of eye affections which are commonly noticed by the patient or the general practitioner. These included pain, disturbance of vision; either rapid loss of sight with pain and redness, or gradual loss without pain or redness; photophobia, redness, lachrymation, changes in the pupil and tension of the eyeball. The relation of the variations of these different conditions was explained in connection with a great number of diseases.

DR. E. E. HOLT of Portland called attention to the danger of the spread of trachoma by Jew peddlers, he having seen two such instances.

The report of the visitors to the new Eastern Maine Insane Hospital was referred to the Committee on Publication by title.

SECOND DAY.— AFTERNOON SESSION.

DR. W. H. HARRIS of Augusta presented a paper under the title of

THE SURGICAL TREATMENT OF BRIGHT'S DISEASE.

This was an abstract of the report of Edebohls, upon his technique and the results of his operative work.

DR. ADDISON S. THAYER of Portland read a paper under the title of

TO WHAT EXTENT CAN GENERAL PRACTITIONERS MAKE USE OF THE NEWER DIAGNOSTIC METHODS.

The conclusion of the writer, who graphically described the state of mind of a practitioner who was ambitious for his son to acquire *all* the later methods, was, that this was the age of the specialist, and that to him the busy physician should turn, and find in him not a rival, but an assistant and adviser.

SECOND DAY.— EVENING SESSION.

The session was called to order at 8 o'clock, and the association was entertained and instructed by the annual oration, which was delivered by DR. JAMES R. CHADWICK of Boston, on

MEDICAL LIBRARIES.[2]

DR. W. K. OAKES of Auburn read a paper on

GONORRHEA.

He thought that restrictive measures were impracticable, because law should always represent the deliberate will of the majority, and should not interfere with the liberty of the individual, unless for the unquestionable advancement of the public welfare, and one which fails in either of these requirements will fail in its attempted enforcement.

THIRD DAY.— MORNING SESSION.

The association met at 9 o'clock. The secretary was instructed to convey to the next legislature an expression of the sentiment of this association with reference to the establishment of a laboratory for the furtherance of the work of the State Board of Health.

After the despatch of routine business, the report of the Board of Censors was presented and accepted.

The following officers were elected for the ensuing year: Dr. Hiram Hunt of Greenville was elected President; Dr. W. E. Elwell of Togus, First Vice-President; Dr. W. E. Toby of Portland, Recording Secretary, and Dr. A. L. Stanwood of Rumford Falls, Corresponding Secretary.

## AMERICAN GYNECOLOGICAL SOCIETY.

PROCEEDINGS OF THE TWENTY-SEVENTH ANNUAL MEETING, HELD AT ATLANTIC CITY, N. J., MAY 27, 28 AND 29, 1902.

THE society convened in the ballroom of Hotel Rudolph, under the presidency of DR. SETH C. GORDON of Portland, Me.

AN ADDRESS OF WELCOME

was delivered by DR. PHILANDER A. HARRIS of Paterson, N. J., which was responded to by PRESIDENT GORDON.

DR. THOMAS A. ASHBY of Baltimore reported

A CASE OF WANDERING SPLEEN PACKED IN THE PELVIS, COMPLICATED BY TYPHOID FEVER; SPLENECTOMY, WITH RECOVERY.

The author drew attention to the anatomy and function of the spleen. He said its size was influenced by bodily nutrition, the organ being large in well-nourished, and small in poorly fed individuals. In 1887 McCann reported nineteen cases of splenectomy, with thirteen recoveries. These cases were reported by eighteen different surgeons. Sixteen were observed in women, and three in males. In properly selected cases there was no doubt that the spleen could be removed with as good results as those which followed the removal of the uterus, the ovaries or kidney.

[2] See page 423 of the Journal, Oct. 16, 1902.

The chief interest in his case was from the standpoint of diagnosis. The patient, a young woman, had lived all her life in a malarial section of country, and had had repeated attacks of malarial fever. She had contracted a malarial spleen which, from its increased size and weight, had exercised such traction upon the splenic ligaments as to permit the spleen to wander down into the pelvis, where it became impacted behind the uterus and filled the pelvic basin. How long it had remained in this position there was no way of determining. In the meantime she became infected with the typhoid organism and developed typhoid fever. In the initial stage of the disease her temperature took a high range, and pelvic pains were soon felt. Her family physician, being called in at once, palpated the abdomen, and finding a large mass in the pelvis, well above the brim, with marked tenderness and high temperature, concluded that he had a large inflammatory tumor to deal with. At this time there were no typical symptoms and there were no typhoid cases in her family or neighborhood. He at once brought the patient to the hospital for treatment. At the time of the first examination the physical signs were markedly those of an inflammatory mass in the pelvis. There was pain on pressure, a doughy sensation to the touch, and the skin over the region of the tumor was so red and shiny that the surface indications were those of a suppurating mass ready to break through the skin.

When anesthetized the following morning the physical signs had markedly changed, and Dr. Ashby's diagnosis, before opening the abdomen, was that of an ovarian cyst or myomatous tumor. As soon as an incision was made, the spleen was discovered, and its removal at once decided upon. The enlarged size of the organ, length and weakness of its ligaments made an attempt at its restoration and attachment in its normal position a physical impossibility. The only safe course was to remove the organ, and this was done without the least difficulty, as its pedicel was not larger than one's little finger at the point of its attachment under the diaphragm. It was ligated in section, and the stump well covered with peritoneum.

The subsequent behavior of the patient's temperature could not be accounted for until the typical typhoid reaction was obtained some six or seven days after the operation. From that time on the typhoid condition was regarded as the primary disease, and was treated accordingly. The abdominal section presented no features to occasion the least alarm. Patient ran the regular course of the fever, and her convalescence was uneventful. Her health since her recovery has been better than prior to the attack of typhoid fever.

Dr. I. S. Stone reported

A CASE OF SPLENECTOMY, WITH RECOVERY.

He thought there was no longer any danger from hemorrhage in properly selected cases of splenectomy.

Dr. Wm. T. Howard said that splenectomy had been done three times successfully in Baltimore by Dr. Kelly. In each case an incorrect diagnosis was at first made.

Dr. Lapthorn Smith detailed

A FATAL CASE OF SPLENECTOMY.

Dr. A. Palmer Dudley had seen three cases of enlarged spleen, in two of which splenectomy was performed by himself, the third case having been operated upon by another practitioner. One of his cases died, while the other recovered.

Dr. J. Wesley Bovee reported

TWO CASES OF SPLENECTOMY, WITH ONE DEATH.

Dr. Joseph E. Janvrin had removed a malarial spleen which weighed between seven and eight pounds. The operation was easily done, but the patient died from what he considered secondary or surgical shock.

THE MEDICAL SIDE OF GYNECOLOGY.

Dr. Edward W. Jenks of Detroit said that there was a medical side to gynecology which could not be ignored, for a special training, together with a thorough knowledge of general medicine, were prerequisites for the making of an ideal gynecologist. Fully one-half of the women seeking advice and relief from disorders peculiar to their sex were suffering from some deranged condition of the eliminative organs, as shown by constipation or defective elimination of solids in the urine. Even where there were lesions in the pelvic organs, no relief from distressing symptoms could be secured until the underlying constitutional causes of pain and general poor health were first ascertained and removed. There were many derangements of the system which closely resembled diseases of the pelvic organs. Pain in the back, the commonest complaint of women, might be due to coccygodynia, myalgia, chronic malarial toxemia, or other constitutional causes; pain in the abdomen sometimes attributed to the ovaries might be due to habitual constipation, or to an atonic condition of the large intestine.

He was convinced that some of the medical schools were responsible for the neglect of medical gynecology. Surgical technique was taught in all its refinements, but symptomatology, differential diagnosis, and the treatment of diseases of women amenable to medicinal remedies could not receive adequate attention in the brief time devoted to them, if one judged by the results. The glamor of gynecological surgery had obscured the commonplace, but equally important, study of gynecological medicine. He made an eloquent plea for the medical side of gynecology, and urged that it be not relegated to obscurity in our zeal to advance gynecological surgery. He entered his protest against so many calling themselves gynecologists who ploughed only in one furrow of the field of gynecology, while the field itself was only a part of the great domain of medicine and surgery.

LACERATION OF THE CERVIX UTERI AND PELVIC FLOOR.

DR. W. L. BURRAGE of Boston read a paper on this subject, urging more careful study in diagnosis and treatment. He said the glamor of successful abdominal surgery had left the less dangerous and less showy plastic surgery in the background. Lacerations of the cervix and pelvic floor merited a more careful study than they had received; that if they were repaired early, fewer major and mutilating operations would be called for later; that the normal conditions were the ones the gynecologist should endeavor to restore, and until he was successful in doing this no attempt should be made to improve nature. Emmet gave the principles underlying repair of lacerations of the pelvic floor to the profession in 1883. These had been generally accepted as correct, and as yet no one had proved them to be erroneous. He urged the members of the society to stand by these principles and to devote their energies to perfecting details of operative technique rather than to invent or advocate operations which involved principles diametrically opposed to those of Emmet.

He had operated for laceration of the cervix 201 times, and for lacerated perineum and pelvic floor 162 times.

SYMPOSIUM ON RETRODISPLACEMENTS OF THE UTERUS.

DR. MATTHEW D. MANN of Buffalo, N. Y., discussed the etiology, pathology and symptoms. He believed that the round ligaments were important factors in holding the uterus in place, and that they acted in the manner pointed out by Kellogg. If the ligaments be stretched, the uterus falls behind the centre of gravity, and the round ligaments are not able to pull it far enough forward, so that intra-abdominal pressure falls on the posterior wall, and every effort increases backward displacement. Weakening of the pelvic floor, relaxation of the pelvic outlet as the result of childbearing, with or without rupture of the perineum, will allow the uterus to sag downward, and the fundus to fall backward. Relaxation of any of the supports of the uterus tends to backward and downward displacement of the uterus, and if the ligaments and pelvic floor are relaxed, then eventually there will be prolapse to a greater or less extent, dependent upon the amount of relaxation. He spoke of the uterovesical ligament as having considerable influence in the production of uterine displacement. He mentioned other factors which caused the uterus to become displaced backward, one of which was rupture of the perineum, which enables the vaginal walls to come down. If these came down, with cystocele or rectocele, then the vaginal wall, dragging upon the cervix, pulls the organ downward, and tips it over backward.

In displacement of the uterus the circulation and nutrition of the organ are interfered with, so that in a short time the woman would get a chronic congestion, with thickening and enlargement of the connective tissue of the uterus. This might be called, "chronic metritis."

Another cause of displacement of the uterus was laceration of the cervix, which allowed the organ to sink down into the pelvis, to turn slightly backward, the displacement going on from bad to worse. He had seen two cases of displacement of the uterus, one following whooping cough in an adult, the other from straining at stool. In the latter case the uterus was forced outside of the body from constant straining at stool, although the hymen was intact. He then mentioned the symptoms of retrodisplacement of the uterus, and among them he spoke of backache, bearing-down pains in the pelvis, etc. He did not believe that every case of posterior displacement of the uterus caused symptoms, but the majority of cases of backward displacement did cause symptoms. A woman with a backward displacement of the uterus would not continue to be well. She might be well for the time being, but eventually she would suffer. Besides the symptoms familiar to the gynecologist, he thought there were a great many reflex symptoms. A woman with a retrodisplaced uterus might suffer a great deal from reflex symptoms without the presence of pelvic symptoms. He cited cases in point.

NON-OPERATIVE TREATMENT OF RETRODISPLACEMENTS OF THE UTERUS.

DR. F. H. DAVENPORT of Boston read a paper with this title. The paper takes up three points: (1) The methods of non-operative treatment; (2) the indications for their employment, and (3) the results.

The only important method of non-operative treatment is that by pessary. Twenty-five years ago it was practically the only method, and for that reason it was developed to a remarkable degree, not only as regards the variety of displacements, but also the numerous forms of pessaries devised for their relief. Massage, electricity and general tonic treatment cannot properly be called methods, but are merely adjuncts. The choice, then, lies between treatment by operation and that by pessary. With the development of surgical procedures, that by supports was thrown into the background and neglected. There are cases, however, which are well adapted to the pessary treatment. Such are, (1) cases of simple retroverted uterus without complication, which have presumably lasted only a short time; (2) retroversion following childbirth, and (3) cases complicating neurasthenia as a result, where operation is inadvisable until the patient's health is built up.

The pessary treatment is not applicable to cases in young girls where local treatment of any kind is inadvisable, to cases complicated with lacerations, or to cases of long standing, where secondary changes in the circulation of the uterus have followed. Many of these which should be operated on refuse operation and choose the pessary. What, then, are the chances of cure?

The author's own statistics have shown that of all cases treated by pessary, about one-third are cured either anatomically or symptomatically by the use of a pessary for from one to two years. In selected cases the showing would be far better. Such success, however, presupposes close study of the case, care in the selection of the pessary, and constant supervision while it is worn.

The only displacements which need correction are prolapse and retrodisplacements, and the latter may be usually corrected by one of two varieties of pessaries, the Langford and the Albert Smith. The treatment by pessary, therefore, while it should be scientific, is simple.

THE ALEXANDER OPERATION.

Dr. Clement Cleveland of New York, in a paper on this subject, described the Alexander operation in detail. Although usually performed for retrodeviations of the uterus, he has found it useful in the cure of forward displacements. The selection of cases, however, is very important. In cases where adhesions exist, it is better to follow some of the other methods or resort to the vaginal route. In cases where the Alexander operation is not indicated, he prefers the operation devised by Dougal Bissell, and styled by him "internal shortening of the round and broad ligaments," with which the writer has had many good results.

To obtain the best results from the Alexander operation, a pessary should be worn before, and for two months after, the operation. It is also advisable that the patient should wear one for a few months after confinement. The patient should be kept in bed for three weeks after the operation, and the dressings should be changed daily. The main point in the performance of this operation is to reach the external ring with a clean cut from the surface. To a beginner the great stumbling block is the mistaking the superficial fascia for the aponeurosis of the external oblique. The writer believes that by including in the first suture the pouch of the peritoneum or infundibuliform process, it not only strengthens the attachments of the ligaments, but adds to the support of the uterus. Sterilized iron-dyed silk is recommended to hold the ligaments.

Hernia, as a result of this operation, is rare, and when met with, is due either to faulty technique or suppuration. The chief causes of failure are, (1) suppuration in the wounds, and (2) the too tightly tying of the ligament sutures.

In comparison with other methods, the writer prefers the Alexander operation for an uncomplicated case of displacement. In his opinion, the vaginal method of operation should be confined to women who have borne children.

SUSPENSION OF THE UTERUS.

Dr. Hunter Robb of Cleveland, Ohio, in speaking of the advantages, disadvantages and results of suspension of the uterus, insisted that suspension and fixation are not interchangeable terms, the latter procedure being always undesirable. Before we are able to speak with certainty as to the results, we must have more accurate data, which can only be obtained by a more rigid classification and a subsequent analysis of sufficiently larger series of (1) uncomplicated cases of malposition; (2) those cases of malposition in which other pathological conditions are present, but in which the malposition is the indication for operation, and (3) those cases in which the suspension is only a supplementary operation.

Robb believes that in suspension we have a method of permanently relieving a large percentage of patients suffering from obstinate retroflexion. Difficulties in future pregnancies are mainly the result of fixation operations and not of suspension. Hernia of the abdominal wall, adhesions, and localized or general sepsis are due to faulty technique, and should not occur.

INTRA-ABDOMINAL SHORTENING OF THE ROUND LIGAMENTS PER VAGINAM FOR THE CURE OF RETRODISPLACEMENTS OF THE UTERUS.

In a paper with this title, Dr. J. Riddle Goffe of New York said that gynecologists are uniformly agreed that the ligament which serves the most important functions in supporting the uterus is the sling of tissue reaching from the promontory of the sacrum, known as the uterosacral ligaments, to the posterior wall of the cervix, plus the uterovesical ligament reaching from the anterior wall of the uterus to the symphysis pubis. This is reenforced by the cellular tissue and ligamentous structure in the base of the broad ligament. So long as the uterosacral ligaments retain their proper tone and length, swinging the cervix high in the hollow of the sacrum, retroversion of the uterus is impossible. It is from some malign influence affecting the uterosacral ligaments, therefore, that we must look for the cause of retrodisplacements of the uterus, and it is consequently to the repair or the recovery of function in the uterosacral ligaments that we must look for restoration to normal condition. Unless the indirect result of any operation for maintaining the uterus in its normal position is to enable the uterosacral ligaments to involute and recover their tone and sustaining power, that operation becomes a failure. That this can be secured by direct operative procedure upon the uterosacral ligaments themselves, he is convinced from experience.

The next most favorable tissue to utilize for this purpose is the round ligament. This is attested by the results secured by many operators upon the round ligament in various ways. Alexander and others have demonstrated that the round ligaments, when shortened at the external abdominal ring, are efficient in maintaining the uterus in its normal position when applied to cases of retrodisplacement uncomplicated by inflammatory process. Olshausen has shown that the round ligaments, when caught up near to the uterus and attached at the edges of the abdominal incision, are efficient and satisfactory in restoring the uterus to its normal position. Wylie, Mann,

and many of their followers have had complete satisfaction in simply doubling the round ligaments upon themselves and stitching them in that position through an abdominal incision. Duhrssen, Wertheim and Vineberg have presented most conclusive statistics bearing upon the entire efficiency of shortening the round ligaments through the vaginal incision by catching them up near the horns of the uterus and stitching them to the anterior vaginal wall. The same German operators, Duhrssen, Wertheim, etc., and in this country Byford and the essayist, attest to the equal efficiency of operating through the anterior vaginal fornix, and doubling the ligaments on themselves in accordance with the Wylie-Mann suggestion. He had not found a method which had given him such universal satisfaction as this. He reported 130 cases that he had subjected to this procedure during the past sixteen years, and he knew of only three failures, and these were due to some departure from the regular procedure in which a modification was attempted. Among these cases ten are known to have become pregnant and eight have gone to full term, the pregnancies resulting most comfortably and satisfactorily, the uterus retaining its proper position thereafter. Of the miscarriages, one was in a syphilitic negress, and in the other the cause could not be learned.

The superiority of this method over others depends, therefore, upon the general question of the value of the vaginal route of attack over the abdominal route, and the incomparably wider field of application as compared with the Alexander operation.

Among his cases he finds six of congenital retroversion in young unmarried women, whose ages ranged from nineteen to twenty-seven years. In these cases, although the vagina was small and the hymen intact in all of them, he was able to perform this operation and effect a complete cure.

### Operations on the Uterosacral Ligaments in the Treatment of Retroversion of the Uterus.

Dr. J. Wesley Bovee of Washington, D. C., recounted briefly the surgical treatment of the uterosacral ligaments in retroversion of the uterus. The first operation for shortening the uterosacral ligaments through the vagina was done by him June 28, 1897, and since that time he has had seven other cases, all successful. By the abdominal route he began shortening these ligaments Feb. 21, 1900, and since then on three other occasions has the operation been done.

The method of shortening these ligaments through the vagina, as he has planned and practiced it, is to place the patient in the extreme lithotomy or Sim's position, and with a self-retaining perineal retractor in place, the posterior lip of the cervix is grasped with a vulsellum forceps and drawn forward. An anteroposterior incision is made through all the structures of the posterior vaginal fornix, except the peritoneum, and extending approximately from the cervix to the rectum. By careful dissection the ligaments are brought plainly into view. Then, grasping one of them with a forceps midway between the extreme points to be united and lessening the traction on the cervix at the same time, the fold of the ligament is brought down into the vagina; then a curved needle, armed with kangaroo tendon, is passed through the ligament at the extreme points noted, and another through the loop thus formed and through the posterior portion of the cervix below the insertion of the ligaments. When the other ligament has been treated in a similar manner, the two deep sutures are tied, and then the others. The wound is now spread well open, and the two ends of it approximated by a continuous kangaroo tendon suture. When the wound is closed it appears to have been originally a transverse one. Sometimes he has modified it by separation of the anterior vaginal wall from the uterus and converting the wound into a longitudinal one, or by transplanting the wall higher on to the uterus. When adhesions have been thought to exist in the retro-uterine space, the cul de sac has been entered and the adhesions separated. In all instances he has shortened the round ligaments through the anterior fornix.

By the abdominal route the plan he has followed is to use the Trendelenburg position, remove the intestine and omentum from the pelvis, and by the use of a special long retractor hold the uterus and appendages well forward and upward. Then, tracing the uterosacral ligaments with the fingers to properly locate them, a longitudinal incision is made through the peritoneum near the inner margin of one of them. The ligament is then partially dissected loose and is treated much as by the vaginal route. The peritoneum is closed by a purse-string suture, or by the plan of closing the vaginal wound. The other side is treated similarly and the abdomen closed. He has in a few instances shortened the round ligaments at the same sitting.

The results of the various operations for shortening the uterosacral ligaments were given. The author's own work in shortening the uterosacral ligaments consists of eight vaginal, and four abdominal, operations.

As to the advantages of the operation, the extraperitoneal shortening of these ligaments, with the adjoining portion of the vaginal wall, is practically devoid of danger, and is frequently indicated. The abdominal route is less frequently required. Yet, with the abdomen opened, perhaps for some other purpose, shortening of these ligaments would be very little extra risk to the patient, or an extra tax upon the part of the surgeon. It does not have the same conditions incident to ventrosuspension and ventrofixation which are considered by some as real dangers, and it is supporting nature's supports to this important reproductive organ.

### The Study and Practical Significance of Lactation Atrophy of the Uterus.

Dr. Hiram N. Vineberg of New York read this paper. Although the writer six years ago

drew the attention of the profession to lactation atrophy, the subject has not yet received the consideration that it deserves, as is evidenced by the literature and the recent textbooks on obstetrics. It is a physiological process accompanying lactation, with or without amenorrhea, the atrophy or superinvolution being temporary only, the return to the normal size being in some cases dependent upon the cessation of lactation. In others, again, the regeneration of the uterine tissue occurs while lactation is still going on. It is not to be confounded with what is commonly known in this country as hyperinvolution, which is usually permanent in its character, although in some rare cases it terminates in this form. While the author has seen during his ten years' service at the dispensary over five hundred cases of lactation atrophy, he has not met with more than twenty cases of permanent hyperinvolution.

When the atrophy is slight and is manifest only by a thinning of the uterine walls, it is known as "eccentric atrophy," when it is more marked, as is evidenced by a marked diminution in the size of the uterus, the term "concentric atrophy" is employed.

The cervix usually participates in the atrophic process, but the ovaries do not, as a rule. The hyperinvolution or atrophy is fully established between the eighth and twelfth week, and persists for a variable period in different nursing women, its persistence usually being dependent upon the continuance of lactation. Anemia does not play an important rôle in the causation of the condition, as has been stated by some writers, notably Engstrom. The author had the blood examined in a series of cases and he found that the degree of atrophy bore no relation to the diminished number of red blood cells and to the lowered percentage of hemoglobin. Cases with the smallest uteri had the highest number of red blood cells and the highest percentage of hemoglobin.

Hyperinvolution may occur independently of lactation, as shown by Hansen and P. Müller. Most writers hitherto have concerned themselves chiefly in showing that lactation atrophy is not an injurious condition, and that it seldom leads to permanent atrophy. But the writer drew attention to its decidedly beneficial effects upon the uterus in bringing about a normal hyperinvolution. Women, therefore, who nurse their babies are rarely the victims of subinvolution, with its usual sequel, chronic metritis, one of the most unsatisfactory and rebellious conditions to treat. When, as is usually the case among the better classes, the mother is unable or disinclined to nurse her baby, it is the duty of the attending obstetrician to keep the parturient under observation and treatment, until nearly the same degree of hyperinvolution is established as obtains in lactation. This period will seldom be less than eight weeks and frequently will extend to three months. Unfortunately, the importance of this desideratum is very generally not recognized. The accoucheur rarely considers it necessary to examine the parturient after the second or third week.

In concluding, the writer drew attention to a peculiar circumstance, that in the class of women from whom he draws his material in dispensary practice, uterine cancer is exceedingly rare. From the 1,500 to 1,600 new patients he sees yearly, not more than one or two are the victims of cancer of the uterus. One would expect almost the opposite, if improper attendance during the puerperium and lacerations of the cervix play any rôle in the causation of that dread disease. He asked the question whether the circumstance that these women are shielded, in a great measure, against the occurrence of chronic metritis, renders them less susceptible to the development of uterine cancer?

*(To be continued.)*

## Recent Literature.

*Atlas and Epitome of Abdominal Hernias.* By Georg Sultan, M.D., First Assistant in the Surgical Clinic in Göttingen, Prussia. Authorized Translation from the German. Edited by William B. Coley, M.D., Clinical Lecturer on Surgery, Columbia University (College of Physicians and Surgeons); Surgeon to the General Memorial Hospital; Assistant Surgeon to the Hospital for Ruptured and Crippled, New York City. With 119 illustrations, 36 of them in colors. Philadelphia and London: W. B. Saunders & Co. 1902.

Hernia is so common, and strangulated hernia is so fatal, that the author hopes to "awaken an interest in abdominal hernias among physicians and students" by the publication of this admirable monograph. The book is a translation from the German, edited by Dr. William B. Coley, a well-known authority on hernia, and forms one of Saunders' Medical Hand-Atlases. The plates are colored in rather a gaudy manner and are not always true to life, but the coloring adds to the facility with which the text is understood. The various steps of the common operations are clearly described. As a monograph it is not as complete as Macready's "Treatise on Ruptures," but for the general practitioner and the surgeon it will be a very useful book for reference. The book's value is increased by the editorial notes of Dr. Coley.

*The Principles and Practice of Bandaging.* By Gwilym G. Davis, M.D., Universities of Pennsylvania and Göttingen; Member of the Royal College of Surgeons, England; Assistant Professor of Applied Anatomy, University of Pennsylvania; Surgeon to the Episcopal, St. Joseph's and Orthopedic Hospitals. Illustrated from original drawings by the author. Philadelphia: P. Blakiston's Son & Co. 1902.

This book is based upon a previous one by the same writer, issued in 1891. The text has been

rewritten and the illustrations redrawn, so that it is essentially a new book. The author is impressed with the fact that "the prevalence of gauze bandages and their substitution for those of muslin have caused a great deterioration in their application." He has tried to establish the principles of the art of bandaging, and has considered simplicity as the main characteristic of the modern bandage. The table of contents is divided into the roller bandages, the tailed bandages or slings, and the handkerchief bandages. The descriptions given are clear and concise, and while the majority of the bandages are survivals of ancient methods of doing surgical work, yet the book, as a whole, serves as an admirable guide to the beginner in bandaging.

*A Manual of Surgical Treatment.* By W. WATSON CHEYNE, M.B., F.R.C.S., F.R.S., Professor of Surgery in King's College, London; Surgeon to King's College Hospital and the Children's Hospital, Paddington Green, etc., and F. F. BURGHARD, M.D. and M.S. (Lond.), F.R.C.S., Teacher of Practical Surgery in King's College, London; Surgeon to King's College Hospital, and the Children's Hospital, Paddington Green, etc. In seven volumes. Vol. VI: The Treatment of the Surgical Affections of the Tongue and Floor of the Mouth, the Pharynx, Neck, Esophagus, Stomach and Intestines. Philadelphia and New York: Lea Brothers & Co. 1902.

This is the sixth volume of the series, which will consist of seven volumes. The authors originally intended to complete the work in six volumes, but found it impossible to do this. The subjects included in this volume are of especial interest. They are the surgical affections of the tongue and floor of the mouth, the surgical affections of the pharynx, esophagus and neck, and the surgical affections of the abdomen. This is the most satisfactory volume of the series, and as the work approaches completion it becomes evident that it will be of great practical assistance to any surgeon or general practitioner.

*A Manual of Minor Surgery and Bandaging.* For the use of House Surgeons, Dressers and Junior Practitioners. By CHRISTOPHER HEATH, F.R.C.S., LL.D., Consulting Surgeon to University College Hospital, and Emeritus Professor of Clinical Surgery in University College, London. Twelfth edition. Revised by BILTON POLLARD, F.R.C.S., Surgeon to University College Hospital, and Teacher of Operative Surgery in University College, London. Philadelphia: P. Blakiston's Sons & Co. 1901. Printed in Great Britain.

The fact that this "Minor Surgery and Bandaging" has reached its twelfth edition demonstrates its value. The methods in use are distinctly English and are not American. Much of the apparatus which is advocated is clumsy, but the book, as a whole, is the best "Minor Surgery" with which we are acquainted.

*Atlas and Epitome of Operative Surgery.* By DR. OTTO ZUCKERKANDL, M.D., Privat-docent in the University of Vienna. Second edition, revised and enlarged. Authorized translation from the German. Edited by J. CHALMERS DACOSTA, M.D., Professor of the Principles of Surgery and of Clinical Surgery in Jefferson Medical College, Philadelphia; Surgeon to the Philadelphia Hospital, etc. With 40 colored plates and 278 illustrations in the text. Philadelphia and London: W. B. Saunders & Co. 1902.

This is the second edition of this book. Many of the chapters have been rewritten and descriptions of all the newer operations have been added. The work was prepared as an epitome of operative surgery for students. The operations that are performed on the cadaver are described in detail and are profusely illustrated. A large portion of the volume is devoted to ligation of vessels in continuity, to amputations and to resections. Many of the illustrations are colored, which adds to the clearness of description of the operations.

*Acute Dilatation of the Stomach.* By H. CAMPBELL THOMPSON, M.D. (Lond.), M.R.C.P., Assistant Physician to the Middlesex Hospital. New York: William Wood and Company. 1902.

This monograph of 54 pages comprises an account of five cases of acute dilatation of the stomach, coming under the author's observation, and a summary of forty-four cases from the literature. They are all presented in readable form and the salient points grouped and discussed. Examination of the reports of the cases shows their incompleteness in many ways. Chemical data, for instance, are wholly wanting. This is but natural, however. The interest in this disease which this book is sure to awaken will remedy such faults.

*A Retrospect of Surgery during the Past Century.* Being the Hunterian Oration of the Hunterion Society, 1901. By JOHN POLAND, F.R.C.S., Surgeon to the City Orthopedic Hospital; Senior Surgeon to the Miller Hospital; author of "Traumatic Separation of the Epiphyses," "Skiagraphic Atlas of the Hand and Wrist," etc. Editor of "Bodily Deformities," by E. J. CHANCE. London: Smith, Elder & Co. 1901.

This is the Hunterian oration of 1901, and is an excellent retrospect of the surgery of the last century. As a very comprehensive review of the advance that has been made in surgery, the address will be of interest and value to future generations.

*The Medical Treatment of Gallstones.* By J. H. KEAY, M.A., M.D. Philadelphia: P. Blakiston's Son & Co. 1902.

The contents of this book hardly bears out the title, for, of the 126 pages of which it consists, only 32 pages are devoted to treatment. Even

one-third of this limited amount of matter is concerned with the surgical aspect of the subject.

There is little question, however, that the book is timely in emphasizing the fact that in the present state of surgery there is probably more danger from operating on all cases of gallstones than in leaving a certain selected per cent to take their own course.

*The Practical Medicine Series of Year Books.* Under the general editorial charge of Gustavus P. Head, M.D., Professor of Laryngology and Rhinology, Chicago Post-Graduate Medical School. Volume VII: Materia Medica and Therapeutics; Preventive Medicine; Climatology; Forensic Medicine. Edited by George F. Butler, Ph.G., M.D.; Henry B. Favill, A.B., M.D.; Norman Bridge, A.M., M.D; Harold N. Moyor, M.D. Chicago: The Year Book Publishers. 1902.

This synopsis of work in the above subjects is excellently prepared and suitable for the general practitioner. The summaries of articles are quite sufficient to enable one to decide whether the matter in hand deserves further attention, in which case original sources given can be consulted. There are few doctors who will not profit by real study of the book, which is most easily done by systematic reference to the excellent index. We are glad to say that we have found the book useful. It contains 270 pages.

*Vaughan and Novy on Cellular Toxins.* A treatise on Cellular Toxins, or the Chemical Factors in the Causation of Disease. By Victor C. Vaughan, Ph.D., M.D., Professor of Hygiene and Physiological Chemistry, and Frederick G. Novy, M.D., Junior Professor of Hygiene and Physiological Chemistry in the University of Michigan. New fourth edition, revised and enlarged. In one 8vo volume of 480 pp., with 6 illustrations. Philadelphia and New York: Lea Brothers & Co. 1902.

This book treats of the products of cellular activity, that is, the various toxins, precipitins, agglutinins, ptomains and leucomains. It describes the chemistry of these bodies and shows their relation to disease. It is valuable because it contains a brief and concise account of the results of recent work upon cellular chemistry.

*The Roller Bandage.* By William Barton Hopkins, M.D., Surgeon to Pennsylvania Hospital and to the Orthopedic Hospital and Infirmary for Nervous Diseases. With illustrations. Fifth edition, revised. Philadelphia: J. B. Lippincott Company. 1902.

An excellent handbook on the application of the roller bandage. Its value as a book is increased by the number and character of the illustrations. Each bandage has been applied to the living model, photographed, and illustrations added. To the various bandages which are applied to the body are added the slings, binders and knots, and, finally, the various fixed dressings that are used in surgery.

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# Medical and Surgical Journal.

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## THE STUDY OF IMMUNITY.

Of the various subjects agitating the student of medicine at the present time, immunity in its broad aspects appears to be one of the most conspicuous and one of the most difficult. The great body of medically educated men will no doubt continue in the future, as they have done from earliest periods in the past, to cure, or attempt to cure, individual cases of what we call disease. These are the men who accept the results of others' investigation, and put to practical use the knowledge thus acquired. They are the practising physicians, a class which is essential and eminently useful. Working more quietly and less before the public eye is another class which in great measure makes possible the work of the first: these are the investigators who are studying into the etiology of disease, with a view to its wholesale prevention. Growing out of this group of workers has appeared, almost within the last decade, still another class to which, without question, we must lend an attentive ear in the years which are immediately before us. They are not seeking to cure the individual of his various ills, nor are they attempting, by practical measures, to prevent epidemic disease. Their research goes still deeper in the effort to find the nature of the vital reactions within the body which permits or prevents the incidence of disease. To the untrained observer this investigation into immunity presents a perfect chaos of difficulties. Something has, however, already been gained, and it is not for a moment to be thought that the subject will be allowed to lapse until much more light than we can now imagine has been shed upon the dark places. The inquiry demands a closer comprehension of the relationships between biology and chemistry than has ordinarily been accepted;

and needs men trained in many fields, if they are successfully to prosecute researches into this newest branch of medical science. That this line of investigation offers hope of the solution of the most fundamental problems of medicine there can be no question; that the ultimate solution will be slow in coming is as little open to doubt.

It is a significant fact that Prof. William H. Welch of Johns Hopkins University, who this year delivered the Huxley lecture at the Charing Cross Hospital Medical School, chose as his subject "Recent Studies of Immunity, with Special Reference to their Bearing on Etiology." The task was not an easy one of compressing into the compass of a single lecture the vast amount of confusing and often conflicting work which has already appeared, but he nevertheless succeeded in stating the main facts of the newer theories, associated with the names of Metchnikoff, Bordet, Ehrlich, Berhring, Roux and other pioneers. Through the studies of these and other men we have become acquainted with a previously practically unsuspected capacity of the healthy animal organism to produce substances specifically antagonistic to all sorts of foreign cells and cellular products and derivatives. The exact nature of these substances, their mode of action and their relations to bacteria or bacterial products, is the essence of the problem at issue.

As we read Professor Welch's presentation of the subject, appearing in the *Lancet* for Oct. 11, we are impressed with two things: first with the inherent difficulty and subtlety of the problems which the future must work out, and secondly, with the absolute necessity of training men for the prosecution of this vitally important work in our great centres of medical education. It is one thing to state the problem, and to understand what others have done, but to provide for its further elucidation means the cultivation of a type of scientific investigator which is almost unknown among us, and the liberal support of such investigation while it is in progress. Both are essential if we are to further this study of immunity, which bids fair to be more prolific of results than anything which medical men of science have yet undertaken.

## THE LORENZ TREATMENT OF CONGENITAL HIP DISLOCATION.

IT is not strange that the visit of a distinguished surgeon of Vienna to Chicago should excite great general interest. The previous operation performed in Chicago on the patient since operated upon by Professor Lorenz, was at the time the subject of much newspaper comment, and now that a European specialist has been called, coming as the conqueror of deformity on one continent to extend his victory to another, it is natural that the newspaper reading world, always keenly alive to dramatic situations, should feel more than the usual concern.

The history of the development of the operation of manipulative reduction of congenital hip-joint dislocation, which has been perfected by Professor Lorenz, is instructive. It may be a matter of local pride to recall that the first attempt of this sort was made by Dr. Abner Post in Boston, who with apparent success reduced the hip in a child at the City Hospital, using the manipulations advocated by Bigelow for traumatic dislocations of the hip. The success was not permanent, probably for the reason that the anatomy of congenital dislocation was, at the time, not well understood. It is for this reason, also, that the Italian method of manipulative reduction, developed by Paci, did not find general acceptance. It is perhaps doubtful if a manipulative method would have been accepted by the surgical world had it not been for the energy and thoroughness of Professor Lorenz, who demonstrated the anatomy of the affection and developed the details of manipulative correction in a way independent of the plan of Paci, until the method now known as the Lorenz method is in general use.

Rumor tells us that the development of the so-called "bloodless" method, that is, reduction without incision, arose in part from a disinclination of its chief sponsor to aseptic surgery from the fact that the antiseptic preparations were peculiarly irritating to him, causing eczema of the arms, and making all antiseptic undertakings a calamity to him. Whether the rumor is true or not, it is certainly fortunate that a well-trained and energetic mind should have been turned to the development of a method which has many advantages.

One practical advantage of the "bloodless" method of reduction lies in the fact that the parents of children with congenital dislocation of the hip are often anxious to avoid anything in the nature of a "cutting operation." Moreover, the method is one which can be carried out without any danger of sepsis, and is, therefore, within the reach of surgeons who are unwilling or unable to accept that risk. The manipulations taught by Professor Lorenz are not difficult in the milder cases, and can be performed by any surgeon with determination and anatomical knowledge. At first the method was attended by many relapses, and this caused considerable doubt as to its ultimate usefulness, which, however, has now been well established by a large number of successful cases. The method, however, has its limit of usefulness, and even in the best hands a considerable per-

centage of relapses occur. In Professor Lorenz's own statement his results are divided into those with "anatomical" successes, where the head has remained in the socket permanently; those with "functional" successes, where the head, although not in the socket, was sufficiently near it to enable the patient to walk better than before the treatment; and failures.

Where, as is sometimes the case (how frequently has not yet been determined), an impassable constriction of the capsule before the dislocated head prevents the entrance of the head into the acetabulum without the folding of the capsule before it, relapses may be expected to occur. Where there is a considerable twist in the neck, relapses also follow. In any event more careful and longer after-treatment is necessary than when an operation by incision is performed, and it is to the thoroughness of the after-treatment no less than to the skill in the operation that Prof. Lorenz owes his success.

Previous to Lorenz's attempts to correct the congenital dislocation without operation, Hoffa of Wurzburg had been attempting to cure this deformity by means of incision, with the deepening of the acetabulum where this is found to be shallow. At the last International Medical Congress in Paris both of these operative methods were presented, and the arguments in favor of each were heard. Cases were operated upon by both Hoffa and Lorenz, and considerable discussion followed, accompanied, perhaps, by some little evidence of prejudice from the odium chirurgicum.

To Hoffa we owe a brilliant and original investigation of the anatomy of the affection, and an operation which stimulates the ambition of every surgeon by its boldness, brilliancy and effectiveness. Cures are obtained with greater certainty and accuracy, and with the expenditure of less time in after-treatment. Cures can probably be obtained in more difficult cases by the method with incision than by manipulation without incision. In careless hands, however, the operation by incision has risks which the method by pure manipulation avoids. In rough or careless hands, however, there are risks of rupture of vessels, paralysis from overstretched nerves, and sloughs from injudicious attempts at the "bloodless" reduction. This excess of zeal, however, is rare at the hands of any surgeon of tact and common sense.

The question may be summed up with the statement that in the milder cases, manipulative measures will often suffice. When not, then operation by incision can be relied on to give a greater percentage of ultimate cures. In the serious cases operation by incision is to be preferred.

## ANTITOXIN OR BETTER NURSING?

In an extract from its Annual Report for the year 1901, published last week, the Massachusetts Board of Health gives an estimate of the saving of human life which has been wrought during the past seven years by the introduction of antitoxin treatment for diphtheria. Since this published statement has been questioned by one of the daily newspapers, we take pleasure in publishing that portion of the statement of the board which refers to the saving of life, *verbatim:*

The actual number of registered deaths from diphtheria in Massachusetts in the seven years 1895-1901 was 9,281. But the estimated number obtained by applying the mean fatality-rate of the four years 1891-1894, which was 28.3, to the actual fatality-rate of each successive year of the later period, 1895-1901, makes a total of 19,978 deaths in the seven years. The difference between the actual number which occurred and the estimated number which would have occurred had no antitoxin been used is 10,697, which represents the saving of life in those seven years.

These estimated results of the gratuitous distribution of antitoxin throughout the entire State for a period of seven years are subject to certain indeterminate limitations and possible errors in the method of computation, which are due to the variability, both in the death-rate and the fatality from diphtheria from year to year, as well as to the fact that both the death-rate and the fatality of infectious diseases generally have diminished perceptibly, comparing early periods with later. Added to this is the probability that in 1891 and 1892 a small proportion of the cases of diphtheria were not reported to the local boards of health in the cities and towns embraced in the report from which this conclusion is formed relative to the pre-antitoxin fatality of diphtheria. There has also been a constant improvement in the ratio of the reporting population, as the laws relating to the reporting of disease and mortality have become operative in cities and towns. But even if these indeterminate limitations and sources of *error were to cut down the estimated saving of life by one-half, the result would still be more than 5,000 lives saved* by the use of antitoxin in the course of the past seven years. This satisfactory result has been made possible by the production of antitoxin by the State Board of Health, and its free distribution through the agency of local boards of health throughout the State.

In the newspaper article referred to, no allusion whatever was made to the qualifying clause which is published in the last portion of the foregoing extract.

It is safe to say that scarcely any physician of experience who had witnessed the terrible havoc made by diphtheria during the twenty years or more previous to 1895, and has also had occasion to treat the same disease during the past seven years, would at the present day undertake to treat a severe case of diphtheria without antitoxin. Nor would he doubt the correctness of the conclusions published by the board in the foregoing statement, since they are warranted not

only by the experience of Massachusetts, but by those of other places.

If this remarkable change in the fatality of the disease were simply due to "improved diagnosis and better nursing," then the experience of the highest authorities on the subject goes for nothing. How would any opponent of antitoxin, for example, interpret the fact published by Baginsky, who relates the experience of a hospital during the first year of antitoxin treatment, when for two months the supply failed. Of this incident Baginsky says: [1]

> The change in the character of the disease was unfortunately demonstrated by the observations in the months of August and September, when, as by a single blow, we were transported back to the old times, to the same melancholy picture of children deeply prostrated, and often in vain struggle with death.

Again the comparative experience of different countries demonstrates the same principle.

In a country like England, which is invariably slow in admitting and adopting improved methods, the decrease in the diphtheria fatality has been much less rapid than it has been in those American cities where antitoxin has been employed with scarcely any exception.

The figures for England and Massachusetts are as follows: Fatality of diphtheria in England in 1894, 25.1% (deaths to cases). In 1900 it was 16.4%. But in Massachusetts, with a very free use of antitoxin, the fatality in 1894 was 27.9% (or 28.3 for the four years 1891-1894), while that of 1900 was only 10.2%.

Again, the opponents of antitoxin, who were quite numerous during the first year or two after its introduction, are now extremely few in number, and are chiefly to be found among those who have had no experience in the treatment of diphtheria.

## MEDICAL NOTES.

ALVARENGA PRIZE OF THE COLLEGE OF PHYSICIANS OF PHILADELPHIA.— The College of Physicians of Philadelphia announces that the next award of the Alvarenga Prize, amounting to about $180, will be made on July 14, 1903, provided that an essay deemed by the Committee of Award to be worthy of the prize shall have been offered. Essays intended for competition may be upon any subject in medicine, but cannot have been published, and must be received by the secretary of the college on or before May 1, 1903. No prize was awarded in 1902.

UNIFORM MEDICAL LAWS.— It is announced from Milwaukee, Wis., that about thirty states are to unite to provide common laws regulating the practice of medicine.

[1] Die Serumtherapie der diphtherie, von. Dr. A. Baginsky, Berlin, 1895.

PLAGUE at ODESSA.— Plague is reported as officially recognized as epidemic at Odessa, and a large amount of money has been appropriated to combat the disease.

### BOSTON AND NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON.— For the week ending at noon, Oct. 22, 1902, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: Diphtheria 32, scarlatina 25, measles 3, typhoid fever 35, smallpox 9.

TUFTS COLLEGE MEDICAL SCHOOL.— The following changes have taken place in the teaching staff of the Tufts College Medical School: The Department of Ophthalmology, under the charge of Professor H. B. Chandler, has been enlarged by the election of Dr. F. L. D. Rust as assistant professor, with Drs. Edward Tracy Easton and Harry C. Parker as instructors. Dr. Morton Prince has been elected professor of diseases of the nervous system, in the place of Dr. S. G. Webber, resigned, and the department has been further enlarged by the appointment of Dr. J. J. Thomas, instructor in clinical neurology, and of Dr. Karl August Hoch, instructor in neuropathology. The Department of Clinical Medicine, under the charge of Dr. Horace D. Arnold, has been extensively enlarged, and arrangements have been perfected whereby the in-door and out-door clinics of the Carney Hospital have been made available. Dr. Edward O. Otis has been elected professor of pulmonary diseases and climatology, and Dr. Henry J. Barnes has been elected professor of hygiene. Dr. James S. Howe has been elected assistant professor of dermatology. The Department of Orthopedic Surgery, under Dr. Charles F. Painter, assisted by Dr. H. S. Warren, has also been extended, and the course is now made to include a pathological and laboratory clinic, an apparatus course, and a course on adult orthopedics, in addition to the conventional teaching in this specialty. Dr. W. E. Chenery has been elected assistant professor of laryngology. The concentration method has been extended to the second year work. The entering class in the medical school numbers 122 students. Changes in the dental school are reported as follows: The four-year course is now in operation in this school, the second in the country to adopt this change. Dr. Samuel A. Hopkins has been elected professor of theory and practice of dentistry. Under his charge dental conferences, similar to the surgical conferences in the medical school, will be instituted. The increased requirements for entrance and the extension of the course to four years have led to a decrease of 50% in the entering class.

Public Health Conference.— The following subjects will be presented at the meetings of the conference of State and Provincial Boards of Health at New Haven, Oct. 28 and 29: "Methods of Quarantine against Yellow Fever," by Major W. C. Gorgas, U. S. Army. "Yellow Fever," by Dr. Carlos Finlay of Havana, Cuba. "The Production and Control of Vaccine Virus and Antitoxins"; discussion opened by Dr. U. O. B. Wingate, secretary of State Board of Health of Wisconsin. "The State in its relation to Tuberculosis," by the president of the conference, Dr. Bracken of Minnesota. "Rules Governing the Transportation of the Dead," by the State Board of Health of Maryland. "The Plague Question in San Francisco." "Duties of Boards of Health in Presence of Smallpox"; discussion opened by Dr. Probst, secretary of State Board of Health of Ohio.

Smallpox in Salem, Mass.—Two deaths from smallpox have recently occurred at the smallpox hospital in Salem, Mass., which are said to be the first in that city since the appearance of the disease, although upward of twenty-five cases have been reported.

Harvard University Medical School.— The following administrative board has been appointed for the medical school for the year 1902-1903: Drs. W. L. Richardson, J. C. Warren, E. S. Wood, F. C. Shattuck, W. F. Whitney, C. M. Green, C. Harrington, F. Dexter and F. B. Mallory. Dr. Joseph Hersey Pratt has been appointed assistant in the theory and practice of physic for the year 1902-1903.

Massachusetts Colony for the Insane.— It is reported that the proposed State farm for the insane at Gardner, Mass., is now ready to provide for about fifteen able-bodied men. The land of 2,000 acres will later, it is expected, provide work for a large number of insane persons. Both men and women will ultimately be provided for.

Bequest to a Hospital.— By the will of the late Mr. George W. Weeks of Lancaster Mills, Clinton, Mass., about $130,000 were devoted to practical philanthropy in the testator's native town. From this amount $30,000 were given the Clinton Hospital.

New Ward for Boston City Hospital.— By the will of the late Lamont G. Burnham the sum of $150,000 is left to the Boston City Hospital for the purpose of erecting a new building, to be known as the Burnham Ward.

Charles Sedgwick Minot, Sc.D.— The honorary degree of Sc.D. has recently been conferred by Oxford University upon Prof. Charles Sedgwick Minot of the Harvard University Medical School.

NEW YORK.

Medical and Legal Aspects of Clean Streets.— At a meeting of the Society of Medical Jurisprudence held Oct. 13, Dr. John McGaw Woodbury, commissioner of street cleaning, read a paper on "The Medical and Legal Aspects of Clean Streets in the City of New York," in which he gave an outline of the work now being done by his department, and also called attention to some of the difficulties which it had to contend with. In speaking of the latter he said that in one ward, the eleventh, the street cleaners pick up by hand every day in the year eighteen tons of garbage that have been thrown on the pavements, these eighteen tons being exclusive of what is gathered in cans. This ward, which extends from Broadway to the East River, between Houston and Broome streets, is largely occupied by a foreign population, consisting of Roumanians, Russian Poles, and kindred peoples. He stated that from thirteen to twenty arrests daily were caused for violation of the city ordinances, and that it was easier to secure convictions now than formerly. If the accused confesses his guilt he is fined $2.00 by the magistrate, but if he denies it and the offense is proved against him, the fine imposed is $5. In speaking of the disposal of refuse he said that none was now carried out to sea and dumped, as was formerly the practice. Last year the city spent $730,000 for this purpose. Since February of this year the department has added to Riker's Island in the East River, twenty-five acres of land made from ashes, etc., which is worth at least $1,000 an acre. In a year it will have deposited land worth $250,000 to the city. The plant now being constructed at the foot of West 47th Street, he said would pay for itself, furnishing 250 horse-power of energy as a result of burning refuse. Since the beginning of the year enough of the city's rubbish has been sold to realize over $100,000.

Precautions Against Smallpox.— The president of the Board of Health has addressed a circular letter to the physicians of the city invoking their co-operation in preventing a return of smallpox during the coming winter. New York, he states, is at present practically free from the disease, but is constantly exposed to reinfection from many communities where it is still prevalent. Protection conferred by vaccination is almost absolute, in the experience of the health department, for certain periods varying in different persons from three to seven years, and medical men are urged to insist on vaccination and to see that only fresh and reliable virus is used, and also that unsuccessful vaccinations be repeated. In conse-

quence of the unfortunate experience of last year, the department has asked from the city a special appropriation of $20,000 for immediate vaccination.

MEDICAL INSPECTION OF PUBLIC SCHOOL CHILDREN.— The health department has also asked for an appropriation of $21,000 to carry on the work of medical inspection of the children in the public schools more thoroughly and extensively. This is esteemed more especially important as regards the prevalence of contagious eye diseases, 3,000 cases of which, it is stated, have been discovered since the opening of the schools in September. In a single week the inspection of the schools in the Borough of Manhattan alone showed the following cases of disease: Parasitic diseases, 3,087; contagious eye diseases, 1,407; skin affections, 75; acute catarrhal diseases, 75; whooping cough, 17; scarlet fever, 16; mumps, 9; measles, 6; chicken-pox, 4; diphtheria, 2; miscellaneous, 18; total, 4,730.

SMALLPOX.— During the week ending Oct. 11, there was not a single case of smallpox admitted or remaining in the hospital for contagious diseases on North Brother Island, but in the Kingston Avenue Hospital, Brooklyn, one new case was admitted and seven remained at the end of the week.

AN INFANT OF FIFTEEN OUNCES.— One of the smallest babies on record is undergoing incubator treatment at the New York Post-Graduate Hospital. When admitted it weighed but fifteen ounces, but was well formed, and seemed likely to live.

## Miscellany.

### A. M. PHELPS, M.D.

AT a meeting of the faculty of the New York Post-Graduate Medical School and Hospital, held on Oct. 8, 1902, it was resolved that a committee be appointed to draft a minute in appreciation of the professional life and services of their late colleague, Prof. A. M. Phelps. The committee subsequently made the following report, which was ordered to be spread upon the minutes of the faculty.

In the death of Prof. A. M. Phelps our school has lost a teacher and the medical profession is deprived of a member whose energy cleared the way for great progress in his field of work during the past twenty years. His was the spirit of the pioneer. Not content with things that have been done, but ever restless to find new vistas with new horizons, his single-hearted devotion to the development of what is best in orthopedic surgery led him to engage in a constant warfare of ideas. No matter whether the ideas were those of colleagues or his own, no matter whether he was right or wrong, his energy gave life to the subject and set men to thinking. It is such active lives as his that keep subjects alive, that keep men aroused, and lead them to their utmost, and when this is for no selfish end, but solely bent in the interest of science, we have a public benefactor whose usefulness exceeds that of the capitalist who gives his million of dollars to the most worthy charity. The capitalist gains his fortune through his guidance of the work of others, and the scientist adds to the total of the world's knowledge by stimulating others to follow in his lead of investigation, or to take long steps in progress at his suggestion. In the professions there is a tendency for men to fall asleep upon the soft pillows of concensus of opinion, but men like Dr. Phelps realize that concensus of opinion is often wrong, because it represents the lines of least resistance, and he turned all sleepers out and made them uncomfortable until they had made their own new opinions. Dr. Phelps was impatient with those who were contented in their work, and as impatient with himself, for he realized that great fields for giving help to suffering fellow men lay still undiscovered.

According to human experience, greatness implies the possession of constructive motives, nobility of purpose, catholicity of view, erudition. Dr. Phelps' motives were always constructive, his ideals were of the noble sort that included no interest before the interest of the sufferer. His views were so comprehensive that he could not long remain a partisan in any field aside from that of definite knowledge. His learning was that of the man of alert conception and of trained memory. Dr. Phelps, then, was a great man, and his opponents are the ones who would say it, sooner than he himself would have acknowledged it.

It was not in our school alone, nor in the city, nor in the State, nor in America, that his talents were recognized, but wherever in the World men are engaged in studying the things that he studied, he gave direction to their methods and force to their efforts. An influence like that of Dr. Phelps is that of the wireless telegraph, sending through invisible ether an impulse that is felt and that meets sympathetic response in minds that vibrate in unison at all distances, an expenditure of energy that finds its kinetic in the development of new knowledge. Yet he was not the one to say that he was right, only that he wanted to be right and that he wanted others to be right.

He was proud in his strength, yet modest in the presence of those who were stronger than he. Few knew this side of his character, but those of us who knew him best, knew how much of humility there was beneath his forceful bearing.

And if we speak of Dr. Phelps as the surgeon, what shall we say of him as the citizen, as the friend, as the husband and father. Matters of public interest were matters with which he made himself conversant, and whether at home or abroad he formulated views of public affairs with a clearness of view that engaged the attention of statesmen. As a friend he was loyal almost to the point of weakness. His enjoyment of life and of his friends was that of a man whose spirit of *cameraderie* overlooked all failings. Beneath the stern exterior developed by men of his strength to resist external impressions, there was a heart so kind and sympathetic that a tale of woe or a pathetic sight moved him as it would have moved a woman, and his kindly deeds in response to the impulse of a great and generous nature were unknown to the world at large, because he considered it beneath the dignity of a man to show any side excepting the one that accomplishes things by force.

Dr. Phelps has been taken from the home, from the profession, and from the world before his activities had reached their zenith, but the influence of such a life as his will last beyond the lives of those who felt his influence, and we, his colleagues, sorrowing in his loss, exult in the privilege that we had in knowing him.

ROBERT T. MORRIS, M.D.,
REYNOLD WEBB WILCOX, M.D.,
HENRY LING TAYLOR, M.D.,
} *Committee.*

## THE VACCINATION OF SCHOOL CHILDREN.

The September *Bulletin* of the Connecticut State Board of Health announces that the town health officers, influenced by the general prevalence of smallpox in every part of the Union, and its more frequent invasion of Connecticut during the past few months, have very generally submitted the following regulation to the State Board of Health, for approval, as required by law to make it effective.

THE REGULATION.

No superintendent, principal or teacher of any public or private school in this town shall permit any child to attend school until such child shall have been vaccinated, or shall have produced evidence from a physician that, in the opinion of such physician, it would not be prudent, on account of sickness, for such child to be vaccinated.

The State Board has given a hearing to the health authorities of every town whose health officer has by his signature indicated his desire to adopt the rule. Two hearings have been held: one at Osborn Hall, Yale University, on Aug. 21, and the other at the Medical College, Sept. 27. At the first hearing all who appeared before the board expressed their confidence in the protective power of vaccination, and the importance of the general practice of it, as a prudent and effective protection from smallpox. Objections were made from only four towns, mostly by laymen officially connected with the public schools, urging that it would interrupt the attendance. Only two physicians opposed its approval, because they thought it would be unpopular with their constituents.

At the second hearing no one appeared in opposition to its approval.

All the towns in the counties of Hartford, New Haven, New London and Tolland submitted the regulation. Only the health officers of the following towns did not submit it: Sherman, in Fairfield County; Ashford, Canterbury, Sterling, Thompson and Windham, in Windham County; Harwinton and Morris in Litchfield County, and Middlefield, Saybrook and Old Saybrook, in Middlesex County. Two of the towns whose health officers, after signing their approval, changed their minds about it, wrote the board that they regretted their action. They are the towns of Salem and Franklin. The rules for these towns are still under consideration. The regulation for the other towns was approved by the board.

This regulation, when published or posted as required by law and recorded in the land records of the town, shall remain in force until altered or repealed in the manner prescribed for making regulations.

The four largest cities in the State and several smaller ones are now enforcing a similar regulation in the public schools.

The only towns of considerable population that did not submit the regulation for approval are Thompson and Windham. Thompson reported thirty-two cases of smallpox in July and August, the largest sick-rate, from smallpox, of any town in the State in proportion to population.

## METEOROLOGICAL RECORD

For the week ending Oct. 11, in Boston, according to observations furnished by Sergeant J. W. Smith of the United States Signal Corps:

| Date | Barometer. | Thermometer. | | | Relative humidity. | | | Direction of wind. | | Velocity of wind. | | Weather* | | Rainfall in inches. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Daily mean. | Daily mean. | Maximum. | Minimum. | 8.00 A.M. | 8.00 P.M. | Daily mean. | 8.00 A.M. | 8.00 P.M. | 8.00 A.M. | 8.00 P.M. | 8.00 A.M. | 8.00 P.M. | |
| S....5 | 29.94 | 58 | 62 | 54 | 63 | 100 | 82 | S | S E | 13 | 10 | O. | R. | .42 |
| M...6 | 29.63 | 65 | 76 | 54 | 90 | 64 | 77 | S | S W | 13 | 10 | O. | C. | .36 |
| T...7 | 29.84 | 62 | 72 | 51 | 70 | 73 | 72 | W | S W | 10 | 15 | C. | C. | |
| W..8 | 30.02 | 56 | 62 | 50 | 69 | 59 | 64 | W | W | 12 | 8 | C. | C. | |
| T...9 | 30.14 | 56 | 69 | 44 | 63 | 58 | 60 | S W | N | 14 | 12 | O. | C. | |
| F..10 | 30.35 | 48 | 59 | 38 | 61 | 61 | 61 | N | S W | 10 | 12 | C. | C. | |
| S...11 | 30.01 | 54 | 64 | 44 | 80 | 94 | 87 | S W | N | 8 | 8 | C. | R. | T. |
| ☞ | 29.99 | | 66 | 48 | | | 72 | | | | | | | .78 |

*O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow. †Indicates trace of rainfall. ☞ Mean for week.

## RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, OCT. 11, 1902.

| Cities. | Population Estimated, 1902. | Reported deaths in each. | Deaths under five years. | Percentage of deaths from | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | Infectious diseases. | Acute lung diseases. | Diphtheria and croup. | Typhoid fever. | Diarrheal diseases. |
| New York | 3,665,352 | 1,080 | 377 | 31.67 | 8.33 | 2.06 | 2.68 | 10.64 |
| Chicago | 1,852,828 | 403 | 112 | 31.51 | 5.70 | 1.48 | 5.48 | 10.92 |
| Philadelphia | 1,349,624 | 352 | 91 | 19.03 | 5.97 | 1.70 | 2.55 | 1.14 |
| St. Louis | 603,717 | — | — | — | — | — | — | — |
| Baltimore | 525,330 | 183 | 54 | 22.95 | 10.92 | .55 | 3.28 | 5.46 |
| Cleveland | 411,826 | — | — | — | — | — | — | — |
| Buffalo | 375,742 | — | — | — | — | — | — | — |
| Pittsburg | 341,401 | 124 | 43 | 31.45 | 11.29 | 5.60 | 8.86 | 4.00 |
| Cincinnati | 332,032 | — | — | — | — | — | — | — |
| Milwaukee | 304,975 | — | — | — | — | — | — | — |
| Washington | 289,537 | — | — | — | — | — | — | — |
| Providence | 185,870 | 50 | 21 | 34.00 | 4.00 | — | — | 24.00 |
| Boston | 588,730 | 203 | 71 | 32.02 | 9.85 | 2.46 | 2.46 | 10.34 |
| Worcester | 127,337 | 25 | 10 | 36.00 | 8.00 | — | 8.00 | 12.00 |
| Fall River | 111,872 | 39 | 24 | 46.15 | 10.25 | 2.56 | 2.56 | 25.64 |
| Lowell | 99,574 | 34 | 14 | 17.64 | 14.70 | 2.94 | 2.94 | 2.94 |
| Cambridge | 96,334 | 28 | 11 | — | — | — | — | — |
| Lynn | 71,144 | 12 | 9 | 16.67 | — | — | — | 8.33 |
| Lawrence | 67,275 | 19 | 12 | 47.37 | 10.52 | — | 5.26 | 21.05 |
| Springfield | 66,854 | 10 | 5 | 40.00 | — | — | — | 20.00 |
| Somerville | 65,882 | 11 | 4 | 36.36 | 27.27 | — | 9.09 | 9.09 |
| New Bedford | 65,574 | 31 | 18 | 51.61 | 3.22 | 3.22 | — | 32.26 |
| Holyoke | 48,065 | 13 | 8 | 23.10 | 7.70 | — | — | 15.40 |
| Brockton | 43,208 | 9 | — | 11.11 | — | — | — | — |
| Haverhill | 40,392 | 9 | 1 | 11.11 | 11.11 | — | 11.11 | — |
| Salem | 36,567 | 13 | 3 | — | 30.80 | — | — | — |
| Newton | 36,336 | 9 | 1 | — | — | — | — | — |
| Malden | 35,390 | 8 | 4 | 12.50 | — | — | — | — |
| Chelsea | 35,264 | 16 | 7 | 18.75 | 6.25 | — | 6.25 | — |
| Fitchburg | 33,848 | 7 | 2 | 14.30 | 14.30 | 14.30 | — | — |
| Taunton | 32,759 | 16 | 7 | 18.75 | 6.25 | — | — | 12.50 |
| Everett | 27,114 | 6 | 1 | 16.67 | 16.67 | — | — | — |
| North Adams | 26,583 | 6 | 4 | 50.00 | — | 16.67 | — | 16.67 |
| Gloucester | 26,121 | 7 | 2 | 28.60 | — | — | — | — |
| Quincy | 25,307 | 5 | 1 | 20.00 | 20.00 | 20.00 | — | — |
| Waltham | 24,612 | 5 | 1 | — | — | — | — | — |
| Pittsfield | 22,311 | 9 | 1 | 18.18 | — | — | 9.09 | — |
| Brookline | 21,679 | 4 | — | — | — | — | — | — |
| Chicopee | 20,390 | 10 | 5 | 40.00 | 10.00 | 20.00 | — | 10.00 |
| Medford | 20,014 | 2 | — | 50.00 | — | — | — | — |
| Newburyport | 14,478 | — | — | — | — | — | — | — |
| Melrose | 13,384 | 2 | — | 50.00 | — | 50.00 | — | — |
| Westfield | 13,038 | 6 | 1 | 16.67 | 16.67 | — | — | — |
| Attleboro | 12,846 | — | — | — | — | — | — | — |
| Adams | 12,813 | — | — | — | — | — | — | — |
| Milford | 12,516 | — | — | — | — | — | — | — |
| Framingham | 12,109 | 3 | 1 | 33.33 | — | — | — | — |
| Peabody | 11,957 | — | — | — | — | — | — | — |
| Revere | 11,894 | 2 | 1 | — | 50.00 | — | — | — |
| Gardner | 11,544 | 6 | 2 | — | — | — | — | — |
| Weymouth | 11,337 | 4 | — | 33.33 | — | 16.67 | — | — |
| Southbridge | 10,838 | 5 | 1 | 60.00 | 20.00 | — | — | 40.00 |
| Watertown | 10,600 | 2 | 1 | — | — | — | — | — |
| Plymouth | 10,336 | — | — | — | — | — | — | — |

Deaths reported, 2,816; under five years of age, 939; principal infectious diseases (smallpox, measles, scarlet fever, cerebrospinal meningitis, diphtheria and croup, diarrheal diseases, whooping cough, erysipelas, fevers and consumption) 807, acute lung diseases 223, consumption 339, scarlet fever 16, whooping cough 20, cerebrospinal meningitis 8, smallpox 5, erysipelas 3, measles 4, typhoid fever 91, diarrheal diseases 253.

From whooping cough, New York 9, Chicago 3, Philadelphia 1, Baltimore 1, Pittsburg 1, Boston 4, Gloucester 1. From measles, Pittsburg and Providence 1 each, Fall River 2. From erysipelas, Chicago, Pittsburg and Framingham 1 each. From smallpox, New York 1, Pittsburg 2, Boston 2.

In the seventy-six great towns of England and Wales, with an estimated population of 14,862,084, for the week ending Sept. 27, the death-rate was 17.5. Deaths reported, 5,002; acute diseases of the respiratory organs (London) 148, whooping cough 82, diphtheria 49, measles 65, smallpox 4, scarlet fever 56.

The death-rate ranged from 5.1 in Bournemouth to 27.5 in Preston; London 17.0, West Ham 20.1, Brighton 14.7, Portsmouth 18.7, Southampton 23.7, Plymouth 15.6, Bristol 21.3, Birmingham 18.3, Leicester 17.3, Nottingham 17.6, Bolton 18.3, Liverpool 26.5, Manchester 20.5, Salford 21.6, Bradford 11.5, Leeds 18.6, Hull 21.0, Newcastle-on-Tyne 20.0, Cardiff 18.5, Rhondda 15.6, Merther Tydfil 25.9.

## CHANGES IN THE MEDICAL CORPS OF THE NAVY FOR THE WEEK ENDING OCT. 4, 1902.

F. E. McCULLOUGH, passed assistant surgeon. Detached from the Naval Hospital, Mare Island, Cal., and ordered to the "Alert."

J. C. PEYOR, passed assistant surgeon. Detached from the "Massachusetts" and ordered to the "Bancroft."

J. F. LEYS, passed assistant surgeon. Detached from the Naval Hospital, Newport, R. I., and ordered to the "Supply."

F. C. COOK, passed assistant surgeon. Detached from the "Supply" and ordered to the Naval Hospital, Newport, R. I.

E. V. ARMSTRONG, passed assistant surgeon. Placed on the Retired List Sept. 27, 1902.

The following-named officers were detached from the "Solace," ordered home and to wait orders: Passed Assistant Surgeon A. R. Alfred, Passed Assistant Surgeon C. P. Bagg, Passed Assistant Surgeon M. K. Johnson and Assistant Surgeon H. E. Odell.

H. L. LAW, surgeon, retired. Ordered to the naval recruiting rendezvous, Boston, Mass.

J. H. HOLLOWAY, acting assistant surgeon. Appointed assistant surgeon Sept. 27, 1902, with rank of lieutenant (junior grade).

FOR THE WEEK ENDING OCT. 11, 1902.

C. P. BAGG, passed assistant surgeon. Ordered to the Naval Hospital, Mare Island, Cal.

E. M. BROWN, assistant surgeon. Detached from the Naval Hospital, Mare Island, and ordered to the Naval Museum of Hygiene and Medical School, Washington, D. C.

R. S. BLAKEMAN, passed assistant surgeon, being incapacitated for active service on account of disability incident thereto, is placed on the Retired List of the Navy.

F. J. B. CORDEIRO, surgeon. Detached from the "Constellation" and ordered to the Naval Training Station, Newport, R. I.

M. H. CRAWFORD, surgeon. Detached from the "Chicago" and ordered home, when his resignation, voluntarily tendered, will be accepted.

M. H. BUCHER, passed assistant surgeon. Detached from the "Panther" and ordered to the "Machias."

W. H. BELL, passed assistant surgeon. Ordered to the "Yankton."

D. N. CARPENTER, passed assistant surgeon. Detached from the "Illinois" and ordered to the "Chicago."

T. M. LIPPITT, assistant surgeon. Ordered to Naval Hospital, New York.

J. P. TRAYNOR, assistant surgeon. Detached from Naval Hospital, New York, and ordered to the Naval Museum of Hygiene and Medical School, Washington, D. C.

A. STUART, assistant surgeon. Detached from the "Yankton" and ordered home to wait orders.

F. M. BOGAN, assistant surgeon. Detached from the "Machias" and ordered to the Naval Hospital, Washington, D. C., on Oct. 30.

F. M. MUNSON, assistant surgeon. Detached from the Naval Hospital, Washington, D. C., and ordered to the Naval Museum of Hygiene and Medical School, Washington, D. C.

M. W. BAKER, assistant surgeon. Detached from the Naval Hospital, Norfolk, Va., and ordered to the Naval Museum of Hygiene and Medical School, Washington, D. C.

H. F. STRINE, assistant surgeon. Detached from the Naval Hospital, Norfolk, Va., and ordered to the Naval Museum of Hygiene and Medical School, Washington, D. C.

R. O. MARCOUR, assistant surgeon. Ordered to the "Franklin."

H. E. ODELL, assistant surgeon. Ordered to the Naval Hospital, Norfolk, Va.

R. E. LEDBETTER, assistant surgeon. Detached from the "Chicago" and ordered to the "Illinois."

B. F. JENNESS, H. SHAW and R. H. MICHELS, doctors. Appointed acting assistant surgeons, with the rank of lieutenant, Oct. 4.

JOHN L. NEILSON, doctor. Appointed an assistant surgeon, with the rank of lieutenant, Oct. 4.

## CENSORS' MEETING.

The Censors of the Suffolk District Medical Society will meet for the examination of candidates at the Medical Library, No. 8 The Fenway, on Thursday, Nov. 13, 1902, at 2 o'clock.

Candidates should make personal application to the secretary and present their medical diploma at least three days before the examination.

F. J. COTTON, M.D., Secretary.

## SOCIETY NOTICE.

SUFFOLK DISTRICT MEDICAL SOCIETY.— There will be a stated meeting held at the Medical Library, 8 The Fenway, Oct. 25, 1902, at 8 o'clock.

Dr. W. S. Thayer of Baltimore will present a paper on "Remarks on the Teaching of Physical Diagnosis"; Dr. R. B. Osgood will read on "Lesions of the Tibial Tubercle Occurring in Adolescents."

Business: The election of a nominating committee; the presentation of a plan for section meetings; a vote on the most desirable form of sanatoria for consumptives for the information of the State Board of Charities.

Supper after the meeting.

T. M. ROTCH, M.D., President.
F. J. COTTON, M.D., Secretary.

## RECENT DEATHS.

JOHN MILTON BREWSTER, M.D., M.M.S.S., died in Pittsfield, October 15, 1902, aged eighty-four years.

DR. WILLIAM RIDDICK WHITEHEAD, a well-known physician of Denver, died Oct. 14, aged seventy years. He was made a knight of the Imperial Order of St. Stanislaus by the Czar in recognition of services during the Crimean War.

## BOOKS AND PAMPHLETS RECEIVED.

La Gonococciemia. Studio Clinico. Dott. Guido Barbiani. Milano. 1902.

In Memoria del Generale Medico Professore Francesco Cortese. Roma. 1902.

Corpo Sanitario Militare Marittimo e Personale Farmaceutico. Roma. 1902.

A Further Study of Zola. By Arthur MacDonald, Washington, D. C. Reprint. 1897-1898.

L'osteomielite Traumatica Purulenta Del Cranio. Del Dott. E. Fossataro. Roma. 1902.

Inflammation of the Mastoid Cells. By Samuel Theobald, M.D., Baltimore. Reprint. 1902.

Ueber die Luxation des os lunatum. Inaugural-Dissertation. Vorgelegt von Felix Bialy. Leipzig. 1902.

Ein Beitrag zur Kenntnis des Stoffwechsels bei Gicht. von Dr. Felix Reach in Karlsbad. Separatabdruck. 1902.

The Modern University School — Its Purposes and Methods. By John M. Dodson, M.D., Chicago. Reprint. 1902.

Fran Sabbatsbergs Sjukhus I Stockholm för 1899-1900. Afgifven af Dr F. W. Warfvinge. Arsberättelse. Stockholm. Illustrated. 1901.

Emile Zola: A Study of His Personality, with Illustrations. By Arthur MacDonald, Washington, D. C. Illustrated. Reprint. 1902.

# Original Articles.

## THE TEACHING OF SURGERY.[1]

BY HERBERT L. BURRELL, M.D., BOSTON.

(Concluded from No. 17, p. 453.)

(11) *Out-patient work and indoor work.*— To the average student this is the most valuable method of instruction he can receive. To actually do the work himself is a keen desire on the part of every student, and is the best way of acquiring knowledge, but in justice to patients no student should be allowed to undertake this work until he has been thoroughly drilled in surgical pathology, surgical anatomy, and surgical technique. He can then intelligently benefit by coming in contact with patients. Frequently the student is allowed to go into an out-patient department too early in his career; for instance, he is utilized or allowed to put on a plaster-of-Paris bandage when he does not appreciate the processes of repair which are going on in a fracture. This is almost a waste of his time, and gives him an improper standard of work. If a student is properly trained prior to his entering an out-patient department or the wards of a hospital there can be no valid objection on the part of trustees of hospitals to his working in the hospital. Students can then be of real value to an out-patient department or the wards of a hospital, in case-taking, in establishing surgical diagnoses, and in the treatment of patients. It is, however, imperative that they should have received sound preliminary training in surgical pathology and surgical technique before they are allowed to treat the case. Individual responsibility is best developed by exercising this function. There are few people who will not rise to responsibility when it is given them. They are at times indiscreet, and occasionally have to be checked or spurred on to their opportunities. Students are best developed by being individually brought in contact with patients and made responsible for their care and treatment. It is often said that this method is impracticable, because boards of managers of hospitals will not allow it to be done. They will allow it to be done if they are reasonable and if the student is under supervision. One has only to compare the care given patients in a well-conducted out-patient department, with intelligent students as assistants, to the care which is given patients in an out-patient department where there are no skilled assistants. This is the crowning part of a student's knowledge, and should be acquired last. In medicine the student can do but little harm; in surgery he may do serious injury to the patient unless he is under supervision, and has a sound fundamental knowledge.

By law the German student must work two semesters, and the Austrian must work four semesters, as a *prakticant* — that is, attend clinics and see and care for cases.

[1] Read before the American Surgical Association, in Albany, June 4, 1902.

At Lausanne the students do the etherization and go into wards. At Liege they serve as student dressers, later as chefs de clinics, then as graduate assistants.

In Montreal the students do some assisting, but I believe are not compulsory dressers. In Stockholm there is a strong system, where the students act directly as the hospital corps, in a more direct manner than in Germany. In fact, the instruction is rigidly clinical.

At Birmingham they have compulsory dresserships, where students serve for nine months. In Kiel, under Helferich, dresserships of two to three months are open to students. With Czerny, dresserships in the house are open six to eight weeks. At Johns Hopkins every student serves as a dresser or clerk in both the out-patient department and wards.

At the larger American schools students voluntarily act as dressers in the out patient departments and occasionally in the wards.

Every student should serve as a dresser in an out-patient department for at least two months, and as a clerk and dresser in the wards of a hospital for two months.

(12) *Case teaching.*— The method proposed by Dr. Cannon, "The Case Method of Teaching Systematic Medicine"[5] and "The Case System in Medicine"[6] I have used; and it has been particularly used by Dr. Charles H. Frazier of Philadelphia, "The Case Method of Teaching."[7]

I am much impressed with its value as a method of teaching, for it makes the student think. The students are given not a hypothetical case, but the history of an actual one, and are expected to write out, or what is preferable, to discuss at a subsequent exercise the diagnosis, prognosis and treatment of the case. It has been of special value this winter, where at times the clinical material has been limited, owing to an epidemic of smallpox. It would be of special value in the smaller schools, which lack clinical material.

During this past year my friend, Dr. John Bapst Blake, has taken up the case method of teaching in surgery. I have asked him to summarize his experience, which he has done as follows:

### THE ADVANTAGE AND LIMITATIONS OF THE CASE METHOD OF SURGERY.

The case method originated for practical purposes in the Harvard Law School. When applied to surgery it has distinct and obvious limits. Within these limits, however, its advantages are many and its possibilities well-nigh endless.

Its limits are (1) that it presupposes a fair knowledge of the symptom-complex of surgical disease, using the term in its widest sense; (2) that it takes for granted previous instruction in physical examination of patients.

Its advantages are (1) that it utilizes all patients, past and present, hospital or private, for clinical material. No case is too sick nor too simple to be utilized for the case method; (2) it gives opportunity for the discussion of the relative value of symptoms, the differential diagnosis, the prognosis, the treatment, operative or non-operative, in the smallest detail; it offers problems relating to private patients and to atypical conditions;

[5] Boston Medical and Surgical Journal, Jan. 11, 1900.
[6] Loc. cit., May 31, 1900.
[7] University of Pennsylvania Medical Bulletin, September, 1901.

it exercises the sense of responsibility by making the student directly answerable for statements and opinions in definite conditions; it affords excellent practice for examinations, many of which present questions in the precise form given in the case method. Finally, in almost every case the completed history and the autopsy perhaps can be given to the class, after the discussion is finished and the students are on record as to diagnosis, prognosis and treatment. In brief, it presents the practical problem which faces every practitioner, in the person of every patient, as soon as the latter has given his family and personal history and the former has made his physical examination.

(13) *Operative surgery.*— This should be conducted (*a*) upon cadavers; (*b*) upon animals. (*a*) Cadavers: The inestimable value of operative surgery upon cadavers is thoroughly recognized. The operation, illustrated by diagrams, should be demonstrated by an instructor to groups of eight or ten students, and the students should then repeat the operation upon the cadaver. The course should then be conducted at leisure, and, as the operation is finished, the student should be questioned as to the surgical anatomy of the operated parts, as to the indications for operation and the care and after-treatment of the operation wound.

(*b*) Animals: The importance of operative surgery upon animals has not been sufficiently recognized. A dog, for example, can be anesthetized, hemorrhage demonstrated, abdominal and thoracic operations can be done and wounds sutured. Every student should have an opportunity of doing intestinal resection upon an anesthetized living animal. In this way we can protect human beings from the novice who may be called to do an intestinal resection for a gunshot wound of the abdomen; he could then undertake such an operation with the experience of having done the operation previously upon animals. The animal should be killed at the completion of the operation.

To quote from Dr. John S. Billings' paper on "Methods of Teaching Surgery," delivered before this Society in 1894;[5] he states: "As for operating technique, much of it can be learned on animals, but much of it requires work also on the cadaver, the repetition over and over again, until, as Billroth said, a man could do it when he is asleep."

In Germany operative surgery forms a very important part of the instruction. A great deal of operating is done on the cadaver by the average German student, and there is plenty of material.

In Italy, Occhini has a good deal of operative surgery upon animals. In Stockholm operative surgery is optional. At Ann Arbor, the Western Reserve, and the University of Minnesota there is operative surgery on both the cadaver and dogs.

(14) *Original work.*— Men capable of doing this class of work are rare. To require students to do this work is unnecessary and unwise, but if any student shows a capacity for original work, whether it be the study of the behavior of a cell, or an effort to establish a new principle in surgery, he should be given an opportunity to carry out his work.

There is at present a wave of interest in original work. One would suppose that it is the touchstone which is to solve the riddle of the universe. The custom of assigning to students an "Arbeit," to be worked out or solved, is a valuable method of training, but very rarely will a student contribute anything of great value to surgery. However, this training may be far-reaching in its effect, in that we may develop or inspire a future John Hunter. So that we should encourage this effort to do original work, but strictly under guidance.

Occhini, in Rome, gives experimental work and many animal experiments to his students. Opportunities for doing original work exist in many places, although they are rarely utilized. Naturally, this work should be done toward the end of the course in medicine.

In order to carry these various details of teaching into effect, it is necessary that there should be hospitals and dispensaries.

(15) *Hospitals.*— It is of vital importance to a medical school that it should have a hospital under its control, or rather that it should be able to place its teachers in the hospital. Control of a hospital enables a medical school to call a professor of distinguished attainments from any place it may desire. This is an inestimable advantage. In many places, at the present time, surgeons who hold clinical material can practically dictate their terms to a medical school. They may be good, bad, or indifferent instructors, but their clinical material is necessary, and the men must be appointed to secure the clinical opportunities for students. This is an entirely wrong principle upon which to run a medical school. The school should control a hospital rather than have a hospital control the school.

There should be one or more continuous services in charge of a professor of surgery, who should have the appointing or nominating of assistants. These assistants, with the exception of men in the first grade of rank, should not be permanent officers, but should be changed from time to time. The clinical material should be under the control of the surgeon-in-chief, and should be used by him (1) for the benefit of the patient; (2) for the advancement of the knowledge of surgery; (3) for the teaching of undergraduates and graduates.

The size of the hospital is not of such great importance, for the quality of the cases is, from a teaching standpoint, more important than the quantity, and a good teacher can do more efficient teaching with poor material than a poor teacher can with a wealth of material. The judicious management of cases, to secure their highest value to the largest number of students, is of especial importance. Students should have free access to the wards of a hospital under supervision. Practically, the care of the patients in a hospital connected with a school should be carried out by students under the direction and supervision of a

[5] Transactions American Surgical Association, 1894, xii, 86.

teaching force — in fact, if a proper system exists, students can be made of the greatest possible value to the patients and to the hospital.

An excellent example of the value of a hospital being under the control of a medical school is at the Johns Hopkins. The use of material from hospitals not under the control of a school in large medical centres is a matter of importance, for the reason that the moral support of a hospital not connected with a school is of great value, and it is of importance that the students should receive instruction from many men of many minds.

(16) *Dispensaries.*— An extraordinary amount of valuable material exists in well-conducted dispensaries. These can and should be in charge of a medical school. They are relatively inexpensive when compared with the enormous expense of running a hospital, and any medical school should carefully consider the burden it assumes before undertaking to run a hospital. The mass of valuable clinical and pathological material which comes to a dispensary should be in charge of a surgeon connected with the school, and it should be utilized for instruction and for research.

The Cornell Medical School has recognized the value of the dispensary, and is utilizing ambulatory material to a large extent. In various parts of the world the mass of surgical material which is not utilized either for instruction or for advancing the knowledge of surgery is enormous, and this is to be deeply regretted. A hospital or dispensary appointment carries with it a responsibility beyond the care of the individual patients. The incumbent of such a position is especially chosen from many competitors, presumably upon merit, and he owes a duty to the position he holds. He should not be allowed to rest content by assuming that his duty is done if he does his routine work; he should be held to the responsibility of his opportunity, which is contributing to the advance of surgery or teaching.

(17) *Organization.*— To carry out these various methods of teaching surgery it is necessary that there should be organization. A medical school may have the finest equipment, the greatest clinical and laboratory facilities, and yet fail, by a lack of organization, to accomplish the greatest good. A school depends upon the men who are its teachers. They are its integral strength, and upon them rests the measure of success.

The organization should be simple. There should be one or more professors, together with associate professors, lecturers, instructors and assistants. The professors should be members of the faculty. The professors, instructors, assistants and clinical professors or lecturers, if they exist, should constitute a department of surgery. In this department of surgery should exist genito-urinary surgery, orthopedics, gynecology, laryngology, otology and ophthalmology. Any or all of these subdepartments may have professors or associate professors. Up to the present time, with notably few exceptions, clinical teachers have not been compensated for their work in medical schools. It has been tacitly understood that the prestige of their position would give them consulting practice, and by this means they would be able to gain not only a livelihood, but also a competency. This assumption that a position in a medical school will give a man a competency by consulting practice is no longer true. This is an indirect method of payment at best, and is not desirable.

Surgery will never advance as its sister subjects in laboratories have advanced until a sufficient amount of money is paid to surgeons to teach surgery and to make it the principal object of their lives. If this principle were established in this country, surgeons could be called from place to place and the best teachers commanded — a most desirable and much-to-be-hoped-for condition. Much money is and has been devoted to the erection of monumental structures in connection with medical schools. What should appeal to generous givers who wish to benefit mankind is the establishment of foundations by which clinical men can be paid for the labor that they expend. Then, and not until then, can one ask a clinical teacher to give the best part of his work to a medical school.

In a thoroughly well-rounded department of surgery there should be three types of surgeons: (1) The teaching surgeon; (2) the research surgeon, and (3) the practising surgeon. Two of these three types, the teaching and research surgeon, may frequently be combined, but it will be exceptional and extraordinary to find the three combined. The practising surgeon will, as a rule, teach in clinics, and will be of inestimable value to the student in presenting the problems of every-day practice. The teaching surgeon and the research surgeon should be paid a living salary by the school. The practising surgeon should be paid a minimum amount, and will receive the principal part of his remuneration from his work as a consulting surgeon.

(18) *The association and co-operation of departments.*— The director of a surgical department should be conversant with and have a competent knowledge of the instruction in all of the contemporary departments in the school. In fact, every department should know what is taught in all the other departments.

A syllabus of the course of instruction in each and all of the departments should be established and interchanged between the various departments in order that time may not be consumed in reiterating previous instruction.

After all, we, as teachers of medicine, are desirous of making well-rounded, well-grounded surgical and medical practitioners, and the main thing to accomplish is to see that the student has a well-rounded and well-grounded instruction. Every surgeon must first have a competent knowledge of medicine. The division between the two subjects is purely arbitrary, and has been made as knowledge has increased. The future means a far more competent knowledge of medicine by surgeons than heretofore.

All of these various methods of teaching surgery are of value. Their success depends largely upon the individual instructor. Some instructors will find that they are fitted only for sectional teaching. Others will find that they are best fitted for clinical demonstrations.

Students vary in their mental capacity and their method of work. Some men can only acquire by hearing; others only acquire by seeing and feeling. Some men never accept any statement unless it is proved — they are a very small minority; other men accept practically everything that is told them, and are not critical.

Some students acquire knowledge best from systematic lectures; other students will find that they best acquire knowledge by working in an out-patient department or the wards of a hospital. To state that there is a universally applicable best method of surgical instruction is doubtful. One student finds that he can best acquire knowledge from an individual instructor; other men find that they do not acquire knowledge from this instructor, but from another. For this reason it is of great importance that there should be in all schools extra-mural teaching. The instructors should not be held to a method, but they should be held to results. The methods which I use as an individual instructor may seem superficial to other instructors, or they may consider that my method of instruction is clumsy and that their method is inspiring. The results of an individual instructor alone should determine what is the best method of instruction.

It is obvious to all of us that a new order of things in the teaching of surgery is imminent in this country. If we wisely foster our laboratory and clinical resources and devote our attention to the teaching of surgery, and not simply to the practice of surgery, a new era is before us.

American surgery stands today sorely in need of men who are equipped and fitted by scientific methods to advance surgery. Students should be taught along scientific lines by instructors who are competently equipped. When this defect in the lack of scientific training is remedied, then American surgery can challenge the world, for today its care of the individual, its asepsis and operative technique, are not excelled.

## A REPORT OF THE BLOOD EXAMINATION IN TEN CASES OF SEVERE BURNS OF THE SKIN.

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### HISTORICAL RESUME.*

As early as 1823, Cumin [5] of Glasgow reported the post-mortem findings in five cases of fatal burns, and called attention especially to the congestion of the internal organs with frequent affusions into serous cavities and "high arterial action." Since then many writers have contributed to furnish an abundant literature on the pathology of burns, but so far as I am aware, no reference is made to the changes in the blood till 1862, when Baraduc [1] published a paper emphasizing the importance of these changes. He believed the thromboses so generally found in such cases to be due to the thickening of the blood, with slowing of the current, in consequence of the withdrawing from the blood of the serum found in the blisters. This change in character he considered brought about a sufficient alteration in function of the blood to be the chief cause of death in fatal cases.

In 1865 Schultze [17] first called attention to the changes in the blood corpuscles produced by heat in a report of a series of careful experiments made on animal blood. When exposed to 52° C. he observed the red corpuscles to undergo striking morphological changes, finally fragmenting into spherical bodies which soon lost their coloring matter. Several years later (1867-1869) Wertheim [22] published the results of his investigations upon the changes in the blood of living animals exposed to high temperature. These, in the main, agreed with the appearances noted by Schultze, but Wertheim further studied with great thoroughness the parenchymatous changes in the internal organs, especially the kidneys, where he found extensive thromboses with deposit of crystals of hemoglobin in the large tubules. In the thromboses in the capillaries of the arachnoid, the renal irritation and the extensive alterations in the blood, he finds an explanation of the severe symptoms and the cause of death. Mention is made of an increase in the number of leucocytes and considerable variation in the proportion of red cells. In the results of Ponfick [16] (1876-1883), who also worked with animals, these ideas took more definite form. He noted changes in the corpuscles similar to those described by Wertheim, and called attention to the collections of particles of blood corpuscles found in the bone marrow and spleen. The changes in the kidneys were more carefully followed out. The chief cause of death he believes to be found in the destruction of blood corpuscles.

Klebs [11] (1877) emphasized the importance of the alterations in the circulation, believing them to be of much greater moment than the changes in the blood elements. He demonstrated, experimentally in animals, extensive thrombosis of the vessels of the brain, especially the cortex, and of other organs. In the large blood vessels during life, he found marked stasis and an enormous crowding together of red cells. The capillary thromboses in the brain are, according to Klebs, the cause of the cramps and death.

Sonnenburg [19] and Falk [6] found practically the same conditions in the blood, but attributed the cause of death to a "reflex lowering of vessel tone." Falk was of the opinion that, through the action of heat on the peripheral vessels, the

*Only such articles are included as have some bearing upon the changes in the blood. For a complete review of the literature of the pathology of skin burns with a full bibliography the reader is referred to an elaborate article by Bardeen (Johns Hopkins Hospital Report, 1898-1899, vol. vii).

tone of the greater vessels is lowered with resulting weakening of the heart's action. Sonnenburg attributed the vascular phenomena rather to overheating of the blood, which he believed to take place.

V. Lesser [12] (1880), like Ponfick, carried on a long series of investigations upon burned animals and reached many of the latter's conclusions. He refuted the theory of Sonnenburg, and considered the principal change in the blood to be a marked loss of function on the part of the erythrocytes. No essential change was found in the number of erythrocytes per cubic millimetre in the blood of the dogs and rabbits burned, a fact which, in the presence of free hemoglobin in the blood serum, he could explain only by the assumption that many of the red corpuscles became degenerated and passed into solution.

Hoppe-Seyler,[10] in 1881, published an article in which he attempted to disprove the theory of v. Lesser. He studied with the greatest care the blood of two individuals fatally burned, and reached the following conclusions:

(1) The blood of those severely burned holds in solution besides hemoglobin, no derivatives of hemoglobin, that is, no bilirubin, biliverdin or methemoglobin.

(2) The blood of those burned readily takes up oxygen and in large amounts.

(3) The blood in severe but not long continued cases, even if fatal, contains but small amounts of broken down corpuscles.

The small quantity of hemoglobin found in the plasma was, he contended, inconsistent with the changes in the corpuscles described by v. Lesser, while the percentage of water lost by transudation was too small to be of any danger to life. In the urine taken from the bladder after death, he demonstrated, by means of the spectroscope, the presence of methemoglobin.

Tappeiner,[20] in the same year, gives the results of a very careful study of the blood of four cases of fatal burns together with a series of experiments on animals. The cause of death he suggested was due to numerous factors, but chief among them the loss of blood plasma through transudation. Unlike the conditions in cholera, in which there is constantly a relative diminution in the percentage of water of the blood, there was no loss of water in the tissues. The number of red corpuscles in three cases was found to be considerably above the normal (8,960,000, 7,810,000 and 8,400,000 respectively). In only one instance was hemoglobin found in the urine.

Maragliano [13] (1887) and Silbermann,[18] somewhat later, using new and more accurate methods of studying the blood, sought especially to determine the exact changes in the red corpuscles. Silbermann showed the erythrocytes of those badly burned to be much less resistant to thermic, chemical and mechanical influences than under normal conditions. Among his conclusions are the following:

(1) After severe skin burns there appears not only a variation in the form of the red corpuscles, but also a diminution in their resistance to known influences, such as drying, heat, compression, etc.

(2) The aggregation into clumps of the debris of red cells and blood plates forms thrombi, and hence stasis in the lungs, kidneys, digestive tract, liver, brain and subcutaneous tissues.

(3) This plugging of vessels occurs during life.

(4) From the numerous thrombi and stasis in the smaller branches of the pulmonary arteries, there results on the one hand a great hindrance to the emptying of the right ventricle and an enormous venous stasis; on the other a greater arterial anemia.

(5) This condition of the circulation leads to bleeding, ulceration and parenchymatous changes of the internal organs.

The next contribution of note is by Welti [21] (1889-1890), based upon the experimental study of rabbits and four autopsies. His findings agree in the main with those of Silbermann previously cited. The chief changes consequent upon extensive burns he believed to be: (1) Increase in the number of blood plates due mainly to the breaking up of the white cells; (2) dilatation of the peripheral vessels; (3) changes in the vessel walls with resulting thrombosis; (4) extensive alterations in the morphology and functions of the erythrocytes. The thrombosis, though occurring in all the internal organs, is especially marked in the lungs and leads to stasis and necrosis. With the parenchymatous changes he could find no evidences of inflammation as noted by several writers.

The more recent experimental researches of Salvioli,[16] and Markusfeld and Steinhaus [14] have confirmed the finding of earlier investigators concerning the degenerative changes in the red corpuscles and the formation of thrombi. Salvioli, in all his experiments upon scalded animals, counted the erythrocytes and blood-plates before the burn and at short intervals following. The former, though in many instances showing a temporary increase, were invariably diminished to a moderate degree after several hours, while the latter were always decreased, the amount of diminution being directly proportional to the severity of the lesion and the time elapsing after the experiment. This decrease in the number of plates, Salvioli believes to be natural, since the extensive formation of thrombi which he and many other investigators found to be composed mainly of blood plates, must to a very marked degree diminish the number in the circulating blood.

Many recent writers have supported the theory of the existence of numerous toxins in the blood after burns, but as to their nature and origin, we have no definite knowledge.

The literature on the pathology of burns, though extensive, contains no accurate records of clinical examinations of the blood.

Bardeen [2] sums up the principal lesions as follows:

(1) The specific gravity is slightly raised.

(2) The erythrocytes are in part injured: (*a*) Morphologically, where subjected to a heat of 52° C. they tend to fragment and the fragments eventually lose their hemoglobin. (*b*) Functionally, probably a temperature of over 45° C. injures them without changing them morphologically.

(3) There is probably an increase in the number of platelets.

(4) There is produced a hyperleucocytosis, chiefly polymorphonuclear in character.

(5) Certain toxins may be found in the plasma.

(6) It is possible that the resistance of the blood to bacterial invasion is lessened (Kijanitzin).

(7) There is said by some to be an increase in the fibrin ferment.

### THE BLOOD CHANGES IN THE CASES STUDIED.

Ten cases which came to the Massachusetts General Hospital during the past year afforded me an opportunity for the study of the blood from a clinical standpoint, and though in some instances the reports are somewhat incomplete, they have seemed to me of considerable interest and value.

In every instance the blood was taken from some part of the body not primarily affected by the heat. The counts of red and white corpuscles were all made with the Thoma-Zeiss apparatus, and the stained specimens prepared by Wright's modification of Leichman's staining method.*

I have chosen Ehrlich's classification of leucocytes as offering, on the whole, the most satisfactory grouping, though it is open to many objections, especially in the cases here presented.

CASE I. Nov. 14, 1901: S. M., age twenty-one years. Burned by explosion of tank of kerosene. Whole head, left arm and hand burned to first degree. Very little shock; no pain. Condition good. Discharged well on ninth day.

CASE II. Nov. 15, 1901: W. C., age two years. Child pulled a kettle of hot soup from the stove, badly scalding the skin of the whole head, left arm about elbow and left leg in region of knee. When brought to accident room fifteen minutes later, the patient was in state of moderate shock. Temperature 100°, pulse 150. Nov. 16: Very delirious, frequent vomiting. Temperature 103°, pulse 200.

Gradual improvement and discharged well at end of seventeen days.

CASE III. Dec. 19, 1901: A. H., age twenty-eight years. Man injured by gas explosion. Both hands burned to second degree, face and sides of head to first. Some delirium, but patient in fair condition. During first twenty-four hours considerable nausea and vomiting; some pain in hands. Dec. 22: Very comfortable. Temperature normal. Dec. 25: Surfaces granulating. Discharged practically well.

CASE IV. Nov. 27, 1901: J. T., age twenty-seven years. Patient badly burned over hands, arms and face by electricity and burning clothes. Seen at hospital two hours later. In good condition; very little pain. After forty-eight hours burned areas septic. Temperature 102°.

Discharged well on the fifteenth day.

CASE V. Nov. 14, 1901: J. A., age thirty-eight years. Whole head, both hands and arms, upper part of back and chest burned to first degree by oil explosion. Patient very delirious. Condition critical. Death on third day.

CASE VI. Nov. 19, 1901: B. N., age forty-four years. Seen at hospital one hour after injury. Patient's clothes caught fire from kerosene explosion and skin of hands, arms, legs and buttocks burned to first degree. Severe shock; marked delirium. Temperature 101.5°, pulse 110. Condition rapidly worse. Death on the second day.

CASE VII. Nov. 11, 1901: T. D., age fifteen years. Fell into vat of boiling water, immersing body below waist line. Brought to accident room one hour later in severe state of shock, delirious and apparently in considerable pain. Pulse weak and rapid. Whole epidermis below navel destroyed, in many places peeling and with numerous large blisters. Underlying tissues considerably affected. Died at end of eighteen hours.

CASE VIII. Jan. 5, 1902: S. R., age forty years. Woman's clothes caught fire, burning nearly the whole surface of the body, in many places to the third degree. In dying condition; very delirious and restless but no pain. Temperature 100°, pulse 100. Death after seven hours.

CASE IX. Sept. 11, 1901: E. M., age sixty to seventy years. Skin of face, arms and chest badly scorched by burning shellac. When admitted to hospital, one-half hour later, condition seemed excellent, almost no shock and very little pain. Temperature 102°, pulse 120. Sept. 13: Vomiting frequently; obstinate hiccough. Temperature 98°; hematuria. Sept. 15: Nausea and vomiting continue; weak and dull; temperature 97°. Sept. 16: Condition much worse. Sank slowly; finally coma, and death.

CASE X. Sept. 22, 1901: R. C., age fifty-two years. Woman rescued from burning house. Nearly whole body burned to second and third degree; moribund. Died at end of three hours.

The blood obtained by puncture flowed very sluggishly, was of a very dark purplish color, and spread with difficulty.

As to the changes, if any, in the percentage of hemoglobin, no careful study was made, but in the three cases examined with Fleischls' hemometer, the readings were from 95 to 100%.

The microscopical appearances of the stained specimens of blood, in all but the most severe of these cases, were not striking.

*Erythrocytes.*— The number of red corpuscles per c.mm., as given in the above tables, show a constant increase above the normal, in all but Case I, which was only a slight burn, and without marked constitutional symptoms. It is interesting to note that in the first four cases, all of whom recovered, 7,266,000 per c.mm. was the highest count, while of the remaining six fatal cases, the number in five reached 9,000,000 per c.mm. Tappeiner found the loss of blood plasma in those severely burned to vary from 2 to 3%, while in Hoppe-Seyler's cases the loss was slightly greater; hence this loss alone cannot account for the enormous increase in the number of red cells per c.mm., neither is it probable that any considerable formation of new cells takes place. While the concentration of the blood in consequence of loss of plasma undoubtedly contributes in a small measure to the increase in number of erythrocytes, a much more important factor is probably found in the venous stasis, due to the dilatation of the peripheral vessels and heart weakness, as shown to exist by many investigators.

* The Journal of Medical Research, January, 1902, Vol. VII, No. 1.

The cells in Case X, and to some extent in Case IX, gave the appearance of having been broken up, many of them being badly fragmented.

The changes in staining power mentioned by several writers I have been able to note only to a very moderate degree in a few of the most severe cases. In these instances a few corpuscles take on a pale, greenish-gray color in contrast to the yellowish pink of the normal erythrocytes. Endoglobular changes and granular degeneration I have never seen. With the exception of one normoblast noted in Case IX and two in Case X, no nucleated red cells could be found.

Cases II and VI showed very moderate poikilocytosis with slight variation in the size of the erythrocytes, the tendency being to a predominance of small forms, while Cases VIII, IX and X showed the same changes to a very marked degree.

*Leucocytes.*— An increase in the number of leucocytes per c.mm. immediately following the burn was constant and, to a certain extent, proportional to the severity of the condition, for in those cases which recovered, the counts varied from 10,000 to 28,000, while in the remaining fatal ones, the counts were without exception much greater, in Case IX reaching 78,000.

Unlike the ordinary inflammatory leucocytosis, in only a few instances were the neutrophiles relatively increased, and this increase was never striking. In Cases III, V and VII the large percentage of neutrophiles was accompanied by a corresponding decrease in the percentage of small lymphosites. The percentage of large lymphosites and transitional forms was slightly greater in the mild cases than in those ending fatally. But little change appears in the percentage of eosinophiles. The mast cells were, in a few instances, considerably above the normal.

The changes in the individual cells were of much interest. In nearly all specimens evidences of degeneration were to be found in the leucocytes, but these changes were most marked in the blood of those extensively burned. In Case IX nearly 50% of the white cells showed signs of degeneration. The appearance of degenerated leucocytes was very variable. Often the cell was reduced to a mass of faintly staining, irregular protoplasm and pale nucleus with a few neutrophilic granules scattered about. Other cells seemed to possess some of the characteristics of the lymphosite, but as a rule one finds merely a torn and much distorted cell with no certain indication as to its original type. The neutrophiles were frequently swollen or torn. In Cases VII, VIII, IX and X the coarse lilac-colored granules, normally seen in small numbers in the cytoplasm of some lymphosites, were very abundant.

Myelocytes appeared in Cases IX and X, in the former comprising 5⅓% of the leucocytes.

| Cases. | Time after accident. | Hemoglobin. | Count red blood corpuscles. | Count white corpuscles. | Neutrophiles. | Lymphocytes. | | | Eosinophiles. | Mast-cells. | Myelocytes. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Small. | Large. | Transitional. | | | |
| No. 1 ..... | 2 hrs. | — | 4,500,000 | 10,000 | 77½% | 13¾% | 4 % | 4½% | 0 | ½% | 0 |
| | 19 hrs. | — | 5,460,000 | 7,000 | 63⅓% | 20 % | 7 % | 7⅔% | 1⅔% | ⅓% | 0 |
| No. 2 ..... | 15 min. | — | 5,822,000 | 24,000 | — | — | — | — | — | — | — |
| | 2 hrs., 30 min. | — | 7,155,000 | 22,000 | 59¾% | 24 % | 7½% | 7½% | 1 % | ¼% | 0 |
| No. 3 ..... | 1 hr., 15 min. | — | 6,882,000 | 17,500 | 63 % | 24⅔% | 2⅓% | 7⅓% | ⅔% | 2 % | 0 |
| | 3 hrs., 45 min. | — | 6,442,000 | 28,000 | 87 % | 7⅓% | 1⅓% | 4 % | 1 % | 0 | 0 |
| | 24 hrs. | 95% | 6,900,000 | 18,000 | 82¾% | 12 % | 1½% | 3⅓% | ⅓% | ⅓% | 0 |
| | 72 hrs. | 98% | 6,860,000 | 14,000 | 79⅔% | 11 % | 2½% | 6⅔% | ⅓% | 0 | 0 |
| | 96 hrs. | — | 5,489,000 | 13,000 | 80⅔% | 10 % | 1⅓% | 7⅔% | ⅓% | 0 | 0 |
| No. 4 ..... | 2 hrs. | 100% | 7,266,000 | 16,000 | 71 % | 22⅔% | 2⅔% | 2⅔% | 1 % | ⅓% | 0 |
| No. 5 ..... | 2 hrs. | — | 6,200,000 | 30,000 | 86⅓% | 5⅔% | 1 % | 7 % | 0 | 0 | 0 |
| | 19 hrs. | — | 9,250,000 | 40,000 | 82 % | 9⅔% | 3⅓% | 5 % | 0 | 0 | 0 |
| No. 6 .. .. | 30 min. | — | — | 30,000 | 67 % | 23⅓% | 1⅓% | 5⅔% | 2⅔% | 0 | 0 |
| | 15 hrs., 30 min. | 98% | 9,244,000 | 32,000 | — | — | — | — | — | — | — |
| | 22 hrs., 30 min. | — | — | 46,200 | 72⅔% | 15¼% | 6¼% | 5⅔% | 0 | 0 | 0 |
| No. 7 ..... | 2 hrs. | — | 6,820,000 | 20,000 | 82 % | 10⅔% | 2⅔% | 4⅓% | ⅓% | 0 | 0 |
| | 6 hrs. | — | 9,152,000 | 54,000 | 84⅔% | 7⅓% | 2⅔% | 5⅓% | 0 | 0 | 0 |
| No. 8 ..... | 1 hr., 15 min. | — | 6,382,000 | 51,000 | 73 % | 16 % | 6 % | 2 % | ⅓% | ⅔% | 0 |
| No. 9 ..... | 30 min. | — | — | 78,000 | 47 % | 41⅓% | 1⅔% | 1⅔% | 2⅔% | ⅓% | 5⅓% |
| No. 10 ..... | 1 hr., 15 min. | — | — | 31,000 | 63 % | 27⅓% | 7 % | 1⅔% | 1 % | 0 | 1 % |
| | 1 hr., 30 min. | — | — | — | 58⅔% | 33⅓% | 1⅓% | 5⅔% | 0 | 1% | 0 |
| | 2 hrs. | — | — | 42,000 | — | — | — | — | — | — | — |
| | 2 hrs., 15 min. | — | 8,910,000 | — | — | — | — | — | — | — | — |

The blood plates were slightly increased in the first four cases, present in enormous numbers in Cases V, VI and VII, and in Cases VIII, IX and X moderately increased. As a rule they showed a tendency to collect into large masses.

## SUMMARY.

My conclusions concerning the changes in the blood of individuals severely burned, as indicated by the foregoing cases, are:

(1) The blood flows sluggishly, and is of a peculiar dark, purple appearance.

(2) An immediate increase in the number of erythrocytes, in severe but not fatal cases, of from 1,000,000 to 2,000,000 per c.mm., takes place within a few hours; in fatal cases, of from 2,000,000 to 4,000,000 per c.mm.

(3) A rapidly increasing leucocytosis constantly occurs: in cases ending in recovery often of 30,000 or 40,000 per c.mm.; in fatal cases usually above 50,000 per c.mm.

(4) Morphological changes in the erythrocytes are slight.

(5) The percentage of neutrophiles is somewhat above the normal, but not so much as in the ordinary inflammatory leucocytosis.

(6) A considerable destruction of the leucocytes takes place, especially in the very severe burns.

(7) Myelocytes may be present in small numbers in severe cases.

(8) There is, as a rule, marked increase in the number of blood plates.

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## SEPTICEMIA AND THE CURETTE.

BY H. PLYMPTON, M.D., BROOKLYN, N. Y.

To attempt to break up an old-established custom in any line of life is at best a thankless job and one likely to call down harsh criticism upon the head of the daring iconoclast. To attempt to uproot old prejudices existing in favor of a certain line of practice in surgery, and diametrically oppose such practice, is to invite from some, adverse criticism of the harshest kind. The only recompense for this is a logical refutation of or concurrence in the argument advanced, on the part of other members of the profession. This latter is what I hope for, and if I provoke a discussion or start a line of thought in the minds of half of the readers of this article, I shall have achieved all I started out to do.

Curetting the uterus to remove fragments of after-birth or other debris has been taught in our medical schools from time immemorial, and it is firmly fixed in the receptive and retentive mind of every medical student that the first move following any such abnormal uterine condition is to cleanse the uterus by means of the curette. That the organ should be thoroughly and aseptically cleansed admits of no argument, but that the work should be done with the curette, I deny most emphatically.

The majority of cases of death following the decomposition of fetus or placenta in utero are caused by the use of the curette, and I hold that septicemia may be avoided if a more rational procedure be resorted to.

The condition of the uterus containing septic matter is one of great congestion, the thickened walls being coated internally and over the os with a thick, brown, tenacious mucus. The congestion is active, and therefore the more dangerous in the event of the admission of septic matter into the circulation. If the curette is used, denuding the walls of their protective covering, an immediate vaccination takes place with a septic virus, septicemia following in an incredibly short space of time (chemical metamorphosis is marvelously rapid in the circulatory system), and death quickly ensues.

If without using the curette we can remove the septic matter from the uterus without disturbing the mucus covering, and enable the uterus of itself to expel the coating, we shall have taken a long step forward in the treatment of this class of uterine cases. The uterus, by reason of its congestion, may be made to perform a self-cleansing act by exciting the exudation of the serum of the blood into its cavity, thereby washing itself out and expelling all septic matter, instead of absorbing it. This process of exosmosis is induced by a properly combined alkaline solution at a temperature above 100° and a strict avoidance of bichloride, carbolic acid, formaldehyde, or any antiseptic of an acid reaction or astringent nature, which would coagulate the fibrin and albumin of the blood.

My method of procedure is as follows: (1) The gentle removal of whatever fragments are lying in the uterine cavity, by means of forceps, care being taken not to tear from the walls any adherent piece; (2) the gentle flushing of the uterine cavity with the alkaline solution (110°), the reservoir containing the fluid being not more than two feet above the level of the hips.

If the flushing could be continuously administered for a few hours (say two or three), the conditions would be more speedily reduced to normal; but the discomfort of the position of the patient (on a douche pan) prevents this, and a flushing once every two hours with one quart of solution is about the limit of treatment.

For flushing the uterus I use a small dilating uterine douche, and as there is plenty of room for the escape of fluid and fragments, there is no danger of Fallopian colic or salpingitis. The first flushing is frequently followed by contractile pains and expulsion of any previously adherent pieces, together with much of the mucus.

A tablet of extract of cannabis indica, ¼ gr., and extract of ergotin, ½ gr., given every hour until desired effect is produced, will contract the uterus and alleviate pain.

The bowels should be moved freely, both by enema and catharsis. During the interval between douches the patient should be kept on her back, with the hips sufficiently raised to permit the retention in the vagina of as much of the alkaline solution as it will hold.

The rapidity with which this treatment will reduce temperature, relieve pain, stop vomiting and remove offensive odor is marvelous to one who has not tried it. Sometimes two flushings are sufficient to cleanse the uterus thoroughly, vaginal douches being all that are needed subsequently to complete the work. The uterine congestion is speedily relieved, and the uterine discharge changes from brown, thick, bad-smelling mucus to a thin, transparent one, accompanied or followed by more or less of a flow of blood.

A reduction in the frequency of the flushings is desirable as soon as a tendency to return to normal conditions begins to be observed, as it frequently will within twenty-four hours; then simple vaginal douches every three hours, with an occasional uterine flushing if symptoms indicate it.

The action of exosmosis (and endosmosis, for there is every reason to believe in the absorption of some of the fluid) is what is desired to relieve the existing congestion, as in a bronchitis, pneumonia, congestion of kidney, congestion of any mucous membrane, etc., and is the most rational means of restoring to normal condition.

I do not wish to be understood as decrying the use of that most valuable instrument, the curette, but only the abuse of it, to wit: Its employment under such conditions as make it practically a sharp weapon loaded with septic matter, dangerous beyond the poisoned arrow of the Malay, or the fang of the cobra, and utterly opposed to our modern ideas of antisepsis.

## SEVERE EXTRINSIC TRAUMATISMS OF THE SPINE.[1]

BY THOMAS H. MANLEY, M.D., NEW YORK.

Severe spinal injuries reduced to an anatomical basis may be divided into two classes: First, those which involve the rachidian structures alone; the osseous, ligamentous, muscular and vascular. (2) Those in which the effects of violence fall with greatest force on the central organ, the cord, its meningeal investments, its ganglia or medullary substance.

The former, or extrinsic, injuries are much the most common, and though not so serious to life or function may by extension of pathological processes involve the deeper or more vital parts; but in most cases they are recovered from, sometimes leaving, however, deformity or impaired function.

The osseous structures of the vertebral column consist essentially of two parts: (1) A segmented whole, made up of the vertebral bodies, with an intervertebral substance, and an enveloping sheath of a tough, fibrous structure. This, properly speaking, is the triple curved backbone, which supports the head and carries the whole trunk. This is a flexible structure which, within various limits, may be bowed or twisted with remarkable impunity. (2) The posterior stage work of the spinal column, the vertebral apophyses which serve chiefly the double purpose of providing a hollow tube for the cord, and attachments for ligaments, muscles and tendons.

All the structures external to the theca spinalis are provided with an abundant circulation, while the cord itself and its membranes are but very sparsely supplied with vessels.

The primary extrinsic lesions of the spine are: (1) Contusions, blows or falls; (2) sprains, hyperflexion, or torsion; (3) hemorrhage — intra and extrarachidian; (4) fractures — simple and open; (5) diastases — fracture luxations; (6) visceral complications.

Contusions, blows or falls on the back seldom involve danger to the spinal structures, except when the volume of force is great and concentrated on a limited area. The spinal defenses provide frequent immunity by sudden sinking of the head, by the projecting shoulders and ribs, the iliac crests, the ponderous lumbar development and gluteal projections. A sudden, violent blow over the neck is the most serious, because of the large sympathetic ganglia here located and its contiguity with the bulb at the base of the brain.

The pneumatic, thoracic areas are well calculated to resist shock, and lower down, afford protection to many of the solid, floating organs of the abdomen.

The spinal cord ends at the last dorsal vertebra, and hence, concussive force on the lumbar or sacral regions can only affect the terminal nerve cords contained therein and the meninges.

The effect of a blow on the lumbar or sacral region, is from direct concussion and *contre-coup* effects — transmitted shock.

Sprain of the spine implies the effects of a complex force, with consecutive pathological conditions, *entorse* and *arrachement;* torsion with overstretching or sundering of ligaments, are invariably essential factors.

The neck, the most mobile segment, suffers most frequently, and grave sprains there are most commonly produced by the body being projected against the occiput, as in diving, or falls on the side of the head. The costal bases which laterally support the thoracic spine, safeguard this segment against torsion injury. The lumbar region frequently suffers from sprains after great efforts in various exercises, or in making heavy lifts with the spine in a laterally inclined attitude.

A severe sprain of a joint is always a serious accident; of the spine more so, because of vital

[1] Abstract of paper presented at Mississippi Valley Medical Association at Kansas City, Oct. 16, 1902.

and delicate organs which it encases. Spinal sprains may involve a diastasis of the vertebral segments, though generally the apophyseal articulations alone are engaged. In lumbar sprains the tendons may suffer rupture or luxation.

Spinal hemorrhage may be broadly divided into two varieties, namely, that which occupies the cord, and that which occurs external to the theca in any of the overlying structures. The former can never occur as a primary, uncomplicated lesion; the latter, the extrinsic variety, occurs frequently in nearly every type of severe spinal injury; it is usually venous; it may take place in the vertebral hollow, alongside the cord, or into the subcutaneous intermuscular spaces, posterior to the apophyses.

The most confused ideas prevail in regard to "spinal hemorrhage," the prevailing impression being that the blood escapes into the meninges or the medullary elements of the cord while quite invariably the blood leak is into the spinal canal. The latter is of itself rarely a cause for serious apprehension, but when complicated, it becomes an aggravating factor in provoking pathological changes, tending to meningitis or myelitis, ascending or descending. The gravity of this hemorrhage depends on its site, volume and complications.

Fractures of the spine should always be considered in a separate category. Fracture may exist — a broken back — without any definite symptoms at all. Diagnosis of it, by any means known to art, may at times be absolutely impossible. When the spinal cord escapes impingement, as it does in the greater number of cases, *restitutio ad integrum* may speedily follow, or the fragments may unite, leaving an anchylosis or a deviation, most commonly, a kyphos. This involves a deformity with impairment of function, in the mechanical action of the column, in its oscillatory movements and its strength, but in no manner impairs the functions of the cord.

Fracture of the spine is seldom attended with palpable displacement, the ligamentous attachments being so numerous and firm that the fragments are usually sprung into position automatically. This fracture only assumes a serious aspect when the cord is divided.

*Diastasis, or fracture luxation.*— A genuine, complete luxation of the spine, without simultaneous destruction of the cord, can be only imagined, it can never occur.

A displaced vertebral body is a diastasis and not a dislocation, because the intervertebral junctions are not true joints, and luxation of the apophyses can only occur with coexistent fracture of an arch or pedicle, except in the cervical region. It is very frequently impossible to distinguish an apophyseal luxation from a fracture, except possibly in the neck, and even here a luxation of the vertebræ has often been suspected, when on autopsy none was found, but a fracture of the base of the skull. Again I have known of an exploratory operation for luxation-fracture when none was discerned through the incision, but it was later known that one existed, three vertebræ further down.

Visceral complications, coexistent or consecutive to violent spinal injuries are not infrequent. The thoracic and abdominal organs most frequently suffer. Mediastinal, pleural or pulmonary hemorrhage may occur after a fracture through the vertebral blocks, or a diastasis through the intervertebral substance, in consequence of a laceration of the anterior ligament and intrarachidian plexus of vessels. The heart or great vessels may suffer from the effects of violent commotion of the thorax.

In the abdomen the kidney may suffer displacement, contusion or laceration; the spleen, pancreas or liver are liable to similar lesions; a distended gall or urinary bladder or stomach may suffer rupture and leakage; the pregnant uterus in any stage may sustain shock with the premature expulsion of its contents.

In many severe extrinsic rachidian injuries, though the spinal cord may previously escape such damage as will induce paralysis, yet later symptoms may follow, suggestive of meningeal changes or disturbances of nutrition, and pronounced disturbance of the ganglionic connections with the sympathetic involved.

In all this class of traumatisms it will be well to be reserved in prognosis until at least the primary effects have been recovered from and function is fully regained.

## Clinical Department.

### A CASE OF UNUNITED FRACTURE OF THE RADIUS DUE TO OSTEOMYELITIS.[1]

BY CHARLES F. PAINTER, M.D., BOSTON.

L.M., female, six years of age, came to the clinic in April, 1901, with the following history:

Four years previously, when she was two years of age, and, so far as known, perfectly well, while playing with other children upon a brick sidewalk, she fell, and complained of her right wrist. She was taken immediately to the Massachusetts General Hospital, where a diagnosis of green stick fracture of the right radius was made. This was rendered a complete fracture, and the arm put up in the customary dressings. When these were first removed, two weeks later, it was noted that there was a small fluctuating area, slightly reddened, over the lower end of the right radius. This was thought to be a broken-down hematoma, and the child was admitted to the Massachusetts General Hospital, partly on account of this and partly because there was no union at the end of two weeks. She remained in the hospital for seven weeks, during which time the supposed hematoma spontaneously discharged through an opening on the dorsum of the forearm, about 2 cm. above the radial styloid,

[1] From the Orthopedic Clinic of the House of the Good Samaritan.



Fig. 1.



Fig. 2.



Fig. 3.

but there was no sign of repair of the fracture, and the sinus having closed, the patient was discharged from the hospital in fixed dressings.

During the following eight or ten months, there being no attempt at repair, and deformity tending to occur at the seat of the fracture, the child was given ether twice, and the deformity corrected with the hope that union would follow. Failing in this, the child was readmitted to the House, and the radius was cut down upon through a dorsal incision, and the ends were refreshed, and a sufficient length of the ulna was excised to compensate for the shortening of the radius, and the wound was closed without bone sutures. Union of the soft parts was speedy and by first intention, but after several months of maintenance of fixation in a good position, union had not occurred. An x-ray (Fig. 1), taken before this operation, had shown the anatomical condition, but the knowledge of x-ray pathology was not such at that time as to have led to a right interpretation of the condition, which shows definitely that there was a focus of osteomyelitis in the radius at the seat of the fracture. Presumably this was present at the time of the first injury, which injury may or may not have caused the fracture. It is possible, and it seems to me quite probable, that the manipulation subsequent to the supposed or possible fracture may have been the cause of the actual solution of continuity in the radius.[2]

During the two years following the open operation the case was seen from time to time in the Out-Patient Department. No union occurred, and the invariable tendency was toward the development of a "club-hand" deformity, unless the splints were very accurately applied. In April, 1901, the patient was referred from the Massachusetts General Hospital clinic to the House of the Good Samaritan, the treatment at the Massachusetts General Hospital for the three months previous to April, 1901, being largely constitutional on the supposition that some inherent defect was present in the patient's metabolism. Thyroid had been administered during this period, and was continued with extra diet and out-of-door life during the summer of 1901, in the hope that a better constitutional condition would fit the patient for a better result from a second attempt at bone suture, which was planned for the fall. An x-ray (Fig. 2), taken at this time, shows the anatomical condition present at the time of operation.

On Sept. 24, 1901, the patient was operated upon for the seventh time under ether. Her general condition was very good. An incision was made over the dorsum of the forearm, having its central point 3 cm. above the line of the radiocarpal joint. The incision was 5.5 cm. in length, and was over the inter-space between the radius and ulna; 1.5 cm. was removed from the ends of the radial fragments before tissue was reached of sufficient density to hold a silver wire; 1.7 cm. was removed from the ulna before the radial and ulna fragments could be respectively approximated. One silver suture was then placed in both the radius and ulna, and the wound closed with silkworm gut sutures. The hand, forearm and arm were included in a plaster dressing, and this was not disturbed for two weeks, at which time the skin sutures were removed without removing the plaster. The original plaster was changed at the end of four weeks, at which time there was fairly good union with some slight bowing of the bones in an anteroposterior direction. It was deemed wiser to allow this to persist in view of the previous history rather than run the risk of further non-union. At the end of two months, union was apparently solid; massage was used for another month, a split-plaster splint to the forearm being continued during this time.

The condition at the present time, August, 1902, is as follows: There is a moderate degree of bowing of the ulna backward when the forearm is held supinated. Pronation and supination are normal, and the functional result is perfect. The arm is, of course, shorter and slightly smaller, as is also the hand on this side, as is shown by the following measurements:

| | | | |
|---|---|---|---|
| Right exterior condyle of humerus to radial styloid, | | | 14.5 cm. |
| Left " " " " " " | | | 17.8 cm. |
| Right " " " " " ulna | | | 14.5 cm. |
| Left " " " " " " | | | 16.9 cm. |
| Circumference of forearm, right, | | | 14.8 cm. |
| " " " left, | | | 15. cm. |
| " " palm at base of metacarpals, | right, | | 13. cm. |
| " " " " " " | | left, | 14.8 cm. |
| Length of index finger, | right, 6. cm. | left, | 6.5 cm. |
| " " middle " | " 7.1 cm. | " | 7.2 cm. |
| " " ring " | " 6. cm. | " | 6.2 cm. |
| " " little " | " 4.7 cm. | " | 5.4 cm. |

This case is interesting because of the difficulty in distinguishing between an acute osteomyelitis with trauma and a fracture in a child, and because of the apparent necessity of bone suture in this class of fracture, where failure to unite persists after the customary treatment; it is also of interest as showing the excellent functional results which may follow an operation necessarily attended by considerable mutilation. In certain cases of osteomyelitis of the long bones, where the disease had so destroyed one that deformity or non-union were resulting, I should feel encouraged to refresh the diseased bone, and excise enough of the sound one to compensate therefor. The resulting bunching up of the soft parts, which occurred very markedly in this case, seems to be cared for readily enough by nature in the same way that the protective bursæ in club feet are cared for, when the patient no longer steps upon them.

I am fully aware that this compensatory shortening of bones in cases of this sort is no new procedure, but the case is recorded as being of interest in connection with this subject.

[2] It is fair to say that the x-ray was correctly interpreted by Dr. E. A. Codman at the time it was taken.

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It is announced that Major William G. Gorgas, formerly chief health officer at Havana, has been appointed to represent the United States Army at the forthcoming Egyptian Medical Congress, to be held Dec. 16-23.

# Medical Progress.

## RECENT PROGRESS IN PHARMACOLOGY AND PHYSIOLOGICAL CHEMISTRY.

BY M. VEJUX-TYRODE, M.D., BOSTON,
*Instructor in Pharmacology, Harvard Medical School.*

During the year 1902 the pharmacological action of alcohol and its therapeutical indications were discussed at the meetings of the Massachusetts Medical Society. The opinions given by the pharmacologist Cushny, by the physiologist Lusk, and by the clinicians Shattuck, Meltzer, Cutler, Hewes and others had no new features.

A. Ott[1] published an article upon the sparing influence of alcohol on proteid in fevers. He made a metabolism experiment upon a patient with febrile tuberculosis who had been an habitual, moderate drinker. He particularly chose a patient habituated to alcohol in order that the narcotic action might not occur. He replaced over 13% of the calories as carbohydrates by alcohol. In this case the proteids were spared exactly as much as by carbohydrates. If he removed this 13% calories without replacing the loss by alcohol, he obtained over 100% increase in the balance loss of nitrogen.

According to the work of Rosenfeld, Clopatt, Rossman and v. Newmann, it seems to the reviewer that there is but little doubt as to the food value of alcohol in health and, in view of the very careful experiment of Ott, in fevers also.

Men opposed to the use of alcohol say that it is a poison under certain circumstances, and therefore that it should not be used as a food. Peptones are poisons even more powerful than alcohol under certain circumstances, yet we can live in part on peptones. Alcohol is, like peptones, truly a poison, but it loses its toxic properties as soon as the body learns to oxidize it more completely, and then it acts like any combustible food.

The very fact that alcohol is, under certain circumstances, a narcotic poison makes it most valuable in medicine. For it is one of the narcotics of the fatty acid series which least depresses the heart and respiration, and is therefore much less dangerous than chloral and similar drugs. When alcohol produces sufficient narcotic effect it is superior to morphin in cases of respiratory depression, as in pneumonia, because it does not depress the respiratory centre as does morphin even in moderate doses.

Most surgeons now claim good results when alcohol is used in septic processes. These good results may be attributed in part to the food value of alcohol or, according to the work of St. Mircoli,[2] to some specific action. This author finds that alcohol increases the antitoxic power of the blood serum against tuberculosis. He confirms his scientific results by statistics, and finds that tuberculosis is comparatively rare in hard drinkers.

[1] Arch. f. Exp. Path. u. Pharm., xl.
[2] Munch. Med. Woch., February, 1902.

Alcohol, it is true, is not a heart stimulant, but its other qualities — food value, narcotic effect and gastro-intestinal stimulation — are enough to account for the good results obtained by its use in practical therapeutics.

R. Spiro[3] finds that alcohol not only increases the secretion of hydrochloric acid when administered by the stomach, but also when administered by the rectum.

Stephanow[4] demonstrated the presence of nitrites in different organs, including tissues of the lungs, brain, salivary glands, testicles, lymph glands, kidneys and suprarenal glands. He states that the nitrites which have the power of decomposing potassium iodide are an important factor in the liberation of iodine from potassium iodide in the animal organism. This assumption explains the severe irritation of the bronchi seen after the ingestion of potassium iodide, because the mucous membrane of the bronchi has been found to contain considerable nitrites.

Paul Gerlinger[5] in Bonn shows the importance of the decomposition of chloroform by gaslight during surgical operation. He relates several instances where the operator, assistants, and the patient were severely poisoned by the decomposition products of chloroform during a surgical operation performed by gaslight. The author demonstrated the decomposition of chloroform into hydrochloric acid and $COCl_2$, and attributes to the latter compound the poisonous symptoms; irritation of the respiratory tract and collapse.

Jörgen Thesen of Christiania[6] studied the paralytic form of mussel poisoning with specimens collected in the vicinity of Christiania. He found that both the extracts of the mussels and of the stomach contents of individuals poisoned, produced in animals symptoms of paresis followed by convulsions and death.

The author believes that he had the same poison which Salkowski extracted from the Wilhelmhaven poisoned mussels, but not the same one as the mytitotoxin isolated by Brieger.

A. Benedicenti[7] comes to the conclusion that the difference between the action of the members of the digitalis group when applied on the external surface of the heart or into the circulation is not due, as Wybaw thinks, to an action upon the inhibitory mechanism, but to the unequal stimulation of the internal and external fibres of the heart muscles.

E. Vahlen,[8] *docent* in Halle, prepared a new derivative of morphin which exerts narcotic effects without increasing the reflexes as does morphin. This compound, epiosin, was found to quiet cough and to produce sleep in patients with respiratory derangements.

Adolph Merkel[9] of Strassburg studied the changes which quinin undergoes in the living organisms. He found that all except 12 to 14%

[3] Münch. Med. Woch., No. 47.
[4] Arch. f. Exp. Path. u. Pharm., xlvi.
[5] Loc. cit.
[6] Loc. cit.
[7] Loc. cit.
[8] Loc. cit.
[9] Loc. cit.

is destroyed in the body, that the quantity decomposed is not increased by prolonged administration as in the case of morphin. The 12 to 14% not destroyed are excreted as a basic decomposition product in the urine. He concludes that maximal doses should be given because small repeated doses might be so far oxidized that there would not be enough in the blood at any given time to exert any effects.

A. Kettau [10] of Strassburg: Since amyloid is composed of a proteid united to chondroitin sulphuric acid, the author hoped to produce amyloid degeneration in rabbits by the injection of chondroitin sulphuric acid. He failed to produce amyloid degeneration, either by the injection of chondroitin sulphuric acid alone or combined with hydrochloric acid. He took the opportunity to study acid intoxication, and came to the conclusion that when an increased quantity of acid was given to a rabbit there was no increase formation of ammonia to neutralize the acid; that the body of the rabbit does acquire tolerance to the administration of acid, and that this acid metabolism differs entirely in dogs and rabbits.

Faust,[11] in Strassburg, extracted from the skin of toads two active principles having very much the same action as the members of the digitalis group. These are bufonin and bufotalin. The latter is an acid much more soluble and much more active than the former. Bufotalin can be formed by the oxidation of bufonin. Both are chemically related to cholesterin.

Magnus [12] of Heidelberg conducted various gases through an extirpated heart. When oxygen is conducted into the coronary arteries of a heart under pressure, the heart may beat rhythmically for over an hour. When hydrogen is used the heart beats also regularly for a considerable period of time. If carbonic acid is used the heart comes to a standstill almost immediately. These experiments show that the heart may beat for quite a long time without being nourished and with almost complete exclusion of oxygen.

C. Von Noorden [13] found that paramido benzoic acid ether or anesthesin produced no deleterious effects on rabbits when used as a local anesthetic. He used it with success in cases of gastric neurosis, angina, dysphagia, hemorrhoids, vesical irritation and pruritus.

Walter Schild [14] recommends the use of atoxyl ($C_6 H_5 NH AsO_2$), an organic preparation of arsenic, in skin diseases. It should be given subcutaneously because it produces irritation of the gastro-intestinal tract.

D. B. Kyle [15] believes that many forms of indigestion and diseases of the stomach and intestines are due to changes in the saliva.

Augustino Bruno [16] made comparative determinations of inorganic and organic chlorides in the urine of normal individuals, and in that of patients with chronic gastric catarrh and cancer of the stomach. He finds a diminution of the organic chlorides as urochloralic acid in these diseases.

Vogt [17] found a retention of nitrogen, but not of phosphoric acid, in acute gout. He believes that the retention must consist of purin bases.

Waldvojel [18] believes that acetonemia is not due to inanition but to alteration in the metabolism of fats.

Mohs and Solomon [19] found an increase in the oxalic acid in the urine when hydrochloric acid, gelatin and connective tissue were administered; a decrease when calcium carbonate and alkalis were given, and no change where nuclein-containing food, such as thymus, were ingested.

C. Zuelzer [20] produced glycosuria in animals by the injection of suprarenal extract into the circulation.

Otto Reissner [21] finds that the chlorides are increased in the stomach contents of gastric cancer, and deduces that the lack of hydrochloric acid in gastric cancer is not due to a decreased secretion of the latter, but to its neutralization by an alkali secreted by the cancer.

Nebelthau [22] believes that sugar may be formed from proteids in diabetic subjects, because he obtains an increase in the sugar in the urine of dogs made diabetic by extirpation of the pancreas when they receive plasmon.

C. A. Herter and A. H. Richards [23] were able to produce a marked glycosuria when suprarenal extract was injected into the peritoneal cavity. They find post-mortem destructive lesions in the pancreas and gastro-intestinal tract.

Uhlenhuth [24] states that it is possible to detect meat of different animals in sausages by his specific serum reaction.

Chantamese [25] reports recovery in one hundred cases of typhoid fever in which he used his antityphoid serum.

M. A. Iliascheff [26] performed experiments on pups to determine whether iron had a special power of increasing the hemoglobin of the blood, or whether this latter property was common to other heavy metals. He found that copper, mercury and manganese have no appreciable effect, while iron has a very marked power of increasing the hemoglobin and the red blood cells.

R. Meyer [27] finds that the normal ratio between sodium and potassium in the urine is much changed in diseases attended with muscular wasting, whereas the normal relation is one of potassium to two of sodium; in cases of cancer and advanced tuberculosis the ratio may be reversed.

Zibell [28] believes that the .6% calcium which he found in gelatin is enough to explain the hemostatic action of the latter.

[10] Arch. f. Exp. Path. u. Pharm., xlvi.
[11] Loc. cit.
[12] Loc. cit.
[13] Berlin klin. Woch., 1902, No. 17.
[14] Loc. cit.
[15] American Medical Journal, 1902, vii, 12.
[16] La Reforma Medica, No. 139.
[17] Deutsch. Arch. f. klin. Med., Bd lxxi, H. 1.
[18] Arch. f. klin. Chir., September, 1902.
[19] Deutsch. Arch. f. klin. Med., lxx.
[20] Berlin klin. Woch., No. 48.
[21] Zeitschr. f. klin. Med., xliv.
[22] Münch. Med. Woch., No. 22.
[23] Medical News, vol. lxxx, No. 8.
[24] Deutsch. Med. Woch., 1901, No. 7.
[25] La Presse Médicale, November, 1901.
[26] Vratch, vol. xxii, No 41.
[27] Deutsch. Med. Woch., September, 1902.
[28] Münch. Med. Woch, No. 42.

J. Renant[29] finds that chloroform always causes renal lesions when used for anesthesia.

Luff[30] shows that there is no constant ratio between the alkalinity of the blood and the acidity of the urine. He believes that alkali salts, especially those of sodium, may not only be valueless to remove gouty deposits, but actually harmful, and that good results obtained by the use of these comes only from cathartic action.

Leopold-Levi[31] recommends the use of Trunecek's serum in cases of arteriosclerosis. The latter is composed of sodium sulphate, phosphate, carbonate and chloride, and of potassium sulphate. The dose is 1 cc. subcutaneously, or 35 cc. by rectum every three to four days.

Adamkiewicz[32] reports four cases of cancer of the esophagus cured by his cancroin,—a compound akin to neurin isolated from cancer tissue.

H. C. Wood, Jr.,[33] finds that the blood-coagulating influence of gelatin is not decreased by peptic digestion, therefore he recommends the use of gelatin by the mouth as a hemostatic.

F. Neugebauer[34] operated upon sixty cases in which he produced anesthesia by injecting tropococaine into the spinal sac. He used .05 gm., occasionally repeated, and once as much as 1 gm. All the operations were on the limbs and abdomen, below the crest of the ilium.

Blum[35] was able to produce glycosuria by injecting subcutaneously suprarenal extract into animals. Feeding of suprarenals had no effect.

E. Jendrassik[36] believes that fever should be regularly combated by the antipyretics in large doses. He used as much as 1 to 1.5 gm. of phenacetin by the mouth, and 3 to 5 gm. of antipyrin by rectum every six hours. He thinks that they act by neutralizing the toxins.

R. Emerson[37] isolated oxyphenylethylanin and three other bodies from the autodigestion of the pancreas.

Karl Cerny,[38] after examining organs of swine and sheep, and of human beings dead from various diseases, comes to the conclusion that arsenic may be normally present in living organisms, but in such traces that it plays no part in the metabolism.

Fr. Kutscher and J. Leemann[39] conclude from their work on digestion in the small intestines that under normal conditions a large part of the albuminous bodies are split by the action of the trypsic digestion into various crystalline products, including lencin, tyrosin, lysin and arginin; that these splitting products are so changed in the intestinal wall that they escape our detection; that we do not find albumoses and peptones in appreciable quantities in the contents of the intestines.

[29] Journ. des Practiciens, 1902, iv, 12.
[30] The Practitioner, March, 1902.
[31] La Presse Medicale, No. 5.
[32] Loc. cit., No. 1.
[33] American Medicine, May, 1902.
[34] Wien. klin. Woch., No. 62.
[35] Deutsch. Arch. f. klin. Med., lxxi.
[36] Rev. de méd., No. 2.
[37] Zeitschr. f. die gesamt. Biochem., 1.
[38] Zeitschr. f. Physiol. Chem., xxxiv.
[39] Loc. cit.

Alide Gruthrink and Cornelia J. de Groaff[40] isolated a crystalline albumin from the urine of a patient with bone disease.

M. Vejux-Tyrode[41] separated from Jamaica dogwood several crystalline products and an amorphous resin. The latter possesses powerful narcotic properties towards fishes and frogs.

C. Newburg and H. Strauss[42] succeeded in obtaining positive tests for fructose in various exudates from the pleura and peritoneum. In most cases he weighed the methyl-phenyl-hydrozone compound which is characteristic for levulose.

Nadine Sieber and C. Schurnoff-Limonowski[43] studied the influence of erypsin and intestinal juice upon toxins and abrin. Abrin was unchanged. Tetanotoxin was but slightly changed. Diphtheria toxin was quite markedly affected. This shows the specific selection of the ferment erypsin.

M. Kruger and J. Schmid[44] find that of 15.9 gm. of theophyllin sodium administered to a dog 2.13 gm. of unchanged theophyllin, 1.99 gm. of 3-methylxanthin and 1-methylxanthin were excreted in the urine.

R. W. Tower and Erik Green[45] found ichthylepidin in the scales of thirty-eight species of American fishes.

Elliot P. Joslin[46] studied the acid intoxication in a case of diabetic coma. He found very large quantities of oxybutyric acid besides other acids. He also notes a very large increase in the ammonia excretion.

M. Vejux-Tyrode[47] first isolated from zygadenus frumentii a white crystalline neutral body possessing a pharmacological action similar to veratrine and to a body isolated by Fr. Pfaff from zygadenus venanosus.

Alex. N. Vitzou[48] states that the kidney possesses an internal secretion which is capable of antagonizing uremic symptoms.

A. Croftan[49] shows the presence of a diastatic ferment in the suprarenal capsules which he thinks may be of value in the sugar and glycogen metabolism.

A. Wentworth of Boston:[50] After making careful analyses of milk modified at home and in laboratories, the author comes to the conclusion that within certain limits accurate percentage modification of milk is not essential to the well being of the majority of babies thus fed.

Proof is found in the fact that infants thrive on modified milk which analyses show to be inaccurate. The author's analyses of cream and milk agree very closely with those published by standard authors on physiological chemistry. His ideas concerning the uselessness of accurate milk modification also agree with those of modern German pediatricians.

[40] Zeitschr. f. Physiol. Chem., xxxiv.
[41] Journal of Medical Research, iii.
[42] Zeitschr. f. Physiol. Chem., xxxvi.
[43] Loc. cit.
[44] Loc. cit.
[45] Loc. cit.
[46] Journal of Medical Research, vi.
[47] Loc. cit.
[48] Journ. de Physiol. et de Path. gen., No. 11.
[49] Arch. f. die gesamt. Physiol. de mensch. u. her thier., xl.
[50] Boston Medical and Surgical Journal, vol. cxlvii, No. 1.

# Reports of Societies.

## AMERICAN GYNECOLOGICAL SOCIETY.

PROCEEDINGS OF THE TWENTY-SEVENTH ANNUAL MEETING, HELD AT ATLANTIC CITY, N. J., MAY 27, 28 AND 29, 1902.

(Concluded from No. 17, p. 467.)

### PRESIDENT'S ADDRESS.

This was delivered by DR. SETH C. GORDON of Portland, Me., who selected for his subject

### THE RELATION OF THE GYNECOLOGIST, OBSTETRICIAN AND GENERAL SURGEON.

He said it was the custom of late years to say that gynecology had passed its usefulness, and had become merged into general surgery, and that there no longer existed the necessity for attempting to prolong the life of this hopelessly doomed department of medicine. With this proposition he took issue, and maintained that until modern obstetrics approached more nearly to the ideal standard, there would be a large field for the gynecologist proper.

Scientific gynecology had its birth in America, and was founded by Marion Sims. No gynecological surgery prior to his day had made any impression on surgical practice that had endured until the present time. That which the keen, brilliant genius of a Sims made possible, the intelligent, patient, practical common sense of an Emmet made probable to every afflicted one of womankind. The field was wide, and from all parts of the country came the sufferers from childbed injuries, many of which were due to faulty obstetric work of that day. Among the causes were long-delayed use of the forceps; careless and needless use of forceps; a disregard of the accidents occurring; and a total lack of aseptic precautions during the progress of labor. From the first came vesicovaginal fistula; while from the second came lacerations of the uterus and perineum, many of which could have been remedied had the accoucheur regarded them at all, and treated them according to the best known surgical principles. The great fault lay in entirely ignoring such accidents.

There are many faults yet to be overcome in the practice of obstetrics before the millennium shall dawn for the gynecologist. While public institutions are doing good work in eliminating germ diseases, and bringing the mortality almost to the vanishing point, much missionary work needs to be done among professional men in private practice.

The criticisms he offered were: (1) The too early use of the forceps. When the pendulum began to swing from rarely using the forceps, it went to the opposite extreme, using them far too often. A very large majority of cases will, if left alone, terminate naturally. (2) Cases of accidents occurring in labor are not properly repaired at the time.

The fashion of late seems to be to prohibit antiseptic douches after labor. While it may be necessary in normal labors, with no accidents, lacerations should be kept surgically clean, and it can be done only by frequent irrigation and germicides. Surgical cleanliness on the part of the accoucheur and patient from the beginning of labor until convalescence, insures safety to one and duty well performed on the part of the other.

As an additional safeguard against laceration of the perineum, he believes the timely use of anesthetics invaluable. It prevents the use on the part of the patient of the voluntary muscles, which do much to cause this accident. His preference as an anesthetic is the A.C.E. mixture, given only during pains. It acts promptly, and does not excite the patient.

Post-partum hemorrhage is not due to the use of an anesthetic, but to the carelessness of the attendant. A steady, careful, persistent manipulation of the uterine tumor during the expulsion of the child and placenta, and continued until firm contraction is produced, insures safety in almost every case. His own experience fully justifies him in making the assertion that a strict observance or adherence to this rule will nearly always prevent post-partum hemorrhage.

Modern methods of Cæsarean section had given such good results in diminishing mortality, that the barbarism of craniotomy had practically ceased, and the morbidity which furnished such abundant gynecological material had correspondingly decreased. This great progress was practically due to anesthesia, asepsis and improved technique, and for this, credit should be given to gynecologists who had perfected the operative details of abdominal section, made possible by the discovery of anesthetics and cleanly surgery.

Laceration of the cervix, especially of long standing, was not always an indication for trachelorrhaphy, destruction or extreme atrophy of tissue of the cervix being a decided contra-indication to the operation. Thousands of women suffered much more after trachelorrhaphy than before. The cervical canal was closed too much, drainage prevented, and often infection developed in the uterus and tubes, and the last condition was much worse than the first. Emmet never taught such gynecology as that. He did not even teach that all lacerations of the cervix required an operation. On the contrary, he believed that many of them did not require any interference, simply because they were not producing any morbid symptoms. The tendency had been too much in the direction contrary to Emmet's teaching, with the result that gynecology had been brought into disrepute. Many symptoms attributed to laceration of the cervix had been found to be due to disease of the other pelvic organs.

The plastic operation of perineorrhaphy, so often done by the general practitioner, to say nothing of the general surgeon, was far too often apologetic, when compared with the work of Emmet, Thomas, Marcy and others throughout the country.

The best work for malignant disease of the pelvic organs had been done by gynecologists. Probably no man could show better results in the way of relief and even cure of cancer of the uterus than Dr. John Byrne. Whether hysterectomy in any stage of the disease was to be the ideal method was by no means well settled. He believed that a more careful examination and more close observation of women under the care of physicians would detect malignant disease in its earlier stages, at a period when hysterectomy might be the ideal operation.

Much yet remained to be done with plastic operations about the vagina, not only in relation to prolapsed uteri, but for vesicocele, and diseases of the urethra, especially that of caruncle. Incisions into the posterior cul de sac for acute inflammatory attacks, whether attended with pus or not, well deserve the attention of the gynecologist. While this was one of the early gynecological operations for pelvic abscess, without reference to ulterior results, it was now well known that thousands of women could be saved from long and painful illnesses and subsequent hysterectomy by the timely common-sense application of the surgical principle of removing the products of inflammation as soon as formed.

TREATMENT OF PLACENTA PREVIA — CÆSAREAN SECTION NOT JUSTIFIABLE.

DR. ROBERT A. MURRAY of New York, in a contribution on this subject, referred to a paper read last year before the American Association of Obstetricians and Gynecologists, by Dr. Zinke of Cincinnati, on this subject; also to a discussion which it elicited. In Zinke's paper a strong plea was made for the treatment of placenta previa by Cæsarean section. Dr. Murray protested against such a radical measure, and believes that by proper treatment one can avoid the performance of this operation in many instances. In fact, only a very small minority of cases of placenta previa should, in his opinion, be treated by Cæsarean section.

DR. J. WHITTREDGE WILLIAMS of Baltimore questioned the propriety of Cæsarean section for placenta previa, and said the operation was done too frequently. Recent statistics as to the great safety attending this operation were liable to do almost as much harm as good. If the society did not take a decided position in regard to Cæsarean section in cases of placenta previa, he feared that this operation might be practised as frequently and indiscriminately as was oophorectomy. In his opinion there was a small field for Cæsarean section in placenta previa.

DR. EDWIN B. CRAGIN of New York said the conditions were so numerous which would justify Cæsarean section in placenta previa, that they were seldom found present, and among them were a good condition of the child, good surroundings for the patient, and a cervix so rigid that there would be great difficulty in dilating it and resorting to version. These three conditions were rarely met with in cases of placenta previa. A fourth condition was central implantation of the placenta.

DR. PHILANDER A. HARRIS of Paterson, N. J., said that when the statistics were analyzed as to the mortality of the mother and child, it would be found that the more rapid, prompt, and effective the delivery, the less the mortality and the better the general results. If the case could be seen when the first hemorrhage occurred, it would be a favorable time for Cæsarean section, but which he would not advise, but try to effect delivery by other methods.

DR. CHARLES JEWETT of Brooklyn said the results under modern obstetric methods of treatment of placenta previa were good, whereas the mortality from Cæsarean section was much larger than had been claimed by its advocates.

DR. E. P. DAVIS of Philadelphia said that Cæsarean section in placenta previa must have a very limited application at present. Among the poorer classes of women with placenta previa, the mortality among children must be great, with a considerable mortality among mothers. However, he was not willing to universally condemn Cæsarean section in placenta previa, for his personal experience with this operation had led him to look upon it as successful under favorable circumstances.

DR. A. PALMER DUDLEY of New York said the general practitioner should be educated in regard to placenta previa. He should study his cases more carefully, and make a diagnosis of placenta previa sufficiently early to refer them to specialists, thus saving the lives of many children and mothers which otherwise would undoubtedly be sacrificed. He thought there was not much use in performing Cæsarean section after a profuse hemorrhage had taken place. The danger of this operation, when properly and promptly performed, was almost *nil*.

DR. EGBERT H. GRANDIN of New York said he would treat a case of placenta previa after the same manner that he would a case of carcinoma or sarcoma of the uterus. He would go at it with hammer and tongs, just as soon as he was sure of his diagnosis, and no matter what the period of gestation, he would empty the uterus. His experience had been fairly extensive, and his results from this hammer-and-tongs policy had been very favorable as regards saving the mothers. He had never had a mother die, although the mortality was considerable as far as the children were concerned. But usually these children were nearly dead when seen.

TWO CONDITIONS SIMULATING ECTOPIC GESTATION.

DR. EDWARD P. DAVIS of Philadelphia read a paper with this title, in which he reported the following cases:

CASE I. A multipara; had pelvic pain at intervals with disordered menstruation for several months. She had been exposed to cold and wet during the menstrual period. Her husband, a physician, had made intra-uterine applications and had introduced a sound. After nine months of such illness the patient de-

veloped an hematocele, filling the cavity of the pelvis. Abdominal section was declined and vaginal section permitted. Considerable clotted blood was removed by vaginal incision, the cavity washed out and packed with iodoform gauze. This gauze was gradually removed in ten days after the operation. After the removal of the gauze the patient gradually developed symptoms of septic infection, ending fatally. Abdominal section was declined, and autopsy was not permitted. The examination of blood clot removed after section gave no evidence of ectopic gestation. This case resembles others recently reported by Kober,[1] and also observed by others, in which pelvic hematocele has accompanied diseased conditions of the pelvic viscera other than tubal gestation.

CASE II. An emaciated, anemic woman, age twenty, had previously had an abortion between three and four months. Bleeding was very profuse and was controlled with great difficulty. Several months after, she became pregnant and had attacks of intermittent pain, with hemorrhage from the vagina and a rapid feeble pulse. Upon examination the pelvis was filled with a soft, boggy tumor, completely occupying the posterior cul de sac. The body of the uterus could not be distinctly outlined, but was enlarged. The patient's condition indicated hemorrhage, and abdominal section was performed. A retroverted pregnant womb was found, filling the pelvic cavity, the tubes and ovaries being normal. The womb was replaced and pregnancy proceeded for some time, and the patient left the hospital. She subsequently returned and aborted at six months. The uterus was found lined with clotted blood at the time of abortion.

Segond, Routier, and Varnier have recently reported to the Obstetrical Society of Paris similar cases. In obscure cases of hemorrhage in which a diagnosis is not evident, he thinks abdominal section is safer than continued uncertainty. Conditions simulating ectopic gestation usually require prompt interference and surgical treatment.

DR. CHARLES P. NOBLE of Philadelphia presented

A CLINICAL REPORT ON URETERAL SURGERY.

DR. EDWARD REYNOLDS of Boston discussed

THE PRINCIPLES UNDERLYING THE REPAIR OF CYSTOCELE, AND AN OPERATION FOUNDED THEREON.

THE RELATIVE ADVANTAGES OF THE COMPLETE AND PARTIAL HYSTERECTOMY.

DR. E. E. MONTGOMERY of Philadelphia spoke of the difficulty the present student had in appreciating the slow process of development in the operation of hysterectomy, whether partial or complete. The procedure, as perfected by Goffe and Baer, marked an epoch in the progress of the partial hysterectomy; without intending to disparage the work of these gentlemen, he pointed out that the operation in many of its details had been done before these gentlemen had essayed their first operation; that Charles T. Parkes of Chicago was probably the first to resort to the supravaginal amputation of the body of the uterus, with the return of the stump to the abdomen after ligation of the uterine arteries. In the complete operation he advocated the Doyen procedure as the one most desirable. He preferred the panhysterectomy to the partial operation, for the reasons that it was more expeditious, it rendered hemostasis more secure, it decreased the danger from sepsis in removing any dead space in which fluids could accumulate and become infected. The cervix retained by the former method is not always free from danger from subsequent degenerative processes.

[1] Centrbl. f. Gynäk., No. 39, 1901.

A NEW METHOD OF ANTERIOR AND POSTERIOR COLPORRHAPHY.

DR. I. S. STONE of Washington, D.C., read a paper on this subject.

In the anterior operation the vaginal wall is incised in the median line, and after clamping the sides of this incision, the bladder is pushed away, upwards and backwards, until its entire base is separated from the vaginal wall and from the anterior surface of the uterus, if desired. He extends this separation as far out laterally as possible, for the whole pelvic roof shares in the prolapse. He proceeds now to lift the bladder with fingers or gauze packing, or with a sound inside the organ as far upward as possible to assure the extent of liberation. The excessively long flaps which presented over the base of the bladder as a cystocele (the distended anterior vaginal wall) are now excised, and the wound brought together edge to edge, taking care to entirely obliterate the cystocele and to leave the new anterior vaginal wall straight across. The method of applying the suture is important, for he invariably sutures the flaps near the centre of the wound to the anterior surface of the uterus with silkworm gut, silk or chromicized catgut. This is done for the double purpose of holding the bladder high above the former attachment on the uterus, and to hold the uterus forward if it has been retroverted. The bladder is held away and the deep sutures passed through the uterine wall between the attachments of the round ligaments. The wound is then entirely closed with catgut sutures. It will be noticed that he has applied the Mackenrodt method of vaginal fixation to his operation, but it was primarily to hold the bladder higher upon the uterus rather than to cure the displacement. In very large cystoceles the vaginal wall is greatly lengthened and can be shortened by removing a V-shaped section from each side of the incision in front of the cervix. The longitudinal wound in the median line will then join one made transversely across the vagina in front of the cervix.

As a test of the efficiency of the method, two patients with procidentia were selected, each with large cystoceles, who consented to operation in two stages. Both women were nearly sixty years of age. One had prolapse of twenty years' standing; the other, a stout, fleshy woman, had not suffered so long, and her disability was largely due to increase in weight. The vaginal relaxation of the thin woman was extensive and complete. The fat woman had not sustained as severe laceration as the other, but was hardly as good a subject, owing to the size of her abdomen. The anterior operation alone was done on these

women, and while the uterus was not entirely retained within the vagina as the result of the work done, the cystocele was cured. One of these women had the final operation upon the posterior wall before she left the hospital; the other returned nearly a year later, was treated in the same manner, and now both are well.

In the posterior secondary operation injury to the posterior vaginal wall and perineum differs greatly in its extent, and in the direction of the tear. The rent may be longitudinal or transverse, and in any event needs to be fully exposed below the vaginal mucous membrane, which in the past has borne the brunt of surgical attack, while the fascia, the objective point, is hiding with the much discussed and rarely seen levator ani muscle, and is only influenced by sundry excursions of needle and suture, which, after all, only hold a denuded or scarified mucous membrane together while union progresses. The crest of the rectocele is grasped with the left hand, making a transverse fold, which is divided with the scissors down to the rectum. Clamps are applied to the edges of the incision, and the rectum pushed away on both sides with a gauze sponge until it is quite free of all connection with the vaginal wall. The incision in the vaginal wall is extended above and below, until we are satisfied that we can secure sufficient narrowing of the vagina to answer the purpose in view. The sutures are placed with greater facility when the rectum is separated freely on each side, and one need not have any fear of not obtaining good union after the operation.

After he has completed the liberation of the rectum and has clamped such hemorrhoidal vessels as give trouble, he closes the wound in the following manner: With tissue forceps he catches up two points, one on either side, which he wishes to unite in front of the rectum. These points are usually about one and one-half inches below the edge of each flap, but the size of the rectocele will necessitate a test in each case, as directed, so that good approximation of the fascia over the rectum may be secured, which will not exert undue traction upon the sutures. The fascia is firmly and thoroughly united along the entire length of the wound. In some instances he has used a double tier of sutures which gives excellent support to the floor of the vagina, and makes a firm obstruction to the exit of a procident uterus. After the buried sutures are placed, he excises the long flaps from each side, and closes the vaginal incision with interrupted catgut down to and rather below the former site of the crest of the rectocele. Emmet's or Hegar's method may now be selected for the final stage of the operation, according to the predilections of the operator. The operation in some respects resembles that of Hegar, the chief difference being in the method of exposing the fascia.

A CONSIDERATION OF OVARIAN FIBROMATA, BASED ON A STUDY OF TWO RECENT CASES AND EIGHTY-TWO COLLECTED FROM THE LITERATURE.

Dr. Reuben Peterson of Ann Arbor, Mich., read a paper on this subject. The writer's first case was a woman, age sixty-four, who noticed a growth in the lower left abdomen five years previous to her entrance to the hospital. The growth had increased in size until it reached the border of the left ribs. There was little or no pain, in fact, very little discomfort from the growth. Operation performed Dec. 24, 1901, disclosed a large tumor of the left ovary, weighing 7¼ lbs. The tumor was bilobed, the smaller lobe being edematous. The larger tumor showed points of calcification. Microscopic examination showed the tumor to be a fibroma. The patient made an uneventful recovery.

In the second case the patient was sixty years of age, and entered the hospital for distention of the abdomen from ascitic fluid of four years' standing. During this time she had been tapped sixty-five times. At the operation, April 25, 1902, there was found an irregular, hard, fibromatous tumor of the left ovary, weighing three pounds. There were a few adhesions present, and the other ovary was the size of a hen's egg from a surface papilloma. There were 700 cc. of clear ascitic fluid removed at this time. The microscopic examination showed an ovarian fibroma of the left side. Except for an attack of gallstone colic, proved by the passage of four gallstones, the patient made an uneventful recovery.

While fibroma is one of the rarest forms of ovarian new growths, it is by no means such a rarity as was formerly supposed, as has been conclusively shown by Dornan, Briggs and Coe. Briggs reported eight cases from his own practice, and the writer's two cases were met with within four months.

From a consideration of the eighty-four tabulated cases, it was found that the age is mentioned in all but one. As compared with fibromyomatous uterine tumors, it was found that these growths were about twice as often discovered from forty to fifty as are ovarian fibromata, the percentage of the former being 51, as compared with 28% in the latter.

The conclusions to be drawn from the writer's cases and those collected were that (1) fibromata of the ovary occur earlier and in relatively greater numbers during early sexual life than do fibrous growths of the uterus; and (2) while relatively the largest number of ovarian fibromata are to be found during or just after the menopause, a considerable percentage of cases occur proportionately later in life than do uterine fibromyomata.

Of the sixty-six cases in which the social state was mentioned, twenty-two were single and forty-four were married, showing the disease to be twice as common in married as in single women. The statistics do not bear out the statement of Dartigue, that pregnancy prior to the development of the tumor is rather a rare occurrence, since 75% of the thirty-three women, where fecundity is recorded, had had one child or more. The twenty-eight women averaged four children each.

The cases were carefully reviewed regarding the effect of the ovarian fibromata upon the

menstrual function. In only two cases is it definitely stated that the tumors gave rise to irregularity in the menstrual period. In 49% the statement is made that the patients were regular; six patients, or 12%, are recorded as having had painful periods, but there is no evidence to show that the pain was produced by the ovarian growths.

The author thinks that neither menorrhagia nor metrorrhagia is a very constant accompaniment of fibroma of the ovary. It is more apt to occur where both ovaries are affected by the disease. The growth of an ovarian fibroma may exist for many years before the tumor reaches large proportions or gives rise to marked symptoms. In other cases the growth is more rapid, reaching considerable proportions and giving rise to noticeable symptoms in a comparatively short time, say a few months. Pain is present to a greater or less degree in nearly one-half the cases of ovarian fibromata. Freedom from pain means, as a rule, the absence of adhesions of the growth to the surrounding organs. Pain is more frequently met with in tumors of moderate size. Dysuria is a symptom in about 15.6% of the cases.

The growths were described as fibromatous in sixty-three out of the eighty-four cases, or in 75%: forty-eight of these were fibromata; twelve pure fibromata, and fibroma with colloid infiltration, fibrous with mucoid degeneration, and fibroid with hyaline and myomatous changes, one each; seventeen, or 20%, were found to be fibromyoma; two were called myofibroma, and there was one each accredited to the myomas and to the myofibromas with hyaline degeneration.

Dr. Philander A. Harris of Paterson, N. J., read a paper on

CLOSURE OF SUPPURATING ABDOMINAL WOUNDS FOLLOWING LAPAROTOMIES.

When abscess forms in the abdominal incision, the skin is reopened in the line of incision to the upper and lower limits of the mural abscess. The wound is then treated as an open one until the flow of pus becomes greatly reduced in quantity. All the granulations are then removed with a sharp curette until the muscle, fascia, fat and other tissues are distinctly recognizable. The separated edges of the deep fascia are then drawn together by a series of silkworm gut sutures, which interlock with each other at the apposition line of the fascia. Each one of these sutures is introduced through the skin about one inch away from the incision, and each one is brought out either just above or below the point of its introduction. If the first suture both enters and emerges from the right of the median line, the next one is introduced and emerges at a point to the left of the incision, and is so introduced as to interlock the first or preceding suture. The third suture is introduced and brought out from the same side as the first suture and interlocks the second one. The fourth suture is introduced from the same side as the second suture and interlocks the third or preceding one. This singular suture has for its chief object the coaptation of the deep fascia, and, when properly introduced and tied, it is claimed that the fat and opposing edges of the skin fall in apposition, adhere and heal without additional sutures. Most of the few cases thus treated promptly heal and generally do so without suppuration. A not unimportant part of the technique of operation is the thorough and repeated washing with a solution of bichloride of mercury, always followed with a normal salt solution irrigation. The stitches are all removed on the twelfth and fourteenth day.

Fifteen photographs, which were exhibited, illustrated much of Dr. Harris' work in this relation. A not uninterested part of the photographic illustration was the appearance of the wound after the sutures were introduced and tied, as they converted the area of the open and large wound into an elongated mound at whose base, on either side, there appears a row of knots, while at the summit of the mound the opposing edges of skin simply lie in apposition awaiting adherence and healing.

Dr. Harris is of the opinion that the stronger solutions of carbolic acid or possibly other disinfectants might serve as good, if not better, purpose than the solution of bichloride of mercury which he has employed for this work.

ELECTION OF OFFICERS.

The following officers were elected for the ensuing year: President, Dr. Joseph E. Janvrin, New York; Vice-Presidents, Dr. Edward W. Jenks, Detroit, Mich., and Dr. A. Palmer Dudley, New York; Secretary, Dr. J. Riddle Goffe, New York; Treasurer, Dr. J. Montgomery Baldy, Philadelphia.

Washington, D. C., was selected as the place for holding the next annual meeting in conjunction with the Triennial Congress of Physicians and Surgeons the first week in May, 1903.

## Recent Literature.

*A Textbook of Surgical Principles and Surgical Diseases of the Face, Mouth and Jaws.* By H. Horace Grant, A.M., M.D. Philadelphia and London: W. B. Saunders & Co. 1902.

Within the limits of 224 pages the author, who is professor of surgery in Hospital College of Medicine and of Oral Surgery in the Louisville Dental College, has condensed the entire list of surgical diseases of the face, mouth and jaws. Within this brief space are also given no less than 68 illustrations, all of them important, and many of unusual interest.

The book is evidently written for the so-called busy practitioner and for the dental student. The mythical busy practitioner for whom condensed editions are written never reads a book, while the busy practitioner who is successful because he is thorough, despises any work that treats his

subject superficially. The dental student may, by means of such a book, have his interest in the subject aroused, and may be induced to seek other sources of information, but the danger is great that he may consider this the end of all knowledge of the subject.

Twenty-two pages are devoted to tumors, and by reading these carefully the student will certainly gain some interesting knowledge of the different varieties of tumors, but he will not be encouraged to rely upon this knowledge alone in making a diagnosis. Two pages are given up to shock and its treatments, and so throughout the book each subject is presented in tabloid form. In spite of this extreme condensation it must be said that the author not only knows his subject, but knows how to make it interesting.

It is fair to suppose that his own complete knowledge has led to the error of assuming a greater knowledge on the part of the reader, than students usually possess. The book would be of more value if it could be enlarged to include a greater knowledge of details and fuller explanations of the subjects treated.

*Anatomy and Histology of the Mouth and Teeth.* By I. NORMAN BROOMELL, D.D.S. Philadelphia: P. Blakiston's Son & Co. 1902.

The growth of dentistry and the demands for higher dental education make such a work as Dr. Broomell has produced, almost a necessity. It is gratifying to know that the first edition, published in 1898, has met with such success as to lead to the issue of a second and greatly improved edition. Fifty-three new and important illustrations have been added, and the portion devoted to microscopic anatomy has been enlarged and improved.

The gross anatomy of the mouth is treated with great clearness and in an orderly, systematic manner. In the description of the various teeth it would perhaps have been wiser to have omitted the classification into types, as the "bilious type," the "nervous type," the "sanguineous type" and the "lymphatic type." The characteristics of one type are so often mingled with those of all the others that the classification is by no means accurate, and would often result in confusion if too strictly insisted upon.

The chapter on Development of the Teeth contains new matter which is of interest, and which adds materially to our knowledge of this subject. The histology of the teeth and of the membranes and adjacent parts is clearly and concisely given. In his effort not to overtax the student or the reader, untrained in research, the writer has perhaps erred on the side of brevity and concentration, and left some things unsaid which might have been of interest to the trained scientist. The book is well written, and the large, clear type adds to the ease and pleasure of reading it. Laryngologists, as well as histologists and dentists, who are interested in the scientific side of their professional work, will derive much benefit from reading this book.

*Sociologic Studies of a Medico-Legal Nature.* By LOUIS J. ROSENBERG, LL.B., and N. E. ARONSTAM, M.D., Ph.G., with introduction by HON. CLARK BELL, LL.D. Chicago: G. P. Engelhard & Co. 1902.

This is a small volume of 137 pages, dealing in essay form with various matters of medico-legal and social importance. It has small scientific significance.

*A System of Physiologic Therapeutics.* Edited by SOLOMON SOLIS COHEN, A.M., M.D. Volume IX: Hydrotherapy, Thermotherapy, Heliotherapy and Phototherapy. By WILHELM WINTERNITZ, M.D., Professor of Clinical Medicine in the University of Vienna. Assisted by ALOIS STRASSER, M.D., and B. BUXBAUM, M.D., and Balneology and Crounotherapy by E. HEINRICH KISCH, M.D., Professor in the University of Prague. Illustrated. Philadelphia: P. Blakiston's Son & Co. 1902.

Volume IX of this series has appeared with a consideration of the subjects of hydrotherapy, thermotherapy, heliotherapy, phototherapy, balneology and crounotherapy. This volume is of 570 pages, which includes a voluminous index. The attempt has been made, as in preceding volumes of the series, to bring before the profession in a practical fashion the value of these various natural methods of treating disease. The text is arranged in such a fashion that reference is easy, and apparently only those details which have more or less practical significance find a place. We have on previous occasions commented favorably both upon the plan and the workmanship of these books, and we need now, therefore, merely reiterate what we then said, that the series unquestionably fills a decided need and should be of great value in bringing before the professional mind rational methods of treatment. This volume, so far as we have studied it, maintains the standard set by the earlier ones.

*Disinfection and Disinfectants.* A practical Guide for Sanitarians, Health and Quarantine Officers. By M. J. ROSENAU, M.D. Philadelphia: P. Blakiston's Son and Co. 1902.

Dr. Rosenau considers the subject of disinfection from the standpoints of the disinfectant used, the object to be disinfected, and the disease for which the process of disinfection is conducted. The first four chapters are devoted to the different agents and substances employed for disinfection, which the author divides into four groups: Physical agents, gaseous disinfectants, chemical solutions, and insecticides. The fifth chapter treats of the disinfection of houses, ships and objects, which substances to use in each instance, and how to use them.

In the final chapter each infectious disease is treated separately with reference to the measures to be taken and the substances to be used for the purpose of disinfection.

The work constitutes an extremely useful manual for the use of health officials, general prac-

titioners, and all persons who are concerned in the work of preventing the spread of infectious disease.

*Textbook of Medicine.* Begun by the late Charles Hilton Fagge, M.D., F.R.C.P. Completed after his death and since revised and rewritten by Philip Henry Rye-Smith, M.D., F.R.S. Fourth edition, in two volumes. Vol. II. Philadelphia: P. Blakiston's Son & Co. 1902.

The second volume of this textbook of medicine exhibits the same merits as the first. Diseases of the respiratory tract are continued. The rest of the volume is taken up by chapters on diseases of the heart and circulatory apparatus; on diseases of the alimentary tract; diseases of the liver, kidneys, pancreas and spleen; diseases of the blood; diseases of the skin. The diseases of the skin occupy about a fifth of the volume, and are very fully dealt with.

*Textbook of Physiological and Pathological Chemistry.* By G. Bunge, Professor of Physiological Chemistry at Bâle. Second English edition. Translated for the fourth German edition by Florence A. Starling, and edited by Ernest H. Starling, M.D., F.R.S., Professor of Physiology in University College, London. Philadelphia: P. Blakiston's Son & Co. 1902.

Bunge's book is a masterpiece written by a master. Throughout the book one feels the genius of the author. To say that it is accurate, interesting and concise is not enough. This work is sublime. It is one of the most inspiring volumes written on the medical sciences. It is a book which should be read by every medical man. The English translation is to be recommended for those who cannot read the original German.

*Diet and Food.* Considered in Relation to Strength and Power of Endurance, Training and Athletics. By Alexander Haig, M.A., M.D.(Oxon.), F.R.C.P. Fourth edition, with seven illustrations. Philadelphia: P. Blakiston's Son & Co. 1902.

Few medical doctrines are better known than that associated with the name of Dr. Haig, regarding diet in relation to health. As we have before said, we are forced to regard him as an extremist, but one who has a large element of truth on his side. This little book of 127 pages embodies his widely promulgated views.

*The Public and the Doctor.* By a regular physician. Published by Dr. B. E. Hadra, Dallas, Texas.

This small volume of 149 pages concerns itself with the various social and professional relationships existing between physician and patient. These are delicate matters to discuss, but the author appears equal to his task. We question somewhat the value of the book as a missionary document, for which it is said to be primarily intended.

THE BOSTON

# Medical and Surgical Journal.

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## THE INFLUENCE OF SOIL, FABRICS AND FLIES IN THE DISSEMINATION OF TYPHOID FEVER.

Typhoid fever is such a widespread and constant disease that contributions throwing light upon its etiology are always of great interest and importance. When we remember that so recently as our Civil War the infective nature of typhoid fever was not generally recognized, we realize in a measure the advances which have been made in knowledge on this subject since that time, and in realizing these there is also brought home to us how fruitful this field may prove to other serious workers. In all wars typhoid fever is one of the most insidious and disabling enemies which armies have to encounter. Hence we expect after every campaign of any magnitude fresh studies of the sources of this deplorable crippling and waste of human energy. There is no finer pursuit than to track to their sources the causes of disease.

During our late Spanish War, in August, 1898, a board was appointed at the request of the Surgeon-General of the United States Army, for the purpose of ascertaining the causes of the existence and spread of typhoid fever in the national encampments, and of suggesting means of its abatement. This board consisted of Major Walter Reed, United States Army, Major E. O. Shakespeare, United States Volunteers, and Victor C. Vaughan, major and division surgeon, United States Volunteers, and professor of hygiene in the University of Michigan. The report which this board subsequently made is on file at the office of the Surgeon-General of the Army, at Washington. Among other conclusions formulated by this board, are the following:[1]

Flies undoubtedly served as carriers of the infection. It is possible for the fly to carry the typhoid

[1] Conclusions Reached after a Study of Typhoid Fever among the American Soldiers in 1898. By Victor C. Vaughan, M.D., professor of hygiene, University of Michigan. Oration on State Medicine, Fifty-first Annual Meeting of the American Medical Association.

bacillus in two ways: In the first place, fecal matter containing the typhoid germs may adhere to the fly and be mechanically transported. In the second place, it is possible that the typhoid bacillus may be carried in the digestive organs of the fly and may be deposited with its excrement.

It is more than likely that men transported infected material on their persons or in their clothing, and thus disseminated the disease.

It is possible that the infection was disseminated to some extent through air in the form of dust.

The excessive prevalence of typhoid fever in the British armies in India and South Africa has roused in England renewed interest, both public and professional, in the nature, causation and dissemination of this disease, and is furnishing more contributions representing fresh studies especially as to the modes of its dissemination. One of the most important of these was presented in the Section of Pathology at the last annual meeting of the British Medical Association [2] and bears the title of this editorial. This paper states the results of an inquiry undertaken by Majors R. H. Firth and W. H. Horrocks of the Hygiene Laboratory of the Army Medical School at Netley. It has an especial interest as supplementing and pursuing some of the inquiries and suggestions in the report growing out of the Spanish War previously referred to. The experiences in South Africa called attention especially to the part which soil, fabrics and flies fouled by the specific infective matter of typhoid fever, may play as a source of contagion. This inquiry was commenced in October, 1901, and was prosecuted continuously for ten months. The viability of the bacillus typhosus in or on certain media or vehicular hosts and the susceptibility of this micro-organism to dessication and other special circumstances of environment were the questions investigated. These investigators sum up their conclusions in twenty-one paragraphs, conclusions equally applicable to typhoid bacilli recently isolated from stools, as to old cultures of the organism which have been in the laboratory many months. From these conclusions we reproduce a few of especial interest:

(1) There is no evidence to show that the typhoid bacillus, when placed in soil, displays any disposition or ability to either increase in numbers or grow upwards, downwards or laterally.

(2) This bacillus can be washed through at least eighteen inches of soil by means of water, even when the soil is closely packed down and no fissures or cracks are allowed to exist.

(3) This bacillus is able to assume a vegetative existence in ordinary and sewage polluted soil and survive for varying periods up to seventy-four days.

(4) That the presence or absence of organic nutritive material in the soil appears to be a largely negligible factor.

(5) That an excess or great deficiency of moisture in soils appears to be the dominant factor affecting the viability or at least the possibility of the recovery from soil of the bacillus.

(13) That from ordinary soil, allowed after inoculation to become so dry as to be readily blown about as dust, the bacillus can be recovered up to and on the twenty-fifth day; and that typhoid infective material can be readily translated from dried soil and sand by means of winds and air currents.

(18) That from a piece of khaki drill fouled by liquid typhoid feces and then allowed to dry, the bacillus is recoverable on the seventeenth day.

(19) That from a similar fabric fouled by solid or semi-solid typhoid feces and then allowed to dry, the bacillus is recoverable up to the ninth day.

(20) That the bacillus is able to survive in surface soil an exposure to 122 hours of direct sunshine, extending over a period of twenty-one consecutive days. That from a piece of infected serge the bacillus is recoverable after the fabric has been exposed to fifty hours of direct sunshine spread over a period of ten days.

(21) That ordinary house flies can convey typhoid infective matter from specific excreta or other polluted material to objects on which they may walk, rest or feed. That such infective matter appears to be attached not only to their heads (mandibles), but also to their legs, wings and bodies. It has not been proved that this bacillus passes through the digestive tract of the fly.

Under the head of Etiological Considerations the conclusions reached are applied to practical sanitation, and especially to the disposition of dejecta with the minimum danger to health. The earth closet is condemned.

[2] British Medical Journal, Sept. 27, 1902, p. 936.

## THE MISUSE OF COMMON TERMS.

Much of our knowledge, as ordinarily applied clinically is inaccurate, and expresses what may be, rather than what we know is. The average physician has always been willing to use terms loosely, and without due regard to underlying facts. An example of this tendency is the common use of the term Bright's disease in a general inclusive sense, without any further effort at accuracy of definition. This is, fortunately, passing, to a considerable extent, with regard to this class of disorders; we are hearing less of Bright's disease and more of the varieties into which it is

now clearly possible to divide disease of the kidneys. This service, undoubtedly, pathological study has rendered; clinicians should not be slow to accept the improved, because more accurate nomenclature in this as in many other symptom groups which on the clinical side may appear more or less identical.

Rheumatism is another case in point. Here, again, this word has persistently been used to describe the greatest possible variety of conditions characterized, in general, by pain and more or less disability. "A rheumatic tendency" has become a by-word which is so comprehensive that many a physician has been content with such a diagnosis and the routine treatment which would naturally follow. Out of this confusion has gradually emerged a whole list of somewhat allied, but yet perfectly distinct, affections which are deserving of individual names and demand specialized treatment. Rheumatoid arthritis, osteo-arthritis and articular rheumatism have meanings now which can by no possibility be expressed in the term rheumatism alone. It is the manifest duty of the active clinician to master these differences if he is going to talk about the subject at all, and not to perpetuate the obscurity by a persistent use of meaningless general terms. Medicine is full of such instances of the unnecessarily loose use of terms by men who should be leaders and not followers.

The most flagrant example, however, of the tendency to which we refer is the really hopeless confusion surrounding the words "neurasthenia" and "neurasthenic." There is here apparently no limit to the license permissible, even among highly educated physicians. The words are bandied about among every type of practitioner. All alike complain of their neurasthenic patients, without the slightest effort to indicate by the use of such a term a defined clinical disorder. So far as one may gather from practitioners in widely diversified branches of medicine, neurasthenia is an absolutely inclusive word, meaning almost any abnormality of behavior or manner of a functional sort, from whatsoever cause, short of absolute alienation. In the popular medical mind no subdivisions are attempted: the human family is divided into nervous and not nervous individuals. The former are the neurasthenics, the latter are not. For the average practitioner it appears to be unnecessary to go further than this.

Time has rather increased than diminished the confusion, since Beard gave form to this type of disorder by his work on neurasthenia in 1880. He had before, in 1869, published a paper in this *Journal* which was the first systematic treatment of the subject ever printed. This now classical work attempted to make of neurasthenia what its name implies, nervous exhaustion and its results. Since he wrote, however, the scope of the term has increased in the hands of the careless and uncritical, until now it is almost devoid of scientific meaning. The time is certainly ripe for a reform. We should in our own minds, and particularly in our instruction to students, begin to set a definite limitation to the word neurasthenia and the symptoms which it is supposed to include. It does not, for example, require the specialist to recognize a fundamental difference between nerve exhaustion and temperamental peculiarities, or between nerve exhaustion and neuroses produced by circumstances or surroundings or special associations. All these differences in etiology and many more must be appreciated if we are to restore some sort of order out of the chaos, and continue the admirable work which Beard inaugurated. A beginning in this direction, at least, would be made, if physicians could be induced to use the word "neurasthenia" and its adjective "neurasthenic" as descriptive of a definite pathological condition, and not merely as a "catch all" into which every obscure and imperfectly understood functional symptom may be indiscriminately thrown.

## HUMAN AND BOVINE TUBERCULOSIS.

At the meeting of Oct. 25 of the International Congress for Tuberculosis, which has just been held at Berlin, Professor Koch in a notable paper reiterated his former position, expressed at the British Congress, of the non-transmissibility of animal tuberculosis to man. He used the arguments with which we are now familiar, that intestinal tuberculosis is so unusual and statistics on the subject are too incomplete to permit of any dogmatic statement regarding its connection with the ingestion of tuberculous food. He doubted also the direct relationship between bovine tuberculosis and various skin lesions produced in man. He believed further that, if infection is as frequent as claimed through milk, definite proof of this should be obtainable. Finally he said that he had not maintained that the transmission of tuberculosis from animal to man was impossible, but that cases were extremely rare and that the association could not at present be proved. He begged that trustworthy data be obtained so far as possible as the only means of definitely settling the question at issue.

Although Professor Koch's paper was apparently received with favor by many members of the congress, it did not go undisputed. M. Nocard, the French veterinary surgeon, reiterated the popular belief that Professor Koch's statements permitted of but two conclusions, first, that the transmission of tuberculosis from animal to

man does not occur, and, secondly, that precautions are unnecessary. He instanced experiments in which he believed the probability was strongly in favor of the direct transmission of the disease from animal to man. After discussing the transmissibility of the disease through milk, he urgently recommended a rigid inspection of cow stables and the systematic boiling of milk. M. Nocard's views were also received with favor.

It is a matter of regret to Americans that no representative of the scientific work being done in this country on the general subject was present at the meeting. So far as we may judge from the reports at hand it appears that the question stands very much as it did after the meeting in England last year. It is evidently a matter which can be satisfactorily settled only through long and careful observation and well controlled experiments in most competent hands.

## NOTIFICATION OF OTHER DISEASES THAN THOSE WHICH ARE INFECTIOUS.

THE notification of infectious diseases has been recognized for several years by the governments of most civilized nations, in the enactment of laws providing for notices from physicians to the sanitary authorities of cities and towns. This principle was first applied to smallpox, but afterward extended to other diseases, and in Massachusetts the term "other diseases dangerous to the public health" gives to the law a broad and general application. The usual practice, however, of local boards of health has been to limit the duty of disease notification to the class of infectious or communicable diseases.

In England, however, an innovation has been introduced which recognizes the fact that there are other diseases which are clearly preventable beside those which are infectious, and the duty of preventing them may therefore be properly referred to the sanitary authorities. The British Parliament has recognized this principle in a section of the Factory and Workshop Act of 1901,[1] which provides that "every medical practitioner attending on or called in to visit a patient whom he believes to be suffering from lead, phosphorus, arsenical or mercurial poisoning or anthrax, contracted in any factory or workshop, shall send to the chief inspector of factories at the home office in London a notice stating the name and full postal address of the patient, and the disease from which, in the opinion of the medical practitioner, the patient is suffering, and shall be entitled for each notice, to a fee of two shillings and sixpence."

[1] 1 Edward, VII, c. 22.

This wise provision of law was enacted as the result of several reports which have recently been presented to Parliament in England relating to harmful occupations or trades, such as file-cutting, the glazing of pottery, the manufacture of electrical accumulators, paints, friction matches, etc., in which cases of metallic poisoning are of frequent occurrence.

Whether the present laws in force in many of the states relating to the reporting of "diseases dangerous to the public health" by physicians, should be so construed as to apply to the so-called "occupation diseases" produced by metallic poisons, is a question worth considering. If such is not the case, it would be a wise provision to so extend the provisions of the notification acts as to make them apply to this class of cases, since it is certainly within the province of sanitary authorities to investigate all conditions affecting the health of the people, and it is only desirable to give them power to apply the proper remedy.

## MEDICAL NOTE.

CHOLERA.— Reports from various parts of the world show the prevalence of cholera in widely separated places. The estimated number of cases in the Philippine Islands since March 20 last is placed at 75,000, with a mortality of 75%. The disease has practically disappeared from those provinces first infected, but those most recently infected are still suffering. The province of Iloilo and the adjacent island of Negros are badly infected, and the situation is said to be alarming. In Japan there have been reported 4,329 cases and 1,650 deaths. In China the disease is widely prevalent, and in many localities epidemic. In Egypt the number of cases registered during the week ended Sept. 15 amounted to 9,467, with 8,278 deaths. Of the 28,520 cases of cholera registered between July 15 and Aug. 15, 23,684 were fatal. During the four days from Sept. 15 to Sept. 19 there were registered 4,048 cases and 3,761 deaths. In Suez, between Sept. 15 and Sept. 19, 29 fresh cases were registered. In Damietta the daily number of cases recorded is said to be 30. Karnak and Luxor are also infected with the disease. In Alexandria, during the week ended Sept. 15, 64 cases of cholera occurred among Europeans, with 41 deaths, and during the following five days 35 cases and 25 deaths were recorded.

VACCINATION IN MONTREAL.— According to the *Medical News* the new Vaccination Law recently adopted by the City Council of Montreal requires that vaccination shall not be performed by any person other than a duly qualified medical practitioner. It further stipulates, in order to avoid

any accidents following upon the operation that it be done aseptically. Any person or medical practitioner violating any of the provisions of the by-law shall for each offense be liable to a fine not exceeding $40, and in default of payment thereof to imprisonment for a period not exceeding two calendar months.

Retirement of Professor Neumann.— It is announced that Prof. I. Neumann of Vienna, who has reached the limit of age for his academic position, is about to retire from the chair of skin diseases, which he has long held. His successor is said to be Prof. F. Mracek.

Italian Medical Congress.— The twelfth annual meeting of the Italian Congress for internal medicine is announced for the days from Oct. 28 to 31. Dr. Baccelli is this year's president.

### BOSTON AND NEW ENGLAND.

Acute Infectious Diseases in Boston.— For the week ending at noon, Oct. 29, 1902, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: Diphtheria 50, scarlatina 30, measles 7, typhoid fever 30, smallpox 23.

The Stillman Infirmary.— As previously announced, the Stillman Infirmary, connected with Harvard University, is now equipped and capable of receiving and caring for sick students and officers of the university. A circular has recently been sent out, signed by President Eliot of the university and Dr. M. H. Bailey, medical visitor, suggesting that students and officers, by the payment of an annual fee of $4.00, shall be entitled to accommodation at the infirmary on the order of a physician, free of other charge, providing that not less than two thousand persons avail themselves of this offer. This fee, however, is not intended to include medical attendance, since it is expected that patients will be attended by their own physicians, except in case of need, when they will be attended by the medical visitor without charge. It is furthermore announced that contagious diseases cannot at present be treated at the infirmary, and, therefore, that the payment of this annual fee does not entitle persons to treatment for such diseases.

Massachusetts Association of Boards of Health.— The quarterly meeting of the Massachusetts Association of Boards of Health will be held at the Public Baths, Brookline, Thursday, Oct. 30, 1902. The morning session begins at 10.30 o'clock. All able to do so are invited to assemble at the office of the Board of Health in the Town Hall, Washington Street, Brookline, at 10.30 A.M. After a visit to the Board of Health laboratory, the members will be taken in barges to visit the new contagious hospitals.

### NEW YORK.

Christian Science and Death.— A child, seven years old, named Esther Quimby, died of diphtheria at White Plains, Westchester County, on Oct. 19, while under Christian Science treatment. The coroner, Dr. Banning, took charge of the case, and, as a result of the inquest held, a verdict was rendered on Oct. 23 to the effect that the deceased "came to her death of diphtheria and general septicemia, owing to the culpable negligence of her parents, also of a certain so-called 'healer' named John Carroll Lathrop, in failing to provide proper medical care and attendance. The evidence warrants the holding of the three persons under the Penal Code, on a charge of manslaughter." The case was then taken before Judge Platt, who fixed bail in the sum of $2,000 in each case. The child, it appears, contracted the disease from an older sister, and notwithstanding the fact that the latter was suffering from diphtheria, she was permitted to attend the public school for a week before she herself was attacked. No report of the presence of diphtheria in the Quimby household was made, and at the inquest Lathrop, the healer named, testified that when he was called to attend the older sister he found her "under the claim of what is called tonsillitis," which, he explained, was merely a mortal belief. When asked to what he ascribed the death of Esther, he replied, "Nothing, from a Christian Science point of view, although I suppose from your view it was real." In describing the treatment of the case he stated that he "used as high a realization of God's power as he possibly could," and, in answer to further questioning, said that the treatment would be the same for cancer, consumption and a broken leg. It furthermore appeared that, notwithstanding the fact that both the father and mother of the child were themselves "qualified" healers, having paid $100 for a course of instruction in Christian Science, he charged a fee for each visit he made in addition to his traveling expenses. Lathrop is prominent in Christian Science circles in New York, and until recently his mother and himself were "first and second readers" in one of their so-called churches. The mother of the child is herself suffering from diphtheria, and had to be examined at her home.

Successful Suture of a Heart Wound.— On the night of Oct. 20, Dr. George D. Stewart sewed up a wound in the heart of a woman in Bellevue Hospital who was rapidly bleeding to death from a stab inflicted by her drunken husband. A number of sutures were made in the

left ventricle, the hemorrhage was controlled, and for several days there seemed to be an excellent chance of the patient's recovery. On the morning of Oct. 24, however, she suddenly collapsed, and died in three minutes, notwithstanding the instant resort to oxygen inhalation and subcutaneous stimulation. On the following day an autopsy was made by the coroner's physician, Dr. Weston, who reported that the operation itself was eminently successful. The severed walls of the left ventricle had united, and the cavity was absolutely tight. Having expressed the opinion that the woman would have bled to death in a short time but for the operation, he stated that he felt safe in asserting that she would have lived had it not been that the knife used by her assailant was infected and so caused septic inflammation of the cardiac muscle and arteries.

## Miscellany.

### RULES FOR BURIAL FOLLOWING DEATH FROM INFECTIOUS DISEASE.

ACCORDING to the *Medical Record* the Maryland State Board of Health has published the following regulations regarding the disposal of the bodies of those who have died of any infectious disease:

"In every case of death from cholera, bubonic plague, or smallpox, the body is to be taken charge of at once by the local health officer and buried or cremated within twenty-four hours. Transportation of such bodies by rail or steamer is absolutely forbidden. Such a body must be prepared for burial with as little disturbance of its immediate surroundings as possible. It shall be wrapped in the bed coverings, secured by bandages; shall be placed in a tight coffin; the wrappings shall be saturated with 40% formalin or solution of bichloride of mercury, 1 to 500, and the coffin shall be closed at once. In the discretion of the local health officer a competent undertaker may be allowed to embalm such a body, provided the body be not removed for that purpose from the spot where death occurred. The vehicle in which such a body has been transported to the place of burial shall be washed in a solution of bichloride of mercury, 1 to 1,000. In every case of death from diphtheria, membranous croup, or scarlet fever, the body shall be prepared at once for burial by arterial or cavity embalming, or by covering with a layer of absorbent cotton not less than one inch thick, securely bandaged or rolled in a sheet, this covering to be saturated with a solution of 40% formalin, or bichloride of mercury, 1 to 500, and the body to be enclosed in a tight coffin at once. The head and face need not be thus covered, provided the scalp and face and the cavities of the mouth and nose have been disinfected with an approved germicidal solution. The head of the coffin may have a fixed glass panel over the face, to permit inspection, but not such as will permit exposure to the air. It shall be unlawful to open the coffin, except on written consent and in the presence of a local health officer. Only persons of adult age shall act as pallbearers in such cases. Interment shall be made within twenty-four hours of the time of death. Only members of the immediate household and necessary attendants shall be admitted to the house."

### "ANIMAL MECHANICS."

UNDER the above head, Dr. Morrill Wyman of Cambridge has had privately printed the delightful essay by Sir Charles Bell, first published under the superintendence of the society for the diffusion of useful knowledge, and has had bound with it as a fit companion, an equally interesting and instructive essay by Dr. Jeffries Wyman, his brother, on the "Cancellated Structure of Some of the Bones of the Human Body," communicated to the Boston Society of Natural History, November, 1849. There is a portrait of Sir Charles Bell and of Dr. Jeffries Wyman.

This attractive brochure was distributed to the members at a recent meeting of the Middlesex South District Medical Society.

In distributing "Animal Mechanics" at the meeting of this society, Dr. Wyman was influenced by the fact that his father, his brother and he himself were born, bred, lived and received their medical education and practised their profession in that part of Middlesex County now included in the South District Society.

"Animal Mechanics" is intended to promote confidence in our profession and to lessen any tendency to prescribe or recommend to others the use of the simple or compound *articles*, doubly assured as the best and newest of remedies, with which the community is deluged, without first obtaining good evidence that they possess valuable healing qualities, or, at least learning that, when judiciously used, they are safe and not liable to injurious consequences.

We understand that "Animal Mechanics" is offered to the Fellows of the Massachusetts Medical Society, if desired.

### THE TIME FACTOR IN OPERATIONS.

CELERITY in operating before the days of anesthetics was a first consideration, one main object being to diminish the duration of the agony endured by the patient. With the advent of anesthetics, however, operations became more deliberate, not to say leisurely. But today it is becoming increasingly obvious that expeditiousness in major surgery is no less important than it was in pre-anesthesia days. Now that, thanks to the application of antiseptic principles, the great spectre — the sepsis of wounds — has been laid,

the next to take its place as the *ultimum malum* of operative surgery is shock, and it has come to be clearly recognized that, other things being equal, the amount of shock varies directly with the length of time the patient is on the operating table. The prevention of shock is, therefore, a matter of great importance, and to that end the worship of neatness, including all unnecessary cleaning of wounds or paring of incisions on the type of the enthusiastic and youthful student of practical anatomy, is for operative purposes being day by day increasingly discredited. Surgical prognosis includes not only the factors of the vitality of the patient and the nature of his malady, but also the personal equation of the operator. His mere manual dexterity is a valuable asset, but is not his power of judiciously reducing its opportunities to a minimum a still more valuable possession? It is a matter for congratulation that the day of "brilliant" operating has forever gone; that the day of neat operating is fast going, and that the day of expeditious and withal careful surgery has come. All this is a consideration quite apart from the fact that celerity in operating materially diminishes the chances of micro-organisms being deposited in the wound. Given a careful and quick operation, with the avoidance of all unnecessary loss of blood and of body heat, together with a moderately profound anesthesia, then the hypodermic injection of strychnin or other drugs, the subcutaneous injection of saline fluids or their intravenous infusion, will be comparatively seldom required. — *British Medical Journal.*

## AN UNUSUAL EXHIBITION OF GRATITUDE.

The *Philadelphia Medical Journal*, quoting from the *St. Louis Medical Review*, credits Dr. Wm. Osler with an anecdote of Dr. Benjamin Winslow Dudley of Lexington, Ky., who was one of the most famous lithotomists of his day. No surgeon in the South or West had such a reputation, and he, more than anyone else, built up the fame of the Transylvania School. In 1837 a poor lad with stone was brought to him from one of the distant settlements. The operation was successful, and when the parents asked Dr. Dudley for his fee, he, knowing their circumstances, refused to take anything. The young lad was deeply impressed by the generosity of the great surgeon, and made a resolve that if ever he became rich the fee should be paid. About two years ago one of the heirs of Dr. Dudley had a letter from W. G. Saunders, of Iowa, stating that he was anxious to make arrangements to pay a long-standing indebtedness, and asked if a fee of $500 would be suitable for the operation of lithotomy performed on him by Dr. Dudley in 1837. Last year the executors of Mr. Saunders wrote that in a codicil of his will directions were given to pay the fee with interest, and they had much pleasure in handing over the sum of $2,390.

## METEOROLOGICAL RECORD

For the week ending Oct. 18, in Boston, according to observations furnished by Sergeant J. W. Smith of the United States Signal Corps:

| Date | Barometer | Thermometer. | | | Relative humidity. | | | Direction of wind. | | Velocity of wind. | | We'th'r * | | Rainfall in inches. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Daily mean. | Daily mean. | Maximum. | Minimum. | 8.00 A.M. | 8.00 P.M. | Daily mean. | 8.00 A.M. | 8.00 P.M. | 8.00 A.M. | 8.00 P.M. | 8.00 A.M. | 8.00 P.M. | |
| S...12 | 29.70 | 56 | 59 | 54 | 97 | 86 | 92 | N E | N | 15 | 6 | R. | C. | .94 |
| M..13 | 29.94 | 62 | 71 | 52 | 88 | 85 | 86 | S E | S | 8 | 19 | O | F. | |
| T..14 | 29.82 | 56 | 66 | 46 | 87 | 66 | 76 | N W | N W | 8 | 14 | O. | C. | |
| W.15 | 30 00 | 50 | 60 | 40 | 81 | 69 | 75 | W | S W | 7 | 10 | C. | C. | |
| T..16 | 30.02 | 56 | 66 | 45 | 80 | 57 | 68 | W | N W | 8 | 12 | C. | C. | |
| F..17 | 30 50 | 44 | 48 | 40 | 73 | 68 | 70 | N | S E | 12 | 9 | F. | C. | |
| S...18 | 30.28 | 52 | 62 | 42 | 89 | 85 | 87 | W | S | 3 | 17 | O. | O. | T. |
| ☞ | 30.01 | | 62 | 46 | | | 79 | | | | | | | .94 |

* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow. † Indicates trace of rainfall.
☞ Mean for week.

## RECORD OF MORTALITY

For the Week ending Saturday, Oct. 18, 1902.

| Cities. | Population Estimated, 1902. | Reported deaths in each. | Deaths under five years. | Percentage of deaths from | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | Infectious diseases. | Acute lung diseases. | Diphtheria and croup. | Typhoid fever. | Diarrheal diseases. |
| New York | 3,665,352 | 1,139 | 368 | 27.13 | 7.72 | 2.72 | 1.93 | 7.28 |
| Chicago | 1,852,828 | 445 | 105 | 26.96 | 10.09 | 3.14 | 5.39 | 6.06 |
| Philadelphia | 1,349,624 | 369 | 94 | 19.51 | 6.50 | 1.35 | 2.17 | 1.08 |
| St. Louis | 603,717 | — | — | — | — | — | — | — |
| Baltimore | 525,330 | 154 | 53 | 22.72 | 5.84 | 3.25 | 3.25 | 3.84 |
| Cleveland | 411,826 | — | — | — | — | — | — | — |
| Buffalo | 375,742 | — | — | — | — | — | — | — |
| Pittsburg | 341,401 | 130 | 47 | 24.61 | 22.30 | 3.07 | 6.15 | 5.38 |
| Cincinnati | 332,032 | — | — | — | — | — | — | — |
| Milwaukee | 304,975 | — | — | — | — | — | — | — |
| Washington | 289,537 | — | — | — | — | — | — | — |
| Providence | 185,870 | 66 | 22 | 33.33 | 10.60 | — | 3.03 | 16.67 |
| Boston | 588,736 | 211 | 69 | 27.48 | 9.95 | .94 | 3.31 | 7.58 |
| Worcester | 127,337 | 33 | 12 | 33.33 | 12.12 | — | 3.03 | 6.06 |
| Fall River | 111,872 | 45 | 30 | 24.44 | 24.44 | 2.22 | — | 15.55 |
| Lowell | 99,574 | 24 | 8 | 16.67 | 16.67 | — | 4.16 | — |
| Cambridge | 96,334 | 24 | 10 | 25.00 | 20.83 | — | — | 4.16 |
| Lynn | 71,144 | 12 | 2 | 33.33 | — | — | 8.33 | — |
| Lawrence | 67,275 | 26 | 10 | 15.40 | 19.25 | — | — | 3.85 |
| Springfield | 66,854 | 20 | 7 | 15.00 | 10.00 | — | — | 5.00 |
| Somerville | 65,882 | 15 | 3 | 13.33 | 13.33 | 6.67 | — | 6.67 |
| New Bedford | 65,574 | 21 | 13 | 33.33 | 4.72 | 4.72 | — | 19.05 |
| Holyoke | 48,065 | 20 | 10 | 45.00 | 10.00 | — | 5.00 | 25.00 |
| Brockton | 43,208 | 10 | 4 | — | — | — | — | — |
| Haverhill | 40,392 | 9 | 1 | 44.44 | — | — | — | — |
| Salem | 36,567 | 14 | 6 | 28.56 | — | — | 14.28 | — |
| Newton | 36,336 | 9 | 2 | 33.33 | — | — | — | — |
| Malden | 35,390 | 5 | — | 20.00 | — | — | — | — |
| Chelsea | 35,264 | 8 | 2 | 25.00 | — | — | — | — |
| Fitchburg | 33,848 | 8 | 4 | 12.50 | 12.50 | — | — | — |
| Taunton | 32,759 | 14 | 5 | 14.28 | — | — | — | — |
| Everett | 27,114 | 8 | 1 | 25 00 | — | 12.50 | — | — |
| North Adams | 26,583 | 4 | 1 | 25.00 | — | — | — | 25.00 |
| Gloucester | 26,121 | 11 | 9 | — | — | — | — | — |
| Quincy | 25,307 | 11 | 2 | 27.27 | — | — | — | — |
| Waltham | 24,612 | 3 | — | — | — | — | — | — |
| Pittsfield | 22,311 | 8 | 3 | — | 12.50 | — | — | — |
| Brookline | 21,679 | — | — | — | — | — | — | — |
| Chicopee | 20,390 | 10 | 5 | 30.00 | 10.00 | 10.00 | — | — |
| Medford | 20,014 | 1 | — | 100.00 | — | — | — | — |
| Newburyport | 14,478 | 4 | 1 | 50.00 | — | — | 25.00 | 25.00 |
| Melrose | 13,384 | 4 | — | — | 25.00 | — | — | — |
| Westfield | 13,038 | 5 | — | 40.00 | — | — | 40.00 | — |
| Attleboro | 12,846 | — | — | — | — | — | — | — |
| Adams | 12,813 | — | — | — | — | — | — | — |
| Milford | 12,516 | — | — | — | — | — | — | — |
| Framingham | 12,109 | — | — | — | — | — | — | — |
| Peabody | 11,957 | — | — | — | — | — | — | — |
| Revere | 11,894 | 3 | 1 | — | 33.33 | — | — | — |
| Gardner | 11,544 | 2 | — | 50.00 | — | — | — | — |
| Weymouth | 11,337 | 4 | — | — | — | — | — | — |
| Southbridge | 10,838 | 5 | — | 20.00 | 20.00 | — | 20.00 | — |
| Watertown | 10,600 | 1 | — | — | — | — | — | — |
| Plymouth | 10,336 | — | — | — | — | — | — | — |

Deaths reported, 2,933; under five years of age, 919; principal infectious diseases (smallpox, measles, scarlet fever, cerebrospinal meningitis, diphtheria and croup, diarrheal diseases, whooping cough, erysipelas, fevers and consumption) 745, acute lung diseases 264, consumption 334, scarlet fever 27, whooping cough 21, cerebrospinal meningitis 17, smallpox 7, erysipelas 4, measles 3, typhoid fever 20, diarrheal diseases 179.

From whooping cough, New York 9, Chicago 3, Philadelphia 1, Baltimore 2, Providence 2, Boston 3, Taunton 1. From measles, New York 2, Chicago 1. From erysipelas, Chicago 1, Philadelphia 1, Boston 2. From smallpox, Pittsburg 3, Boston 3, Fall River 1.

In the seventy-six great towns of England and Wales, with an estimated population of 14,862,084, for the week ending Oct. 4, the death-rate was 17.0. Deaths reported, 4,859; acute diseases of the respiratory organs (London) 167, whooping cough 86, diphtheria 64, measles 92, smallpox 1, scarlet fever 42.

The death-rate ranged from 4.8 in Hornsey to 26.6 in Merthyn Tydfil; London 15.7, West Ham 22.7, Brighton 18.0, Portsmouth 20.6, Southampton 14.0, Plymouth 17.1, Bristol 15.9, Birmingham 19.1, Leicester 16.4, Nottingham 19.9, Bolton 18.6, Liverpool 22.1, Manchester 21.8, Salford 21.9, Bradford 13.3, Leeds 18.6, Hull 15.9, Newcastle-on-Tyne 20.2, Cardiff 19.1, Rhondda 20.1, Preston 21.5, Bournemouth 9.3.

## OFFICIAL LIST OF THE CHANGES OF STATION AND DUTIES OF COMMISSIONED AND NON-COMMISSIONED OFFICERS OF THE PUBLIC HEALTH AND MARINE HOSPITAL SERVICE FOR THE SEVEN DAYS ENDING OCT. 2, 1902.

STONER, G. M., surgeon. Granted leave of absence for sixteen days from Sept. 15. Sept. 11, 1902. Bureau letter of Sept. 11, 1902, granting Surgeon Stoner leave of absence for sixteen days amended so that said leave shall be for fourteen days. Oct. 2, 1902.

BROOKS, S. D., surgeon. Leave of absence for fifteen days from Sept. 17 granted Surgeon Brooks by bureau letter of Sept. 20, amended so that it shall commence Sept. 29. Sept. 27, 1902.

COBB, C. C., surgeon. Granted leave of absence for two months from Oct. 8, 1902, on account of sickness. Sept. 24, 1902.

HASTINGS, HILL, passed assistant surgeon. Granted extension of leave of absence for two months and twenty-six days from Oct. 3. Sept. 30, 1902.

HEISER, V. G., assistant surgeon. Relieved from duty as immigrant inspector in Canada and directed to visit different points between the United States and Canada, to institute a system whereby uniformity in medical inspection of alien immigrants bound for ports in the United States can be assured. Sept. 27, 1902.

WARREN, D. S., assistant surgeon. Granted leave of absence for fourteen days from Sept. 29. Sept. 27, 1902.

DUFFY, FRANCIS, acting assistant surgeon. Leave of absence for six days granted Acting Assistant Surgeon Duffy by Bureau letter of Aug. 22, revoked. Sept. 27, 1902.

SCOTT, E. D., senior pharmacist. Department letter granting Pharmacist Scott leave of absence for nineteen days from Sept. 6, amended so that said leave shall date from Sept. 16. Sept. 25, 1902.

### RESIGNATION.

Passed Assistant Surgeon Hill Hastings resigned to take effect Dec. 29, 1902.

## CHANGES IN THE MEDICAL CORPS OF THE NAVY FOR THE WEEK ENDING OCT. 25, 1902.

E. H. MARSTELLER, surgeon. Ordered to Newark, N. J., Oct. 27, for duty in connection with recruiting.

W. L. BELL, passed assistant surgeon. Commissioned passed assistant surgeon, with rank of lieutenant (junior grade), from Nov. 16, 1902.

M. W. GARTON, passed assistant surgeon. Detached from the "Columbia" and ordered to the Naval Hospital, Yokohama, Japan, sailing from San Francisco, Cal., Nov. 7, 1902.

M. K. JOHNSON, passed assistant surgeon. Ordered to the Naval Academy.

J. S. TAYLOR, assistant surgeon. Detached from the Naval Hospital, Yokohama, Japan, and ordered home and to wait orders.

R. A. BACHMANN, assistant surgeon. Detached from the Naval Academy and ordered to the Naval Museum of Hygiene and Medical School, Washington, D. C., Oct. 31.

J. H. HOLLOWAY, assistant surgeon. Detached from the Naval Hospital, Chelsea, Mass., and ordered to duty at the Museum of Hygiene and Medical School, Washington, D. C.

R. E. HOYT, assistant surgeon. Detached from the Naval Academy, and ordered to the Museum of Hygiene and Medical School, Washington, D. C., on Oct. 31.

R. H. MICHELS, J. L. NEILSON, assistant surgeons. Ordered to the Museum of Hygiene and Medical School, Washington, D. C., on Oct. 31.

H. SHAW, B. F. JENNESS, acting assistant surgeons. Ordered to the Museum of Hygiene and Medical School, Washington, D. C., Oct. 31.

(Orders issued by Commander-in-Chief of Asiatic Station)

J. E. GARDNER, surgeon. Detached from the Naval Hospital, Yokohama, Japan, and ordered to the "Kentucky."

G. P. LUMSDEN, surgeon. Ordered to the "New York."

M. S. ELLIOTT, passed assistant surgeon. Detached from the "Kentucky" and ordered to the "New York."

F. A. ASSERSON, assistant surgeon. Detached from the "New York" and ordered to the "Kentucky."

W. E. HIGH, assistant surgeon. Detached from the "Glacier" and ordered home.

J. F. MURPHY, assistant surgeon. Detached from the Naval Station, Cavite, P. I., and ordered home.

## SOCIETY NOTICE.

MISSISSIPPI VALLEY MEDICAL ASSOCIATION.—The twenty-eighth annual meeting of the Mississippi Valley Medical Association was held in Kansas City, Oct. 15, 16 and 17. The following officers were elected for the ensuing year: President, Edwin Walker, M.D., Evansville, Ind.; First Vice-President, Hugh T. Patrick, M.D., Chicago, Ill.; Second Vice-President, Wm. Britt Burns, M.D., Memphis, Tenn.; Secretary, Henry Enos Tuley, M.D. (re-elected), Louisville, Ky.; Treasurer, Thos. Hunt Stucky, M.D. (re-elected), Louisville, Ky., Chairman Committee of Arrangements. The next place of meeting will be at Memphis, Tenn., Oct. 7, 8 and 9, 1903.

## RECENT DEATHS.

GEORGE EDWARD MECUEN, M.D., M.M.S.S., died in Roxbury, Oct. 21, 1902, aged fifty-nine years.

DR. JAMES D. WADE, one of the best known practitioners of Williamsburgh, Brooklyn, died suddenly of cardiac disease on Oct. 19. He was graduated from the medical department of the University of the City of New York in 1866.

DR. DANIEL E. HUGHES, chief resident physician of the Philadelphia almshouse, died Oct. 28 of tubercular peritonitis. Dr. Hughes had considerable reputation as an alienist.

DR. H. C. MATTHEWS of Brooklyn, N. Y., a graduate of the medical department of the University of Vermont in the year 1869, died on Oct. 23.

## BOOKS AND PAMPHLETS RECEIVED.

The Public and the Doctor. By a Regular Physician. Dr. B. E. Hadra, Dallas, Texas.

The Methods of the Conveyance of Yellow Fever Infection. By Surgeon H. R. Carter. Washington: Government Printing Office. 1902.

A Nurse's Guide for the Operating Room. By Nicholas Senn, M.D., Ph.D., LL.D., C.M. Illustrated. Chicago: W. T. Keener & Co. 1902.

Das Sanatorium Wehrawald. Vortrag, gehalten am 11 Dezember 1901 zu Freiburg i. B. von Dr. med. G. Treupel. Illustrated. Emmendingen. 1902.

A Textbook of Anatomy. By American Authors, edited by Frederic Henry Gerrish, M.D. Second edition, revised and enlarged. Illustrated. Philadelphia and New York: Lea Brothers & Co. 1902.

Sulle Possibili Ed Importanti Applicazioni Dell'Ossigeno E Dell'Acqua Ossigenata Nella Cura delle malattie da infezione. Nota del Dottor Ermanno Palombi. Macerata. 1902.

On the Acetone Series of Products in Connection with Diabetic Coma. By F. W. Pavy, M.D. (Lond.), LL.D. (Glasg.), F.R.S., Consulting Physician to Guy's Hospital. Reprint. 1902.

The Medical Epitome Series. Genito-Urinary and Venereal Diseases, a manual for Students and Practitioners. By Louis E. Schmidt, M.Sc., M.D. Series edited by V. C. Pedersen, A.M., M.D. Illustrated. Philadelphia and New York: Lea Brothers & Co. 1902.

# Original Articles.

## A CLINICAL STUDY OF ONE HUNDRED AND THIRTY-FIVE CASES OF EMPYEMA, BASED UPON THE BACTERIOLOGICAL FINDINGS IN THE EXUDATE.[1]

BY CHARLES F. WITHINGTON, M.D., BOSTON.

The present paper is based upon the study of 135 cases of empyema treated at the Boston City Hospital during the last six years, and from the time that Dr. W. T. Councilman had charge of the pathological laboratory.[2] The cultures were made from specimens withdrawn by needle after careful sterilization of the chest, the drop of pus usually being coughed out through the needle into a sterile tube. In most cases the organism was determined from the result of a culture. In a very few cases it was determined morphologically, the growth being unsatisfactory. This was generally ascribed to the fact that the organisms were dying out of the exudate.

ORGANISM PRESENT.

| | Cases | Deaths |
|---|---|---|
| Diplococcus lanceolatus, Fränkel alone | 28 | 8 |
| " " with others (unspecified) | 1 | |
| " " with colon and pyocyaneus | 1 | 1 |
| " " with Friedländer | 1 | |
| " " with staphylococcus albus | 2 | |
| " " with staphylococcus aureus | 2 | |
| " " with staphylococcus citreus | 1 | |
| Streptococcus, alone | 35 | 9 |
| " with lanceolatus | 18 | 2 |
| " with variety of others (unspecified) | 9 | 7 |
| " with staphylococcus aureus | 2 | 2 |
| " with staphylococcus albus and aureus | 1 | |
| " with saprophytes | 1 | |
| " with colon bacillus | 2 | |
| " with lanceolatus, staphylococcus aureus and colon | 1 | |
| " with lanceolatus and colon | 2 | 1 |
| " with lanceolatus and staphylococcus albus | 2 | |
| " with lanceolatus and pyocyaneus | 1 | |
| Staphylococcus aureus | 6 | 4 |
| " albus | 1 | |
| " albus and aureus | 2 | 2 |
| " albus, with others (unspecified) | 1 | 1 |
| " albus, with m. tetragenus | 1 | 1 |
| Pyocyaneus | 2 | |
| Friedländer | 2 | |
| B. typhosis | 1 | |
| Colon bacillus with others (unspecified) | 1 | |
| Sterile | 9 | 2 |

| | | |
|---|---|---|
| In all, Diplococcus lanceolatus appears in | 60 | |
| Streptococcus pyogenes appears in | 74 | |
| Friedländer (twice in pure culture) | 3 | |
| Pyocyaneus appears in | 4 | |
| Twice pure | | |
| (One with lanceolatus and colon) | | |
| (One with lanceolatus and streptococcus) | | |
| Colon bacillus appears | | 6 times |
| (One with pyocyaneus and lanceolatus) | | |
| (Two with streptococci) | | |
| (One with streptococci, lanceolatus and staphylococcus aureus) | | |
| (Two with streptococcus and lanceolatus) | | |
| Staphylococcus aureus appears in all | | 13 times |
| With diplococcus lanceolatus | | 2 times |
| With streptococcus | | 3 times |
| With streptococcus, colon and lanceolatus | | Once |
| With albus | | 2 times |
| Alone | | 5 times |
| Staphylococcus albus appears in all | | 7 times |
| With aureus | | 2 times |
| With aureus and streptococcus | | Once |
| With lanceolatus and streptococcus | | 2 times |
| With tetragenus | | Once |
| Alone | | Once |

Bacillus typhosus appears once in pure culture.

[1] Portion of paper read before the Association of American Physicians, April 30, 1902.

[2] My acknowledgments are due to the pathological department, to my colleagues on the medical and surgical staff of the hospital for permission to refer to their cases, and to Dr. Howard B. Jackson, house physician, for assistance in the labor of collating cases from the records of the various services.

The 135 cases included ninety-three males and forty-two females. The right side was involved in fifty-four cases, the left in seventy-one. Ages of the patients were as follows: Under the age of ten, fifteen cases (of these, three died); from ten to twenty, fifteen cases; from twenty to thirty, forty-one cases; from thirty to forty, twenty-four cases. The oldest patient was sixty-five, the youngest five months.

*Etiology.*— As some of the patients entered after having been ill several days, it is not always possible to be sure of the condition precedent to the empyema, but from the evidence of the record, taken in connection with the physical signs, it appears that pneumonia preceded the empyema in the great majority of cases,— eighty certainly, and fifteen more probably, or in all from ninety-five to one hundred. From this it will appear at once that the diplococcus lanceolatus has no distinct relation with the antecedent pneumonia, other organisms, especially the streptococcus, being as fully represented among these metapneumonic cases as are the diplococcus lanceolatus itself. The pneumonia was apparently also nearly always lobar. The period after the onset of pneumonia, when pus was first detected in ninety-six of the cases, averaged twenty-five days, the range being from six to sixty-six days. There were cases in which pus appeared after the onset of pneumonia, at six, seven, eight, nine and ten days. The longer periods may have been accounted for by failure to detect pus as early as it was formed. Some of the pneumonias were secondary to septic disease elsewhere, as, for example, cellulitis and abscess.

Tuberculosis was present in about twenty cases, and in a few of these acute pneumonia had supervened. Other causes of the empyema were typhoid fever, three cases; puerperal infection, two cases; appendicitis in one case (eighteen days previous to the empyema); actinomytosis, tonsillitis and otitis. Operations were performed upon 115 of these patients, leaving twenty cases unoperated upon. Of the latter, ten died, all of them being adults. Five of these were cases of diplococcus lanceolatus, two of streptococcus and lanceolatus combined, and one of streptococcus and aureus combined. Of the ten unoperated cases who recovered, eight cases followed pneumonia, one phthisis, one phthisis with pneumonia, three showed lanceolatus, three streptococcus, one pyocyaneus, one streptococcus and lanceolatus combined, one Friedländer, one lanceolatus and staphylococcus citreus combined.

Some of these cases were unsuitable for operation, for they seemed to be recovering, and the fluid withdrawn, while it contained pathogenic organisms, was not markedly purulent. Others were advised to submit to operation, but refused.

It will be noticed that in these two groups of the unoperated cases the lanceolatus was more prominent in the fatal half of the cases, but here, as will be also observed in the discussion of the mortality of the whole series, it does not appear that any great stress is to be laid upon the partic-

ular organism. While those present in the cases of pneumonic origin are quite as likely to be streptococcus as pneumococcus, it is to be noticed that cases connected with suppuration or sepsis elsewhere than in the chest showed a marked tenderness to the distinctly marked pus organisms. For example, of nine such cases, three were streptococcus, one streptococcus with an admixture, three aureus, and two aureus and albus.

*Details of operation on 110 patients.*— The site of incision was in three cases the anterior axillary line, in seventeen the mid-axillary line, and in forty-seven the posterior axillary line. In one case it was behind the scapula. Seventeen of the operations consisted of incisions through the pleura, without the resection of any of the ribs. Three times the fifth rib was resected, twice the sixth rib, thirty-three times the seventh rib, twenty times the eighth rib, five times the ninth rib, twelve times unspecified ribs, three times more than one rib was excised. The pleural cavity is recorded to have been irrigated one or more times in forty-six cases, and it is specially recorded that no irrigation was practised in thirty-four. The immediate effect of the operation was generally to reduce the temperature to a considerable degree, but this reduction was not always permanent. Sometimes the operation was followed by a marked rise of temperature, and this was generally of bad prognostic significance, although sometimes a rise of three degrees immediately after operation gave way to a subsequent favorable temperature curve and improvement in the patient's condition.

The agent most commonly employed was salt solution (nine times); next comes boric acid (eight times); permanganate of potash, peroxide of hydrogen, and sterilized water were also used. No special difference in the results of the various fluids was noticed, neither was there any marked difference in the outcome of the cases which were irrigated and those which were not. The cases were retained in the hospital after operation, as a rule, until the drainage was able to be discontinued and the treatment continued in the out-patient department.

Average time required for this in 76 cases, that is, the length of hospital residence after the operation in non-fatal cases, was about thirty-two days. Of the 135 patients, 92 left the hospital improved. A majority were well on the way to convalescence, a small amount of pus discharging from the opening, and the breathing heard down to the level of the opening. The subsequent history cannot be traced. In a few only the imperfect expansion of the lung gave reason to fear that the cure would not be perfect. In a number of instances the Wolffe bottles, in which the patient displaces a quantity of water from one bottle to another by blowing through a tube, were employed for the purpose of lung expansion.

In one patient there was a double operation (Case XXX). Boy, age ten, developed pneumonia of the left lower lobe Oct. 5, 1897, of the right lower lobe Oct. 18. White count Oct. 12, 21,500; Oct. 30, 40,000. Pus was found in the left pleura Nov. 8. Operation 33 days after the onset of pneumonia by Dr. Munro. A Cabot-grooved needle was introduced into the pleura at lower end of the scapula, and sound showed a cavity occupying one-half to one-quarter of the left chest. At the same time pleurotomy in the right side with the resection of the rib; cavity larger than on the left, no irrigation. Culture from each side showed lanceolatus. Both incisions had healed in twenty-four days.

*Mortality.*— Of the 135 patients 40 died in the hospital, or 29%. Of these, five were three years old or under. With this we may compare the

*Mortality according to organisms.* — Of the 35 patients having a pure culture of streptococcus, nine died, or 26%; eighteen having streptococcus and lanceolatus, two died, or 11%; nine with streptococcus plus other organisms, seven died, or 77%; two with streptococcus plus aureus, two died, or 100%; twenty-eight pure cultures of lanceolatus, eight died, or 28%; two with streptococcus lanceolatus and colon, one died, or 50%; six cases of staphylococcus aureus, four died, or 66%; two cases of staphylococcus albus, one died, or 50%; two cases of staphylococcus aureus and albus, two died, or 100%; two cases of Friedländer, neither died, or 0%; nine sterile cases, two died, or 22%.

It will be seen from the foregoing figures that our experience does not bear out the statement made by Netter and others, referred to in the beginning of this paper, of the relative mildness of the lanceolatus cases and the gravity of the streptococcus cases, as the mortality from lanceolatus is slightly greater than that from streptococcus. The mixed infections on the whole appear more fatal than those of a single organism.

Of the five children under three years of age who died, three had streptococcus, two staphylococcus aureus.

So far, we have considered the mortality as represented only by cases dying in the hospital, but the subsequent history of the other cases cannot be traced. Many were very nearly well; some, though much relieved, were not "well," and a few probably went into a lingering decline.

After a pretty careful examination of the records I have selected five more cases which probably should be added to the list of fatalities, their condition being such that it is doubtful if they ever recovered. This would make a total mortality of forty-five, or 33%.

| | |
|---|---|
| Streptococcus furnished of all deaths, | 11-45, or 24% |
| " " of all cases, | 37-135, or 27% |
| Lanceolatus furnished of all deaths, | 8-45, or 18% |
| " " of all cases, | 28-135, or 20% |
| Streptococcus with lanceolatus, of all deaths, | 3-45, or 7% |
| " " " of all cases, | 19-135, or 14% |
| Streptococcus, with other admixtures, of all deaths, | 8-45, or 18% |
| " " " of all cases, | 10-135, or 7% |
| Staphylococcus aureus, of all deaths, | 4-45, or 9% |
| " " of all cases, | 6-135, or 4% |
| Staphylococcus aureus, with admixtures, of all deaths, | 4-45, or 9% |
| " " " of all cases, | 4-135, or 3% |
| Other admixtures, of all deaths, | 5-45, or 11% |
| " " of all cases, | 12-135, or 9% |
| Sterile exudates, of all deaths, | 2-45, or 4% |
| " " of all cases, | 9-135, or 7% |

It may be interesting, taking these forty-five cases with their bacteriological contents, to compare the contribution made to the death list by each organism or combination of organisms with the proportion which they respectively represent of the grand total of cases.

(No importance is attached to this last, as some of the exudates probably owed their sterility to the organisms having died out.)

It will be seen that the first three of these groups, namely, streptococcus, lanceolatus and the combination, figure lower in the death list than in the whole number of cases, that is, they show a relative advantage in the matter of recovery, while the next four groups, namely, the streptococcus with mixed infections, and the aureus alone and admixed, show a relative disadvantage, that is, contribute more heavily to the death list than their numerical importance would warrant.

Hence, single organisms and the combination of streptococcus and lanceolatus are more favorable than the other mixed infections.

A more careful examination of the fatal cases shows that other conditions are of much greater significance than the variety of organism present. For example, suppurative processes in or outside of the chest were very frequent.

(*a*) In the chest there was abscess of the chest wall in one case; fetid pus or gangrene in the lung, three cases; pyopneumothorax, three cases, one of which died from hemorrhage of the wound and one from hemorrhage of the lung; actinomycosis, one case.

(*b*) Outside the chest: Septic inflammation of hands and feet in five cases, one of which had also carbuncle of the hip; parotid abscess, one case; suppurative otitis, one case; general peritonitis and abscess below the diaphragm, one case; purpura hemorrhagica, two cases; multiple injuries, one case.

(*c*) Other diseases: Sarcoma of the lung, one case; croup (no K. L. found), one case; aortic insufficiency, one case; mitral insufficiency, one case; chronic diffuse nephritis, one case; typhoid fever, two cases. The bacillus typhosus was especially looked for in the exudate, but none was found.

Ten of these patients died unoperated upon. In one, operation failed to reach pus, and in another the first operation failed to reach pus, and the second one succeeded, as the patient was moribund.

Of the thirty fatal cases which had a free opening of the chest wall, seven died on the table or within a few hours. Eliminating the case of sarcoma of the lung, which survived the thoracotomy for three months, the average duration of life after the operation in the other fatal cases was about nine days. In several patients the immediate cause of death was undoubtedly pneumonia, a definite extension of the consolidation being observed after the operation, sometimes to the opposite lung. In some of the cases post-mortem examination confirmed this extension of the pneumonic process.

Of the fatal cases the following are especially deserving of mention.

Case XVI. *Actinomycosis.*— Female, age forty-eight. Swelling on and under the left breast. Considerable foul pus in pleura, sterile. Operation by incision and removal of the large actinomycotic masses found at the operation. Patient improved for ten days. Died seventeen days after the operation. Autopsy showed the right lung normal, left lung compressed, completely solid, intimately adherent to the pleura and chest wall so that masses had to be torn away. On the pleura surface was a dense fibrous tissue mass ½ cm. in thickness. Sinuses from the pleura to the left mammary region.

Case XXII. *Sudden death without operation.*—Female, age thirty-eight. Four weeks after lobar pneumonia, first aspiration withdraws seven ounces of green pus left chest; lanceolatus. Temperature reduced 2°. Second aspiration a few days later was followed the next day by the sudden death of the patient; cause unknown. No autopsy.

Case XX. *Typhoid Fever.*— Male, age thirty-seven. Typhoid fever. Widal positive, etc. Twenty-fourth day, chill; twenty-fifth day, phlebitis of left leg; forty-fifth day, pus by aspiration; a few days later, permanent opening; streptococcus pus. Ten days after this pus broke into the bronchus; bloody-purulent expectoration. Temperature rose to 103°. Death eighteen days after operation; sixty-five days after the onset of typhoid.

Case CVII. Widal positive. Lobar pneumonia on the eighth day of typhoid with chill; twenty-nine days after pneumonia, 300 cc. bloody sero-pus aspirated, left chest; streptococcus pyogenes and staphylococcus aureus. No incision of chest wall. Patient died the day after the aspiration.

Compare with these the third case of typhoid (Case LXIV) not fatal.

Male, age thirty-four. Tentwy-eight days after the onset bloody pus; aspirated left chest. Bacillus typhosus. Operation 22 days later; rib resected. Drainage for 60 days. Patient discharged nearly well 75 days after operation, 125 days after the beginning of typhoid.

Case XXXIV. *Pyopneumothorax; abscess of the liver.*— Male, age thirty-six. Right renal calculus two years previous. Taken sick Jan. 2; ten days later one pint of pus aspirated, right chest; streptococcus and diplococcus lanceolatus. Ten days later signs of pneumothorax; eighth rib resected. Finger showed communication of empyema through the diaphragm into the abscess cavity of the liver. Patient died in three hours.

Case XXXVIII. *Gangrene of the lung.*— Male, age fifty-six. Grippe about Christmas with pneumonia (?). After recovery worked two weeks and had to give up. Fifty-eight days after grippe, pus drawn from right chest; two days later patient died. Autopsy showed healed tuberculosis of the left lung; consolidation of right upper lobe; gangrenous area, 3 cm. in diameter, communicating with bronchi; also, independently, an abscess of the lung communicating with pleura. Contents of pleura very fetid, containing great variety of organisms.

Case LXIII. *Purpura hemorrhagica.*— Female, age thirteen months. Entered July 11. Three weeks before, left ankle was swollen without redness. Pain on motion; swelling rapidly extended up the leg; leg constantly cold. This morning swelling of right hand. July 15: Punctate hemorrhages over trunk and neck. July 19: Left hand swollen, right foot bluish. Few hemorrhagic spots over right costal margin; marked edema of skin over left side. Upper left front of chest flat extending down into axilla; signs of fluid. Gradual extension of hemorrhagic spots over body. July 26: Chest bulging; aspirated nine ounces of green pus. Staphylococcus pyogenes aureus. Spots increasing over the whole body. July 27: Head retracted. No operation on chest wall attempted.

Aug. 1: Bleeding from the gums; more bleeding into the skin. Aug. 3: External strabismus. Died apparently from intracranial hemorrhage.

CASE LXXI. Female, age thirty-nine. Phthisis; exudate thin, odorless pus. Staphylococcus aureus and albus. Day after the operation purpuric spots over the body. Died second day after the operation.

CASE CI. *Sarcoma of the lung.*— Female, age fifteen. Leg had been amputated at the hip for sarcoma some time previously. Pneumonia on the twenty-third day; pus in the pleura. Immediate operation; resection of the fifth rib in the right anterior axillary line. Right chest gradually grew larger. Repeated aspirations failed to detect any more fluid. The patient gradually failed and died ninety-seven days after the operation. No autopsy.

CASE CXIII. *Pulmonary thrombus.*— Female, age eleven. Patient had septic hand on March 1; septic foot on March 14; cough, pain and fever, March 14. March 21 operation upon hand and foot. Irregular temperature.

April 4: Operation on right pleura. Fifth rib, outside nipple excised; much cloudy serum containing staphylococcus aureus. Same organism had already been present in the pus removed from the hand and foot; spleen and liver enlarged, the latter reaching nearly to the umbilicus. April 30: There being evidence of retained pus, a trochar was inserted in the eighth interspace, anterior axillary line. It penetrated the liver; no pus. Trochar inserted again in the back into the pleura, withdrawing a little serum. Then the old tract was explored and a little retained pus extracted. White corpuscles, 17,000.

May 8: Tenderness over the right calf and femoral vein. May 9: Died suddenly, thirty-six days after the first empyema operation, and forty-nine days after the onset of empyema. Cause of death believed to be pulmonary thrombosis. No autopsy.

*Perforation into bronchi.*— The general unfavorable significance of this occurrence is confirmed by our experiences. Such a perforation took place in twelve cases. Of these seven died in the hospital and two were discharged not much relieved. In five of these there were streptococci with other organisms; in one case the combination being with saprophytes, in one staphylococcus albus, in two lanceolatus, and in one lanceolatus pyocyaneus and colon. The three remaining cases of the twelve which were probably recoveries, had streptococcus, Friedländer, and an exudate which was sterile.

CASE IX. *Pulsating empyema.*— Female, age nineteen. Entered Dec. 30. Four days after acute attack pain left chest, though cough had been present for a few weeks. Aspirated Jan. 2, 24 oz. clear serum. Temperature continued high with oscillations of 4°; patient refused to be aspirated till Feb. 16, when there was a dry tap though needle felt free in pleural cavity.

March 2: A slight bulging was noted at third space in front. Also two similar spots found in seventh and eighth spaces in axilla, all pulsating synchronously with heart beats. At one of the lower spots, needle introduced and 30 oz. pus removed (streptococcus). This stopped bulging and pulsation. Further operation refused, but accepted later, and on March 10 seventh rib excised. After this, temperature came down to 99-100°, with slight oscillations, except for two or three days, when there was a diurnal range of 2½°.

Discharged thirty-nine days after operation, with sinus nearly healed; no pulsation, but breathing only heard to third rib.

CASE CXXX. *Gangrene.*— Male, age forty-two. Lobar pneumonia followed by profuse, fetid expectoration. Leucocytes at beginning of empyema, 11,000; 7,200, when pus found in the chest. At the time of operation a gangrenous mass of large extent found in the lung and scooped out. Temperature came down and so continued except on the forty-fifth day, when the patient had a fever lasting four or five days, with signs of consolidation in right upper lobe. Examination of the chest fifty-three days after the operation shows good breathing in the right chest in front to the base on the mammary line. In the axilla the breathing is absent below the level of the nipple. Behind breathing is good to mid-scapula, but below this is scanty. Air is expelled through the opening by cough.

CASE XCVII. *Penetration of pus below diaphragm.*— Female, age twenty. Tubercular pleurisy two months. Tubercular focus left apex. Patient cannot raise the left arm. Foul pus aspirated. Operation. Discharge remained excessive. Streptococcus, lanceolatus and colon-like bacillus. Patient died twenty-five days after operation. Autopsy showed empyema, localized peritonitis, subphrenic abscess, perisplenitis.

CASE CXXXV. *Purulent otitis media.*— Male, age one year. Subacute otitis media; twenty-three days afterwards thick pus in pleura. Staphylococcus pyogenes aureus. Twenty-five days after the aspiration, operation with resection of the eighth rib. On the second day temperature rose to 104°, where it continued until death on the seventh day. On the sixth day, there being evidence of retained pus, ten to twelve punctures were made over the flat area in the back. No pus obtained. The last puncture entered the stomach. Autopsy showed 100 cc. of very turbid puriform fluid in the pelvis. Considerable recently formed fibrinous exudate about liver, spleen and hollows of the greater or lesser peritoneal cavity. Left pleura uniformly thickened 1 to 3 mm. Posterior half of the left pleural cavity entirely obliterated by chronic dense fibrous bands. Complete atelectasis.

*Leucocytosis.*— Cases of pneumonic origin had the leucocytes belonging to that condition, and the change in the white count due to the supervention of empyema was not marked nor constant. In some cases there was a fall in the white count, and in some a rise; for example, Case LXXXIII had lobar pneumonia April 27. On May 4 the white count was 25,600. On May 16 pus was discovered, streptococcus and pneumococcus, and the white count on that day was 14,800.

On the other hand Case LXXXII had lobar pneumonia April 16. White count, May 5, 23,200; May 15, 31,400; May 16, streptococcus pus aspirated. Operation refused. Patient discharged seven days later, temperature of the last four days having been nearly normal.

CASE XI. *Chronic sinus with retained foreign body.*— Male, age eighteen. Was operated upon for empyema May 19, 1896. Rib not resected. Discharged relieved thirty-two days later to Out-Patient Department. Second operation, April 16, 1897. Sixth rib resected, followed by a rise of temperature and irrigation. Discharged in twenty days, relieved, to the Out-Patient Department. Third operation two years later. Exostosis eighth and ninth ribs, which were both resected. A rubber drainage tube was found in the pleura which had been lost after one of the previous operations. Cavity curetted. Discharged relieved.

CASE XV. *Discharged gastric contents.*— Male, age seven. Green foul pus five weeks after lobar pneumonia. Bacillus coli communis and others. Resection of the seventh rib midaxillary line. Records state that for about ten days the wound discharged fluid apparently containing gastric contents. Patient leaves hospital thirty days after the operation. Moderate purulent discharge. General condition improving.

*Consecutive aspirations with development of pus.*— Our experience coincides with that of other

observers in having noted several instances in which an exudate, originally clear serous, has gradually become purulent. For example, Case XLV, thirteen days after lobar pneumonia, had clear serum in the pleural cavity, containing, however, streptococcus. One week later fluid still contained streptococcus and also pus.

Case CXIX. Twenty-nine days after lobar pneumonia had one ounce of straw-colored fluid containing pneumococcus. Eight days later fluid seropurulent; culture, pneumococcus. Thirteen days later patient moribund. Fluid purulent. Here the leucocytes diminished from 38,000 on the fourth day of pneumonia, to 21,000 during empyema.

Case CXXV. Lobar pneumonia March 29. Aspirations April 16 and 29 and May 20. The latter one was diplococcus lanceolatus. Patient declined operation and left the hospital nearly well.

In some cases the consecutive aspirations indicated a change in the organisms present, for example, Case CXI was tapped repeatedly, following a lobar pneumonia, and sterile serous fluid was obtained. Finally, seven weeks after pneumonia, the exudate contained staphylococcus pyogeneus aureus.

Again, Case LXXVII had lobar pneumonia Feb. 1. Aspirated March 2, clear sterile fluid. Again March 7 the same. On March 14 clear fluid but blood stained. Staphylococcus aureus and albus. Next day pus from both ears. Again March 25 brown pus in the pleura. Immediate operation. Temperature very septic. Patient died on the seventeenth day.

*Subdiaphragmatic abscess with secondary purulent pleurisy.*— The two following cases are not included in the 135 cases previously discussed because the infection started from below the diaphragm, but they may be mentioned here as having points of interest in this connection.

The first was a collection of pus below the diaphragm, and an aspirator needle was introduced in the ninth space in the left anterior axillary line. It was subsequently found to have penetrated the stomach, which shows that care must be taken in aspirating at a point so low down and so far forward. The autopsy showed pus below the diaphragm with secondary abscess of the lung.

The second case was that of an Italian, age thirty-five, who, in November, 1898, had an attack of diarrhea lasting for one month, followed by pain for a week, then a return of the diarrhea. April 3, 1899, bulging of the ribs on the right and tenderness with dulness below the level of the nipple. One inch of the ninth rib excised in the midaxillary line. Several quarts of thick pus evacuated. Abscess seen to be subphrenic. Patient died on thirteenth day. Autopsy showed healing diphtheritic ulcers of colon, abscess of liver and empyema. The operation wound entered the abscess between liver and diaphragm; the upper end of the operation wound entered pleural cavity, so that tip of finger can pass from peritoneal to pleural cavity. The pleural exudation was supposed to be caused by infection through this opening. Unexpanded lungs.

In varying patients a great difference is noted at time of operation in the matter of expansion of lung, and this difference is not always easily accounted for. Sometimes the lung expands immediately and then contracts again. Sometimes it does not expand at all. It is generally supposed that non-expansion is more likely where the pressure upon the lung has been long continued, but this is not always true.

In Case CXXXII, a healthy young man of twenty-one, with lobar pneumonia, pus (streptococcus) was detected exceptionally early, namely, on the fourteenth day, and an operation was done on the fifteenth day, with a resection of the seventh rib. An examination of the patient on the fifty-fourth day after the operation showed a marked shrinkage of the chest wall but a great interval still between the outside of the lung and the inside of the pleural cavity, that is, no expansion had occurred.

It seems reasonable to suppose that the early operation, in this case before the pneumonic process had given way to resolution, may have hindered lung expansion.

The conclusions which I draw from the study of these cases are the following:

Empyema, while capable of being caused by manifold infections within and without the chest, is in the majority of cases the result of pneumonia. The character of the pneumonia is not to be judged by the organism present in the empyema. For as it has been shown by Weichselbaum that even in lobar pneumonia other organisms, notably the streptococcus, may be present in the lung as an admixture of the one which we consider the septic cause of lobar pneumonia, namely, the lanceolatus of Fränkel, so there is an opportunity for that contaminating organism to penetrate to the pleura. The lanceolatus, if present, may probably be taken to indicate a previous pneumonia, but the streptococcus if present may equally indicate a lobar, lobular or grippal pneumonia, or a phthisis with mixed infection. As a tuberculosis acquires greater malignancy after it acquires a mixed infection, so it may be that these lobar pneumonias in which a streptococcic contamination is most marked, are the ones most liable to produce an empyema, and that the organism in the purulent exudate is as likely to be the contaminating as the original infection.

When the streptococcus is due to suppurative or pyemic conditions outside the chest, it is probably of a more virulent type and has a correspondingly bad prognosis. But in the metapneumonic cases the prognosis of streptococcus seems to be but little worse than that of lanceolatus.

The great difficulty in securing the healing of operated cases is in bringing the opposite pleural surfaces into permanent contact. When the lung does not fully expand (as is usually the case) the thoracic wall must go in to meet it. This is one reason for the free resection of ribs, and the relatively favorable prognosis in childhood is due in part to the greater liability of a soft and flexible chest wall to contract upon the lung.

Some cases certainly recover without operation. It is difficult to determine in advance which these will be. The particular organism present is a less cogent factor in determining the need of operation than the fever, prostration, chills, the

quantity of pus cells present and the tendency to refill after aspiration.

The gradual development of pus after successive aspirations can usually be predicted from the presence of strepto- or pneumococci in the first fluid withdrawn, even though that be a clear serum. But pus may appear when the earlier tappings are sterile — perhaps from a later infection from within the lung.

A needle introduced into the same intercostal space in two patients may in the one case enter the pleural cavity and in the other the stomach, according as the diaphragm is arched up by fluid below it or pressed down by fluid above it. Hence the importance of diagnosticating empyema from subphrenic abscess.

Perforation of an empyema into a bronchus from undue delay in operation is a dangerous condition. But the opening of the thorax while an underlying pneumonic consolidation is still unresolved is not conducive to ready expansion of the lung, and a moderate delay of the thoracotomy till the pneumonia has resolved, meantime keeping down undue compression by an occasional aspiration of the pus, is a conservative procedure.

## ROUND SHOULDERS AND FAULTY ATTITUDE: A METHOD OF OBSERVATION AND RECORD, WITH CONCLUSIONS AS TO TREATMENT.*

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THE present paper is intended to call attention to a simple and fairly accurate method of observing and recording faulty attitude in standing. This matter is of importance because the type of faulty attitude known as round shoulders, for instance, is not a local, but a general disturbance of the anteroposterior balance, involving pelvis, legs, and feet as well as the spine. Former observations have been concerned mostly with the spinal curve alone, but to appreciate the affection properly the base of support must also be considered. This method of record throws a certain practical light upon the question of treatment.

*Method of measurement.*— Measurements are taken from a perpendicular plane behind the body, the distance of certain easily recognized bony landmarks being taken. The measurement aims to give a side elevation of certain points in the skeleton.

The method has been in use two years, and the material at my command consists of seventy-two observations made on normal boys between the ages of fifteen and nineteen years, by Dr. A. M. Greenwood, to whom I am indebted for much assistance in all my observations; of some six hundred observations on young women, made by the physical director of one of the women's colleges; of a hundred or more observations made by the writer and some assistants in the scoliosis clinic of the second surgical service of the Children's Hospital; and on a series of about the same number made on cases of faulty attitude in private practice. Cases of marked scoliosis have not been taken into account in the following analysis, as they seemed to form a separate problem of much importance, to be taken up after more information was obtained about the normal attitude and the common anteroposterior variations.

The apparatus by which the measurements are taken consists of the ordinary wooden upright

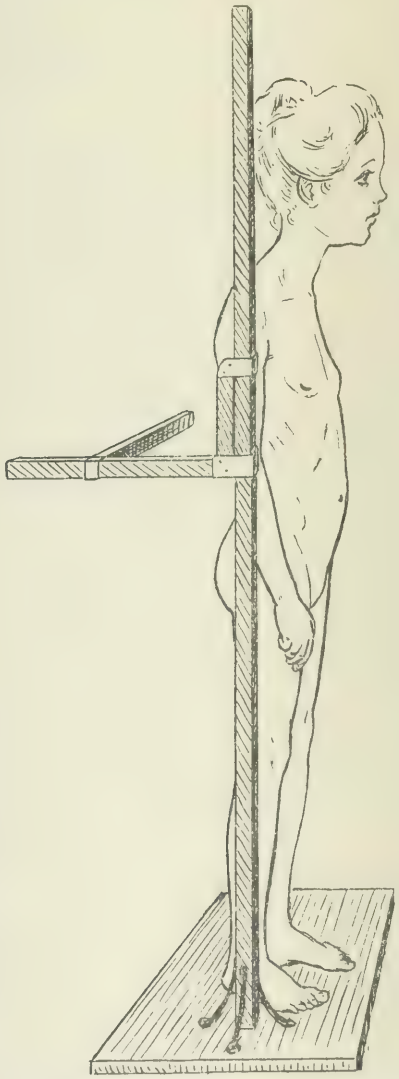


FIG. 1.—Apparatus for measuring variations in attitude.

with a sliding arm used for measuring the height. On this sliding arm and at right-angles to it is a horizontal arm eighteen inches long, which is placed at six inches from the back surface of the upright rod. This back surface of the upright rod is taken as the perpendicular plane from which distances are to be noted, and the measurements are made from the sliding horizontal arm, which is always six inches distant from the back surface of the upright (Fig. 1). Any point,

* Read before the American Orthopedic Association, at Philadelphia, June 5, 1902.

therefore, more than six inches from the sliding horizontal arm is in front of the perpendicular plane agreed on, and any point less than six inches is behind it.

The middle of the external malleolus was taken as the lower end of the perpendicular plane from which measurements were to be made. The patient stands without boots, in a natural position,

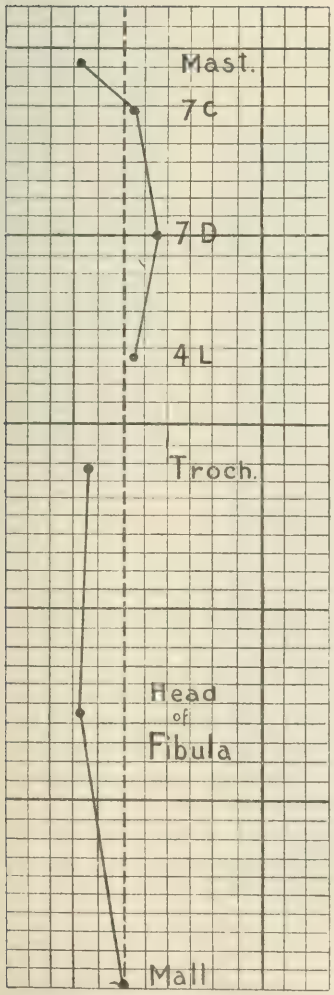



FIG. 2.—Graphic representation of standing position. Case M. L.



FIG. 3.—Average curve of 72 boys (Greenwood).

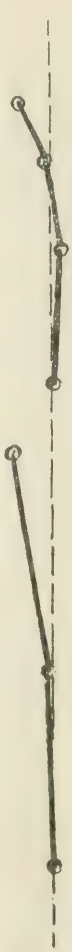


FIG. 4. v. Meyer's Normal.



FIG. 5. Langer's Normal.

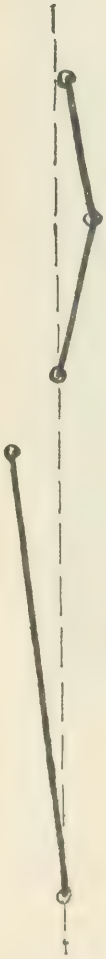


FIG. 6. Staffel's Normal.



FIG. 7. Curve of young adult female of good carriage.

with the feet forming an angle of 45°, and with the middle of one malleolus opposite the back surface of the upright, the back of the patient, of course, being toward the sliding horizontal arm.

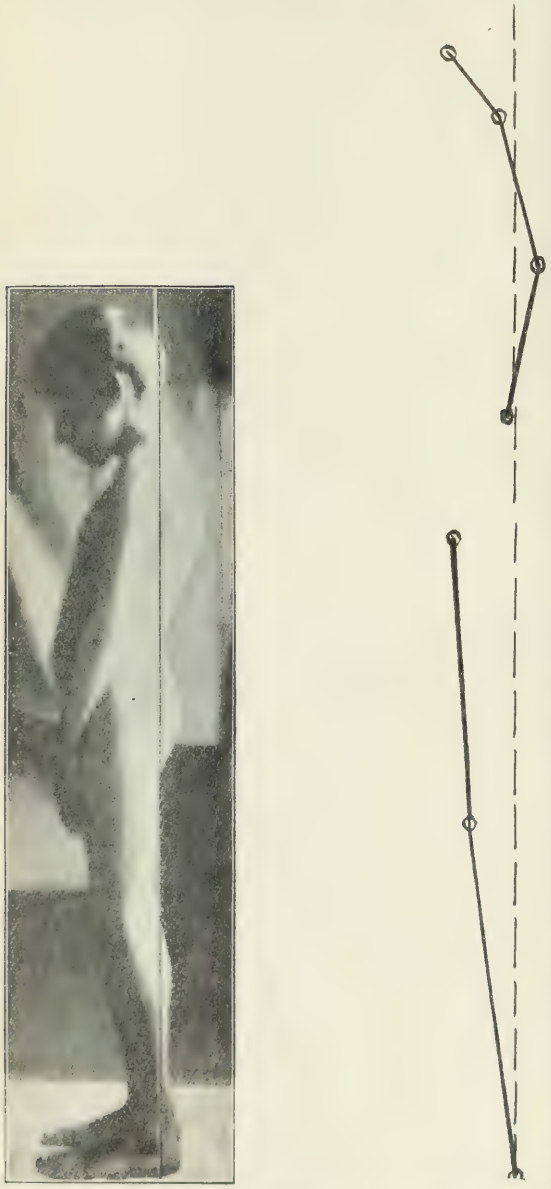


FIG. 8.— Attitude type *a*. Photograph and tracing of same patient.

The measurements of the bony landmarks to be mentioned are then taken from the sliding horizontal arm, and the height at which each measurement is taken is recorded. This may be done, of course, either in inches or centimetres. Having then the height of each point desired as well as its distance from the ground, it is a simple matter to reproduce graphically the relation of these points by using ordinary co-ordinate paper and allowing one inch or one centimetre to each space on the paper. To secure uniformity of results, it may be assumed that the patient is seen facing to the left.

The landmarks taken for measurement were those which could be easily identified by touch. They are as follows from above downward: (1) The middle of the mastoid process; (2) the spine of the vertebra prominens; (3) the spine of the seventh dorsal vertebra (on a level with the inferior angle of the scapula); (4) the spine of the fourth lumbar vertebra (on a level with the top of the iliac crest); (5) the middle of the great trochanter; (6) the middle of the head of the fibula; (7) the middle of the external malleolus.

The measurement is taken by marking with a skin pencil the points to be measured. The patient is then placed with the back to the sliding

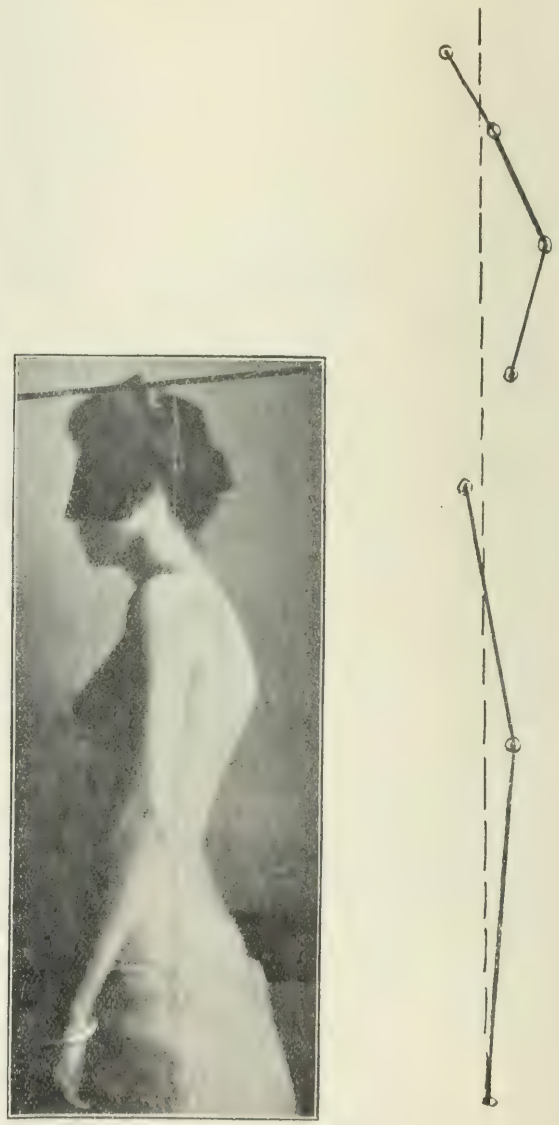


FIG. 9.—Attitude type *b*. Photograph and tracing of same patient.

arm and the outer malleoli opposite the back edge of the upright. In order to get the measurements before the patient becomes fatigued and sways, it

is necessary to work quickly. The mastoid measure is taken, and then the arm pushed rapidly down while the distances of the points from the upright are measured with a rule at each level. Having taken these down, it is necessary, if the



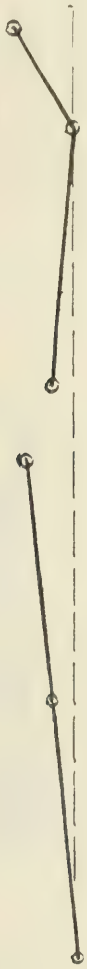


Fig. 10.—Attitude type *c*. Photograph and tracing of same patient.

curve is to be reproduced graphically, to record the height from the ground, of each bony landmark, and the sliding arm is again pushed up and the level of each marked bony landmark recorded. By this division of the two measures the first and important one should be finished before the patient becomes unsteady, and in the second set swaying is of no account.

A typical measurement would be as follows:

Case M. L. Type *a*. (Fig. 2.)

| | Distance from upright. | Height. |
|---|---|---|
| Mastoid | 7¾ inches. | 49 inches. |
| Seventh cervical | 5½ " | 46½ " |
| Seventh dorsal | 4½ " | 40 " |
| Fourth lumbar | 5½ " | 33½ " |
| Trochanter | 7¼ " | 27⅝ " |
| Head of fibula | 7¾ " | 14½ " |
| Malleolus | 6 " assumed to be | 0 " |

The curve is plotted by marking the points on co-ordinate paper and drawing lines between them (Fig. 2). As below the level of the fourth lumbar vertebra the line no longer follows the back outline of the body, but changes to the axis of the leg, the fourth lumbar and trochanter marks are not connected by a line.

Certain criticisms may be anticipated and answered in advance.

With regard to the general accuracy of the method, it has been repeatedly tested by taking two successive independent measurements of the same patient and comparing them, and by taking measurements on succeeding days and comparing them, with the result of finding that the two conformed on the whole, the type persisting and the chief difference being in slight swaying forward or back which was at times evident.

Measurements of the same patient taken by different persons with fair experience in the method



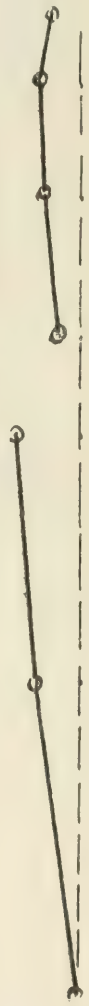


Fig. 11.—Attitude type *d*. Photograph and drawing of same patient.

have shown similar curves, with slight swaying forward or back, evident at times.

The method is not intended to be mathematically accurate, but to give a fairly accurate graphic representation of the patient's method of standing. It has the advantage of being applicable in adults, where record by full-length photographs is not

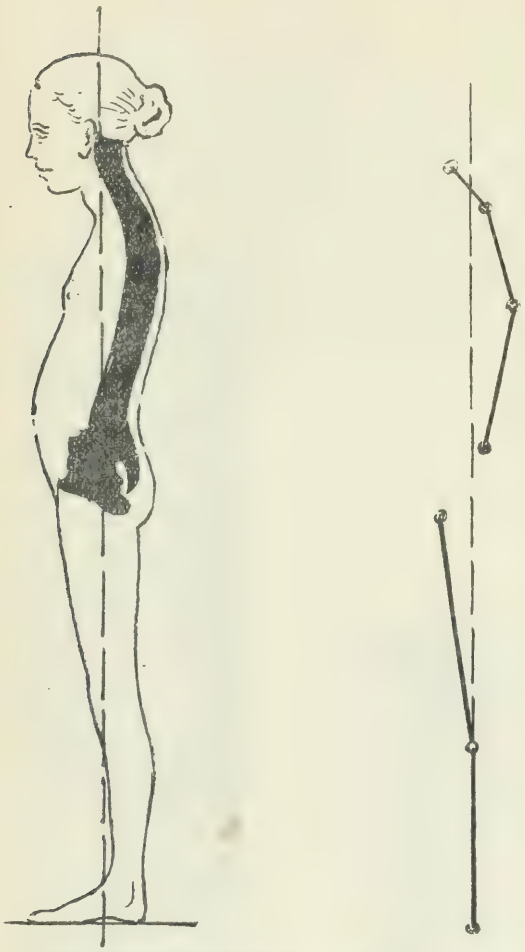


FIG. 12.—Staffel's round back. Diagram and tracing.

available, and the measurements can obviously be taken without objectionable exposure in the case of women.

Before proceeding to consider the practical bearing of the results yielded by the method it may be said that the common type of faulty attitude, the one known as "round shoulders," has received very scant attention in American and English textbooks on orthopedic surgery, and in a careful search through the orthopedic surgeries of Jackson Clarke, Keetley, Tubby, Reeves, Bradford and Lovett, McCurdy, Moore, Sayre, Whitman, and Young only vague and general descriptions of the affection were to be found.

In the *Transactions of the Orthopedic Association* there have been a few articles dealing with the subject. In Vol. I, is an article by Stillman discussing in general terms backward yielding of the spine. In Vol. X, Bradford called attention to the contraction of the pectoral muscles in this condition, and spoke of the effect of supporting-straps over the shoulders, which hold the weight of the clothes, in causing it. In Vol. X is a paper by the writer on the relation of round shoulders to fatigue, and on the association of pronated foot and faulty attitude. Brackett read a paper dealing with the varieties of faulty attitudes, with some classifications of deviations from the normal, before the Boston Physical Education Society in 1901. There are a few articles dealing with the subject of braces in round shoulders. These are all the articles in English which it has been easy to find.

In German, on the other hand, are numerous articles dealing not only with the normal attitude in standing, but with variations from the normal. But here there is but little agreement as to what the normal attitude is. The chief article dealing with the variations from the normal is by Staffel.[1] The other main articles on the subject are by the

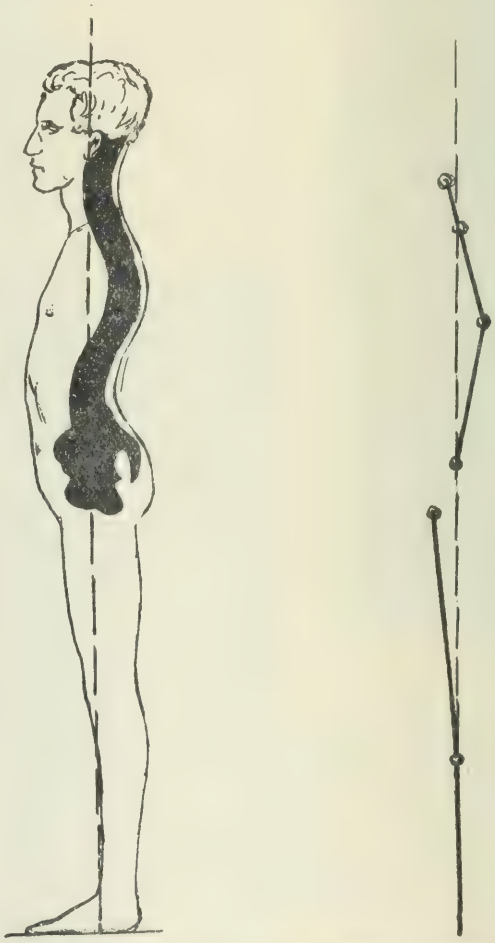


FIG. 13.—Staffel's round, hollow back. Diagram and tracing.

Brothers Weber[2] and the following: Boegle,[3] Parou,[4] Henke,[5] Froriep,[6] Langer and H. Meyer.[7]

[1] Franz Staffel: Die menschl. Haltungstypen, etc., Wiesbaden, 1889.
[2] Mechanik der mensch. Gehwerkzeuge.
[3] Boegle: Ueber den Mech. des mensch. Ganges, 1885.
[4] Parou: Virchow's Arch., 1864, xxxi, 1-2.
[5] Henke: Anat. u. Mech. der Gelenke, p. 213.
[6] Froriep: Anat. f. Künstler, Leipzig, 1880, p. 40.
[7] Langer and H. Meyer: Anat. der äusseren Formen d. mensch. Körpers.

In such books on orthopedic surgery as those of Hoffa, Rèdard, and Lüning and Schulthess are found abstracts from the above work, with the individual views of each author as to which of them



Fig. 14.—Staffel's hollow back. Diagram and tracing.

is nearest to the truth as to the proper normal attitude.

In regard to variations from the normal as seen in faulty attitude there is, however, general agreement as to types, the classification of Staffel being on the whole followed.

Combe, who has recently examined 2,314 school children at Lausanne, divided abnormalities into (1) flat back; (2) round back; (3) lordosis; (4) kypholordosis—a classification practically the same as Staffel's. Schulthess uses a classification much like this, with different and more complex names. Rèdard recognizes only kyphosis and lordosis. Hoffa follows Staffel.

The difficulty with the classifications of faulty attitudes seems to be that the anteroposterior outline of the spine alone has been chiefly considered and but little or no attention has been paid to the relation of the feet, legs and pelvis to the spine and of the whole body to the perpendicular. And again no uniform system of measurement has been in use. Under these conditions have been only parts of the problem formulated. The general attitude is likely to be imperfectly represented by any drawing or observation made of the spine alone, because it is obvious that a backward curve of the upper part of the spine cannot occur without disturbing the normal relation of all the supporting structures below it. Equilibrium must be maintained, and the necessary adjustment involves feet, legs and pelvis in their relation to the spine and to the perpendicular.

The practical points to be developed by a study of the results of such a system of measurement as that described should be as follows:

(1) What is the normal type of standing position in well-balanced individuals?

(2) What are the variations from this type in faulty attitude?

(3) What is the essential factor in producing faulty attitude? Is it to be found in spinal weakness, in an abnormal position of the pelvis, or in an improper base of support?

(4) What should be the general scheme of treatment?



Fig. 15.—Staffel's flat back. Diagram and tracing.

(5) Can the results of treatment be formulated, and what change in attitude do they show?

Some of these questions can in a large measure be answered by the material already collected, while others cannot be.

(1) *The normal attitude* has been investigated and formulated in diagrammatic figures by many writers. These figures differ from each other, as would have been expected, not only because there has been no satisfactory system of measurement, but because the normal type of standing must be modified by age, sex, race, fashion and occupation. A military cadet would not be likely to assume the same standing attitude as a woman of the same age who had worn tight clothes, heavy skirts and pointed boots for five years. Still, approaching the problem as one capable of general solution, in the same way as considered by Meyer, Langer, Henke, Staffel and others, the following facts are available.

The measurements of seventy-two boys taken by Dr. Greenwood seem the material most available to compare with the results of the writers mentioned. They were all healthy, well-developed boys, averaging eighteen years of age, and the individual tracings differed but little from each other. An average curve of the tracings is, therefore, representative of the standing position of these young men (Fig. 3).

Tracings of the curves of the normal attitudes as represented by v. Meyer, Langer and Staffel were then taken by marking on their figures the places of the bony landmarks adopted, connecting them with lines and considering them in their relation to a perpendicular erected through the external malleolus in each case. The normal of v. Meyer reproduced in that way was unlike any curve found in normal persons (Fig. 4), while that of Langer is also unusual (Fig. 5). The normal curve constructed from Staffel's figure (Fig. 6)

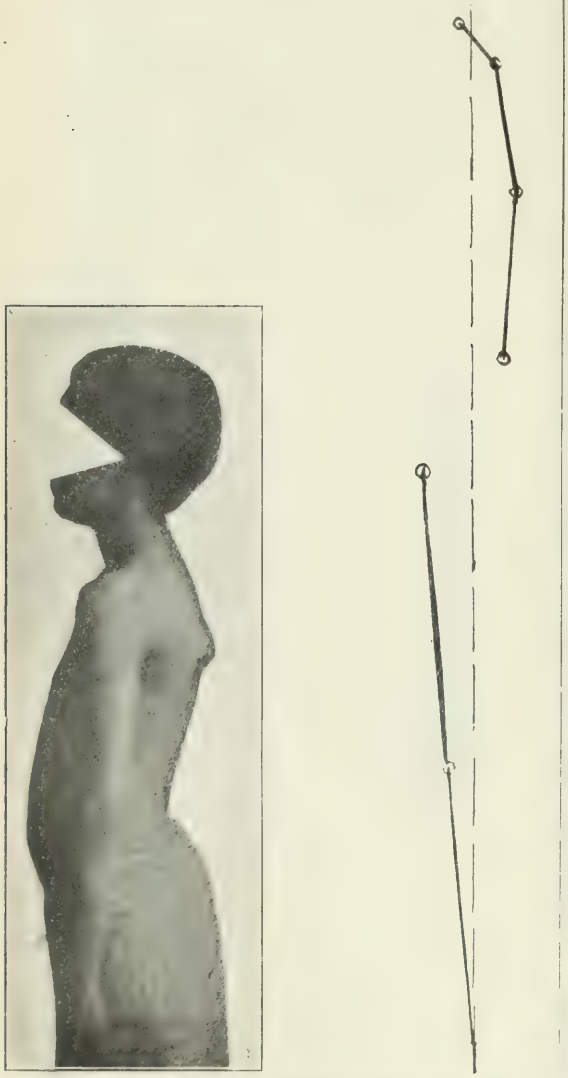


FIG. 16.— R. J.; tracing and photograph before treatment.

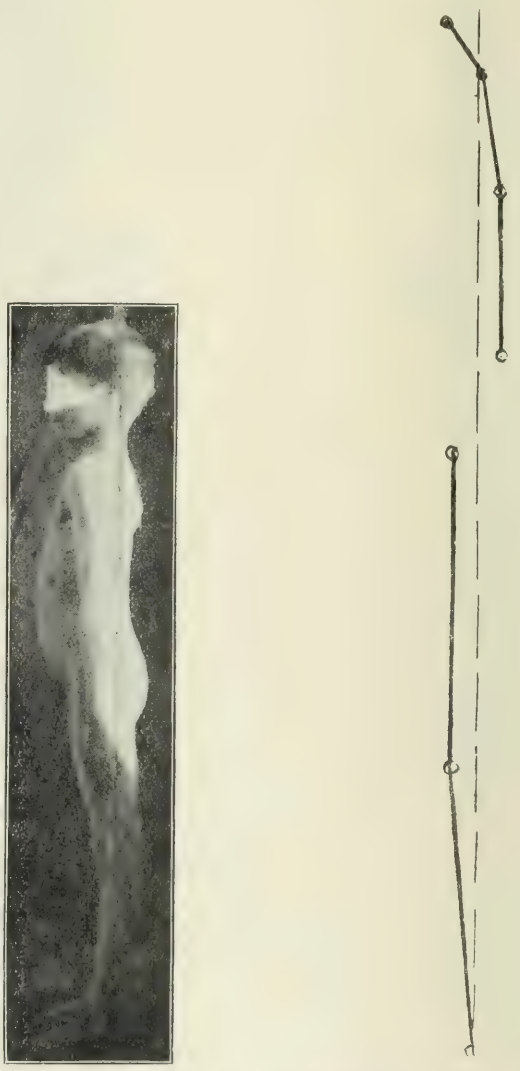


FIG. 16.— R. J.; tracing and photograph after treatment.

is, however, practically identical with that of the seventy-two boys.

With regard to the curves of the six hundred college girls it has not been possible as yet to analyze them in detail. The individual variations are much greater than in the males, and there is a general tendency to carry the body further forward and to hyperextend the knees, the lumbar curve, also, as one would expect, being greater than in the males. Fig. 7 is a fairly representative curve of the women of the best apparent physique and carriage.



Fig. 17.—G. F.; tracing and photograph before treatment.

(2) *Types of variation in faulty attitude.*—As no one classification of these types has been universally adopted, and as the classifications differ among themselves, it seemed best to start afresh and see if these measurements of patients (mostly children) offered any basis of reasonable classification by which they might be divided into groups for study, to see what constant types of variation the curves showed, and to find out by photographs to what clinical types of faulty attitude these variations corresponded.

It was difficult to decide what factor in the



Fig. 17.—G. F.; tracing and photograph after treatment.

attitude should be the basis for classification; whether it should be the relation of the trunk to the legs, of the pelvis to the perpendicular, of the whole swing of the body backward or forward, or of the relation of the points in the spine itself. On examining the graphic representations of the tracings of faulty attitude in this connection the most constant grouping seemed to be by the spinal curve. That is, the cases showed four types of spinal curves, and, arranged according to these types, the other characteristics of the curves seemed to be fairly constant in each group. It is not by any means sure that this classification is founded on the best basis or is of any value as it stands. It is simply presented to show that the essentials of the patient's attitude may be studied, and a proper and accurate classification reached in time.

The four types of spinal curve were as follows:

TYPE A (Fig. 8). A general curve (an exaggeration of the normal lines), where the spine from the mastoid to the fourth lumbar forms one general curve backward. As a rule, there is little lordosis in these cases (as shown by the relation of the fourth lumbar to the trochanter). The pelvis is, as a rule, well in front of the perpendicular, and the body axis lies generally in the perpendicular, but may be wholly in front of it, and in one case only lay behind it. The legs, as a rule, incline forward and are rarely hyperextended at the knee.

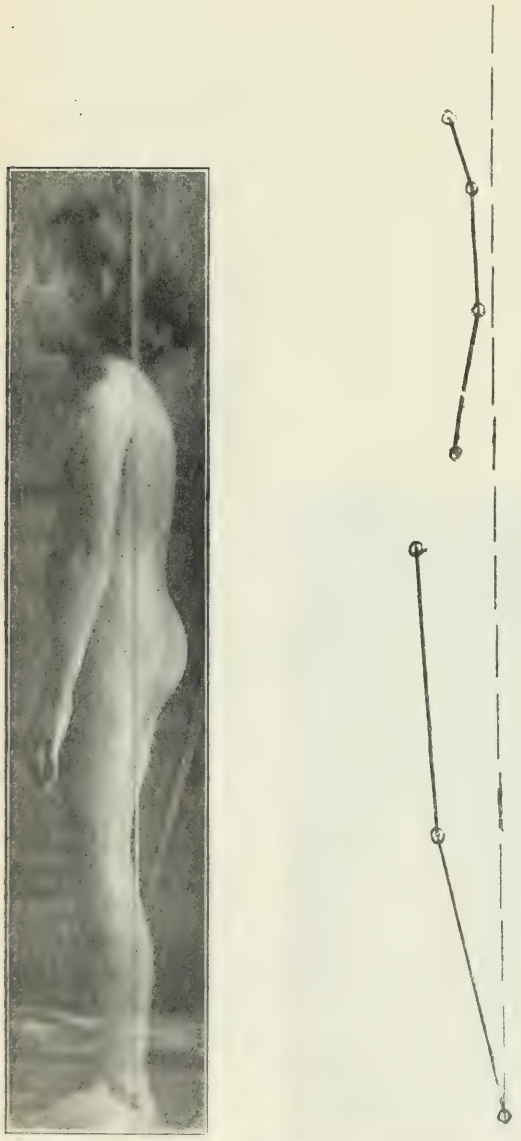


FIG. 18.—C. B.: tracing and photograph before treatment.

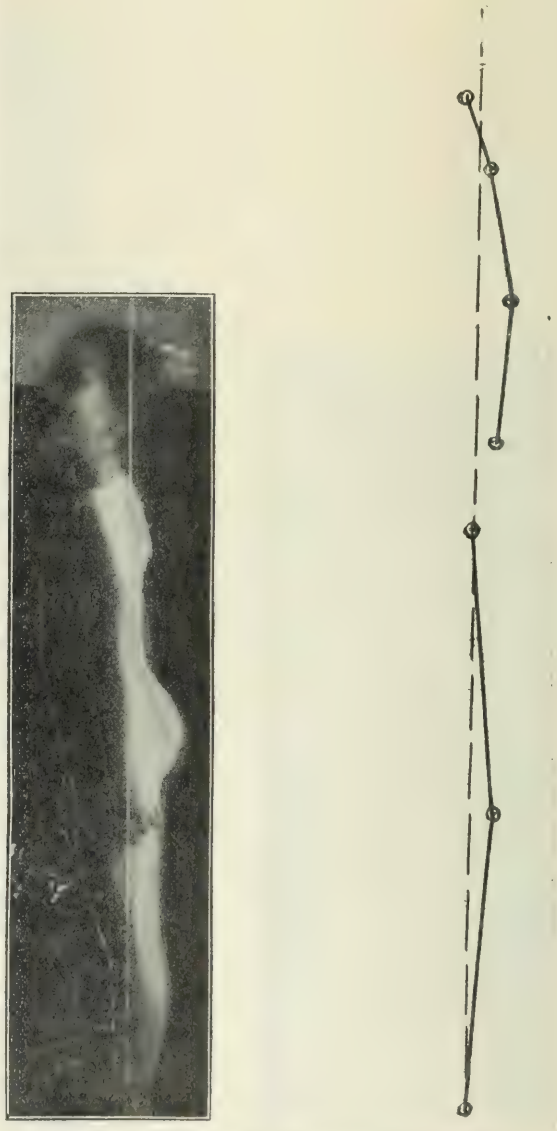


FIG. 18.—C. B.; tracing and photograph after treatment.

This is the most frequent type, and consists, in a word, of rounded back with little forward lumbar curve.

TYPE B (Fig. 9). Backward projection greatest in the mid-dorsal region, the seventh cervical and mastoid points forming a straight line above it.

There is generally lordosis, the pelvis is near the perpendicular, and the body axis lies, as a rule, behind the perpendicular. The legs are rather vertical, and if there is not marked lordosis the knees are apt to be hyperextended. This type is second in frequency, and represents the seventh dorsal point as the most prominent point backward, with some lordosis in the lumbar region.

Type C (Fig. 10). The lower part of the back is straight, and the head runs forward from the seventh cervical. There is generally not much lordosis, the pelvis is not pushed forward, but is near the perpendicular, and the body axis lies back as a rule. The knees may or may not be hyperextended. In this case the head is thrust forward from the upper part of the spine, and the body weight is thrown back.

Type D (Fig. 11). The spinal points form a nearly or quite straight line. The back is nearly flat, lordosis is marked, the pelvis is generally back, but it may be forward, and the knees generally somewhat flexed.

That these types are not quite constant, and therefore probably not very well separated, is shown by the fact that in tracings taken at considerable intervals occasionally the same case would appear in Type A, and then in Type B, or vice versa.

Having formulated independently this classification of types of variation in faulty attitude from my tracings alone, and having rejected the other methods that I had previously tried, which took into account the relation of the legs and pelvis to the perpendicular, the relation of the whole attitude to the perpendicular, etc., as introducing too many inconstant elements, I was interested to see what relation these bore to the types formulated by Staffel. Points were marked on his figures corresponding to the bony landmarks selected, lines drawn, and a perpendicular erected through the external malleolus. To my surprise I found that his classification and my own were practically identical, as may be seen by the tracings. Group A in my classification corresponds to his "round back" (Fig. 12); Group B is his "round hollow back" (Fig. 13); Group C is his "hollow back" (Fig. 14); and Group D is his "flat back" (Fig. 15). The difference between Groups C and D in his classification is not so distinct as I found it.

(3) The hyperextension of the legs and abnormal positions of the pelvis in many cases suggest that, possibly, some patients stand wrongly from some lack in the base of support. The frequent association of pronated foot with faulty attitude in growing children is of much significance.

The essential factor in producing faulty attitude cannot be formulated at this stage of the study. The primary cause is obviously muscular weakness; but whether it is general or confined chiefly to the spine or to the legs and pelvis cannot be definitely stated. As certain patients with round shoulders, for example (to be discussed in Section 5), acquire a much more correct attitude under treatment without obvious change in spinal outline, it cannot be assumed off-hand that the spine is in all cases the primary seat of the difficulty.

(4) As it has not been demonstrated that the origin of faulty attitude lies wholly in the spine, it cannot be assumed that the gymnastic treatment should be wholly directed to the spine. In general, the gymnastic treatment should resemble the "setting up drill" of the military recruit, for exercises to straighten the spinal bowing and broaden the chest by themselves are only to be regarded as attacking part of the problem of treatment, for in many cases, at least, it is plainly evident that the vicious attitude is general as well as local. The treatment should therefore be general.

It is obvious that when the pelvis is pushed forward and the hips hyperextended, ligamentous support is substituted for muscular and the whole attitude rendered vicious. Exercises for the abdominal muscles and the glutei and hamstrings must be an essential part of the treatment in such cases. The raising of heavy weights brings into exercise all of the muscles concerned in maintaining the erect position, and is in that sense a selective exercise. Backward flexion and stretching of the spine is, of course, useful, but a study of the essentials of the whole position will show that these special exercises are of less importance than is often supposed. The analysis of the results of treatment will show that improved cases, as a rule, have been corrected more in their general balance than by any marked change in the spine. The importance of diminishing the muscular fatigue of these patients by daily enforced rest in addition to muscular exercise has been dwelt upon in another paper.[2] The same consideration applies to resting the muscles temporarily by light braces, applied to maintain a more correct position, in addition to gymnastic treatment.

(5) In analyzing by this method of measurement the changes in the attitude of patients brought about by gymnastics extending over a considerable period of time, certain interesting facts are to be found. There are six cases where back tracings and photographs before and after treatment are available. One showed no improvement after one year's treatment, four showed great improvement in their method of standing, but little or no change in the relation of the spinal points; one showed straightening of the spine.

The indication from the study of these cases and others which cannot be presented on account of the incompleteness of the records, is that the cure of the form of faulty attitude known as round shoulders is, in many cases, accomplished by a readjustment of the whole attitude, involving the relation of legs, pelvis and head, rather than by any marked straightening of the spine. The bearing of this upon treatment is obvious.

[1] R. W. Lovett: Transactions of the American Orthopedic Association, x, p.

The cases are as follows:

CASE I. C., in October, 1901, stood with the head forward and the seventh dorsal well back. The lower back was flat, the pelvis slightly forward, and the knees hyperextended. In May, 1902, the spinal outline was the same, but the knees were straight; the lumbar region was further forward, and the improvement had evidently been brought about by a change in the axis of the pelvis and not by any alteration in spinal outline.

CASE II. R. J., in April, 1901, stood with a general curve to the back, lumbar spine flat, and pelvis forward, with the axis of the legs inclined sharply forward. November, 1901, the spinal outline was unchanged, but the pelvis has been carried back, and the spine was more over it. The legs, instead of slanting forward, were upright and under the pelvis (Fig. 16).

CASE III. G. F., February, 1901, general round of back, pelvis forward, lumbar spine flat, knees hyperextended. October, 1901, slight change in spinal outline, the mastoid having moved up and back in relation to the seventh cervical, but the chief change was in moving back of the pelvis, increase in lumbar curve and straightening of the legs (Fig. 17).

CASE IV. C. B., January, 1901, general round to back lumbar spine, flat pelvis, very far forward, knees slightly bent, leg axes far forward, whole body-weight forward. November, 1901, *no marked change in outline of spine;* slight straightening, possibly; pelvis back, increase of lumbar curve, straightening of legs, and hyperextension of knees (Fig. 18).

The conclusions from this paper would seem to be as follows: That the study of faulty attitude has been incomplete because the spine alone has been considered rather than the relation of the legs and pelvis to the spine and the relation of the whole body to the perpendicular; that a uniform method of measurement and record is desirable; that the method described gives a side elevation of the whole attitude and the relation of legs, thighs, pelvis, spine, and head to each other and to the perpendicular; that the seat of faulty attitude is not as yet formulated; that gymnastic treatment should be general and local.

## THE ACTINIC RAYS.

### PAPER I: THEIR USE IN MINOR SURGERY.

BY EDWARD A. TRACY, M.D., BOSTON.

THE age we live in is an astonishing one, because of the marvelous progress being made in the physical sciences, and also because of the application of the results of this progress in the art of medicine.

Just six years have elapsed since Rœntgen gave us the means of utilizing the x-rays in the field of surgical diagnosis, and a vast amount of aid has been rendered by their use in the differential diagnosis of bone injuries, and the detection of foreign bodies imperviable to the x-ray. There was an early disposition to mistake the value of x-ray pictures. The writer, in an article which appeared in the Journal of the American Medical Association, Nov. 6, 1897, entitled "The Fallacies of X-Ray Pictures," called the attention of the medical profession and jurists to the danger of making false deductions from x-ray pictures. The position then taken by the writer was upheld by the resolutions passed by the American Surgical Association two years after.

The therapeutic use of x-rays as a curative agent for certain forms of malignant disease is firmly established today, and when we remember that seven years ago the x-rays were practically unknown, it surely will be granted that the age we live in is a wonderful one.

Rays far older than the x-rays have more recently begun to be investigated. The actinic rays, cœval with the sun, are beginning to be understood and utilized in medicine. Finsen's (of Copenhagen) work in the curing of lupus, using actinic rays for the purpose, is becoming familiar to European surgeons. Minin of St. Petersburg has devised a set of lamps for utilizing the actinic rays of the electric light. In translated reprints of articles published by Professor Minin in the *Revue Internat. d'Electrotherapie et de Radiotherapie*, No. 7, and in *Die Medicinische Woche*, No. 36 and 37, it is stated that he used the rays, termed "ultra-violet" (the writer prefers the term "actinic rays"), in the treatment of luxation burns, hematoma, acute myositis, and articular rheumatism, and for the pains accompanying pleurisy, contusions, etc., and in particular the claim is made that the Minin apparatus is curative in the treatment of lupus.

Minin also claims in the reprints alluded to (translation published by Frank S. Betz of Chicago), that the rays from his apparatus can be used to produce skin anesthesia, and thus make skin stitching and incisions painless. In proof of the statement he offers the following instances: "(1) Mr. F., secretary of a foreign embassy, cut his finger with a piece of glass while shutting a door. Illuminating the wound for ten minutes with my lamp No. 2, two stitches were put in without the least pain, and healing took place, *per priam*, completely on the fourth day. (2) A soldier cut himself with a penknife on the dorsum of his left thumb, making a wound about three centimetres. Illuminating as before, stitches were put in without pain, and healing *per priam* on the third day." These cases quoted from Minin certainly show anesthesia. The following cases in the writer's practice demonstrate it more completely, and indicate a new and wide field for the use of Professor Minin's apparatus.

CASE I. *Removal of large sebaceous cyst (an inch in diameter) from the scalp, without pain; actinic ray anesthesia.*— Oct. 19, 1902: Thomas J. Flynn, age thirty-two years, with tumor of scalp of at least five years' growth. The writer applied actinic rays from a No. 3 Minin's lamp, at distance of ten inches, for fifteen minutes. Two incisions, each an inch long, were made through the skin over the tumor, the incisions meeting, and the eliptical shaped piece of skin between them was removed. Through this opening in the scalp the sebaceous cyst which presented was shelled out with a curette. The skin was then sewed up with four running stitches. The patient was surprised when shown the tissues removed, as he had felt no pain. The actinic rays were again applied for ten minutes for their antiseptic effect. A piece of adhesive plaster was applied over the stitched surface. The next day the adhesive plaster was removed. There

was reunition of the cut skin tissue. Applied the actinic rays for fifteen minutes for healing effect. No dressing of any kind applied. The third day the rays were again applied. Reunition of cut tissue was firm. Removed stitches which were clean. Because no pressure had been applied over the cut surface, on the first day blood flowed under the united skin flaps, causing them to bulge upwards. On the second day the writer broke through the reunited tissue to demonstrate the nature of the contents, which proved to be, as suspected, blood clot. On the fifth day this clot had almost been absorbed. There was no treatment of the wound in this case, but that of the actinic rays.

Case II. *Subcutaneous abscess size of marble, opened under actinic ray anesthesia, and treated with actinic ray antisepsis.*—Oct. 9, 1902: Coleman Connolly, car conductor, age thirty-one. Nervous temperament. Since childborn had a horing like thickening of the skin over the distal joint of the left thumb. Several days before calling on the writer, he had poulticed this, because of soreness. On time of visit to the writer there was an abscess the size of a marble over the distal joint of the thumb. The writer applied the actinic rays from Minin's No. 1 lamp for ten minutes. He then incised the abscess and pressed out about a half-teaspoonful of pus. The pain was trifling. The actinic rays were applied for ten minutes more and the wound was then bandaged without dressing or lotion of any kind. The next day some serum was pressed from the abscess cavity after the opening of the incision, reunition having taken place. Actinic rays were applied from a No. 2 Minin lamp for fifteen minutes. The next day the rays were applied for fifteen minutes, and again on the fourth day. The patient worked on this day, and since has had no trouble with the thumb, the skin of which is more normal than before the abscess formed. No other treatment than the actinic rays was used in this case, and it therefore illustrated an antiseptic influence of these rays.

Case III. *Removal of skin slough an inch square from the palm of hand; actinic ray antiseptic treatment.*—Oct. 22, 1902: Emmett Larkin, age twenty-eight years. Twenty-four hours previous to his call upon the writer he had suffered a fall from a bicycle and sustained injury to the skin of the palm of the right hand, causing a slough about an inch in extent. This was of a dirty opaque dark green, and one thirty-second of an inch in depth. The actinic rays from a Minin No. 3 lamp were applied for fifteen minutes. The slough was then curetted off with but some hurting. The exposed red surface of the skin bled but slightly from a few points. After a few minutes further exposure to the actinic rays, an exudate of clear serum was seen to form over the raw surface. After ten minutes exposure to the rays this serous exudate was wiped off without any pain whatever, and a piece of plain cotton was applied and a bandage. The patient was delighted with the comfort of the whole proceeding. Two days after, healing had taken place, except where the cotton had adhered. Upon the forcible removal of the cotton, the raw tissue bled. The bleeding ceased after exposure to the rays from Minin's No. 3 lamp, and a dry film of tissue formed. Dry absorbent cotton was applied with a bandage, and no further treatment was found necessary.

The above and other cases treated by the writer make it a duty and a pleasure to commend Professor Minin's work to his American *confrères*, and to bespeak for him a hearty recognition for his valuable contribution to practical medicine.

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The first commencement exercises of the special class comprising colored persons of the Philadelphia School for Nurses was held during the past week. There were twenty-four who had taken the short course given by this school.—*Medical News.*

## SEGMENTED RING FOR INTESTINAL ANASTOMOSIS.

BY FRANCIS B. HARRINGTON, M.D., BOSTON,

*Visiting Surgeon at the Massachusetts General Hospital.*

The writer has made the device which is here described, and has used it with good results in a number of cases of intestinal anastomosis.

It consists of a ring of aluminum made in four sections, which are jointed together firmly by a small bar of steel, with a shoulder and screw thread, which serves as a handle. (See plate.)

Fig. 1 represents the four segments of the ring separated. The sliding tongue-and-groove joints are rounded, and will not cut nor catch in the tissues.

Fig. 2 represents the grooved surface of the ring into which the intestines are tied. This groove should be made about five-eighths of an inch wide.

Figs. 4, 5 and 6 show rings of different diameters, three-fourths inch, one inch and one and one-fourth inches. The lumen is about one-fourth of an inch less than the outside diameter of the ring.

Fig. 6 shows the handle, six inches long, of octagonal steel, with a male thread. When this thread is screwed into one of the segments the joints are locked together by means of a shoulder on the handle at the proper distance.

Fig. 3 represents a ring with narrow groove. It has no particular advantage, and is not so easily used as the broader ring.

I have found that a ring with an outside diameter of a little less than an inch is generally very useful for both the large and the small intestine in adults. In children it would need to be smaller, not because the segments would not pass through, but because the diameter of the child's small intestine would be much less than an inch.

The ring can be used for end-to-end anastomosis, for lateral anastomosis and for gastro-enterostomy.

A ring with a diameter of one inch will give a linear opening of over one and one-half inches.

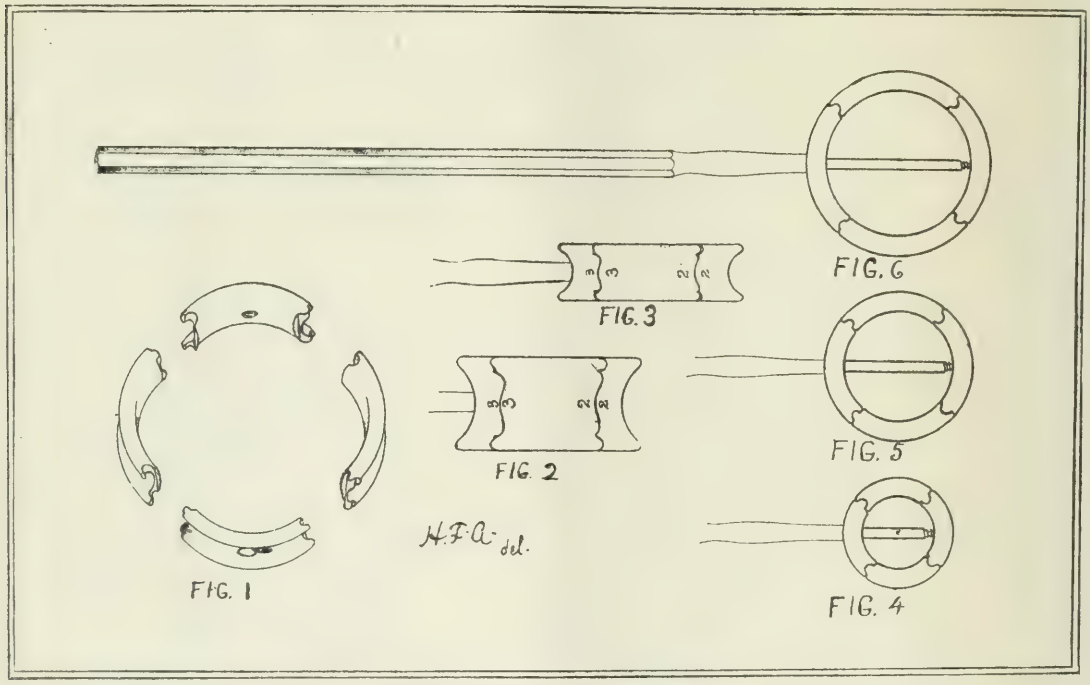
"Purse-string" sutures of strong silk or catgut are sewed into the two portions of the gut to be united. These sutures are then firmly tied in the groove of the ring. A Lembert suture may then be used to approximate the peritoneal surfaces of the gut. The handle, which is an aid in manipulation, and which has been held by an assistant, is then to be unscrewed and withdrawn. If this is done carefully, the "purse-string" ligatures hold the ring in shape and keep the segments from falling apart until the softening of the catgut or the sloughing of the included intestines allows this to happen. If it is desired to break the ring at once into sections, a little firm pressure on its circumference through the walls of the intestine will do this.

The segments of the largest ring are small enough to pass through the small intestine of a child. The steel handle is so small that the

opening through which it passes may be perfectly closed by a single Lembert stitch.

These rings combine some of the advantages of the Murphy button and the Laplace forceps. They are quickly applied. The handle greatly facilitates manipulation. The segments are small, and the largest can be easily passed. The segments are light, and do not cause pouching of the intestine. The segments weigh from 10 to 25 gr., while the Murphy button weighs over half an ounce. The lumen, which is at once established, is much larger than that of the button.

These rings are made by Codman & Shurtleff of Boston.




Segmented Ring for Intestinal Anastomosis.

A set of three rings with diameters of $\frac{5}{8}$, $\frac{7}{8}$ and $1\frac{1}{8}$ inches gives all the sizes needed. The larger of these will seldom be used.

## Clinical Department.

### TUMOR IN THE REGION OF THE HYPOPHYSIS.

BY E. W. TAYLOR, M.D., AND G. A. WATERMAN, M.D., BOSTON.

From the Department of Neurology, Long Island Hospital, Boston Harbor.

THE following case is reported because of certain difficulties in diagnosis during its clinical course, and also because of the importance of the autopsy findings in relation to acromegaly:

J. J. B., twenty-two years of age, was admitted to the Long Island Hospital, Boston Harbor, July 19, 1901. He was unmarried, and by occupation an expressman. His family history was negative except that his mother had suffered from some sort of paralysis and was unable to walk for some time previous to her death. In April, 1901, he was treated at the Boston City Hospital for an unascertained disease. He remained for four weeks, leaving the hospital, he thought, well.

About a week before entrance to the Long Island Hospital, the patient stated that he was found unconscious in a field and was taken home and put to bed. He thought that he was more or less unconscious for a week, and knew only what was taking place in that time from what was told him. His family informed him that he talked and answered questions during this week of apparent unconsciousness. When he regained consciousness he found his sight impaired, and it failed rapidly thereafter, until finally he could only distinguish light from darkness. He complained of severe headache which had been present since this attack.

The foregoing statements are not to be regarded as entirely satisfactory on account of the mental condition of the patient. He answered questions quickly on being aroused, but his statements did not always agree. His mental state varied from time to time.

*Physical examination* after entrance to the hospital showed a well-developed man of moderate intelligence. His pupils were dilated, reacted sluggishly to light, but did not accommodate. There was no paralysis of the ocular muscles. The tongue was heavily coated and there was much sordes. The heart was normal, the pulse 45. The lungs showed no abnormalities, nor did the abdominal organs. There was no Babinski phenomenon or clonus and no loss of sensation or motion discoverable. The urine was negative.

During the following month the patient remained in a semiconscious condition; he could be aroused but made contradictory answers to questions asked. Headache and vertigo persisted, and there was almost daily vomiting in spite of the maintenance of a good appetite. No paralyses were discovered during this time.

On Aug. 6 there was a choked disc of the right eye, of almost 2 mm. elevation; the vessels were very tortuous. The left eye showed complete optic atrophy with arteries of small calibre. On Aug. 9 mental confusion regarding place and time manifested itself with somewhat less headache. On Aug. 30 a left internal

strabismus appeared which was the first definitely localizing symptom. There was also a questionable paresis of one seventh nerve, with very slight numbness of the left side of the face. Hearing and the other cranial nerves showed no involvement. Knee jerks and plantar reflexes were normal. At this time it was noticed that the swelling of the nerve head in the right eye had greatly diminished; the outline of the disc could be faintly made out, and the disc had a distinct, glossy, white color; the vessels were less tortuous. The pupils no longer responded to light, and there was no light perception in either eye.

From this time on the patient on the whole grew steadily worse, with a persistence of symptoms, although for a considerable period he showed very marked temporary improvement.

On Oct. 23 the patient had a convulsion which lasted about five minutes. He was not unconscious.

On Nov. 1 he was stuporous. Iodide of potassium had had no effect upon his condition.

On Feb. 4 it was noticed that convulsions were occurring more frequently, and that each one was more severe than the preceding one. During these attacks the patient vomited food which had been improperly masticated; also orange peels, egg shells and prune stones.

On Feb. 15 he had a severe convulsion; was bathed in profuse perspiration; stertorous breathing; spasms both tonic and clonic in character, with a good pulse. The convulsion subsided gradually under ether. If touched, another convulsion was excited.

From this time on to his death, which occurred on March 2, there was a recurrence of convulsions, deepening coma, final high temperature (106.2°), with pulse of 140, and death quietly in spite of vigorous stimulation.

*Autopsy* by Dr. W. T. Councilman March 3, 1902. The left pleural cavity was completely obliterated by old fibrinous adhesions. The lungs were distended and contained various small hemorrhagic areas. The spleen, stomach, intestines, pancreas, liver and kidneys showed nothing abnormal. The skull was thin: the dura not adherent. At the base of the skull in the middle line, occupying the region of the pituitary body, was a tumor which also involved the optic chiasm and apparently originated from it. The optic tract on the right side was grayish-white and of normal appearance; on the left translucent. The tumor was about the size of an English walnut, 4 x 3 cm. in diameter. The arteries at the base were normal. Both lateral ventricles were greatly dilated, due to pressure in the neighborhood of the foramen of Munro presented by the tumor. The anterior portion of the third ventricle was obliterated, leading to compression of the choroid plexuses. The left optic tract was apparently destroyed by the tumor. The right optic tract was markedly involved at one point though not completely obliterated. The third nerve showed no involvement on either side. In the specimen as finally received for examination no further statement was to be made regarding the cranial nerves. On section the tumor consisted of a large cyst about 1 cm. in diameter, and many small cysts filled with a coagulated translucent mass. In the solid portion which comprised the remainder of the tumor there were a considerable number of fresh hemorrhages.

*Microscopic examination* showed a highly cellular new growth, interposed with many new-formed blood vessels and cysts. The arrangement of the cells was irregular and without a definite stroma. The cells composing the growth were round, with many transitional forms toward the spindle variety. The growth should be included under the sarcomata.

The points to which we desire to call attention in this case are: (1) The mode of onset and the mental state of the patient; (2) the occurrence and significance of early optic nerve atrophy; (3) convulsions and their significance; (4) the slight involvement of cranial nerves other than the optic nerves; (5) the tendency to remission of symptoms; (6) the presence of a tumor in the neighborhood of and probably involving the hypophysis, without the production of acromegaly.

So far as we could learn from the somewhat fragmentary history which the patient was able to give, the onset of symptoms was sudden, and associated with marked mental disorder of the general character of a deep stupor. During the course of the disease the mental condition grew no worse and at times showed distinct amelioration. The mental state is of interest in connection with the location of the growth, in a position which would not ordinarily be supposed to give rise to such symptoms. The explanation must be looked for in a possible disturbance of the cerebral circulation through the middle cerebral arteries, and in the general fact of increased intra-cranial pressure.

The very early optic nerve atrophy was a second important point in the case. It is well recognized that tumors in the posterior fossa of the skull and in some regions of the frontal lobes, leading in the latter case to more or less direct pressure on the optic nerves or chiasm, are likely to lead to an early optic atrophy. From this fact, reinforced by the absence during the greater part of the illness of any discoverable involvement of other cranial nerves, the erroneous assumption was made that the tumor, regarding the existence of which there was at no time doubt, was located either in the frontal lobes or the cerebellum. The somewhat unusual mental condition of the patient lent weight to the former supposition. Tests for hemianopsia and defects in the visual fields were not possible owing to the extreme defect of vision when the patient entered and during the time he remained at the hospital. So early an optic nerve atrophy as this patient presented should, no doubt, direct particular attention to the region of the chiasm as the probable seat of the lesion.

During the course of the disease convulsions occurred at varying intervals. The occurrence of this symptom is of interest in connection with a tumor having no relation to the cerebral cortex. If convulsive seizures, as generally supposed, are due to disturbances in the cortex or immediately underlying white matter, the explanation of their appearance in this case must be sought in indirect pressure, the importance of which in brain tumor can hardly be overestimated. This case, therefore, goes to show that convulsive attacks, unless of the Jacksonian type, are of small value as an aid to a focal diagnosis.

The slight involvement of cranial nerves other than the optic nerves demonstrates that a relatively large tumor at the base of the brain in the region of the chiasm and hypophysis may for a long period give rise to no focal symptoms other than the atrophy of the optic nerves themselves. The slight final disturbance of the left sixth nerve, and possibly of the fifth and seventh, must again be regarded as indirect symptoms.

The remission in the severity of the symptoms, which occurred in this case, and which has not infrequently been observed in others, is difficult of explanation. It is unquestioned that during a considerable period of time the patient appeared to be improving, was less apathetic, suffered less from various symptoms, and was able to be up and about, and even to take a certain interest in his surroundings, under apparently unchanged conditions of hospital care and treatment. Such temporary amelioration in brain tumor, even with the exclusion of syphilis, should not throw doubt on the diagnosis in the presence of fundamental symptoms.

Finally, it is a noteworthy fact that in this patient there was no evidence of a disturbance in nutrition of the type seen in acromegaly throughout the course of the disease. It was not possible to determine the exact origin of the tumor in this case, but it is probable that it had no direct relation with the hypophysis, although that structure was undoubtedly secondarily invaded. In this connection the conclusions reached by Brooks,[1] after a careful study of several cases of his own and the literature, are important and should be more generally appreciated. This writer concludes that the disease, acromegaly, arises from a primary affection of the prehypophysis, and not from pressure or any other cause. The great variety of tumors of the pituitary body, to which acromegaly has been attributed, among which the sarcomata have taken a prominent place, are, according to this view, wholly incapable of producing the disease. Many of these supposed sarcomata are believed to have been simple glandular hyperplasias or adenomata, and this hyperplasia of the prehypophyseal gland tissue must, according to Brooks, be regarded as the sole cause of acromegaly, due essentially to alteration in the glandular activity of the prehypophysis. It is undoubtedly desirable to correct the somewhat prevalent view that all tumors of or in the immediate neighborhood of the hypophysis are capable of producing acromegaly. The case here presented was a sarcoma of this region of the brain, which did not lead to acromegaly; hence we are justified in assuming that in all probability the growth originated from other structures than the hypophysis and invaded the region of the infundibulum secondarily. It is certainly desirable to report all cases of tumor of this region which do not lead to acromegaly, as well as the comparatively few apparent tumors of the gland which do lead to this well-recognized clinical condition.

APPROPRIATION FOR THE INVESTIGATION OF SMALLPOX.— According to the *New York Medical Journal*, the city of Cleveland, Ohio, has appropriated the sum of $1,000 to be expended in an effort to isolate the bacteria of smallpox. The investigation will be carried on under the direction of Dr. W. T. Howard, Jr., city bacteriologist.

[1] Brooks. Acromegalia. Archives of Neurology and Psychopathology, 1898, vol. ii. See also Guy Hinsdale: Monograph "Acromegaly." Reprinted from Medicine, 1898.

# Reports of Societies.

## AMERICAN DERMATOLOGICAL ASSOCIATION.

TWENTY-SIXTH ANNUAL MEETING, HELD AT HOTEL BELLEVUE, BOSTON, SEPT. 18, 19 AND 20, 1902.

### FIRST DAY.

THE president, DR. GEORGE THOMAS JACKSON of New York, delivered the

### ANNUAL ADDRESS.

He traced the history and work of the association since its foundation, in 1876, and the impetus it had given to the study of dermatology in this country. Its record in the past was one of which it might well be proud.

### TEN CASES OF BULLOUS DERMATITIS FOLLOWING VACCINATION

was the title of a paper presented by DR. J. S. HOWE of Boston.

In discussing this paper, DR. LOUIS A. DUHRING of Philadelphia said he was quite in accord with the statement made that effects of this and other kinds may be produced by vaccination. The speaker said he had seen some remarkable exhibitions following vaccination, at brief or longer intervals. He was particularly struck by the fact that the cutaneous manifestations in the series of cases reported by Dr. Howe were all much alike; they were of the bullous type and similar in most respects. The fact was not sufficiently emphasized, that the cutaneous manifestations were merely one expression of a very general condition. The autopsies showed that the internal organs were generally affected, all of which went to prove that the skin lesion, in this series of cases, was but one manifestation of a very general and, he thought, septic condition. He had seen similar manifestations produced by other causes than vaccination.

DR. E. B. BRONSON of New York said the class of cases reported in Dr. Howe's paper was extremely rare and interesting, and he did not think there was sufficient evidence that vaccination, *per se*, was accountable for the disease. They must be regarded as of an exceptional character, and were evidently of a septic nature.

DR. AUGUSTUS RAVOGLI of Cincinnati said he agreed with Dr. Bronson that vaccination, *per se*, could not be held accountable for this disease. It was only responsible to the extent of any form of trauma which leaves the door open for infectious germs. The speaker said he had seen several cases of bullous eruption following vaccination, and one of these patients died with the same symptoms as described by Dr. Howe; that is, symptoms of septicemia.

DR. H. W. STELWAGON of Philadelphia said he felt fairly confident that the germs of the infection were introduced with the vaccine virus: if the infection occurred subsequent to the vaccination

in these cases, we should see more examples of this disease.

Dr. James C. White of Boston said that one of the most extraordinary features of the cases reported by Dr. Howe was their long period of latency. In some of them the symptoms did not develop until nearly two months after vaccination, and then ran a rapid and severe course.

Dr. J. Nevins Hyde of Chicago said he had seen almost identical symptoms occurring in patients who gave no previous record of vaccination. He thought the germ which produced the symptoms, while it may have been introduced at the time of vaccination, had no essential connection with the vaccine virus, but was an accidental germ which found a congenial soil in patients whose powers of resistance had been weakened by chronic alcoholism.

Dr. William T. Corlett of Cleveland said it seemed to him that vaccination may not be the only cause — if it be a cause — of this form of dermatitis.

Dr. William A. Pusey of Chicago said he looked upon the cases as trophoneurotic disturbances of toxic origin. These cases undoubtedly may follow vaccination, and he did not think anything was to be gained by dodging the facts. It is impossible to avoid the conclusion that vaccination was the exciting factor, but this did not necessarily exclude other conditions. That vaccination was the sole factor, he did not believe; the soil must also be suitable.

Dr. John A. Fordyce of New York thought it possible that the cases reported by Dr. Howe were directly due to the vaccine virus implanted upon a soil that was very susceptible to the vaccine matter.

Dr. D. W. Montgomery of San Francisco regarded the cases of a septic nature, and said he was not willing to accept the theory that they were due merely to the introduction of the vaccine virus.

Dr. George H. Fox of New York said he did not think it had been adequately proven that these eruptions were associated with vaccination. It seemed strange that the eruptions appeared so long after vaccination, the incubation period being prolonged, in some instances, to four, six and even eight weeks.

Dr. Abner Post of Boston said we should be very careful before we take it for granted that these cases were due to vaccination. Practically everybody in Boston was vaccinated during the period in which these cases occurred, and it would have been impossible to find ten unvaccinated persons in the hospital where these patients were treated. Under such circumstances, if we attribute these cases to the effects of vaccination, we might just as reasonably attribute any unusual manifestations to that source.

### AN UNUSUAL CASE OF EPIDERMOLYSIS BULLOSA HEREDITARIA.

Dr. G. W. Wende of Buffalo reported this case, which differed from the usual manifestations of the disease, in that there was a continuation of the lesion by the development of new blebs or vesicles at the periphery, following the advent of each attack, a fact not hitherto recorded. It was also peculiar on account of the association of the lesions around the natural orifices of the body, especially the mouth, anus and meatus, and there was a complete alteration in the structure of the entire hairy growth.

As possible etiological factors causing this disease, the author mentioned:

(1) A possible hereditary or congenital lack of resistance in the skin, in connection with a poor trophic innervation.

(2) An increased irritability of the afferent nerve endings in the skin, by means of which irritation which ordinarily would have no effect causes a local vasodilatation through the vasomotor system.

(3) In connection with previous factor, there may be a congenital lack of tone in the arterioles in the skin and mucous membrane, readily responding to vasodilator influences, or local irritation by a dilatation of the vessels near the point of irritation, and leakage of fluid into the surrounding tissue.

### FOUR FORMS OF GENERALIZED EXFOLIATIVE DERMATITIS, ERYTHRODERMIES, EXFOLIANTES, GENERALISEES (BESNIER).

Dr. J. T. Bowen of Boston presented this paper. It was written with the object of calling attention to the question whether the French are justified in separating exfoliative generalized dermatitis into various sub-classes which may probably differ etiologically, or whether the English position, that the forms are all to be classed as pityriasis rubra, is the more tenable one. Four forms were described by the writer, which he regards as having some claim to separate classification: the recurrent desquamative scarlatiniform erythema, the exfoliative dermatitis of Wilson's type, the exfoliative dermatitis secondary to psoriasis, eczema, lichen planus, and to the ingestion of certain drugs, as mercury, quinin, etc., and the pure type of pityriasis rubra of Hebra. These forms were each illustrated by a case. The pityriasis rubra of Hebra, in a typical case, formed quite a distinct clinical picture, yet if we assume, as there are some grounds for doing, that mild forms of this type, followed by recovery, occur, it becomes very difficult to separate this form from Wilson's type. It is also often difficult to separate Wilson's type from the desquamative scarlatiniform erythema, and the clinical appearances differ but slightly from the secondary desquamative dermatitis. At the same time, the conclusion is reached that the four forms that have been described possess sufficiently distinctive characteristics to allow their separation, at least provisionally, from the common class of dermatitis exfoliativa. The term pityriasis rubra should be reserved for Hebra's type, and the other classes that have been proposed by the French are not justified.

DR. RAVOGLI said he had always found the question of exfoliative dermatitis extremely difficult and complicated.

DR. JAMES C. WHITE said he had been in the habit of recognizing three types of exfoliative dermatitis: (1) The well-marked recurrent scattered form, a fugitive process, which is difficult to distinguish at first from scarlet fever; (2) a deeper seated process of indefinite duration, which is represented by the type not infrequently set up in psoriasis under the influence of chrysarobin; (3) a much more serious process in which the skin is very deeply affected, and which often terminates in pemphigoid lesions and deep excoriations; the cases he has seen of the latter type have uniformly proven fatal.

DR. S. SHERWELL of Brooklyn thought that Besnier's term was a good one, but he did not consider it any better than a variety of other terms that are used for the same affection.

DR. S. POLLITZER of New York said he believed we were justified in dividing this condition of red, scaly skin into more than the three groups which Dr. White mentioned, and that it would be a little premature to put all these forms under the general title of exfoliative dermatitis. In the Hebra form we have a well-marked type of disease which ultimately results fatally. The diagnosis of pityriasis rubra is not justified until atrophy of the skin has set in.

A CRITICAL REVIEW OF L. PHILIPPSON'S PROPOSED REFORM OF DERMATOLOGY.

DR. H. G. KLOTZ of New York read this paper. Philippson criticises the dermatology of the present day for still paying too much attention to the surface appearances of the diseased skin, principally to the so-called elementary lesions, without giving due weight to the anatomical process which produces them; for describing the diseased skin in terms entirely at variance with the common rules and customs of general pathology; for making the morphologic features the foundation of the diagnosis, without giving proper attention to their anatomical character and to the general symptoms, and for setting up an unscientific standard for the definition of skin diseases.

A CASE OF PELLAGRA.

DR. S. SHERWELL of Brooklyn reported a case of this rare affection. The patient was an Italian, thirty years old, who had recently landed in this country. There were gangrenous lesions of the palms and soles, and an extensive erythema involving the dorsum of the foot, the anterior tibial region and the elbows. Cases of pellagra, Dr. Sherwell said, are frequently met with in Northern Italy and Lombardy; the disease is attributed to the use of maize that has been attacked by a fungus element resulting from too frequent rains.

DR. RAVOGLI said he had never seen a case of pellagra in this country. In Italy it is comparatively common. It is due to the spore that vegetates in corn-meal which has not been given sufficient time to dry. This unripe corn-meal is the chief article of diet among the poorer classes during the winter months. The symptoms it gives rise to are first referable to the digestive organs, nausea, loss of appetite and a burning in the throat; subsequently, the skin lesions appear, which at first consist of an erythema, but with successive attacks become more severe and result in atrophy of the skin. If the cases remain untreated the symptoms get worse, nervous symptoms develop together with diarrhea, and the patients usually die during the second or third stage of the disease.

A CLINICAL STUDY OF 485 CASES OF NAIL AFFECTIONS.

DR. C. J. WHITE of Boston read this paper. The observations of the writer were embraced in a table which gave the clinical characteristics of 485 examples of nail disease. The writer emphasized the fact that nobody at the present time can claim sufficient knowledge to make a positive diagnosis in certain nail affections without the aid of the microscope, unless the skin is also attacked.

*(To be continued.)*

## Recent Literature.

*Treatise on Diseases of the Skin.* For the use of Advanced Students and Practitioners. By HENRY W. STELWAGON, M.D., Ph.D. Philadelphia and London: W. B. Saunders & Co. 1902.

We can cordially recommend Dr. Stelwagon's book to the profession, as the best textbook on dermatology, for the advanced student and general practitioner, that has been brought strictly up to date. Crocker's admirable work has suffered of late from the fact that no new edition has appeared since 1893, although we are promised one before long. We think Dr. Stelwagon has succeeded admirably in his method of presentation, and that in clearness of description his book perhaps surpasses any treatise yet written, unless it be that of Kaposi. This is a point of vital importance to the beginner, or even to a somewhat advanced student, as it is very difficult for the mind to picture a cutaneous condition from words alone. Dr. Stelwagon is conservative in his general attitude, but gives full space to the advances in dermatology that have been made in the last few years. He is also very fair in his citation of the work of others, giving its full share of space to that done by his American colleagues. The photographic illustrations are numerous, and many of them are of great excellence. We think the book would have been improved by the omission of Miacek's colored plates, which are far inferior to the photographs. Surveying the book critically, we must also plead for a revision of the English in a future edition, as the sentences and construction are often involved and even obscure. The pathological and histological sections are inferior to the clinical. It is, however, taking it altogether, the best book in English that the advanced student or general practitioner can obtain today.

THE BOSTON

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## RADICAL OPERATIONS ON THE FIFTH NERVE.

It is now generally recognized that operation sooner or later is a necessity in neuralgia of the fifth nerve. These operations have become more and more radical, as surgical technique has improved, until now certain surgeons are inclined to attack the gasserian ganglion before attempting relief by section or avulsion of the branches of the nerve in their peripheral course. The operation on the ganglion, through the careful work done by Tiffany and others, has proved in the hands of competent surgeons an operation of comparative safety. It has, however, its disadvantages, notably in the destruction of the motor branch of the nerve in the somewhat violent measures necessary to extract the ganglion. Much work has been done upon the pathological anatomy of the gassarian ganglion, and everything taken together goes to show that the operation is altogether justified in intractable cases.

An important paper was published not long since by Drs. Keen and Spiller of Philadelphia which did much to elucidate the problem. In June, 1901, Dr. Frazier reported before the Surgical Section of the American Medical Association the results of a series of experiments which he had done in conjunction with Dr. Spiller, to determine the feasibility of dividing the sensory root of the nerve between the ganglion and the pons instead of destroying the ganglion itself. Later in the year Dr. Frazier reported an operation upon the human subject. The operation was in itself successful, and has now been made the subject of a further communication by Drs. Frazier and Spiller, published in the *Philadelphia Medical Journal* for Oct. 25. The patient was a man who had suffered from neuralgia of the trifacial nerve for a period of five years and had previously undergone four peripheral operations. In October, 1901, Dr. Frazier divided the sensory root of the gasserian ganglion. There was complete recovery from the operation, and there has been no recurrence of pain during the year which has since intervened.

It is claimed for this operation, similar to one done unsuccessfully about ten years ago by Horsley in England, that it obviates a number of difficulties ordinarily met with in the removal of the gasserian ganglion. The danger of wounding the middle meningeal artery appears to be equal in the two operations. Hemorrhage from the emissary veins is less in the operation of cutting the root. The cavernous sinus is also less liable to injury. The advantages, therefore, from less likelihood of hemorrhage is claimed for this newer operation to be positive. Inasmuch as the exposure of the ganglion is less difficult than its extraction, it may be seen that a definite source of danger is removed if the ganglion is left intact. Dr. Frazier also thinks that by this operation it is quite possible to divide the sensory root without injury to the motor root, which is naturally a definite advantage. There is also claimed to be less danger of injuring or cutting the sixth nerve. The final claim for the operation is a reduction in the rate of mortality. This last claim must be taken with a reasonable degree of caution, inasmuch as practically no operations have been attempted by the new method. We quite agree with Dr. Frazier, however, when he says that the operative procedure has so much to justify it that more experience in actual cases should soon be forthcoming.

Dr. Spiller's discussion of the neuropathological side of the question is of very great interest, and considering its source should be given great weight. Four years ago, in the paper already alluded to with Dr. Keen, Spiller recommended the reasonableness of section of the sensory root of the fifth nerve for neuralgia. The result of this suggestion was the operation by Dr. Frazier, of which we have already spoken. From the pathological point of view the essential matter to be determined is whether or not the root of the ganglion extending into the pons is capable of regeneration. Should this prove to be the case, it is clear that, although there may be a relief from pain for a considerable period, possibly years, recurrence might still occur when conduction was finally re-established. Dr. Spiller in this connection quotes the recent work of Ballance and Stewart, to which we have previously referred editorially, and states as the result of his own investigations that it is probable, or at least possible, that nerve roots, whether spinal or cranial, do not recover as do peripheral nerves after section. Dr. Spiller is inclined to think that a year's

relief from pain obtained in Dr. Frazier's case is sufficient to lead to the provisional acceptance of the fact that the sensory root of the trifacial nerve does not regenerate.

This work is of the very greatest theoretical and practical significance. There appears to be no reason why further trial should not be made of the operation, if it be so comparatively free of danger as Dr. Frazier asserts. Theoretically, provided Dr. Spiller's conclusions are justified, the operation is a far more rational one than the violent extirpation of the gasserian ganglion. We shall await with much interest further experience on the general subject, which, in view of this preliminary presentation, we shall undoubtedly soon have.

## THE TEACHING OF COMMON DISEASES.

It has been said, and with some reason, that an average medical student, on graduation, is far better prepared to treat diseases and conditions he is never or rarely likely to see than those of common occurrence. He has probably seen much of major surgery, and is well informed regarding typhoid fever and diseases of the blood, but when he is brought face to face with a cold or a backache or any of the thousand and one minor ills of life, he is far less a master of the situation. It would be a poor policy to neglect the rarer affections for the sake of the commonplace, but it is almost equally unfortunate and far more unpractical to ignore the latter in the hope their knowledge of them may somehow come in later life. The fact apparently is that the instruction given is apt to concern itself chiefly with disease in its unusual manifestations. Interesting cases predominate. We rarely hear of a clinical exercise before a class devoted to the everyday variations from health. A course in common diseases remains to be offered, and our students are suffering in consequence. A remedy is perhaps difficult to find in the wards of a large hospital, where the patients are admitted for various reasons, but certainly not because they are commonplace. The solution lies in the more intelligent and systematic use of out-patient departments, to which each day great numbers come afflicted with the most trivial ailments. If the students could actually study these patients, under the direction of authoritative teachers, they would gain a knowledge which the ordinary clinical lecture is not likely to give. How this may be done is a matter of detail, but for out-patient departments to be used chiefly as opportunities for physical diagnosis and not for the detailed study of disease as such, is a misfortune which our improved organization should do all in its power to remedy.

## TRACHOMA IN PUBLIC SCHOOLS.

A CONFERENCE of ophthalmic surgeons and other physicians was held at the office of the president of the New York Board of Health on Oct. 31, to discuss the prevalence of trachoma at the present time and the best methods for the curtailment of the disease. Dr. Lederle (the president) reported that from the beginning of the school year, Sept. 8, to Oct. 24, the total number of children excluded from the public schools by health inspectors was 14,000, and out of that number, 6,667 were excluded on account of eye troubles. Last year, for the entire school year, the total exclusions for all causes were only about 8,500. It was not until near the close of the season, however, that special inspectors for the eyes were appointed. He also read a letter from Dr. Richard H. Derby, stating that at the New York Eye and Ear Infirmary, at which he is executive surgeon, there had recently been treated 843 cases of trachoma in children, while during the same period last year the number of cases was but 70. He expressed the opinion that such cases need prompt surgical treatment, requiring the administration of an anesthetic, and that the patient should spend at least one day in a hospital. Another building was needed at the infirmary, he said, for the treatment of cases of trachoma.

Among the physicians present were Drs. Derby, Herman Knapp, T. R. Pooley, A. Jacobi and Frank Van Fleet. Dr. Knapp said there was no doubt that among very poor immigrants, from Russia particularly, trachoma was contagious, and 50% of them had it. Fifty per cent of healthy eyes, however, had some trachoma granules, and in not 5% was the condition infectious. He thought it would be safe for children to return home soon after being operated upon. Dr. Pooley thought it would be a great mistake if the public were to come to entertain the view that this disease is not infectious. It should be stamped out altogether, and the city ought to supply sufficient money to carry out the work. Dr. Jacobi was convinced, from his own observation, that the disease would not prove contagious in a clean family, but was so in a dirty family. Excellent results, he thought, were being accomplished by the health department by directing public attention to the disease and the appointment of special eye inspectors for the schools. In consequence, increasing numbers of children would be sent to the hospitals for treatment. Dr. F. H. Boynton thought there should be a special public hospital for infectious eye diseases, and that it would perhaps be advisable also to provide special schools for children suffering from such disease. Dr. Derby thought that while there had of late been a good deal of "talk-

ing to the gallery" on the subject, there could be no doubt of the contagiousness of trachoma. As an illustration of this, he cited the case of the Catholic Protectory, which had come under his own observation. Fourteen years ago, 56% of the inmates were trachomatous, but through isolation the cases had now been reduced to 2%. Dr. Lederle, in bringing the conference to a close, said he hoped to profit by the suggestions made, and would at once take steps to see what hospital accommodations might be available for the special treatment of trachoma.

## MEDICAL NOTES.

Should Lepers Marry.— The *Journal of the American Medical Association* speaks of an interesting discussion that has arisen in Hawaiian affairs. Attorney-General Dole is quoted as saying concerning the marriage of lepers: "This is the only country where leprosy is segregated. I would be loath to take the last bit of comfort from these people by breaking up their family ties. The children of leprous parents are not always tainted, as I understand it, and I think that it would be too harsh a measure to take away the little happiness that remains to them." Many opinions pro and con are being expressed. Word from Hawaii states that Dr. W. O. Smith, who was for years the president of the board of health, said that during the last thirty years the average of girls born to leprous parents, showing the taint after birth, had been less than 1%.

The Tuberculous Tendency in Art.— According to a statement in the *Medical Record* one of the least practical, but most interesting, papers at the recent congress on tuberculosis in Berlin was one presented by Dr. Kayserling, who showed a series of pictures demonstrating the tuberculous tendency in art. He instanced the case of Simonetta Catania, who served as the model for Botticelli's famous "Venus," in the Berlin National Gallery. She died of consumption at the age of twenty-four years. The speaker said that the whole Botticelli school was strongly influenced by tuberculosis.

Award of Prizes Offered by the Maltine Company.— Prizes recently offered by the Maltine Company for essays in preventive medicine have been awarded as follows: $1,000 to Dr. W. Wayne Babcock of Philadelphia, on the subject "The General Principles of Preventive Medicine," and $500 to Dr. Lewis S. Somers of Philadelphia, on "Medical Inspection of Schools — A Problem in Preventive Medicine."

International Clinics.— Beginning with 1903 Dr. A. O. J. Kelly of Philadelphia will assume the editorial management of the widely known periodical, *International Clinics.*

### BOSTON AND NEW ENGLAND.

Acute Infectious Diseases in Boston.— For the week ending at noon, Nov. 5, 1902, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: Diphtheria 68, scarlatina 31, measles 8, typhoid fever 46, smallpox 8.

Bequests to Hospitals.— By the will of the late Mary Louise Ruggles of Boston $43,000 is given in public bequests in part as follows: Massachusetts General Hospital, Boston, $10,000; Home for Aged Men, Boston, $3,000; Home for Aged Women, Boston, $3,000; Home for Aged Couples, Boston, $3,000; Children's Mission to the Children of the Destitute, Boston, $3,000; Massachusetts Homeopathic Hospital, Boston, $3,000; Perkins Institution and Massachusetts School for the Blind, $3,000; Massachusetts Charitable Eye and Ear Infirmary, Boston, $3,000.

Smallpox in Massachusetts.— For the year ending Oct. 1 the number of smallpox cases reported at the State House was, for Boston, 1,211; other cities and towns in Massachusetts, 1,166; total 2,377. During October there have been reported: Oct. 6, Boston 11, outside 7; Oct. 13, Boston 17, outside 8; Oct. 20, Boston 6, outside 9; Oct. 27, Boston 15, outside 4. This does not include a few cases which have not been officially reported to the authorities.

A Centenarian.— Michael Welch, Lynn's only centenarian, died recently at the reputed age of one hundred and two years. He was born in Galway, Ireland, in 1800, and came to this country fifty-seven years ago, since living in Lynn. He worked as a teamster, and during the Civil War drove a mule team for the United States Army. He had always abstained from liquor.

Long Island Hospital.— Dr. Edwin A. Locke has been appointed assistant visiting physician at the Long Island Hospital, Boston Harbor, and Dr. George A. Waterman an assistant physician for diseases of the nervous system, at the same institution.

### NEW YORK.

Indictment Against Christian Scientists.— In the Christian Science case at White Plains the grand jury handed in an indictment on Oct. 30, charging that "John Carroll Lathrop, John Quimby and Georgiana Quimby did maliciously and feloniously cause the death of Ethel Quimby, aged seven years, by neglecting to provide medical

attendance." For the degree of manslaughter charged the law imposes a prison term of fifteen years or a fine of $1,000, or both. With the indictment the jury delivered to the court a presentment commencing as follows: "The attention of the Grand Jury has been called to an evil existing in the County of Westchester which we deem a source of danger to the health of the community. Our attention has been directed to the treatment of infectious and contagious diseases by persons who are not regularly licensed physicians and surgeons, where the rules of the local and State boards of health are violated." The death of Ethel Quimby is then recounted, and attention called to the facts that the child was allowed to die without any of the remedies known to medical science being used; that the father attended daily to business after nights spent in the sick-room, and that this child was allowed to attend school while an older sister was suffering from diphtheria (no report of the case having been made). The conclusion of the presentment is in the following language: "We feel that flagrant violation of the health laws in this respect" (the attention of the board of health not being called to the case until a few hours preceding the death of the child) "should be sought out by local boards of health throughout this county, and respectfully request that a copy of this presentment be sent to the State Board of Health and to the several boards of health in this county, to the end that quarantine regulations be more strictly enforced, and the danger of the spreading of infectious and contagious diseases be lessened."

COMPLAINT AGAINST DENTISTS DISMISSED.—Justice O'Gorman, on Oct. 31, dismissed the complaint of Miss Josephine McDonald against two dentists and an expert x-ray operator which had been on trial in the Supreme Court for two days. She had demanded $50,000 damages on the ground that the dentists had subjected her to an exposure to the Rœntgen rays, in consequence of which her face had been badly burned and her hair had fallen out. The dentists contended that they were not responsible for the operation, and that they had merely watched it to obtain the benefit of any light it might throw on the condition of the patient's jaw bone, which was affected. The contention, the justice said, in dismissing the complaint, was unassailable. The complaint was not served on the x-ray operator, who is said to be in Alaska.

DRUG STORE PRESCRIBING.—Drug store prescribing has received a severe setback from a jury in the Supreme Court. Hamilton Dawes, who sued the Hegeman Drug Company for $5,000 because a clerk of theirs sold him medicine that was poisonous, obtained a verdict on Oct. 31 for $3,281. According to his complaint the clerk, whom he asked for quinin, told him that he could furnish him with another remedy which was much better than quinin for a cold in the head, and he took the preparation on the salesman's recommendation. The label had nothing to indicate that the substance contained anything injurious, but the medicine made him ill for two weeks, so that he was prevented from obtaining a new position which had been promised him. His allegation was that the employee of the drug company had given him a harmful substance knowingly.

## Miscellany.

### FORMER EPIDEMICS OF CHOLERA.

THE following statistics from the *Lancet* are of interest in connection with the extent and spread of cholera in former years:

"The preceding epidemics of cholera in Egypt have behaved so uniformly, as regards their seasons of outbreak and disappearance, that a short account of them will show why one is justified in prophesying the end of the present invasion. In 1831, when cholera first broke out in Egypt, it was brought by bands of pilgrims returning from Arabia to Suez. It reached Cairo in July, spread up the Nile as far as Luxor, and lasted till the end of October, the official deaths from cholera alone in Cairo being reckoned at 36,000, while Dr. R. Graves in his clinical lectures says that Egypt as a whole lost 150,000 victims. In 1848 cholera existed in Egypt from June till the end of October, killing about 20,000 people. In 1850, towards the end of June, cholera again appeared in Cairo on the arrival of pilgrims from Mecca, and again lasted until October. In 1855 the Mecca pilgrims once more brought the disease to Cairo, in May, and it remained in the country until the end of September, the total mortality from cholera for that summer being over 26,000. There are many still living who can remember the fourth pandemic of cholera in the history of the world, which began in 1863 and came to an end in 1875. About the beginning of 1865 the disease was brought by passengers from the Bombay coast to South Arabia, and in April, during the religious fêtes, it broke out in Mecca among the 100,000 faithful, causing a panic and general flight, and consequent dispersion of the poison along the tracks of the homeward-bound pilgrims. A vessel containing some choleraic pilgrims arrived on May 19 at Suez from Jeddah, and in spite of medical inspection, quarantine trains and special encampments the disease was communicated all over Egypt until the end of September, when the epidemic disappeared, after causing 62,000 official deaths. In 1866 cholera was again present until November, though the outbreak was not recognized officially. Egypt then had a complete respite until 1883, when cholera was discovered at

Damietta in June, immediately after a crowded fair. It was probable that the disease had been present in an unrecognized form in this rather obscure town for a month or two before June. It came to an end in Cairo at the end of August, but a recrudescence in a dirty village near Alexandria caused cases to remain in the country until the end of December. The official deaths were registered at 58,511, but the sanitary department of that day was far too demoralized to be able to control statistics. In 1895 there were a few cases in Egypt, traced, as usual, to returning pilgrims, while the following year, in the potential cholera season, which may be taken in Egypt to mean from June to October, there was a smart outbreak in Lower Egypt and also in Upper Egypt, where the troops carried it with them from place to place as they began their Soudan campaign."

## SOME HOSPITAL PROBLEMS IN PHILADELPHIA.

THIS city apparently has on its hands not one, but two, white elephants. These monsters are the Philadelphia Hospital and the Municipal Hospital. A hue and cry is being raised that the former institution, popularly known as Blockley, is infested with tuberculosis. Too much probability is given to the justness of this charge by the fact that a comparatively large number of physicians and nurses in recent years have contracted consumption in one form or another at Blockley. If newspaper reports are accurate, there are several hundred cases of tubercular infection in the Philadelphia Hospital at the present time. The buildings are old and overcrowded, and the fact cannot be gainsaid that the conditions there are highly favorable for the propagation of the disease. Modern science cannot witness such conditions and remain silent. The demands at present in the treatment of tuberculosis are for isolation and fresh air. Neither of these demands is met at Blockley, and neither can be met without some radical changes.

One trouble at Blockley is the shiftiness of the city government toward that great charity. The policy is to patch up, to temporize, to jog along and to save money. A wise and masterful policy is required, but it must be one that will inspire public confidence. Not only a thorough cleaning out, but a radical tearing to pieces, is needed to rehabilitate the place.

The Philadelphia Hospital has been one of the great institutions of this city, but it has outlived its day. It combines an almshouse, a hospital, an insane asylum, a maternity, a children's infirmary and a nest of tuberculosis. All these things should be shaken apart, separated for good, and (except the nest) reconstructed according to common sense and the dictates of science and humanity. But there must be no cheese-paring about it, and it should be done by the proper men, properly advised.—*Philadelphia Medical Journal.*

## METEOROLOGICAL RECORD

For the week ending Oct. 25, in Boston, according to observations furnished by Sergeant J. W. Smith of the United States Signal Corps:

| Date | Barometer. Daily mean. | Thermometer. Daily mean. | Thermometer. Maximum. | Thermometer. Minimum. | Relative humidity. 8.00 A.M. | Relative humidity. 8.00 P.M. | Relative humidity. Daily mean. | Direction of wind. 8.00 A.M. | Direction of wind. 8.00 P.M. | Velocity of wind. 8.00 A.M. | Velocity of wind. 8.00 P.M. | Weather* 8.00 A.M. | Weather* 8.00 P.M. | Rainfall in inches. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S...19 | 30.06 | 68 | 75 | 62 | 84 | 87 | 86 | S W | S W | 12 | 15 | F. | O. | .01 |
| M..20 | 29.99 | 57 | 66 | 48 | 78 | 61 | 70 | W | W | 12 | 18 | C | C. | |
| T..21 | 30.26 | 44 | 49 | 38 | 74 | 64 | 69 | W | N W | 15 | 7 | C. | C. | |
| W.22 | 30.30 | 45 | 56 | 34 | 78 | 69 | 74 | W | S W | 8 | 16 | F. | C. | |
| T..23 | 30.21 | 49 | 52 | 46 | 93 | 62 | 78 | W | E | 7 | 15 | R. | C. | .17 |
| F..24 | 30 26 | 48 | 61 | 36 | 88 | 80 | 84 | W | S W | 2 | 12 | C. | O | |
| S...25 | 30.14 | 50 | 62 | 38 | 94 | 66 | 80 | W | N | 15 | 12 | O. | C. | T. |
| ☞ | 30.17 | | 60 | 43 | | | 77 | | | | | | | .18 |

*O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow. † Indicates trace of rainfall.
☞ Mean for week.

## RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, OCT. 25, 1902.

| CITIES. | Population Estimated, 1902. | Reported deaths in each. | Deaths under five years. | Percentage of deaths from: Infectious diseases. | Acute lung diseases. | Diphtheria and croup. | Typhoid fever. | Diarrhœal diseases. |
|---|---|---|---|---|---|---|---|---|
| New York . . | 3,665,352 | 1,150 | 364 | 24.95 | 9.73 | 2.78 | 2.26 | 5.65 |
| Chicago . . | 1,852,828 | 483 | 120 | 24.22 | 7.66 | 4.14 | 2.90 | 5.80 |
| Philadelphia. | 1,349,624 | 416 | 102 | 20.90 | 10.09 | 3.64 | 1.20 | .48 |
| St. Louis . . | 603,717 | — | — | — | — | — | — | — |
| Baltimore . . | 525,330 | 166 | 47 | 25.90 | 9.64 | 1.20 | 4.20 | 4.20 |
| Cleveland . . | 411,826 | — | — | — | — | — | — | — |
| Buffalo . . . | 375,742 | — | — | — | — | — | — | — |
| Pittsburg . . | 341,401 | 134 | 49 | 31.34 | — | 4.47 | 5.22 | 11 19 |
| Cincinnati . | 332,032 | — | — | — | — | — | — | — |
| Milwaukee . | 304,975 | — | — | — | — | — | — | — |
| Washington . | 289,537 | — | — | — | — | — | — | — |
| Providence . | 185,870 | 46 | 10 | 21.74 | 13.04 | — | 4.34 | 4.34 |
| Boston . . . | 588,736 | 213 | 74 | 28.64 | 12.20 | 2.41 | 2.41 | 6.56 |
| Worcester. . | 127,337 | 36 | 15 | 16.67 | 13.88 | — | 2.77 | — |
| Fall River. . | 111,872 | 47 | 21 | 25.52 | 19.14 | — | — | 12.75 |
| Lowell . . . | 99,574 | 33 | 12 | 12.12 | 12.12 | — | — | 3.03 |
| Cambridge . | 96,334 | 24 | 7 | 16.67 | 16.67 | — | 4.16 | 8.32 |
| Lynn. . . . | 71,144 | 21 | 7 | 14.28 | — | 4.76 | — | 4.76 |
| Lawrence . . | 67,275 | 15 | 7 | 13.33 | 6.67 | — | 6.67 | — |
| Springfield . | 66,854 | — | — | — | — | — | — | — |
| Somerville . | 65,882 | 16 | 7 | 43.75 | 12.50 | — | — | 12.50 |
| New Bedford. | 65,574 | 35 | 12 | 22.85 | 8.57 | — | 2.86 | 8.57 |
| Holyoke . . | 48,065 | 20 | 8 | 15.00 | 5.00 | — | — | 5.00 |
| Brockton . . | 43,208 | 5 | — | 20.00 | — | — | 20.00 | — |
| Haverhill . . | 40,392 | 15 | 3 | 33.33 | 6.67 | 6.67 | — | 6.67 |
| Salem . . . | 36,567 | 13 | 4 | 46.20 | — | — | — | 7.70 |
| Newton. . . | 36,336 | 7 | — | 14.30 | 28.60 | — | — | — |
| Malden . . | 35,390 | 10 | 4 | — | — | — | — | — |
| Chelsea. . . | 35,264 | 9 | 5 | 11.11 | — | — | — | — |
| Fitchburg. . | 33,848 | — | — | — | — | — | — | — |
| Taunton . . | 32,759 | 9 | — | 33.33 | — | 11.11 | — | 22.22 |
| Everett. . . | 27,114 | 7 | 4 | 14 30 | — | — | — | — |
| North Adams | 26,583 | 3 | 1 | 33.33 | — | — | — | — |
| Gloucester . | 26,121 | 11 | 5 | 18.18 | 9.09 | 9.09 | — | — |
| Quincy . . . | 25,307 | 7 | 2 | 14.30 | — | — | — | 14.30 |
| Waltham . . | 24,612 | 8 | 1 | 12.50 | — | — | — | — |
| Pittsfield . . | 22,311 | 8 | — | — | 12.50 | — | — | — |
| Brookline. . | 21,679 | — | — | — | — | — | — | — |
| Chicopee . . | 20,390 | 10 | 5 | 20.00 | — | 10.00 | — | — |
| Medford . . | 20,014 | 1 | — | — | — | — | — | — |
| Newburyport | 14,478 | 5 | — | 20.00 | 20.00 | — | — | — |
| Melrose . . | 13,384 | 8 | 3 | 50.00 | — | — | — | — |
| Westfield . . | 13,038 | 5 | 1 | 20.00 | 20.00 | — | — | — |
| Attleboro . . | 12,846 | — | — | — | — | — | — | — |
| Adams . . . | 12,813 | — | — | — | — | — | — | — |
| Milford . . | 12,516 | — | — | — | — | — | — | — |
| Framingham | 12,109 | 4 | 2 | 75.00 | — | 25.00 | 25.00 | — |
| Peabody . . | 11,957 | — | — | — | — | — | — | — |
| Revere . . . | 11,894 | — | — | — | — | — | — | — |
| Gardner . . | 11,544 | — | — | — | — | — | — | — |
| Weymouth . | 11,337 | 6 | 3 | 16.67 | 33.33 | — | — | 16.67 |
| Southbridge . | 10,838 | 3 | — | 33.33 | — | — | — | — |
| Watertown . | 10,660 | 3 | 1 | — | — | — | — | — |
| Plymouth . . | 10,336 | — | — | — | — | — | — | — |

Deaths reported, 3,020; under five years of age, 907; principal infectious diseases (smallpox, measles, scarlet fever, cerebrospinal meningitis, diphtheria and croup, diarrheal diseases, whooping cough, erysipelas, fevers and consumption) 735, acute lung diseases 277, consumption 347, scarlet fever 26, whooping cough 19, cerebrospinal meningitis 7, smallpox 7, erysipelas 2, measles 6, typhoid fever 26, diarrheal diseases 156.

From whooping cough, New York 7, Chicago 2, Philadelphia 3, Pittsburg 1, Boston 5, Framingham 1. From measles, New York 3, Pittsburg, Worcester and Holyoke 1 each. From erysipelas, Chicago and Boston 1 each. From smallpox, Pittsburg 4, Boston 1, Salem 2.

In the seventy-six great towns of England and Wales, with an estimated population of 14,862,084, for the week ending Oct. 11, the death-rate was 18.1. Deaths reported, 5,146; acute diseases of the respiratory organs (London) 272, whooping cough 65, diphtheria 78, measles 104, smallpox 3, scarlet fever 40.

The death-rate ranged from 5.4 in Barrow-in-Furness to 27.4 in Birkenhead; London 17.7, West Ham 18.0, Brighton 15.9, Portsmouth 21.7, Southampton 14.0, Plymouth 21.3, Bristol 21.5, Birmingham 17.1, Leicester 18.8, Nottingham 16.9, Bolton 18.0, Liverpool 25.5, Manchester 20.1, Salford 22.3, Bradford 15.9, Leeds 19.6, Hull 19.8, Newcastle-on-Tyne 17.4, Cardiff 17.3, Rhondda 13.4, Hornsey 9.7, Merthyn Tydfil 22.9.

## CHANGES IN THE MEDICAL CORPS OF THE NAVY FOR THE WEEK ENDING NOV. 1, 1902.

W. B. GROVE, passed assistant surgeon. Detached from the "San Francisco" and ordered to the "Prairie" for duty with the marine battalion aboard that vessel.

A. STUART, assistant surgeon. Ordered to duty at the Naval Hospital, Navy Yard, New York, N. Y.

S. S. RODMAN, assistant surgeon. Detached from the "Alert," and when discharged from treatment at the Naval Hospital, Mare Island, Cal., ordered home and granted sick leave for two months.

F. T. GORDON, pharmacist. Detached from the "Wabash" and ordered to the Naval Hospital, Boston, Mass., for treatment.

H. E. AMES, surgeon. Ordered to the "Texas."

J. E. PAGE, passed assistant surgeon. Detached from recruiting duty and ordered to the "Newark."

A. W. BALCH, assistant surgeon. Detached from the "Monongahela" and ordered to the "Machias."

C. H. DELANCY, assistant surgeon. Detached from the "Buffalo" and ordered to recruiting duty with Ensign D. C. Hanrahan at Knoxville, Tenn.

## OFFICIAL LIST OF THE CHANGES OF STATION AND DUTIES OF COMMISSIONED AND NON-COMMISSIONED OFFICERS OF THE PUBLIC HEALTH AND MARINE HOSPITAL SERVICE FOR THE SEVEN DAYS ENDING OCT. 30, 1902.

GEDDINGS, H. D., assistant surgeon-general. Detailed to represent the service at the meeting of the Association of State and Provincial Health Officers at New Haven, Conn., Oct. 28-29. Oct. 25, 1902.

MCINTOSH, W. P., surgeon. Granted leave of absence for fifteen days from Nov. 1. Oct. 27, 1902.

ANDERSON, J. F., assistant surgeon. Detailed as assistant director of the Hygienic Laboratory. Oct. 21, 1902.

HEISER, V. G., assistant surgeon. To proceed to Washington, D. C., for duty. Oct. 29, 1902.

RAMUS, CARL, assistant surgeon. Granted fifteen days' extension of leave of absence from Oct. 25. Oct. 29, 1902.

MCLAUGHLIN, A. J., assistant surgeon. Relieved from duty in the Hygienic Laboratory and directed to proceed to New York, N. Y. (Stapleton), and report to medical officer in command for duty and assignment to quarters. Oct. 25, 1902.

ALEXANDER, E., acting assistant surgeon. Granted leave of absence for five days from Nov. 1. Oct. 30, 1902.

FORD, C. B., acting assistant surgeon. Granted leave of absence for fifteen days from Oct. 18, 1902, on account of sickness. Oct. 29, 1902.

HANRAHAN, E. T., acting assistant surgeon. Granted leave of absence for thirty days from Oct. 12. Oct. 29, 1902.

## RECENT DEATHS.

JOHN HAMMILL ABBOTT, M.D., M.M.S.S., died in Fall River Nov. 1, 1902, aged fifty-four years.

DR. WILLIAM YOUNG, the last surviving charter member of the New York Academy of Medicine, died at his home at Cold Spring, on the Hudson, on Oct. 26. He was born in Corttlohone, Ire., in 1820, and was a graduate of the University of Glasgow, and in medicine of Dublin University. He practised in New York City for a number of years, and then went to Cold Spring.

DR. FRANK L. MARTINDALE of Port Richmond, Borough of Richmond, New York, died on Oct. 26 in the seventy-third year of his age. He formerly had a very large practice, which extended to all parts of Staten Island, and at one time he was health officer of Port Richmond.

## BOOKS AND PAMPHLETS RECEIVED.

Manual of Gynecology. By Henry T. Byford, M.D. Third revised edition. Illustrated. Philadelphia: P. Blakiston's Son & Co. 1902.

A Retrospective View of Seven Years Experience in the Climatic Treatment of Tuberculosis. By Mark A. Rodgers, M.D., of Pittsburg. Reprint. 1902.

Taschenbuch der Massage, für Studirende und Aerzte von Dr. Erich Ekgren, mit einem Vorwort von Geh. Med.-Rath. Prof. Dr. H. Senator. Verlag von S. Karger. Berlin. 1903.

Practical Obstetrics. A Textbook for Practitioners and Students. By Edward Reynolds, M.D., and Franklin S. Newell, M.D. Illustrated. Philadelphia and New York: Lea Brothers & Co. 1902.

A Manual of Medical Treatment or Clinical Therapeutics. By I. Burney Yeo, M.D., F.R.C.P. Tenth edition. Fifteenth thousand. Vols. I and II. Illustrated. Chicago: W. T. Keener & Co. 1902.

A Manual of Surgery for Students and Practitioners. By William Rose, M.B., B.S. (Lond.), F.R.C.S., and Albert Carless, M.S. (Lond.), F.R.C.S. Fifth edition. Illustrated. New York: William Wood & Co. 1902.

A Guide to the Practical Examination of Urine for the Use of Physicians and Students. By James Tyson, M.D. Tenth edition, revised and corrected. Illustrated. Philadelphia: P. Blakiston's Son & Co. 1902.

Spiritism, Hypnotism and Telepathy as Involved in the Case of Mrs. Leonora E. Piper and the Society of Psychical Research. By Clark Bell, Esq., LL.D., President Medico-Legal Society. Illustrated. Reprint. 1902.

Anleitung zur Diagnose und Therapie der Kehlkopf, Nasen, und Ohrenkrankheiten. Vorlesungen gehalten in Fortbildungscursen für practische Aerzte von Dr. Richard Kayser. Verlag von S. Karger. Berlin. 1903.

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# Address.

## BARBER-SURGEONS.[1]

BY FREDERIC W. TAYLOR, M.D., CAMBRIDGE, MASS.

The knowledge that barbery and surgery were at one time intimately associated, and that for a period covering several centuries, is perhaps a little embarrassing to the enthusiastic and scientific surgeon of today, who, like the amateur genealogist, is dismayed when he learns that not all of his ancesters were noble and famous.[2] But let not the student of medical history be discouraged when he discovers that in Rome, in former times, the physician was a slave, and in London the surgeon was a barber, and that that which he now styles a profession, was anciently an art or even a trade. Each age has its peculiar institutions, which are usually a result of the social and political conditions then existing, and the traditions of the past do not necessarily hamper the present.

The barber-surgeon is identified with a period of about five hundred years, extending from the thirteenth through the seventeenth century, although he still exists in the Latin countries of Europe, and as a convenience similar to the country store, he is occasionally found in the rural districts of New England. The barbers of the Western islands are busily employed during the country fairs, where the peasants, gathered in large numbers, are accustomed to submit to venesection, the women particularly enjoying the experience, as they claim the privilege of an extra diet for the next few days, in order to regenerate their blood.

Among the New England colonists the healing art found more congenial association with the clerical profession than with barbery. Among our Dutch ancestors, however, this was not the case. Some of them appear to have been strongly held by their Fatherland customs, for in 1652 the surgeons of New Amsterdam petitioned for the exclusive right to shave.

During most of their existence the societies of barber-surgeons partook largely of the nature of trade unions, regulating work and exercising discipline, although they also provided for the instruction and sociability of their members. Early documents indicate, however, that at least the English guilds were religious in their purposes. In 1388 Richard II of England ordered that all the guilds and incorporated societies make written reports to him of their purposes and standing. Some of these reports are still in existence. The following is a part of that returned by the barbers of London:

Anno 12.
Richard II.

John Heydon and Henry Cook, Masters, William Chapman and William Gomine, Surveyors of the Company called the Fraternity of Barbers of the City of London of ancient times established, certifying to the Council of Our Lord the King, in his Chancery, the form manner and condition of all the articles, customs and their circumstances contained in the Records of the same Company in the form following:

The which Company have neither tenements nor rents to their common use, and these articles the said Company have not used in their time excepting only for to have their Livery once a year, and to pay their quarterage to maintain the poor folk of the same Company, and once a year to assemble to feast, and to elect new Masters and Surveyors without any other article of their writing to put forward except those which only are made to the honour of God; but, however, as they have found a document amongst the articles of the Records, made of the time to which memory runneth not, they have presented it to your most wise discretions.

This Indenture made in the name of the Omnipotent God, the Father and Son and the Holy Ghost, and of our Lady Saint Mary and of all the glorious Company of Heaven, concerning the foundation of the Government of the Fraternity of Barbers of the City of London Witnesseth how and upon what points the said Fraternity is founded and ordained.

*Firstly* to the honour of God and all his Saints, and to stir up the Commons of the people to do well, and to have perseverence in well doing, it is ordained that if any brother of this Fraternity who has been of this Fraternity for seven years by chance fall into trouble or into poverty, and if he have nothing of his own by which he may be able to live, and it be not through his own folly, that then he shall have each week from their common box tenpence half penny for his sustenance.

*Item.*— That when any brother of the said Fraternity dies the brethren of the said Fraternity shall go on the Vigil to the dirge, and on the day to the Mass, and to the dirge and to the mass of the month's obit, and that each such brother dead have thirty masses from their common box, and that each brother who is absent without reasonable excuse at any of the said four times, shall put into their common box in place of his offerings and expenses, as he ought to have done if he had been present, three pence.

*Item.*— When any Master of the said Fraternity has a wife dead, the brethren of the said Fraternity shall be at the Vigil and at the Mass on the day of her burial and at the month's obit, and that brother who is absent at any of the three times shall pay for each time that he be absent, in place of the costs and other expenses which he would have borne if he had been present, three pence to their common box.

*Item.*— That no brother of the said Fraternity entice any servant from the service of his master, privily or openly.

*Item.*— If any dispute arise between any of the brethren, which God forbid, it is to be amicably settled by the decision of the Masters of the said Fraternity [and they are] to deal plainly, and that no one sue another in other manner than at the assize (?) [and then only] if he be empowered by leave of the said Masters to be recorded.

. . . . . .

The returns of the guilds of Lincoln and of Norwich declare similar purposes. That of Lincoln is in part as follows:

(Translation.)

GUILD IN THE CITY OF LINCOLN.

The certificate of the ordinances and beginning of the Fraternity of Barbers of Lincoln, by virtue of the

[1] Annual address delivered before the Middlesex South District Medical Society, April 16, 1902.

[2] Most of the material for the following address was obtained from Sidney Young's "The Annals of the Barber-Surgeons of London, compiled from their Records and other Sources"; the rest from "Memorials of the Craft of Surgery in England," compiled by John Flint South and edited by D'Arcy Power; "Ambroise Paré and his Times, 1510-1590," by Stephen Paget; "William Harvey," by D'Arcy Power; and "Outlines of the History of Medicine and the Medical Profession," by Johann Hermann Baas, translated by H. E. Handerson.

proclamation in that behalf made, follows in these words:

This is a certain fraternity made and begun by the common assent of all the Barbers of the City of Lincoln, in honour of our Lord Jesus Christ and the Blessed Mary and observed in honour of Saint John the Evangelist, renewed in the feast of the Nativity of our Lord, A.D., 1369.

The First ordinance is, that they have and keep one "quadrate" of wax burning on all feast days throughout the year, and on other special occasions before the altar of Saint John the Evangelist in the Monastery of the Blessed Mary at Lincoln. And all the brothers and sisters of the said fraternity go in procession with the said candle, and all the brothers and sisters offer at the Image of Saint Saviour a halfpenny, under a penalty of one pound of wax.

The Second ordinance is, that if any brother or sister of this fraternity shall die in the City, the Dean of this guild shall bear in order four "soule candels," which shall burn about the corpse at the Dirige and remain until the Mass. And all the brothers and sisters, for the soul of the departed, pay a halfpenny to the poor, according to the direction of the Graceman and Wardens, wherever the greater necessity shall be.

The Third ordinance is, that if any brother or sister shall die so poor, that he has not whence to be buried as he ought to be, the Graceman and Wardens, of the halfpennies collected, together with any portion of his chattels they find, shall make a general mourning, and do other necessaries that he be honorably buried.

. . . . . .

The Fifth ordinance is, that if any brother or sister of this guild fall into poverty or sickness, so that he cannot work and prays the charity of this house, each brother and sister of this guild shall give to him 6d. per annum in the three mornspeeches aforesaid, by like equal portions.

. . . . . .

The Seventh ordinance is, that if any brother or sister of this guild do rebellious works or speeches, and is not willing to be silent but finds fault with the ruling of the Graceman of the guild, he shall give towards the burning of the said candle, one pound of wax, . . . and that without any remission; and whatsoever master or servant within this fraternity or out of it, shall be a thief to the extent of one penny, and of that matter shall be convicted, it is agreed by common consent that he shall abjure occupying his art within the City forever.

The Eighth ordinance is, that none shall be admitted to any Offices in the said guild, unless they have been Barbers, dwelling in the said City; and whoever shall be elected Graceman and shall be unwilling to serve shall give half a stone of wax; and whoever Dean, and shall be unwilling, shall give one pound of wax.

. . . . . .

In Lands and tenements to the aforesaid guild in mortmain or otherwise they hold nothing, nor are there any chattels in the hands of them the brothers and sisters to the use of the said guild, except out of their liberality for the sustenance of the aforesaid devotion; nor do they make any gatherings between them, unless however for the purpose of cherishing love amongst themselves.

The report of the Norwich guild is short and wholly pious:

NORWICH.

And a brotherhood there is ordained of Barbers, in the city of Norwich, in the worship of God and His Mother, and Saint John the Baptist: that all brothers and sisters of the same guild, as long as twelve persons of them live, they shall offer a candle and two torches of wax: and this light they promise and avow to keep and maintain, and these ordinances that be underwritten, upon their power and diligence, in worship of Christ and His Mother and Saint John Baptist; and the two torches shall be of forty pounds weight; and all the brothers and sisters shall offer this candle and the two torches every year at Midsummer day, and they hearing their mass at the high altar at Charunel in Christ's church, and every brother and sister offering a halfpenny with their candel and their two torches, in honor of God and our Lady and Saint John the Baptist.

And the two torches, every day in the year, shall be alight and burning at the high mass at the same altar, from the elevation of Christ's body sacred, until that the priest have used.

These be the names of the men that be Masters and Keepers of the guild:

Philip Barbur,
James Barbir,
Thomas Barbyr "at prechors,"
} And these men have in keeping for the same light, two shillings in their box.

King Richard cared more for the money than for the welfare of his subjects, and as the guilds appreciated that these reports would be made the basis of assessments to be levied upon them for the benefit of the crown, they perhaps minimized their financial ability, and dwelt unduly on their piety.

Previous to the twelfth century, the practice of medicine and surgery was largely by the clergy, who following Christ's example, went about healing both souls and bodies. In this work the monks were assisted by the barbers, and one readily sees that this relationship was natural; for in order to keep clean-shaven the monks frequently needed the services of the barber. The barber, adept in handling the razor, soon became deft in handling scalpel and forceps, and was the monk's valuable assistant. The work of the barbers as surgical assistants was undoubtedly greatly increased, and probably became much more remunerative, because of an edict of the Council of Tours under Pope Alexander III, in 1163, which forbade the clergy to do anything which involved the shedding of blood. The barbers then became barber-surgeons, although the London Guild was not incorporated until three hundred years later, 1462. There is, however, sufficient evidence that the barbers performed minor surgical operations before the incorporation. We find that in 1307 they were so desirous of practising surgery, that they were employing objectionable methods of advertising their occupation to such an extent, that the city authorities of London passed the following ordinance:

"*Concerning barbers.*— And that no barbers shall be so bold or so hardy as to put blood in their windows, openly or in view of folks, but let them have it privily carried unto the Thames, under pain of paying two shillings to the use of the Sheriffs."

The first reference to them as an organized society is in the next year, when Richard the Barber was presented to the mayor and aldermen as a supervisor. He was admitted, and made oath that every month he would make scrutiny throughout the whole of his trade, and if he should find any among them keeping brothels, or acting unseemly in any other way and to the scandal of the trade, he was to destrain upon

them, and cause the distress to be taken into the chamber. This man was presumably a suitable person to administer rebuke and exercise authority, as he appears from his will to have been a man of property and piety. The following record from the annals of the barber-surgeons of London was dated 1310 :

"On Monday before the feast of St. Gregory the will of Richard le Barber, our first Master, was proved in the Court of Husting. To Katherine his wife and Johanna his daughter, he left tenements and rents in Bread Street, Cordwainer Street, Queenhithe, Candlewike Street, and Whitecrouche Street. To Thomas de Mangrave his apprentice, a shop in Bread Street; to the fabric of London Bridge 20s., and the residue to pious uses."

In explanation of the mention of brothels in the above oath taken by Richard the Barber, it may be said that in England, as well as in other countries, the barbers were also superintendents or keepers of baths, and that the bathhouses were liable to be places of resort for the licentious. The baths must have been considered therapeutic as well as cleansing, otherwise the statement would hardly be warranted, which has been made by a German historian, that "Germany, besides a few physicians in ordinary, had for a long period no other medical faculty than the bath keepers and barbers," a condition of affairs which seems almost incredible, as we think of the position occupied by medical science in Germany at the present time.

From about the time of the presentation of Richard the Barber to the mayor and aldermen, the barbers of London appear to have received more official recognition than before. For instance, we find that in 1310, Gerard the Barber was sworn keeper of the gate of Newgate, and his appointment was followed by other similar ones. A record dated 1375 indicates the kind of duties they were expected to perform. It specifies that the keepers were to strictly watch that no lepers enter the city. They were evidently credited with sufficient knowledge of disease and ability in diagnosis to render them valuable protectors of the public health.

In 1376 the London barbers were encroached upon by people from the country, who, as they said, "intermeddled with barber surgery, and the cure of other maladies, while they know not how to do such things, or ever were instructed in such craft, to the great damage, and in deceit of the people, and to the great scandal of all good barbers of said city," and they obtained the passage of an ordinance that no practitioner be admitted to the franchise of the city, except upon examination, and that the instruments of all practitioners be subject to inspection by the masters of the guild. An infringement of this ordinance was to be punished by the payment of forty pence. Flagrant malpractice was liable to penalties other than fines, as the following case illustrates:

"Roger Clerk, of Wandelsworth, on the 13th day of May in the 5th year (Richard II), was attached in the Chamber of the Guildhall of London, before the Mayor and Aldermen, to make answer, as well to the Mayor and Commonalty of the City of London, as to Roger atte Hacche, in a plea of deceit and falsehood; as to which, the same Roger said, that whereas no physician or surgeon should intermeddle with any medicines or cures within the liberty of the city aforesaid, but those who are experienced in the said arts, and approved therein, the said Roger Clerk, who knew nothing of either of the arts aforesaid, being neither experienced nor approved therein, nor understood anything of letters, came to the house of him, Roger atte Hacche, in the parish of St. Martin, in Ismongereslane, in London, on Thursday, the morrow of Ash Wednesday, in the 5th year, etc.; and there saw one Johanna, the wife of the aforesaid Roger atte Hacche, who was then lying ill with certain bodily infirmities, and gave the said Roger, her husband, to understand, that he was experienced and skilled in the art of medicine, and could cure the same Johanna of her maladies, if her husband desired it.

"Whereupon the said Roger atte Hacche, trusting in his words, gave him 12 pence, in part payment of a larger sum which he was to pay him, in case the said Johanna should be healed. And upon this, the same Roger Clerk then and there gave to the said Roger atte Hacche an old parchment, cut or scratched across, being the leaf of a certain book, and rolled it up in a piece of cloth of gold, asserting that it would be very good for the fever and ailments of the said Johanna; and this parchment, so rolled up, he put about her neck, but in no way did it profit her; and so falsely and maliciously, he deceived the same Roger atte Hacche. And he produced the said parchment here in Court, wrapped up in the same cloth, in proof of the matters aforesaid.

"And the said Roger Clerk personally appeared, and the said parchment was shown to him by the Court, and he was asked what the virtue of such piece of parchment was; whereupon, he said that upon it was written a good charm for fevers. Upon being further asked by the Court what were the words of this charm of his, he said:— "Anima Christi, sanctifica me; Corpus Christi, salva me; in isanguis Christi, nebria me; cum bonus Christus tu, lava me." And the parchment being examined, not one of those words was found written thereon. And he was then further told by the Court, that a straw beneath his foot would be of just as much avail for fevers, as this said charm of his was: whereupon, he fully granted that it would be so. And because that the same Roger Clerk was in no way a literate man, and seeing that on the examination aforesaid (as well as on others afterwards made), he was found to be an infidel, and altogether ignorant of the art of physic or of surgery; and to the end that the people might not be deceived and aggrieved by such ignorant persons, etc.; it was adjudged that the same Roger Clerk should be led through the middle of the City, with trumpets and pipes, he riding on a horse without a saddle, the said parchment and a whetstone, for his lies, being hung about his neck, an urinal also being hung before him, and another urinal on his back."

In spite of ordinances, and the punishment of quacks, the practice of barbery and surgery in London was not sufficiently regulated to meet the approval of Thomas Arundel, Archbishop of Canterbury, and he wrote the following letter of condemnation of Sunday trade, to the mayor and aldermen. It is dated July 24, 1413 :

"Sons in Christ and Dearest Friends.— We "know that you do seek for the things which are "of above, and that you will the more readily incline "to our desires, the more surely that the things as to "which we write are known to tend to the observance "of the Divine law, the maintenance of public pro-"priety, and the rule of the Christian profession. We "do therefore write unto you on this occasion, to inti-"mate that when we were presiding of late in our Pro-"vincial Council, holden at London, with our venerable

"brethren, the Suffragan Bishops, and our clergy of "the Province of Canterbury, it was publicly made "known unto us with universal reprobation, that the "Barbers of the City of London, over the governance "of which city you preside, being without zeal for the "law of God, and not perceiving how that the Lord "hath blessed the seventh day and made it holy, and "hath commanded that it shall be observed by no "abusive pursuit of any servile occupations, but rather "by a disuse thereof, in their blindness do keep their "houses and shops patent and open on the seventh "day, the Lord's Day, namely, and so follow their "craft on the same, just as busily, and just in the "same way, as on any day in the week, customary for "such work. Wherefore we, with the consent and assent of our said Suffragans and clergy, in restraint "of such temerity as this, have determined that there "must be made solemn prohibition thereof in the City "aforesaid, and that, of our own authority, and that "of our said Provincial Council; and not there only, "but also throughout the Diocese of London, and each "of the cities both of our own Diocese and of our Province of Canterbury; to the effect, that such barbers "must not keep their houses and shops patent or open, "or follow their craft, on such Lord's Days for the "future, on pain of the greater excommunication; in "the same manner as it has been enacted and observed "of late in our time, as to the City and Diocese of York, "as we do well recollect. But, dearest children, seeing that so greatly has the malice of men increased "in these days, a thing to be deplored — that temporal "punishment is held more in dread than clerical, and "that which touches the body or the purse more than "that which kills the soul, we do heartily intreat you, "and, for the love of God and of His law, do require "and exhort you, that, taking counsel thereon, you "will enact and ordain a competent penalty in money, "to be levied for the Chamber of your City, or such "other purpose as you shall think best, upon the Barbers within the liberty of your City aforesaid, who "shall be transgressors in this respect; that so at least, "those whom fear of the anger of God does not avail "to withhold from breach of His law, may be restrained "by a scourge inflicted upon their purse, in the way "of pecuniary loss; knowing that we in the meantime, "after taking counsel hereon, will devise measures for "the prevention of this, and for the due publication of "our Provincial enactment aforesaid. Fare you well "always in Christ.

"Written at Ikham on the 13th day of the month of "July.

"Thomas, Archbishop of Canterbury."

It was probably the barbery, rather than the surgery, that the Archbishop objected to, for the ordinance passed in response to his letter, makes no mention of blood-letting or dressing wounds. The ordinance specified that no barber, his wife, son, daughter, apprentice, or servant, should work on Sundays, either in hair-cutting or shaving, on pain of paying six shillings, eight pence. The penalty imposed for desecrating the Sabbath, six shillings, eight pence, was not large, indeed may be considered very small when we remember that it was to be more efficacious than excommunication. That the Archbishop's letter and the city ordinances did not permanently settle the question of Sunday barbering, we well know, however great their immediate effect may have been.

In 1462 the London Company was incorporated. The charter provided for the appointment of two masters, who should have superintendence, scrutiny, correction, and government, of freemen of the city, who were surgeons exercising the mystery of barbery, such superintendence, scrutiny, etc., being necessary, because through "ignorance, negligence and stupidity" of some of the men of the said barbers, some of the king's "liegemen had gone the way of all flesh."

The charter exempted barbers, as well as surgeons, from serving on juries, and it is interesting to note that as late as 1868, a judicial opinion was given that barbers were exempt from jury duty. It provided for the licensing of all practitioners by the Company, and the Company apparently held this privilege without serious infringement for fifty years, although during that period a guild composed only of surgeons was in existence, but its members were few, perhaps never over twenty, and they do not appear to have had sufficient influence at Court to obtain a charter which would free them from supervision and examination by the barber-surgeons' company.

In 1511 an act of Parliament gave authority to license physicians and surgeons in London and within seven miles of London, to the bishop of London and dean of St. Paul's, and to license those practising in the country, to bishops and vicars. These good men were to obtain the assistance of physicians and surgeons in the examination of candidates. This measure soon became unpopular, and a petition was presented to Parliament for its repeal, the petitioners saying: "And it is now well known that the surgeons admitted will do no cure to any person but where they shall know to be rewarded with a greater sum or reward than the cure extended unto, for in case they were to administer their cunning to sore people unrewarded, there should not so many rot and perish to death, for lack of surgery, as daily do."

The petitioners were successful, and Parliament declared it "lawful to any person being the King's subject, having knowledge or experience of the nature of herbs, etc., to minister in and to any outward sore or wound, according to their cunning." The right of licensing practitioners once having been granted them, the Ecclesiastics were loath to give it up. As late as the eighteenth century they were exercising it, but in fashion displeasing to the barber-surgeons, who in 1710 wrote a letter of expostulation to the Bishop of Canterbury. They contended that the law that invested the Bishops "with a Temporall power perfectly forreign to their Ecclesiasticall Jurisdiction and Spirituall care"; that previously licenses had not been granted except upon examination and approval by the Company, and they requested, as a matter of justice, that the same procedure be continued. I quote two paragraphs from this letter, as they show in part the functions of the Company at that time:

"But if this restraint of yor Graces Licences were not to be asked as a matter of Justice We should not doubt to obtain it as a favour, when yor Grace considers how this manner of entring into the faculty opens a way to the Ignorant & unskillfull to the great prejudice both of the Company & of the publick, for yor Grace cannot be so much at leisure from yor pastorall care to enquire into the abilitys of such as pretend to sign their Testimonialls nor is any person that comes in

by this method subject to the regulation of our Company's By-Laws which are all signed under the hands of the two Cheife Justices & the present Lord Chancellour & contrived with the greatest exactness to regulate the practise of this art, besides that every person admitted is obliged to give bond to the Company that he will diligently attend such cures as he shall be called unto & that he will never wilfully administer any hurtfull medecine, And in all cases of danger call in one of our ten Examiners to his assistance who are always ready to afford their assistance when asked."

"Lastly we think we may add that the Companys services of the publick may reasonably deserve some consideration from all lovers of the publick for that ten of the principall persons of the faculty meet once a week at their Hall to examine & approve all Surgeons & Surgeon Mates that are in her Majesties Service which amount to five hundred in a year & to inspect all Sea Surgeons' Chests of medicines & instruments & to peruse the Journalls of their practice & to view all Sea officers who are wounded in fight & this without the least reward nor are any admitted into the Sea Service without their Testimoniall & approbation to the very great preservation of the Seamen. And tis presumed that a Regulation that has been found so necessary at Sea will appear at Land to be equally beneficiall."

The next year similar letters were sent to the Bishops of London, Winchester and Rochester, and to the Dean of St. Paul's. In 1540 the Surgeons' Guild was incorporated, not, however, separately, but with the Barbers' Company, the resulting Company, named the "Maisters or Governours of the Mysterie and Comminalte of Barbours and Surgeons of London," being given a new charter, in which the surgeons were recognized as surgeons, and forbidden to practise barbery, and the barbers were recognized as barbers, and forbidden to practise surgery except tooth drawing. The charter directed the surgeons to display signs. It provided for the appointment of four masters, of whom two should be surgeons and two barbers. The Court of the Company was frequently appealed to by patients or their friends, who thought that they had not been properly or sufficiently treated by their surgical attendant; for example:

"15th September, 1573. Here was one Alexander Capes a carpenter and required that he might have some helpe concernyng his griefs consyderinge that he had ben in thands of John ffrend Willm Wise & Richard Storye and had geven them mony for to be cured and was not, wherefor order was taken that they should deale further wth him for his health."

"7th September, 1574. Here was John Griffen complayned uppon William Pownsabe for gevinge him a powder wch lossed all the teeth in his head, wch John Griffen had the dissease wch we call Demorbo gallico."

"13th March, 1576. Here was a complainte determyned upon wch was made against Tho: Hodes and for that he was provde ignorant he is bounde in xlli never to medle in any matter of S'gery."

"8th October, 1577. Here was a complainte made by one Mrs. Riche against Robt. Bewsy for that he had her husbonde to cure who died and the said Bewsye said and reported that she was an evell liver and that he died of a botch called Bubo veneria and taken of her, wch he denied, but beinge proved she put the matter wholie to this worshipfull howse who did award that he sholde in the presence of her nighbors who were here present in the p'lor upon his knees aske her forgevenes, wch he did and so the matter was finally ended."

*(To be continued.)*

# Original Articles.

## THE CLINICAL STUDY OF FOUR HUNDRED AND EIGHTY-FIVE CASES OF NAIL DISEASE.

BY CHARLES J. WHITE, M.D., BOSTON,

*Instructor in Dermatology in Harvard University.*

This investigation covers a period of three years, and represents the material collected at the Massachusetts General Hospital and from private practice. At the time it was begun there was no monograph covering the whole field of nail pathology, but since that date Heller's most important work has appeared, and our association has held a symposium upon nail diseases, so that my early reasons for this study have lost their importance; but, nevertheless, I think the tables which I have compiled will add something to our meagre knowledge of this difficult subject.

As will be seen from the tables which have been given you, there are six conditions which provide 404 out of the 485 examples of pathological nails, and in the short time at my disposal I shall describe the nail changes in these six diseases, leaving to my tables the details of the other twenty-nine affections in which nail changes were noted.

Eczema produces the most frequent examples of nail disease, furnishing 107 of our cases. The changes observed in this disease may occur in the nail walls, matrix, bed and plate, and are produced by the same causes that bring about an eczema of the skin. The involvement of the nails before the age of twenty is distinctly uncommon. The disease prevails all through adult life up to the age of seventy, when it diminishes in frequency. In the acute form the nail walls are red and swollen, the plate loses its normal convexity, pain is felt in the bed, the plate becomes rough, the lustre vanishes, discoloration is present, and soft spots appear in the plate which later form minute punctate depressions. If the cutaneous disease continue, the nail exhibits one or more of the following conditions: transverse depressions or ridges, vertical ridges, hyperkeratosis of the bed, with increase in the convexity of the plate and subsequent disappearance of this granular detritus, and thinning of the plate with increased brittleness, exfoliation of surface cells of plate, leuconychia, or finally total loss of the nail. If the matrix is affected, a deep transverse furrow may result.

The pathological changes consist in the formation of eleidin and horny matter rather than the normal nail substance, together with edema and cellular infiltration about the vessels of the corium.

Trauma or felon are two accidents which frequently befall the nails, and when of slight importance, or do not involve the matrix, the results upon the nail are unimportant. When, however, the matrix is affected, then we have a permanent

[1] Read before the American Dermatological Association, Boston, Sept. 19, 1902.

## CLINICAL CHARACTERISTICS OF 485 EXAMPLES OF NAIL DISEASES.

| NUMBER OF CASES. | 107 | 72 | 68 | 67 | 62 | 28 | 9 | 8 | 5 | 5 | 4 | 4 | 4 | 3 | 3 | 3 | 3 | 3 | 3 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 485 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DISEASE. | Eczema | Trauma or felon | Paronychia | Psoriasis | Professional dermatitis | Syphilis | No apparent cause | Tinea favosa | Alopecia, bad teeth, bad nails | Xeroderma | Arthritis deformans | Dermatitis herpetiformis | Burn | Pus under nail | Biting of nails | Acromegaly | Dermatitis exfoliativa | Tinea tricophytina | Keratosis pilaris | Tuberculosis verrucosa | Nervous shock | X-ray dermatitis | Vitiligo | Pruritus | Psorospermosis | Raynaud's disease | Ichthyosis | Argyria | Acro-arthritis | Phthisis pulmonalis | Hydro-estivale | Pityriasis rubra pilaris | Injured spine | Myxedema | Neurasthenia | Totals |
| Round punctate depression | 27 | 1 | 11 | 27 | 14 | .... | 2 | .... | 1 | .... | .... | 1 | .... | 2 | .... | .... | 1 | .... | 1 | .... | .... | .... | .... | .... | .... | .... | .... | .... | 1 | .... | .... | .... | .... | .... | .... | 89 |
| Transverse depression | 51 | 26 | 57 | 27 | 17 | 5 | 6 | 2 | 1 | 2 | 1 | 3 | 1 | 3 | 1 | .... | .... | 2 | 1 | .... | 1 | .... | 1 | 2 | .... | .... | 1 | .... | .... | .... | .... | 1 | 1 | .... | .... | 213 |
| Vertical depression | 1 | 9 | 4 | 1 | 2 | 1 | .... | .... | .... | .... | 1 | .... | .... | 1 | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | 20 |
| Vertical ridge | 28 | 22 | 10 | 7 | 11 | 1 | 5 | .... | 1 | 2 | 2 | 1 | .... | .... | .... | 1 | .... | 1 | .... | 1 | .... | 1 | .... | 1 | 1 | .... | 1 | .... | 1 | .... | .... | .... | .... | 1 | .... | 99 |
| Transverse ridge | 4 | 4 | 12 | 3 | 4 | 1 | 1 | 2 | .... | .... | 1 | .... | .... | .... | 1 | .... | 1 | 1 | .... | .... | 1 | .... | .... | .... | .... | .... | .... | .... | 1 | .... | 1 | .... | 1 | .... | 1 | 40 |
| Discoloration | 16 | 12 | 33 | 27 | 13 | 11 | 8 | 7 | 1 | .... | 1 | .... | 2 | 1 | .... | 1 | 1 | 3 | .... | 2 | 1 | .... | .... | .... | .... | .... | .... | 1 | 1 | .... | .... | .... | .... | .... | 1 | 143 |
| Hypertrophy { of plate / of bed | 14 | 18 | 8 | 22 | 15 | 5 | 4 | 5 | 1 | .... | .... | .... | .... | .... | .... | 1 | 2 | 1 | 1 | .... | 1 | .... | .... | .... | .... | .... | .... | .... | 1 | .... | .... | .... | 1 | 1 | .... | 101 |
| Atrophy | 14 | 2 | 9 | 12 | 15 | 5 | 4 | 3 | .... | .... | 1 | .... | .... | 2 | 2 | 1 | .... | 1 | .... | .... | 1 | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | 72 |
| Separation from bed | 24 | 15 | 21 | 37 | 13 | 11 | 5 | 7 | 1 | .... | .... | .... | 2 | .... | .... | .... | 1 | 1 | .... | 1 | 1 | .... | .... | .... | .... | .... | .... | .... | 1 | .... | .... | .... | .... | .... | .... | 141 |
| Exfoliation on surface | 13 | 5 | 19 | 8 | 7 | 7 | 1 | .... | .... | .... | .... | 1 | .... | 2 | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | 63 |
| Brittleness | 22 | 6 | 11 | 14 | 18 | 4 | 6 | 1 | 1 | 1 | 2 | .... | .... | .... | 1 | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | 87 |
| Flatness and koilonychia | 11 | 9 | 7 | 5 | 25 | 1 | 5 | .... | .... | .... | 2 | .... | .... | .... | 3 | 1 | .... | .... | .... | .... | .... | .... | .... | 1 | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | 70 |
| Opacity or honeycombing with air | 5 | 1 | 4 | 12 | 1 | 8 | 2 | 1 | .... | .... | .... | 1 | .... | .... | .... | .... | 1 | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | 36 |
| Crumbling with erosion | 1 | 3 | 2 | 7 | 2 | .... | 3 | 6 | .... | .... | .... | .... | .... | .... | .... | .... | 1 | 2 | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | 27 |
| Lustreless | 11 | 2 | 5 | 4 | 1 | 2 | 1 | .... | .... | 1 | .... | .... | .... | 2 | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | 29 |
| Broken nail | 3 | 1 | 11 | 6 | .... | 3 | .... | 2 | .... | .... | .... | .... | .... | .... | .... | 1 | 1 | 1 | .... | 1 | 1 | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | 31 |
| Anonychia { permanent / temporary | 10 | 7 | 9 | 5 | 4 | 6 | .... | 1 | .... | .... | .... | .... | .... | 3 | .... | .... | .... | 1 | .... | .... | 1 | 1 | .... | .... | 1 | 1 | 1 | .... | .... | .... | 1 | .... | .... | .... | .... | 52 |
| Increased convexity | 11 | 8 | 3 | 6 | 3 | 3 | 2 | .... | .... | .... | .... | .... | .... | .... | .... | 1 | .... | .... | 1 | .... | 1 | .... | .... | .... | .... | .... | 1 | .... | .... | 1 | .... | 1 | .... | 1 | .... | 43 |
| Onychogryposis | .... | 4 | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | 1 | .... | .... | .... | 1 | .... | .... | .... | .... | .... | .... | .... | .... | .... | 1 | .... | .... | .... | .... | .... | .... | .... | .... | 7 |
| Leuconychia | 5 | .... | 1 | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | 1 | .... | .... | .... | 1 | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | 8 |
| Hyperesthesia | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | 1 | .... | .... | .... | 1 |

change which will reproduce itself as long as the individual lives. The commonest of the constant deformities are transverse depressions, vertical ridges, hyperkeratosis subungualis, with its usual sequelæ, and discoloration. The more unusual changes are round punctate depressions, atrophy, exfoliation of surface of the plate, increased convexity, brittleness, opacity, koilonychia, gryphosis, leuconychia, transverse ridges, vertical depressions, invasion of air into the plate, with subsequent crumbling, or total loss of the nail.

Paronychia comes third in importance in my list, providing sixty-eight cases. This is an acute or subacute process, and usually occurs in women who wash dishes or scrub floors, but any individual who subjects his fingers to a constant irritation may develop this localized condition. The most common nail changes are discoloration, transverse depressions and hyperkeratosis subungualis, with its usual sequelæ. These consist in the lifting of the plate and subsequent discharge of the keratosic granules from the bed, leaving a flat, horny floor covered by a thin, dome-shaped roof. All the other alterations of the plate noted in eczema may appear in paronychia, but the ones above mentioned are by far the most frequent.

Psoriasis holds a position almost identical with paronychia as a disturber of nail equilibrium, while the involvement of the nails in cases of cutaneous psoriasis is relatively much commoner than is the rule in eczema. The disease can exist also alone in the nails, but such a diagnosis is in truth a hazardous one. The condition is most frequently observed in men, and between the ages of twenty and forty. The simplest cases consist of round punctate depressions in the plate, and Unna and Heller regard this symptom as pathognomonic of psoriasis, but I cannot agree with this position, as these lesions appeared in more than a quarter of my cases of eczema of the nails.

The commonest lesion in my experience is a more advanced condition, and consists in the changes subsequent to hyperkeratosis of the bed. This was noted in 57% of my cases. Two other common lesions are discoloration, which varies from yellow to dark brown, and transverse de-

| Disease | Sex | Age by Decades | Race | Occupation | |
|---|---|---|---|---|---|
| Eczema .....107 | Male .....41<br>Female..... .....64<br>Unstated..... 2 | 1st..... 2<br>2nd..... 4<br>3rd .....20<br>4th .....22<br>5th .....20<br>6th .....19<br>7th .....13<br>8th ..... 6<br>9th ..... 1 | Irish .....41<br>American .....36<br>Jewish ..... 7<br>German..... . 4<br>Italian .... ..... 3<br>Fr. Canadian..... 3<br>Swedish ..... 2<br>English ..... 1<br>Unstated .....10 | Housework.....26<br>Leatherwork ..... 1<br>Hostler..... 1<br>Coal heaver..... 1<br>Pedler ..... 1<br>Barber ..... ..... 1<br>Elevator boy..... 1<br>Fish and meat..... 1<br>Carpenter..... 1 | Harpist..... 1<br>Cashier ..... 1<br>Gardener ..... 1<br>Dyer..... 1<br>Sugar factory..... 1<br>Nurse ..... 1<br>Undetermined or unimportant.....67 |
| Trauma or Felon...72 | Male ..... .....40<br>Female .....32 | 1st..... 1<br>2nd..... 3<br>3rd ..... ....11<br>4th .....25<br>5th .....12<br>6th .....12<br>7th ..... 5<br>8th ..... 3 | Irish.....35<br>American .....27<br>Jewish.... ..... 5<br>French ..... 2<br>Canadian ... ..... 1<br>German ..... 1<br>Unstated ..... 1 | Housework..... 7<br>Boiler maker..... 3<br>Ball player..... 2<br>Stone mason..... 2<br>Carpenter..... 1<br>Surgeon..... 1<br>Expressman..... 1 | Printer..... 1<br>Policeman ..... 1<br>Machinist ..... 1<br>Barkeeper ..... 1<br>Laborer ..... 1<br>Undetermined or unimportant.....50 |
| Paronychia .....68 | Male .....13<br>Female .....55 | 1st..... 3<br>2nd ..... 3<br>3rd .....14<br>4th .....20<br>5th .....13<br>6th .....10<br>7th ..... 1<br>8th ..... 1<br>Unstated ... 3 | Irish .....24<br>American. .....14<br>Jewish .....15<br>German ..... 4<br>Italian ..... 4<br>Swedish..... 3<br>Nova Scotian ..... 1<br>Polish ..... 1<br>Unstated..... 2 | Housework.....30<br>Bartender..... 2<br>Soda fountain .. .. 1<br>Jelly maker..... 1<br>Sugar factory..... 1<br>Physician ..... 1 | Carpenter..... 1<br>Rubber worker..... 1<br>Dentist ..... 1<br>Blacking maker..... 1<br>Fisherman ..... 1<br>Undetermined or unimportant.....27 |
| Psoriasis .....67 | Male .....41<br>Female .....25<br>Unstated ..... 1 | 1st..... 1<br>2nd ..... 2<br>3rd .....19<br>4th .....15<br>5th ..... 7<br>6th .....11<br>7th ..... 6<br>8th ..... 1<br>Unstated ... 5 | Irish.....23<br>American.....21<br>Jewish ..... 6<br>Swedish ..... 2<br>German..... 1<br>English ..... 1<br>Portuguese ..... 1<br>Fr. Canadian..... 1<br>Canadian..... 1<br>Unstated.....10 | Unimportant | Unimportant |
| Professional dermatitis without paronychia ..... .....62 | Male.....28<br>Female .....32<br>Unstated..... 2 | ..... .....<br>2nd ..... 1<br>3rd .....13<br>4th .....15<br>5th .....12<br>6th ..... 9<br>7th ..... 6<br>8th ..... 1<br>Unstated ... 3 | Irish.....36<br>American ... .....12<br>Jewish ..... 7<br>Swedish ..... 2<br>German ..... 1<br>Armenian..... 1<br>Italian ..... 1<br>Scotch..... 1<br>Unstated..... 1 | Housework. .....31<br>Cigar maker..... 3<br>Tanner..... 3<br>Sugar factory..... 2<br>Shoemaker..... 2<br>Tailor ..... 2<br>Glue works ..... 1<br>Grain handler..... 1<br>Meat handler..... 1<br>Barkeeper ..... 1<br>Hemp worker..... 1<br>Tinsmith..... 1<br>Stone mason..... 1 | Brass polisher..... 1<br>Soda fountain. ..... 1<br>Blacksmith ..... 1<br>Longshoreman ..... 1<br>Bookbinder ..... 1<br>Cement worker..... 1<br>Shoeblacking maker 1<br>Potash worker..... 1<br>Barber ..... 1<br>Ironer in laundry... 1<br>Bichromate of potash ..... 1<br>Brush maker..... 1 |

pressions, both of which occur in about 38% of the cases. After these four deformities come in the order of their frequency, simple hyperkeratosis subungualis, brittleness of the plate, thinning, opacity, vertical ridges, exfoliation, increased conto be imbibed by the plate cells. This leads to opacity and discoloration. In the subungual corium there is great dilatation of the vessels instead of the inflammatory edema observed in eczema. The prognosis is almost always good, but I have

| DISEASE | SEX | AGE BY DECADES | RACE | DISEASE | SEX | AGE BY DECADES | RACE |
|---|---|---|---|---|---|---|---|
| Syphilis.....28 | Male..... 19<br>Female..... 8<br>Unstated ... 1 | 1st..... 1<br>3rd ..... 2<br>4th ..... 7<br>5th..... 8<br>6th..... 5<br>Unstated ... 5 | Irish .....11<br>American .....10<br>Italian ..... 1<br>German ..... 2<br>Swede ..... 1<br>Polish..... 1<br>Unstated ..... 2 | Dermatitis herpetiformis .... 4 | Male ..... 2<br>Female..... 2 | 2nd ..... 1<br>3rd ..... 1<br>4th ..... 1<br>5th ..... 1 | Irish..... 2<br>Syrian..... 1<br>Jewish ..... 1 |
| No apparent cause..... 9 | Male ..... 4<br>Female ..... 5 | 1st..... 1<br>2nd..... 2<br>3rd ..... 1<br>4th ..... 2<br>5th ..... 1<br>6th..... 2 | American .. .. 5<br>Irish ..... 2<br>Jewish ..... 1 | Burn ..... 4 | Male..... 1<br>Female ..... 3 | 2nd..... 1<br>3rd ..... 1<br>5th ..... 1<br>7th ..... 1 | Irish..... 3<br>Unstated ..... 1 |
| Tinea favosa.... 8 | Male..... 4<br>Female ..... 5 | 2nd ..... 5<br>3rd ..... 1<br>4th ..... 1<br>6th ..... 1 | Jewish ..... 8 | Pus under nail.. 3 | Male ..... 0<br>Female..... 3 | 3rd ..... 1<br>4th ..... 1<br>5th ..... 1 | American ..... 1<br>German ..... 1<br>Irish..... 1 |
| Alopecia — bad teeth, bad nails 5 | Male. ..... 3<br>Female ..... 2 | 1st..... 1<br>3rd..... 2<br>4th..... 1<br>5th..... 1 | Irish..... 2<br>American ..... 1<br>German ..... 1<br>Unstated ..... 1 | Biting of nails.. 3 | Male ..... 3<br>Female ..... 0 | 3rd ..... 2<br>4th ..... 1 | Irish..... 3 |
| Xeroderma. .... 5 | Male ..... 0<br>Female . ... 5 | 1st..... 2<br>2nd..... 1<br>3rd ..... 1<br>4th .. ..... 1 | American ..... 4<br>Irish ..... 1 | Acromegaly..... 3 | Male..... 1<br>Female ..... 2 | 6th ..... 1<br>7th ..... 2 | Scotch ..... 1<br>Unstated ..... 2 |
| Arthritis deformans..... 4 | Male..... 0<br>Female ..... 4 | 6th..... 3<br>7th..... 1 | Irish ..... 3<br>American ..... 1 | Dermatitis exfoliativa ..... 3 | Male ..... 3<br>Female ..... 0 | 7th ..... 1<br>8th ..... 2 | American ..... 2<br>Unstated..... 1 |
| Tinea Tricophytina ..... 3 | Male ..... 1<br>Female ..... 2 | 3rd ..... 2<br>4th ..... 1 | Indian..... 1<br>American..... 1<br>Jewish ..... 1 | Ichthyosis..... 2 | Male ..... 1<br>Female..... 1 | 2nd ..... 1<br>7th ..... 1 | American ..... 2 |
| Keratosis Pilaris 3 | Male ..... 2<br>Female ..... 1 | 2nd..... 2<br>7th ..... 1 | Irish..... ..... 2<br>Unstated ..... 1 | Argyria ..... 1 | Male..... 1 | 5th ..... 1 | Irish..... 1 |
| Tuberculosis Verrucosa..... 2 | Male ..... 0<br>Female ..... 2 | 4th ..... 1<br>6th ..... 1 | Nova Scotian.. 1<br>Unstated ..... 1 | Acro-Arthritis.. 1 | Female..... 1 | 6th..... 1 | Jew..... 1 |
| Nervous Shock. 2 | Male ..... 0<br>Female ..... 2 | 3rd ..... 1<br>5th .... ..... 1 | Jew..... 1<br>Irish ..... 1 | Phthisis Pulmonalis..... 1 | Male ..... 1 | 6th..... 1 | Unstated..... 1 |
| X-Ray Dermatitis..... 2 | Male ..... 2<br>Female ..... 0 | 3rd ..... 1<br>4th ..... 1 | American..... 2 | Hydroa Aestivale ..... 1 | Male ... .... 1 | 4th..... 1 | American ..... 1 |
| Vitiligo..... 2 | Male ..... 0<br>Female ..... 2 | 4th ..... 1<br>5th ..... 1 | American..... 1<br>Irish..... 1 | Pityriasis Rubra Pilaris ..... 1 | Male ..... 1 | 1st..... 1 | American ..... 1 |
| Pruritus ..... 2 | Male ..... 0<br>Female ..... 2 | 2nd... ..... 1<br>3rd ..... 1 | Irish..... 1<br>Jew..... 1 | Injured Spine... 1 | Male ..... 1 | 4th..... 1 | American ..... 1 |
| Psorospermosis. 2 | Male ..... 0<br>Female ..... 2 | 2nd..... 1<br>4th ..... 1 | French Canadian ..... 1<br>Negress..... 1 | Myxoedema..... 1 | Female..... 1 | 7th..... | Irish..... 1 |
| Raynaud's Disease .. .. 2 | Male ... 0<br>Female ..... 2 | 4th ..... 1<br>5th ... ..... 1 | Irish..... 1<br>Nova Scotian.. 1 | Neurasthenia... 1 | Female..... 1 | 7th ..... | Unstated ..... 1 |

vexity, total loss of the nail, broken nail, koilonychia, disappearance of lustre, transverse ridges and vertical depressions.

Pathologically, the psoriasic papules form on the bed, raising up the plate and allowing the air

observed severe cases of many years' standing, where the nails have completely fallen, never to return again.

*Dermatitis professionalis.*— Under this title will be considered the sixty-two cases of acute

dermatitis of the hands and fingers, which can be directly attributed to some noxious occupation or to some chance poisoning of the skin. Here the commonest symptom is koilonychia, which appeared in about 40% of my cases. Other frequent changes in the nail are round punctate depressions, discoloration, transverse depressions, vertical ridges and hyperkeratosis subungualis, with its usual sequelæ.

Syphilis of the nails is not a common condition, and forms only 5% of my cases. Like the general constitutional disease, syphilitic manifestations on the nail may be divided into those resulting from the primary lesion, from the secondary eruption and from the late changes of the disease.

A chancre on the nail wall is followed in a short while by a series of parallel transverse depressions with or without discoloration, or the change may be more intense, and the plate will ulcerate and drop off in part or *in toto*.

The secondary stage of the disease shows itself usually in one of two ways: (1) By the formation of a papule on the bed, and (2) by a general, moist ulceration of the nail. The formation of a papule on the bed is indicated by a red spot in the plate, which becomes yellow with the subsidence of the lesion. The plate over the papule becomes thinner, and may be broken even, while the horny layer of the bed thickens, and as a result leuconychia may ensue. The secondary ulcerations of the nail are the most frequent syphilitic manifestations, and the disease is characterized by the large percentage of the nails involved. The first signs are redness and swelling of the last phalanx accompanied by pain. The nail walls become affected, and the epidermis is raised by fluid, and finally ulcerates. Pus appears from the eponychium and from under the plate on the sides, and causes the plate to look yellow. Blood is imbibed by the plate cells and the nail becomes red and later black. Ulcerations appear along the bed, and, as a result, the nails fall. If the matrix is affected, nails may not be reproduced, or may grow again gryphotically deformed. The restitution of such nails is always a long and tedious task, and must be accomplished by mild local antisepsis and prolonged general antisyphilitic treatment.

The nail lesion associated with late syphilis usually assumes a dry form, and has been termed scabrities unguium syphilitica or onyxis craquelé. At the root of the nail white punctate depressions form in vertical series brought about by parakeratosis and acanthosis of the bed. These pathological processes prevent the formation of onychin, and as a result we find hyperkeratosis of the bed or a thickened, yellow, crumbling plate.

Although favus and ringworm of the nails are very rare conditions, still I want to add a few words about them, for, in my opinion, they are two conditions which I feel that an expert ought always to diagnosticate provisionally when confronted with severely abnormal nails.

Tinea tricophytina of the nail is a very rare condition, and is usually caused by the megalosporon. The disease first appears at the distal end of the nail and gradually spreads backwards. The plant first attacks the bed, producing an opacity and discoloration of the plate which usually assumes a whitish yellow tint. As the disease progresses, the color darkens, even to a brown, but never reaches black, as is so often the case in favus. Coincident with the progressive color changes, the bed becomes more and more hyperkeratosic, the plate is raised more and more from the bed and shows transverse depressions, transverse elevations or vertical ridges, and finally the plate itself is attacked and becomes rough on the surface, exfoliates in lamellæ, atrophies or splits and is finally cast off. The disease is essentially a very chronic one, and even when properly treated, requires at least two years for its thorough eradication. If left to itself, the plant has been known to remain active in the nail substance even up to thirty years. A positive diagnosis is extremely difficult, for even although we have excluded to our satisfaction all other possibilities, the spores may elude the most diligent microscopical investigation — in fact, it is only when one has demonstrated conclusively the characteristic spores that one can state positively that one is dealing with ringworm of the nail. On the other hand, if the nail presents the clinical characteristics above enumerated, and ringworm is present elsewhere on the patient's body, we have a certain right to assume that the nail is similarly infected.

Tinea favosa of the nails is more commonly observed than ringworm, but the clinical appearances of the two diseases are quite similar. The plant attacks the distal end of the bed and produces an opacity and discoloration of the plate. The hyperkeratosis spreads backwards and the plate is raised from its bed, becomes darker and darker in color, even to blackness, and its surface shows transverse depressions, or ridges. Often the substance of the plate is attacked, and assumes a honeycombed appearance, which soon leads to crumbling and splitting and final loss of the nail, or the hyperkeratosic granules are extruded from the bed, leaving, as sometimes occurs in ringworm, a hollow space underneath the atrophied and brittle nail plate.

The disease may be caught from domestic animals, or from one's neighbors, and often occurs in two or more members of the same household. The Russian Jews seem to be particularly liable to infection, and all my eight cases occurred in people of this race.

Histologically, one finds a thickened prickle layer of the bed, elongated papillæ and an enormously hypertrophic horny layer in which the Achorion Schœnleinii appears. The fungus is not so abundant at the distal end of the plate as farther back, and its mycelium grows parallel with cells of the stratum corneum. The process is much more chronic than in the scalp, and follows closely the characteristics of ringworm both in its life history and in its treatment.

This brings me to the end of the diseases which

I shall here describe, and for want of time I leave to you the interpretation of the table which I have prepared from my detailed notes. I think from what I have read to you this evening and from what you can see on the tables, that you must agree with me in the conclusion that at the present time nobody can claim sufficient knowledge to make a positive diagnosis without the aid of the microscope, when one is confronted by the presentation of diseased nails, unless the skin is also attacked, for we can all see how the same lesions appear over and over again in almost all of the diseases.

## A PROBABLE MYXOFIBROMA OF THE NOSE.

BY SEABURY W. ALLEN, M.D., BOSTON.

THE subject of these photographs was found in a small Maine village last summer. He was thirty-four years old, about four feet in height, of healthy parentage and unusual intelligence.

Twenty-two years ago he noticed a slight protrusion of the lower left eyelid, and some months later a soft, friable, easily bleeding tumor appeared at the left nostril. From that time the growth has been slowly progressing, and has lately emerged from the mouth, having come through the hard palate and separated the upper teeth. Owing to the obstruction, there is difficulty in articulation and in eating, and until recently there has been a continuous discharge of saliva and muco-pus, the latter coming from the centre of the mass, which has sloughed away, leaving a cavity as large as one's fist. There is only a slight loss of the sense of smell, which is unfortunate, for the odors of the collections and discharges make the patient's life almost intolerable. The left eye has lost its sight, but not its sensitiveness; neither eye can be completely closed, because of ectropion of the lower lids.

Some six years ago Dr. Gerrish of Portland, Me., saw the case with the view of operating, but declined to interfere on account of the difficulty of etherizing and the danger of fatal hemorrhage. The seven x-ray exposures which I was able to give him before my return to Boston, greatly diminished the odor and the amount of discharge, and both the patient and his family thought that the mass as a whole had shrunken, though I was not sure of this. However, the patient was stronger and better than before, which was probably due to the diminution of the discharge, so lessening the great drain on the system.

It is to be regretted that a specimen for histological examination could not be obtained. Permission for this was refused, on account of the fear of hemorrhage, the patient several times having almost bled to death from slight excoriations of the soft parts.

IT is reported that Prof. Adolf Lorenz of Vienna is to receive the degree of LL.D. from Northwestern University, Chicago.

# Clinical Department.

## GUNSHOT FATALITY; SOURCE OF SHOOTING PROVED BY AN EXAMINATION OF AMMUNITION.[1]

BY O. J. BROWN, M.D., NORTH ADAMS, MASS.

UPON the evening of Sept. 28, 1896, I was called by the selectmen of Williamstown to view the body of Benjamin F. Moon, found lying dead in a forest two miles west of the college village. It was a dark night, and we proceeded with lanterns. The body lay in an unfrequented spot, about eight rods from a clearing, surrounded by heavy timbers and dense underbrush.

It was the body of a strong man, about thirty years of age, medium size, five feet seven and one-half inches tall. It was lying on back, head toward west, legs and thighs slightly flexed, the right one most. The right forearm and hand a little flexed. The left forearm and hand lay upon chest. He had on a hat, dark sack-coat, vest, two shirts, socks and Congress shoes. Around his waist was a cartridge belt containing a few unused cartridges. A breach-loading shotgun containing a cartridge shell stood leaning against a tree, five feet away from the body. Upon turning the body on side, I found that it was lying in a pool of blood, and an opening about the size of a hen's egg was discovered in his back, a little to the right of the spinal column, and just below the right scapula. It was evidently a ragged gunshot wound. It entered the body in nearly a direct line, deflecting in neither direction. There were no powder marks upon either clothing or body. How did this man come to his death?

A neighbor named Coon, who was present with us, volunteered the following: He (Coon) had called at deceased's house about noon, and between one and two o'clock they started from the house together to hunt squirrels. They kept together until about three o'clock. They had not been separated more than ten minutes, when Coon heard the report of his companion's gun, and heard him say, "O dear!" He then hastened toward the spot the sound came from, and found his companion lying upon the ground, in the position described. He got down on his knees twice and spoke to him, but got no reply. He claimed that his companion's gun lay on the ground seven feet away. This, Coon had picked up and placed against the tree. He then ran out of the woods into a clearing and called to a farm-hand, named Donnelly, who was there engaged digging potatoes. Donnelly notified his employer, who drove to the town and notified the authorities. Coon returned to the body and remained until dark, then came to meet us.

He told others about the same story he told me. He thought Moon must have had hold of the muzzle of his gun, dragging it through the

[1] Read before the annual meeting of the Massachusetts Medico-Legal Society, June 10, 1902.



FIG. I.— Taken slightly from the right side; neither eye would have shown in a full-face view.



FIG. II.— Shows separation of the upper teeth. Arrow points to right nostril.



FIG. III.— Upper arrow points to slough, lower arrow to mouth. Left eye has lost its sight.



FIG. IV.— Arrow shows discharging mucus.



FIG. V.— From below. Upper arrow points to left canine tooth, lower one to lateral incisor. Tumor presents from the mouth.

underbrush, and while climbing over a high log, which was near the body, tripped and, as the breach was jerked over the log, exploded the cartridge. It was common, he said, for hunters to carry their guns cocked ready for game. This theory seemed so plausible that no one present questioned it. The location of the wound was such, however, that this solution of the case was to me most unsatisfactory. While not impossible, it seemed very improbable, at least, that Moon could inflict the fatal wound upon himself.

Coon had on a cartridge belt similar to the one around deceased's body, and he still carried his shotgun. Acting upon my advice, he gave these into the custody of a constable who was a member of our party. All of the possessions found upon the body of deceased were also placed in the constable's hands for safe-keeping.

We carefully identified and marked weapons, belts and cartridges, and the following morning, Sept. 29, an autopsy revealed that death was caused by the gunshot wound, and that no contributing cause could be found. The oval-shaped wound, $1\frac{1}{2}$ by $1\frac{3}{4}$ inches on the surface, extended nearly through the body. The eighth, ninth and tenth ribs were fractured. The pleuræ, lungs, diaphragm and liver were badly lacerated, and a larger portion of the charge had lodged in the heart. Most of the shot were flattened.

Over three dozen of these were secured, and after careful rinsing, to remove blood and serum, were sent by two witnesses to Leaverett Mears, professor of chemistry at Williams College, for weighing. A cartridge from each of the hunters' belts was sent him at the same time. Professor Mears returned the following:

> This is to certify that I have weighed three specimens of shot brought me by Thomas Dumfries and Dr. L. D. Woodbridge, with the following results: One dozen flattened shot (used), more or less abraded, selected at random, 4.4 gm.; one dozen shot, selected at random from a buff-colored, unexploded cartridge, 5.65 gm.; one dozen shot, selected at random from a purple-colored, unexploded cartridge, 4.57 gm. The shot in the two cartridges vary greatly in size.

The shot from the purple cartridge (used by Coon) resembled those found in the wound, while those in the buff-colored cartridge (used by deceased) varied greatly. That Coon had shot his neighbor and emphatically lied about it, was very evident.

He was under a close surveillance of officers. The relations between the two men were carefully investigated. They were proven to have been the best of friends. No motive could be found for foul play. Our conclusion was that the shooting was accidental and that Coon dare not confess. The court postponed further inquest. Coon was a tenant of his and had worked for him, was poor and had a family, and the judge did not want him imprisoned. He therefore let the matter quietly rest.

Two months later Coon visited me and demanded permission to receive his gun, which was still in the officer's possession. I received him in my private office and acquainted him with my theory of his having done the accidental shooting and, for fear of arrest, telling an unmitigated falsehood. He then broke down completely and, crying like a child, made a full confession, saying he had rather be hanged than suffer the conscious pangs of such secret wrongdoing. No arrest was made. The tender heart of the court allowed the case to rest.

## A FATAL CASE OF MANDRAKE POISONING.[1]

BY A. W. BUCK, M.D., FALL RIVER, MASS.

The rarity of fatal cases of mandrake poisoning is the reason for my reporting this one.

Mrs. M., age thirty-one and in good health, on the morning of Feb. 7, 1902, asked a neighbor for some laxative medicine. The neighbor took from an unlabeled paper bag a teaspoonful of what she supposed to be compound licorice powder. This was mixed with a little water, and Mrs. M. drank it. She then (this was at 8.30 A.M.) ate a little breakfast, some egg and bread, but was soon seized with vomiting and purging. A doctor was sent for, who did not see her until 12.30 P.M. Meanwhile the vomiting and purging had continued. The patient had complained of feeling chilly and had gone to bed. Her condition, however, did not alarm her physician, who wrote a prescription calling for a small amount of bromide of soda, bicarbonate of soda and syrup of ginger, to be given in a little water, and left directions that he should be called if she was any worse. Mrs. M. took three doses of this prescription and then appeared to be resting quietly. Vomiting and purging stopped at 2 P.M. Her friends noticed that she appeared drowsy and somewhat difficult to rouse, but thought she was doing well. She continued to sleep quietly through the night, but at 7 A.M., finding that she could not be roused, the physician was again summoned. When he arrived at 8 A.M. the patient was dead.

Subsequently the powder was recognized as mandrake. Another similar bag contained compound licorice powder. No autopsy was made, because of the opposition of the family, and the recognition and acknowledgment of the accidental administration of the drug.

When I viewed the body at 9.30 A.M., Feb. 8, it lay in a position of repose. Pupils moderately dilated. Rigor mortis not present.

I regret that I am unable to give more accurate account of the symptoms, the only prominent features of which (and these I believe to be characteristic) were the vomiting and purging, their cessation with the approach of coma, deepening coma,— without stertorous breathing,— and death.

[1] Read before the annual meeting of the Massachusetts Medico-Legal Society, June 10, 1902.

# Medical Progress.

## PROGRESS IN THERAPEUTICS.

BY ELLIOTT P. JOSLIN, M.D., BOSTON.

### THE TREATMENT OF ACUTE AND CHRONIC NEPHRITIS.

v. Noorden[1] has recently combined in a monograph his publications on this subject. They differ from those of other writers in many respects, and

[1] August Hirschwald, Berlin, 1902.

in many ways appeal to us from the standpoint of scientific therapeutics. v. Noorden first reviews the treatment of nephritis as it now exists. In acute nephritis importance is chiefly laid on a milk diet until the symptoms disappear. In subchronic forms the same rule holds to a greater or less extent. In interstitial nephritis the procedures are less uniform, though milk is an important factor in the diet. The reason for this is the common belief that the kidneys should be spared as much work as possible. In this general opinion v. Noorden coincides, but would carry it out in a very different way.

Clinical experience he considers the first and most important criterion at our disposal by which the value of any plan of diet in sparing the kidneys can be estimated. The intensity of the albuminuria stands next. The latter is misleading, especially if any comparison between the excreted amounts of albumin of different patients is attempted. An opinion as to the severity of a chronic nephritis by this means leads distinctly to false conclusions. The time occupied in the excretion of various medicaments or easily recognizable chemical substances is still another method, but too inconstant and varies too much from the excretory conditions of the normal metabolism to enable us to draw satisfactory conclusions.

The results of metabolism experiments form the basis of all v. Noorden's protective treatment. The mother substances of those products which are excreted in diminished amount (and so with difficulty (?)) are to be avoided in his régime. In acute nephritis and exacerbations these embrace urea, creatinin, coloring matters, hippuric acid, phosphates and inorganic sulphates. Water is very poorly excreted in the beginning of the disease, more readily as it progresses. Consequently, all the sources of these substances must be excluded from the diet of patients with acute nephritis as far as possible or practicable. Albumin should therefore be given in nephritis in the smallest allowable quantity, even as low as 60 gr. (2 oz.) in twenty-four hours.

Abundant use of milk is entirely improper in acute nephritis because it contains so much albumin. Three to three and a half pints of good cow's milk contain the necessary amount of albumin, and should at no time be exceeded. By addition of cream and milk sugar, the required number of calories can be obtained; 1,500 cc. milk and 375 cc. cream contain about 55 gm. albumin, 70 gm. milk sugar and 165-170 gm. of fat, which are equivalent to about 2,050 calories. This is enough to prevent a patient losing weight if in bed. During convalescence the albumin in the diet can be increased to 100 or 110 gm. daily. v. Noorden avoids large quantities of milk for still another reason. Milk contains a considerable quantity of phosphorus, and phosphoric acid appears to be eliminated by nephritic patients with difficulty. To still more reduce the phosphorus he recommends giving with the milk small doses of calcium carbonate. This unites with the phosphoric acid in the intestine to form calcium phosphate which is not absorbed. Since creatin is excreted with difficulty, he restricts the substances from which creatin is formed — namely, meat and meat extracts; for the same reason, substances like hemoglobin, which give rise to the coloring matter in the urine, are interdicted, and those finally which lead to the formation of hippuric acid, like vegetables and fruits containing stones. Since ammonia is excreted without difficulty in acute nephritis, v. Noorden advises the administration of HCl, as by this means a part of the nitrogen will be eliminated from the body in the form of ammonia, to neutralize the acid, instead of as urea — which he has found to be slowly excreted. Vinegar and foods containing acetic or similar acids are harmless, because they are oxidized in the body into water and carbonic acid. The use of organs rich in nucleo-albumins, like sweetbreads, spleen, liver and kidneys is deleterious because of the purin derivatives (xanthines, uric acid) which are formed from them. He makes no difference between white and red meats, because it has recently been shown that their content of extractives is much the same. Alcohol is considered injurious in acute nephritis. In cases of cardiac weakness with small, thready pulse, however, small, frequently repeated doses of alcohol in concentrated form are indicated. Small quantities of wine or diluted brandy have, in his opinion, a favorable influence on the appetite and diminish nausea. For this reason they cannot often be dispensed with.

Contrary to customary procedures v. Noorden recommends the curtailment of liquids to three or three and a half pints, as long as the disease is acute, because at this time water is excreted with difficulty. If, notwithstanding this restriction, diuresis fails, help must be sought in diaphoresis. After dropsy has disappeared, there is no use in sweating, and water can be given freely. Medicines are undesirable in the early stages. When an inveterate edema is present in the convalescence of acute and in several forms of subchronic nephritis, v. Noorden recommends a change in climate, such as the Egyptian Desert or Southern Russia.

Patients with interstitial nephritis are to be treated on the same principles as patients with heart disease. v. Noorden lays great weight on the restriction of liquids, allowing not over one quart and half a pint in twenty-four hours. Fluids, however, must not be restricted suddenly, but gradually. v. Noorden does not believe that the excretion of urinary products by this means is delayed, but to surely guard against this possibility he allows a "drinkday — *Trinktag*" each week, on which day fluids can be taken at will. Further, every two or three months longer periods of free liquids are prescribed. In interstitial nephritis complicated with gout, the same rules hold, but with patients who suffer also with uric acid calculi he would allow more "drink days," and every two months, a week of unrestricted liquids.

Dietetic rules are to be adapted to facts already known, namely, that in the long stages of

chronic nephritis, when the patient is, on the whole, in good condition, the excretion of urinary products is not essentially disturbed; in periods of exacerbation a change is made according to the principles enunciated above. He forbids alcohol entirely in cases of interstitial nephritis, unless its complete withdrawal leads to disturbances in nutrition.

BROMOKOLL.

Bromokoll [2] is one of the newer bromide preparations. The dosage is the same as that of potassium bromide, but it is more readily taken and better borne by the digestive tract. Acne occurs only exceptionally and heals with readiness. Bromokoll is not very expensive, and is indicated when unfavorable results are obtained from the ordinary salts of bromine.

AGURIN.

Agurin [3] is a substitute for diuretin. The taste is less disagreeable and the stomach is less irritated by it on account of the absence of the salicylic acid radical. Agurin is a double salt of sodium theobromine and sodium acetate, and its properties are the same as those of diuretin. One gram (15 grains) three times daily is the dose.

BEHRING'S RECENT WORK ON TUBERCULOSIS.

In the June number of the *Therapie der Gegenwart* is given a brief account of Behring's recent work, by which he hopes to protect cattle against tuberculosis. The subject is of importance from so many points of view that it deserves mention here. The principle is the same as that of Jenner's vaccination in smallpox or Pasteur's protective inoculation of sheep against anthrax. A modified or weakened virus protects against later infection with the virus of full strength. Behring injected cattle subcutaneously with large quantities, even using half a liter, of the bouillon culture of virulent human tubercle bacilli. No tuberculous infection resulted, or even obvious illness. But he had no method of surely showing whether immunity was produced until Koch's London publication of a year ago. In this Koch demonstrated that there are cultures of tubercle bacilli which no matter how introduced into cattle can produce miliary tuberculosis, without fail, in a few weeks. These cultures are obtained from the tuberculous nodules of cattle. Behring's cattle treated with human tubercular cultures were immune against inoculation with the fatal dose of bovine tubercle bacilli thus obtained. Having proved that this method of treatment was successful against laboratory or artificial infection, Behring has started a series of experiments in which cattle rendered immune by injections of human tubercle bacilli are exposed to infection by contact with other cattle in advanced stages of tuberculosis. If this new series of experiments is successful, bovine tuberculosis will soon be much lessened or eventually exterminated and the possibility raised of "Immunity of cattle to bovine tuberculosis by human bacilli, and vice versa."

THE CURATIVE ACTION OF LARGE DOSES OF OLIVE OIL IN ORGANIC AND SPASTIC STENOSES OF THE PYLORUS AND DUODENUM AND THEIR CONSEQUENCES (GASTRECTASIA).

Cohnheim [4] reports his experience in eleven cases in the treatment of the above conditions with olive oil. He used the oil methodically in all cases of chronic diseases of the stomach even if stasis was absent, in which (generally two to four hours) after meals violent cramp-like pains occurred, extending from the epigastrium to the back. Some of these cases had been under treatment for years and had only received transitory relief so that surgical procedures appeared indicated. In all patients in whose cases the indication had been rightly diagnosed, the oil promptly put an end to the colicy gastric pains. In hysterical contractions of the pylorus it failed. Cohnheim usually puts 100 to 150 cc. into the empty, cleaned stomach in the morning. The patient then lies for fifteen to twenty-five minutes on the right side and does not eat till an hour later. If, notwithstanding, in the course of the day, pains still frequently occur, he prescribes 50 cc. of oil at night before going to bed. In one instance the patient thus was enabled to sleep through the entire night for the first time in months. After a time he gives the oil in doses of one to two tablespoonfuls one-half hour before meals. All the patients took the oil without difficulty and praised its action in relieving cramps. There were no harmful results. The oil was given lukewarm and a pinch of salt or a swallow of brandy used to disguise the taste. For the cure of gastric dilatation due to spasm of the pylorus, several weeks' treatment is necessary.

PHOSPHORIC ACID IN RICKETS.

Leo [5] reports two fatal cases of phosphorous poisoning in rachitic children. Both children received ten drops twice daily of a 1 to 1,000 solution of phosphorus in olive oil. The first case was a child two and one-half years old, who took the medicine for fifteen days on account of spasm of the larynx. The child thereupon became apathetic and markedly jaundiced, and in five days death supervened. The autopsy revealed an extreme grade of fatty degeneration of the heart, kidneys and liver. In the second case the peculiarity of the course was still more striking, for toxic symptoms did not occur until after the lapse of one-half year. Death ensued after the development of jaundice, markedly enlarged liver and increasing prostration.

*(To be continued.)*

Dr. Jacques Loeb of Chicago has accepted an appointment to a new chair of physiology at the University of California.

[2] Centrbl. f. inn. Med., 1902, p. 822.
[3] Centrbl. f. inn. Med., 1902, p. 822; Die Therap. der Gegen., 1902, p. 247.
[4] Die Therap. der Gegen., 1902, p. 68.
[5] Centrbl. f. inn. Med., 1902, p. 560.

# Reports of Societies.

## AMERICAN DERMATOLOGICAL ASSOCIATION.

TWENTY-SIXTH ANNUAL MEETING, HELD AT HOTEL BELLEVUE, BOSTON, SEPT. 18, 19 AND 20, 1902.

(Concluded from No. 19, p. 526.)

### FIRST DAY.

#### THE CLINICAL ASPECT AND TREATMENT OF SOME AFFECTIONS OF THE FINGER-NAILS.

DR. FREDERICK J. LEVISEUR of New York presented this paper. In connection with his paper, the reader showed some photographs and wax models illustrating affections of the nails due to various occupations, among them fur-dyeing, and the handling or manufacture of Paris green. One of the models illustrated a very curious disease called koilonychia (spoon-nail), due principally to pathological changes of the nail-bed. It consists in a transverse elevation in the centre of the nail, dividing the latter into two excavated parts. The writer called attention to the fact that the frequent combination of pathological changes in the nails and pompholyx seems to have escaped the attention of those who have written about this disease.

DR. ZEISLER said he could bear out Dr. White in his statement that it is not possible to make a definite diagnosis from the appearance of the nails unless there are concomitant changes in the skin, because the changes in the nails are apt to vary greatly.

DR. GEORGE T. ELLIOT of New York referred to affections of the nails due to systemic conditions. He has seen a large number of cases of nail disease in the way of malformations, ridging, brittleness, disturbed nutrition, etc., which were absolutely traceable to gout; others, which were due to anemia, and where the nail affection disappeared with the correction of the blood condition. He emphasized the value of the microscope in the diagnosis of nail affections.

DR. CHARLES W. ALLEN of New York spoke of nail affections resulting from the use of dye stuffs. He has arrived at the same conclusion as Dr. Leviseur, that the new combinations of pyrogallic acid and peroxide of hydrogen that are now so commonly employed for dyeing purposes produce lesions of the nails and skin which we were not accustomed to see before.

DR. HYDE referred to the individual idiosyncrasy of certain persons to disease of the nails. While at least 75% of our syphilitic patients will never have diseased nails, still, when we do see a case of syphilitic nail disease, it is usual to find quite a number of the nails affected. The same is true of psoriasis.

#### NOTE ON THE HISTOLOGY OF HERPES ZOSTER.

DR. S. POLLITZER of New York read this paper. This paper consisted of the report of a case which illustrated the peculiar variation in the anatomical seat of the vesicles in herpes zoster. The patient was a young man on whose left shoulder and arm there were three perfectly typical herpes groups, each made up of from five to fifteen vesicles. Clinically, the case presented nothing unusual, but microscopically the closest scrutiny failed to disclose any of the usual changes in the Malpighian layer of the surface. The vesicle was found to lie in every case directly over the surface of a hair follicle. There was nothing of the usual multilocular structure of the zoster vesicle. The essential histogenetic changes were found to lie further down in the hair follicle. In other words, we have here a herpes zoster affecting the rete Malpighii of the hair follicle exclusively. This form of zoster, which may be called zoster of the hair follicle, has not been before described.

#### REPORT OF A CASE OF BLASTOMYCOSIS OF THE SKIN.

DR. I. DYER of New Orleans made this report. This case was interesting because of its typical characteristics, its long duration in spite of active treatment, its gradual and progressive advancement, the age of the patient (seventy-seven years), and the distribution of the lesions.

#### A PRELIMINARY NOTE ON THE FREQUENCY OF POMPHOLYX IN NEW ORLEANS.

DR. DYER, the reader, stated that the commonest variety of this affection finds its location on the feet; it is almost invariabiy found on the solar aspect, the internal surface, always on the toes, and not infrequently extends to the ankles and the lower third of the leg. The eruption is made up of pin-head sized vesicles, grouped in clusters, irregularly composed of from half a dozen to as many as fifty or more lesions, deep seated, uniform in size, and with some tendency to confluence. The contents of these vesicles is fluid, clear and transparent, and somewhat sticky. The history of these cases is nearly always the same. The patient will complain either of an unusual dryness of the feet, with lack of perspiration, or he may tell you that at all times sweating is excessive. The feet burn and sting, sometimes swell, and when the vesicles begin to make their presence felt underneath the skin there is intense itching, which persists until the scratching or rubbing ruptures the vesicles and allows the fluid contents to escape. The eruption may also occur on the palmar and dorsal surfaces of the hands, and there are cases in which both the upper and lower extremities are involved, as well as the axilla, neck and face. The treatment consists of strychnia internally, with diuretics and astringent lotions.

DR. HYDE said that in the cases of pompholyx which he had seen, he invariably examined the heart, and this in many instances had revealed the presence of a cardiac lesion. Some had a cardiac murmur, some merely a weak heart, and in some there was functional disturbance treaceable to the excessive use of tobacco or tea. The car-

diac disturbance causes first a passive congestion, particularly of the feet, because those extremities are at such a distance from the circulatory centre; this is followed by a transudation of serum, then the maceration, then comes the dermatitis, and then the other cutaneous symptoms which Dr. Dyer described.

Dr. Ravogli said that while he agreed with the opinion expressed by Dr. Hyde, that the circulation has much to do with the production of these peculiar eruptions, he thought the vasomotor nerves must also be taken into consideration.

### SECOND DAY.

### ACNE VULGARIS; SYMPTOMS AND TREATMENT.

Dr. G. H. Fox of New York read this paper. He referred briefly to the various clinical forms of acne vulgaris, and called attention to the irritable and the indolent type. In the former, he said, local treatment does more harm than good, while in the latter, vigorous local measures are indicated and often produce brilliant results. It is a mistake to regard the disease as purely local; the internal treatment is too often made subsidiary to the customary salve or lotion. Whatever measures will improve the functional activity of the various organs, and raise the tone of the patient to its normal pitch, will strike at the root of acne and will certainly tend to increase the beneficial effect of local remedies. The various lotions and creams and balms usually recommended for the cure of acne are fakes in their conception and failures in their action. They accomplish no curative result which cannot be more speedily obtained in other ways, and the writer said he had no hesitancy in declaring them, one and all, to be of no practical value. The best that can be said of them is that they do no harm. Electricity has been recommended as stimulating, but the same results can be accomplished by other and better methods. In the local treatment, the best results are to be obtained by massaging, and the use of an instrument intended to empty the obstructed follicles. The massaging should consist of vigorous and frequent pinching of the skin of the face. No injury can be done to the skin, so long as the patient is conscious and able to protest against the too violent use of the fingers. This massaging should be repeated every day, and should be as vigorous as possible. The various instruments devised for the expression of comedos serve a useful purpose and may be advantageously employed. The instrument should press only on one side of the follicle. Dr. Fox said the instrument he preferred was the circular curette, about the size of a finger-ring. In conclusion, the speaker said that if he were asked to give the treatment of this disease in the fewest possible words, he would simply recommend strict diet, cold baths, systematic exercise and the frequent use of the curette.

Dr. J. S. Howe of Boston said that in recent years he has come more and more to the conclusion that the surgical treatment of acne, as we might call it, is the treatment *par excellence*.

Dr. D. W. Montgomery said he looked upon acne as an expression of the seborrheal state, in which the ingestion of an undue quantity of fermentable food plays an important role. He advised the dilution of the food with plenty of green vegetables, and would limit the quantity of bread-stuffs, meat and potatoes. He believed in the value of local treatment; at any rate, in the use of sulphur ointment.

Dr. A. R. Robinson of New York said that in acne we have to consider the direct exciting cause, the predisposing factor and the concomitant factors. The infecting organism, which he believes is particularly the staphylococcus albus, plays a secondary part: there must be something in the soil that renders it favorable for the production of folliculitis and perifolliculitis. The treatment of these cases consists in getting rid of the keratosis and preventing the comedo formation. Any drug that will produce a scaliness of the upper layer of the epidermis is of benefit. He usually favors the sulphur preparations. He does not use the curette, does not scrape the skin and very seldom resorts to friction.

Dr. Sherwell said that acne occurs particularly in the youth of both sexes, and he has long been inclined to attribute it largely to troubles connected with the organs below the brim of the pelvis. In the treatment he resorts to both constitutional and local measures.

Dr. C. W. Allen favored the external treatment rather than the internal, and laid great stress upon the expression of each tiny comedo, many of which must be searched for quite diligently.

Dr. J. A. Fordyce said he thought local conditions had more to do with the causation of acne than general conditions. At the age of puberty, when the horny layer of the skin is active, we have a hyperkeratosis. The speaker said he favored the use of local remedies to produce scaling of the skin; for this purpose he preferred sulphur, naphthalin and green soap.

Dr. William T. Corlett agreed that local applications were of more importance than constitutional measures.

Dr. I. Dyer thought that acne was usually associated with constipation, and that each case must be treated individually, according to the conditions met with.

Dr. C. J. White said he thought the majority of cases could be successfully treated by the use of soaps and washes; in a certain number of cases, however, no form of treatment seems beneficial.

Dr. G. F. Harding said we must individualize in every case. In the small, recurrent type of acne he has found the internal use of ichthyol or ergot particularly beneficial.

Dr. E. B. Bronson said he was convinced that the fundamental, essential factor of acne was a structural trouble incident to the adolescent developmental period. This does not imply that there

are no accessory factors which have an important bearing on the disease.

DR. H. W. STELWAGON said he was inclined to take the view of the French writers, who believe that when you say acne, you say stomach or indigestion. The remedy which has served him very well in the treatment of the indurated type of acne is cod liver oil, in small doses. As regards the external treatment of acne, he thinks we can get better results from lotions than from the curette, although he resorts to surgical treatment occasionally.

DR. H. G. KLOTZ said he regarded acne as the result of secondary infection of sebaceous elements. The lesions should be treated surgically and antiseptically.

DR. JOSEPH ZEISLER said he had discarded all local and internal treatment of acne in favor of the Rœntgen ray. He has employed the rays in thirty-four cases of acne, and the results are superior to anything of the kind he had ever before seen.

DR. JAMES C. WHITE said that in the local treatment of acne, he regarded sulphur, corrosive sublimate and resorcin as the best remedies. Functional and organic disturbances should be rectified as far as possible. The Rœntgen rays have given marvelous results in certain types of acne.

DR. HYDE said that while he did not agree with Dr. Fox that the curette was the sole method of treating acne, he thought it was the best method.

DR. DUHRING said he had learned from experience that the internal economy was the seat and cause of most cases of acne. One of the most common causes is alimentary derangement, particularly of the colon.

DR. FRANK H. MONTGOMERY of Chicago said there was no doubt that the result of x-ray treatment was brilliant in some cases of deep-seated acne, where the follicles are being rapidly destroyed, and in which the usual methods of treatment have been unavailing.

DR. FOX, in closing the discussion, said he was somewhat grieved to find among a body of men of such vast experience, such manifest and wide differences of opinion in regard to the treatment of such a common disease as acne. In recommending very strongly the mechanical method of treating acne, he has not said that exfoliative applications, such as sulphur, are not beneficial. He simply believes they are less effective than the curette. He expressed doubts as to the ultimate value of the x-ray treatment in this disease.

ANOTHER INSTANCE OF A DISEASE CAUSED BY A FUNGUS.

DRS. D. W. MONTGOMERY, HOWARD MORROW and H. A. L. RYFKOGEL of San Francisco presented this paper, which was read by Dr. Montgomery. The authors reported a case in which severe skin lesions were apparently produced by a fungus which bore some resemblance to that found in blastomycosis, although its identity with the latter was not established.

A CASE OF CUTANEOUS BLASTOMYCOSIS FOLLOWED BY LARYNGEAL AND SYSTEMIC TUBERCULOSIS.

DR. F. H. MONTGOMERY of Chicago presented this paper. The case was one of cutaneous blastomycosis of several years' duration, which improved under treatment with potassium iodide. The patient disappeared from observation for a few weeks, and returned with acute bronchitis and laryngitis. The acute symptoms subsided, and were followed by a tubercular infiltration and ulceration of the larynx. Repeated examination of and cultures from bits of tissue and secretion from the laryngeal ulcer showed the tubercle bacilli and a mould fungus, the latter identical, morphologically, with that obtained from the cutaneous lesions. The patient eventually died from general tuberculosis, as demonstrated at autopsy and in subsequent studies of the tissues.

THE DERMATOSES OCCURRING IN EXOPHTHALMIC GOITRE.

DRS. J. N. HYDE and E. L. MCEWEN read this paper. These dermatoses include (1) those which are of purely accidental occurrence; (2) those which are more or less connected with the secondary symptoms of exophthalmic goitre; (3) those which seem to be directly associated with the systemic condition. The authors reported four cases: In the first there was coexisting exophthalmic goitre and hydrocystoma, a combination which seems to be almost unique; the second case was one of exophthalmic goitre coincident with a remarkable telangiectasis of the skin of the face, notably the forehead and cheeks, and to some extent over the enlarged thyroid gland. This case was not absolutely unique, several similar cases having been reported; the third case was one of cutaneous pruritus; in the fourth case the pruritus was associated with a marked angioneurotic edema. The authors then passed on to the general subject of dermatoses associated with Graves' disease, and found that a large number of them have been reported in literature.

DR. J. A. FORDYCE mentioned a case of excessive pigmentation of the skin in Graves' disease, and DR. HARDING one of alopecia areata, which recurred several times.

The afternoon session on Friday was held in one of the lecture-rooms of the Harvard Medical School Building.

DR. W. T. COUNCILMAN of Boston gave a lantern-slide demonstration of the

STRUCTURE AND MODE OF FORMATION OF THE SMALLPOX PUSTULE.

DR. A. RAVOGLI of Cincinnati made

A FURTHER REPORT ON NÆVOCARCINOMA,

which he demonstrated with lantern-slide pictures.

THE VALUE OF RADIOTHERAPY IN CUTANEOUS AND OTHER CANCERS; ILLUSTRATED WITH LANTERN SLIDES.

DR. CHARLES W. ALLEN of New York read this paper. Of the forty-seven cases treated, ten

were breast cases, one rectal, one uterine, one involving the glands and tissues of the neck; three were sarcoma and one was supposed to be sarcoma. This leaves thirty more or less strictly dermatological cases. Of these, two involved the chin, nine the nose or the nose and cheek, three were multiple (epitheliomatosus), one being in a subject of xeroderma pigmentosum, whose eyes were likewise involved; five were upon the forehead, five were upon the cheek and near the eye, four were of the lip, and two of the arm. The results in these cases were as follows: Ending fatally, five; discharged as cured, twenty-five; ceased treatment in an improved condition, three; ceased treatment or discharged or sent for operation in an unimproved condition, five; improving and remaining under treatment, nine.

Dr. Allen's conclusions were as follows:

(1) The x-ray possesses decided therapeutic power and may produce marked injurious effects.

(2) From the study of the present series of cases, the writer feels warranted in stating that the x-ray, as a therapeutic measure, is not a passing fad to be dropped after a brief experience.

(3) The effect of the method is at times to produce severe symptoms, referable to the heart, lungs or other internal organs, and systemic effects pointing to absorption of products of disintegration thrown into the circulation more rapidly than they can be eliminated.

(4) Metastases occur in grave forms of cancer at times much more suddenly than we are accustomed to see in patients not so treated.

(5) Cancer itself may follow the injurious effects produced by the ray in a person not known to be predisposed, as instanced in the case reported of the tube-maker whose arm was amputated for carcinoma developing in an x-ray burn cicatrix.

(6) The x-ray dermatitis or burn, and many of the good effects as well, depend largely upon the proximity of the tube and the degree of heating of the anode.

(7) Tubes at times get into what might be termed a "burning state," and a number of patients may suffer in succession. This condition of the tube must at present be learned by experience, as there is nothing to indicate just when it is so.

(8) The method is not one to be solely relied upon in all forms of cancer.

(9) In nodular, wart-like and dry growths upon the skin, other means of removal, preferably arsenical paste, should first be employed and the rays then applied.

(10) It is not a method that should be employed by electricians or unqualified persons. The manufacturer of strychnia is not the one to whom the administration should be trusted.

(11) The indiscriminate application of the ray to all forms of disease, as claimed to be practised in advertising institutions and by charlatans is apt to bring much unmerited criticism on a really useful method, whose effect is at times almost magical, but most often disappointing.

RADIOTHERAPEUTIC OBSERVATIONS.

Dr. J. Zeisler of Chicago, the reader, gave the result of his experience in the treatment of various affections of the skin by means of the Rœntgen rays. Among the skin lesions treated were the following: Lupus vulgaris and erythematosus, scrofuloderma, hypertrichiosis, sycosis, acne and lichen planus. Also a number of cases of epithelioma and three cases of psoriasis. On the whole, the results obtained were very favorable, and the author stated that his experience with radiotherapy had made him an ardent advocate of that method of treatment. He advised the use of the coil in preference to the static machine.

Dr. C. W. Allen said he had used the static machine almost exclusively, and with entirely satisfactory results.

Dr. A. R. Robinson said that in regard to the treatment of sycosis by means of the x-ray, the trouble was that there was some danger of producing permanent alopecia. The speaker said he used the static machine, and thought it was just as good as the other. In regard to the treatment of epithelioma, excepting those situated near the eye or in the region of the blood vessels in the neck, he preferred the use of the curette or caustic, to the x-ray. He mentioned one case of very superficial epithelioma which had been treated every day for two months by the x-ray without much effect, and which was finally cured in two minutes by a caustic application.

Dr. William T. Corlett spoke in favor of the use of the soft tube in x-ray work.

Dr. Pusey said the selection of a tube was largely a matter of choice. The whole point in the technique is to obtain sufficient x-rays to get a reaction without getting a dangerous reaction.

Dr. Stelwagon said that in cases of rodent ulcer in accessible regions he was in favor of making a caustic application, and then supplementing this by the x-ray as the part begins to heal. He has used a static machine with very satisfactory results.

Dr. J. C. White reported a case of carcinoma of the skin developing at the site of a prolonged x-ray dermatitis.

Dr. Sherwell said that while he appreciated the value of the x-ray, he did not think it should entirely supplant the more radical methods in certain cases. He has used the acid nitrate of mercury in hundreds of cases of epithelioma with entire satisfaction, both to the patient and himself.

Dr. F. H. Montgomery said he thought there was no question that superficial forms of cancer disappear under the application of the x-rays. For the diffuse and generalized forms, there is no other treatment equal to it. For the localized, superficial lesions there is no reason why the knife or caustic should not be employed, and there is a certain element of safety in supplementing this treatment with the x-rays.

Dr. D. W. Montgomery referred to the slight scarring left by the x-ray treatment, which he

thought was a very desirable factor in lesions on the face.

The session of the association on Saturday, Sept. 20, was held in the Medical Library Building, and was devoted to the exhibition of patients.

ELECTION OF OFFICERS.

The following officers were elected for the ensuing year: President, Dr. John T. Bowen of Boston; Vice-President, Dr. Grover W. Wende of Buffalo; Secretary and Treasurer, Dr. Charles J. White of Boston.

The next meeting of the association will be held in Washington, in May, 1903, in connection with the Congress of American Physicians and Surgeons.

## Recent Literature.

*Death and Sudden Death.* By P. BROUARDEL, Professor of Medical Jurisprudence, Dean of the Faculty of Medicine of Paris, etc., and F. LUCAS BENHAM, M.D., Member of Royal College of Physicians of London. Second edition. New York: William Wood & Co. 1902.

In the first part of this valuable work Dr. Brouardel discusses the signs of death, especially rigor mortis and putrefaction, the subjects of premature burial, cremation and legislation relative to burials. He believes the sensational accounts in regard to premature burial are greatly exaggerated. He objects to embalming as a rule for medico-legal reasons. It appears that the French regulations require that in all cases of embalming, a vial shall be placed beside the dead body, containing a sample of the substances employed in embalming the body.

The following extract from the French Civil Code relates to the precautions prescribed in regard to burials:

"No interment shall be made without the authorization of the registrar of deaths, who shall only be entitled to give it after visiting the deceased person to assure himself of the death, and only twenty-four hours after death, except in cases provided for in the police regulations."

The principal defect of this law is the absence of any provision requiring the inspection to be made by a medical man. In Germany the body cannot be buried until forty-eight hours have elapsed after death. In Spain and Portugal a delay of only five or six hours is necessary.

The second part relates to sudden death, and its causes, among which the following are enumerated: Lesions of the circulatory organs, of the cerebrospinal system, of the respiratory system, of the digestive system, the action of heat and cold, lesions of the female genital organs, diabetes, alcoholism, and sudden death among children.

The style of the work is easy and familiar, the author giving many anecdotes and illustrative cases from his rich experience as director of the Paris Morgue. It will prove a welcome addition to the library of the general practitioner, and especially to that of the medical examiner or coroner's physician.

*A Textbook of Physical Diagnosis.* For Students and Practitioners of Medicine. By EGBERT LE FEVRE, M.D., Professor of Clinical Medicine and Associate Professor of Therapeutics, University and Bellevue Medical College, etc. With 74 engravings and 12 plates. Philadelphia and New York: Lea Brothers & Co. 1902.

This manual of the physical diagnosis of diseases of the thoracic and abdominal organs is designed primarily for students, but also for practitioners. It is a duodecimo of 440 pages, and is dedicated to the author's former students. An illustrated section covers the latest results in x-ray diagnosis.

There are already a good many books of this kind, but this one seems to be handy and commendable.

*Practical Diagnosis.* The Use of Symptoms and Physical Signs in the Diagnosis of Disease. Fifth edition, revised and enlarged. By HOBART AMORY HARE, M.D., B.Sc., Professor of Therapeutics in the Jefferson Medical College, etc. Illustrated with 236 engravings and 25 plates. Philadelphia and New York: Lea Brothers & Co. 1902.

The fifth edition of Dr. Hare's "Practical Diagnosis" has been largely revised and rewritten. The primary object of the work continues to be to present the symptoms of diseases as they appear, and from this group of symptoms to enable the practitioner to arrive at a diagnosis.

The author regards this "Practical Diagnosis" as a companion volume to his "Textbook of Practical Therapeutics."

*Lea's Series of Pocket Textbooks.* Materia Medica, Therapeutics, Medical Pharmacy, Prescription-Writing and Medical Latin. A Manual for Students and Practitioners. By WILLIAM SCHLEIF, Ph.G., M.D., Instructor in Pharmacy in the University of Pennsylvania. Series edited by BERN B. GALLAUDET, M.D. Second edition, revised and enlarged. Philadelphia and New York: Lea Brothers & Co. 1902.

The chief change in this second edition is the addition of an annotated therapeutic index of new remedies. This occupies ten pages, and contains a conservative and useful description of the new drugs. This whole series of books is too well known to require further comment.

*Lea's Series of Pocket Textbooks.* Diseases of the Skin. A Manual for Students and Practitioners. By JOSEPH GRINDON, Ph.B., M.D. Philadelphia and New York: Lea Brothers & Co. 1902.

This addition to Lea's series of pocket textbooks differs but slightly from the numerous preceding publications of the same nature. It is written by Dr. Grindon of St. Louis, and the editor of the series is Dr. Bern B. Gallaudet of New York.

THE BOSTON
# Medical and Surgical Journal.

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## A NEW WING FOR TUBERCULOSIS AT THE LONG ISLAND HOSPITAL.

THE opening of a newly constructed wing at the Long Island Hospital, Boston Harbor, takes place this week, for the treatment of patients suffering from pulmonary tuberculosis. With the increasing provision for this class of cases throughout the country this event, in itself, is not particularly noteworthy. In view of the fact, however, that the whole matter of the municipal care of consumptives is now being discussed by physicians and laity alike, it is worthy of remark that the action taken by the trustees of the Long Island Hospital in providing a special hospital for these patients, is a preliminary step of much significance. The Long Island Hospital provides for the destitute poor of the city, particularly those suffering from chronic or disabling disease, and among these it is quite inevitable that there should be a very considerable number of consumptives, both in incipient and late stages. In spite of hitherto inadequate accommodations, these patients have on the whole done well. The experience of those concerned in their care, which now extends over a number of years, has been gratifying; many have, of course, died, but others have markedly improved. The imperative need of properly housing these patients, for their own sake and for the protection of others not suffering from tuberculosis, has led to the construction of this new wing, to be used exclusively for consumptives.

There is apparently some misunderstanding abroad concerning the relation of this hospital to the municipal hospital, about which there has, of late, been much discussion. The facts are these: This new hospital wing at Long Island has no relation whatever to the proposed municipal institution; it forms an integral part of the Long Island Hospital, and the appropriation made by the city government was with this understanding. It was at one time suggested, and commented on editorially in these columns, that the municipal hospital might with advantage be placed on Long Island. Those physicians most interested in the establishment of such a hospital were opposed to this plan, and so far as we are aware it has not entered seriously into consideration since that time. The point made by the Long Island trustees simply was, that if the institutions under their charge were finally to have the care of all the city's consumptives, it would be a mistaken policy to construct merely a relatively small hospital wing. There can be no difference of opinion on this point. It should be understood that the trustees of the Long Island institution have remained entirely neutral in the matter of the municipal hospital; they have simply attempted to provide for the increasing number of cases that come to them. Whether Long Island is or is not a desirable location for this hospital is naturally a question to be decided by popular vote of all who are vitally interested.

The hospital at Deer Island in Boston Harbor and the State Almshouse at Tewksbury have made provisions for their tuberculous patients, and the Long Island Hospital is now to be provided with this special wing, which will do much toward ameliorating the present conditions, though it will not be adequate for any considerable length of time, if the present rate of increase of cases of consumption continues. The state of affairs recently revealed at the Philadelphia Hospital regarding tuberculosis reinforces the feeling that the separation of tuberculous patients from others has not come too soon. It is furthermore to be hoped that the delay in the use of the funds already appropriated for a municipal hospital may not be indefinitely prolonged, and that some way may be found for utilizing this appropriation, even though a larger amount should not be immediately forthcoming.

## ANNUAL REPORT OF THE SURGEON-GENERAL OF THE ARMY.

THIS annual report is always of interest. It contains many facts which are not generally known, and from a statistical point of view is of positive value in estimating the incidence of disease among large bodies of men similarly situated.

It appears from the report that the fifth and last session of the Army Medical School, an institution to which we have more than once alluded, had a successful session ending April 4, 1902. There was a class of twenty-three students, all of whom were assistant surgeons recently appointed to the medical corps of the regular army. The requirements for graduation were attained by all the applicants, and in general much interest

on the part of the students is said to have been shown in their work.

The number of contract surgeons in the army has decreased materially during the last year. On June 30, 1901, there were 387 such surgeons. At the close of the year there were but 273, a reduction of more than a hundred under contract. No further contracts are being made, and this branch of the service is gradually being reduced by natural causes. On the other hand the organization of a corps of contract dental surgeons, authorized Feb. 2, 1901, is still in progress. The existence of this branch of the service has been amply justified by the work which has been entailed upon it. Officers and enlisted men have sought the services of the dentists, making it often necessary for the surgeons to operate from early in the morning until evening. In consideration of the newness of this branch of the service, it is considered that a highly creditable showing has been made which no doubt will lead to a continuance and enlargement of the work. The more careful examination of the teeth has always been of distinct value in determining the advisability of accepting recruits for the army, and it has been suggested that it would be advisable that the general condition of all the teeth should be taken into account before accepting a recruit, and that applicants who show signs of extensive dental caries should be excluded wholly, owing to their frequent incapacity for duty and their inability to properly masticate the army ration. It is felt that good teeth are an essential factor in maintaining the health of the troops, and that the dental surgeon, though somewhat slow in being accepted, has already become a necessity to the army. It is urged that a permanent corps of dental surgeons should be attached to the medical department.

Experience during the year with the army nurse corps is also well worthy of note. The number of nurses has been somewhat reduced, being 178 in June, 1901, of which 119 are now in service. It is considered desirable that a place in some army hospital at or near Washington should be provided where nurses might serve a probationary period. This would prevent the assignment of unqualified or undesirable women to distant hospitals, often involving a long and expensive journey. In general, surgeons and commanding officers speak in high terms of the services of the nurse corps.

As regards the general health of the army there has been a gradual improvement notwithstanding the fact that many of the men were exposed to the trying service in the Philippines. This service has involved the occupation of much new country, but the improved conditions in peaceful provinces has more than counterbalanced any local increase of disease caused by this arduous service. In general the campaigns carried on during the year have not been less trying than earlier ones. The report gives an interesting account, to which we can only allude here, of the general work done under military administration for the sanitary improvement of the Philippines. This work has been continuous, but of necessity carried out chiefly in and about Manila, which, undoubtedly, has begun to show the effects of the new régime.

Special diseases have been more or less prevalent in the army, as is always the case. It is interesting that in spite of the considerable amount of smallpox in the country at large there have been in the army as a whole only 125 cases, of which 37 were fatal — apparently a very much larger proportion than occurs in civil life. Eighty-five of these cases occurred in the Philippines, and no case was reported either from Cuba or Porto Rico. Typhoid fever, which is always a disease of interest among large collections of men, occurred 594 times during the year, with 78 deaths. It is, however, stated that this number is probably an underestimate, since nearly 2,000 cases of fever were reported as undetermined. Malaria as usual makes a large showing. There were 35,180 cases of malarial disease, but with an exceedingly low death-rate. At the various posts in the United States much was done for the protection of troops against bites of the *anopheles*, but disease was brought from the Philippines and Cuba in spite of precautions. Tuberculosis claimed 452 cases. Statistics of this disease are, of course, of relatively small value, inasmuch as the men are chosen for service with special reference to their general health and the absence of signs of tuberculosis. During 1901 no case of cholera was reported from the army, but during the early part of the present year the disease appeared, particularly in the Philippines, and large numbers of cases occurred. Much difficulty was experienced in forcing the natives to adhere to regulations regarding soiled clothing and various sources of infection.

The report concludes with a series of carefully tabulated statistics relating to the diseases of various branches of the service. All this is of much value, particularly in view of the fact that considerable portions of our army are at present being exposed to tropical diseases of which we have hitherto had relatively small knowledge.

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IT is said that $8,000,000 has been secured for the consolidation of Rush Medical College with the University of Chicago.

## MEDICAL NOTES.

Fourteenth International Medical Congress.— The American committee of the Fourteenth International Medical Congress announces that the following list of sections has been authorized: (1) Anatomy (anthropology, comparative anatomy, embryology, descriptive anatomy, normal histology, and teratology); (2) physiology, physics and physiological chemistry; (3) general pathology, pathological anatomy and bacteriology; (4) therapeutics and pharmacy; (5) internal pathology; (6) nervous diseases, mental diseases, and criminal anthropology; (7) pediatrics; (8) dermatology and syphilis; (9) general surgery; (10) ophthalmology; (11) otology, rhinology and laryngology; (12) odontology and stomatology; (13) obstetrics and gynecology; (14) military and naval medicine and hygiene; (15) hygiene, epidemiology and technical sanitary science; (16) legal medicine and toxicology. Subscriptions (twenty-five francs) must be paid before the opening of the congress to the general secretary, Faculty of Medicine, Madrid, and members should on paying the subscription state the section or sections to which they wish to belong. As it is expected that Madrid will be crowded, those who are to attend the congress are advised to apply for rooms as soon as possible to the Bureau des Logements, Faculté de Médicine, Madrid. Blank forms for these applications may be obtained on request from the secretary of the American committee.

Trip to the Madrid International Medical Congress.— As a large number of physicians throughout the country are planning to attend the International Medical Congress, to be held at Madrid in April, 1903, special arrangements have been made as regards terms, etc., for a party of physicians from the Eastern States. The trip from New York and return will require about one month. Physicians and members of their families who join this party will be entitled to the special rate of $265 for the round trip, including first-class passage on the steamer and railway, hotel accommodations for fourteen days in Spain, including room, meals, all handling of baggage, special interpreter, and fees. The trip will be via Gibraltar, Cordova, to Madrid. Side trips to interesting parts of Spain can be arranged, and also returns by other routes, so as to enable those who desire to visit other parts of the continent. Physicians living in the Eastern and Middle States who desire information concerning this party with a view of joining it, can communicate with Dr. Ramon Guiteras, 75 West 55th Street, New York City.

International Conference on Tuberculosis. — At the last meeting of the recent International Congress at Berlin, the following international committee was appointed to formulate measures to combat tuberculosis in different countries: Herr Althoff, minister of public health (Berlin), president; Professor Fränkel (Berlin), Professor Calmette (Lille, France), Dr. Nathan Raw (Liverpool), Dr. Roerdam (Copenhagen), Dr. Chyzer (Buda-Pesth).

Regulations Against Consumption.— It is reported that after Dec. 1 a certificate from a physician must be presented by invalids before getting on railway trains in Colorado, certifying that they are not suffering from a contagious disease, among which consumption is apparently included. If this report be true we must regard it as another instance of petty and quite unnecessary tyranny, which will cause more distress than relief.

Cholera in Jerusalem.— According to recent reports there were during one week in the latter part of October nearly five hundred deaths from cholera in Jerusalem. The medical force is not sufficient to cope with the disease in the neighboring town of Lydda.

### BOSTON AND NEW ENGLAND.

Acute Infectious Diseases in Boston.— For the week ending at noon, Nov. 12, 1902, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: Diphtheria 55, scarlatina 29, measles 3, typhoid fever 29, smallpox 12.

Boston Mortality Statistics.— The number of deaths reported to the Board of Health for the week ending Nov. 8 was 239, as against 207 the corresponding week last year, showing an increase of 32 deaths, and making the death-rate for the week 21.26. The number of cases and deaths from infectious diseases was as follows: Diphtheria, 61 cases, 8 deaths; scarlatina, 33 cases, 5 deaths; typhoid fever, 41 cases, 6 deaths; measles, 5 cases, no deaths; smallpox, 8 cases, 1 death; The deaths from pneumonia were 30; whooping cough, 4; heart disease, 25; bronchitis, 12; marasmus, 8. There were 13 deaths from violent causes. The number of children who died under one year was 50; under five years, 82; persons more than sixty years, 52; deaths in public institutions, 76.

Harvard University Medical School.— Students entering the Harvard Medical School after the academic year 1902-1903 will be required to pay a fee of $200 for the fourth year and will be exempt from a graduation fee.

### NEW YORK.

Mortality Statistics.— The death-rate for the month of November was quite low, being

16.00, against 16.99 for October, and 17.21 for November of last year. The corrected death-rate (excluding non-residents and infants under one week old) was 15.17. Among the diseases which showed a decline in mortality were the following: The weekly average of deaths from diarrheal diseases decreased from 185 in October to 80.5 in November; from diarrheal diseases in children under five years, 165.8 to 75.75; from whooping cough, 14.4 to 6.75; from cancer, 45.2 to 42.75. There were but two deaths from smallpox during the month. Among the diseases which showed an increased mortality were the following: The weekly average of deaths from diphtheria and croup increased from 25.4 to 28.5; from scarlet fever, 6.8 to 7.5; from typhoid fever, 22.8 to 27; from pulmonary tuberculosis, 126.6 to 144.75; from bronchitis, 24.4 to 29; from diseases of the urinary system, 92.6 to 100.75. While there were no deaths from influenza reported in the month of October, the weekly average of deaths from it in November was 1.75.

PROPOSED UNION OF THE TWO NEW YORK STATE MEDICAL SOCIETIES.— The following resolutions were adopted by the New York State Medical Association at its annual meeting, Oct. 20: *Resolved*, That the report of the Committee appointed to confer with a committee representing the Medical Society of the State of New York for the purpose of devising a plan for the union of The New York State Medical Association and the Medical Society of the State of New York, is hereby approved. *Resolved*, That the plan presented at the joint session of the two committees by the committee representing this association, whereby "The New York State Medical Association and the Medical Society of the State of New York be reconstituted by an act of the Legislature into a State Medical Body to be known as the Medical Society of the State of New York, of which all members in good standing in both bodies shall be charter members, and the reconstituted State Medical Body shall be the representative in this State of the American Medical Association by virtue of its acceptance of the constitution and by-laws of the American Medical Association," is hereby accepted by The New York State Medical Association as an expression of our sincere desire for a union of the medical profession in this State. *Resolved*, That the Committee is hereby continued for the purpose of co-operating with any committee from the Medical Society of the State of New York to secure a charter from the Legislature at its next session in 1903, which charter shall reconstitute the two State organizations into one State Body, as set forth in the preceding resolution, but if the Medical Society of the State of New York shall fail to approve of such plan of union by a charter to be secured at the approaching session of the Legislature in 1903, then this Committee shall be considered as discharged and the proposition of this Association withdrawn. *Resolved*, In case this committee should find occasion to apply to the Legislature at its next session for the purpose of securing the said Charter, it shall co-operate with the standing Committee on Legislation of this Association.

SOCIETY FOR THE STUDY OF EPILEPSY.— The National Society for the Study of Epilepsy and the Care and Treatment of Epileptics held its annual meeting at the New York Academy of Medicine on Nov. 5 and 6. In his opening address the president, Dr. Frederick Peterson of New York, stated that there were 140,000 epileptics in the United States alone. Fifteen years ago they were the most neglected class of all the world's unfortunates, but since then much interest had been taken in them, and their condition was now greatly ameliorated. At present provisions are made for their care and treatment in nineteen states of the Union, and in some cases cures have been established. The purposes of the association, he said, were to promote the general welfare of sufferers from epilepsy, to stimulate the study of the causes and the methods of cure of the disease; to advocate the care of epileptics in institutions, so that they may receive an education, acquire trades, and have good medical treatment, and to assist the various states in making proper provisions for this class of dependents. Money, he thought, could not be better expended, when prompted by a philanthropic spirit, than in gifts which would render it possible for the society to establish colonies, trade schools, libraries, and other agencies for their welfare, as well as to provide laboratories for the scientific investigation of the disease. Papers were read by Dr. Roswell Park of Buffalo, on the surgical treatment of epilepsy; Abraham Jacobi, on the causes and remedies of the disease; and by Dr. Edgar J. Spratling, on the legal and social standing of the epileptic; and among the others who contributed papers or took part in the discussions were Drs. William Osler, Adolf Meyer, L. P. Clark, H. N. Moyer, Thomas Prout, and William N. Bullard. For the next year Dr. Wharton Sinkler of Philadelphia was elected president, and Dr. William Osler of Baltimore, vice-president.

A MEMORIAL LECTURESHIP AT JOHNS HOPKINS UNIVERSITY.— Dr. Christian A. Herter, professor of pathological chemistry in the University and Bellevue Hospital Medical College, New York, has, with his wife, presented to the trustees of the Johns Hopkins University, Baltimore, the sum of $25,000 for the foundation of a

memorial lectureship in the medical department, the purpose of which is "to promote a more intimate knowledge of the researches of foreign investigators in the realm of medical science." Dr. Herter, who was graduated from the College of Physicians and Surgeons, New York, in 1885, spent the college year of 1887-8 in research work in the pathological laboratory at Johns Hopkins.

Anniversary of New York Academy of Medicine.— The fifty-fifth anniversary of the New York Academy of Medicine was celebrated on Nov. 6, when Dr. Andrew H. Smith delivered the annual address. On this occasion Major W. C. Gorgas, U. S. Army, recently chief surgeon at Havana, and Dr. Ross of the Navy, gave interesting accounts of the work of banishing yellow fever from Cuba. Both expressed the opinion that the discovery of the spread of the disease by mosquitoes had practically put an end to this previously formidable scourge throughout the world.

Appropriation for Department of Health. — On Oct. 29 the Board of Estimate and Apportionment made public the budget for 1903. The appropriation for the Department of Health is $1,034,391, an increase of $31,987 over that for 1902, and for Bellevue and Allied Hospitals, $595,580, an increase of $33,494.

A Centenarian.— Mrs. Sarah J. Jones died in Binghamton, N. Y., Nov. 7, at the reputed age of one hundred and two years. She was born in England and came to the United States ninety years ago.

## Miscellany.

### MEDICAL INSPECTION OF SCHOOL CHILDREN.

The situation regarding the medical inspection of schools in England is thus summarized by the *Medical Press:*

Matters concerning education are now attracting much attention. In the clash of political and religious opinion we fear the true aspects of education may be lost sight of. At a time when other countries are making strenuous efforts to secure the best development of "the coming race," it is most desirable that we should not neglect the hygienic and strictly medical necessities of school life. Dr. D. S. Davies, the medical officer of the city of Bristol, in his annual report, just published, has an important section on the question of medical inspection in public elementary schools. He shows that we need to "wake up" in regard to this matter. The advisability of appointing school doctors in Germany, we are told, was suggested by Professor Virchow in 1889, and in 1900 medical inspection of schools was actually in operation in Wiesbaden, Königsberg, Nürnberg, Darmstadt, Frankfort, Dresden and Leipzig. In 1899 the Board of Health of New York City had 250 medical inspectors for schools, at a salary of $360, with a chief at a salary of $2,500. In Chicago, in January, 1900, a daily inspection was begun, with fifty-six inspectors receiving $50 a month, to work from 9 A.M. till 12 M. The city of Boston is divided into fifty districts, with a medical inspector to each. Germany and America, the great progressive countries of the world, are alive to the necessity of making the health of the children a matter of first importance. We occasionally appoint a medical officer, often quite unfitted for the work by training or special experience, to act under the School Board and make the best arrangements he can with the medical officer of health, but at best our methods are blundering, cumbersome and, to a great extent, useless.

### RECORD OF MORTALITY

For the Week ending Saturday, Nov. 1, 1902.

| Cities. | Population Estimated, 1902. | Reported deaths in each. | Deaths under five years. | Percentage of deaths from | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | Infectious diseases. | Acute lung diseases. | Diphtheria and croup. | Typhoid fever. | Diarrheal diseases. |
| New York | 3,665,352 | 1,087 | 332 | 25.20 | 10.50 | 2.39 | 2.85 | 10.43 |
| Chicago | 1,852,828 | 439 | 124 | 25.97 | 10.02 | 4.78 | 2.94 | 4.32 |
| Philadelphia | 1,349,624 | 339 | 78 | 18.89 | 14.46 | 2.65 | 1.47 | — |
| St. Louis | 603,717 | — | — | — | — | — | — | — |
| Baltimore | 525,330 | 166 | 46 | 33.13 | 8.42 | 3.01 | 1.80 | 4.82 |
| Cleveland | 411,826 | — | — | — | — | — | — | — |
| Buffalo | 375,742 | — | — | — | — | — | — | — |
| Pittsburg | 341,401 | 139 | 50 | 29.52 | 13.68 | 3.60 | 8.64 | 6.48 |
| Cincinnati | 332,032 | — | — | — | — | — | — | — |
| Milwaukee | 304,975 | — | — | — | — | — | — | — |
| Washington | 289,537 | — | — | — | — | — | — | — |
| Providence | 185,870 | 68 | 23 | 29.40 | 16.17 | 5.88 | 1.47 | 4.41 |
| Boston | 588,736 | 223 | 73 | 23.31 | 22.22 | 2.69 | — | 6.70 |
| Worcester | 127,337 | 32 | 13 | 18.75 | 6.25 | — | — | 6.25 |
| Fall River | 111,872 | 42 | 28 | 23.81 | 16.68 | 2.38 | — | 14.28 |
| Lowell | 99,574 | 40 | 15 | 10.00 | 7.50 | 5.00 | — | — |
| Cambridge | 96,334 | 31 | 13 | 29.03 | 16.13 | — | 3.22 | — |
| Lynn | 71,144 | 17 | 3 | 11.76 | — | — | — | — |
| Lawrence | 67,275 | 20 | 8 | 5.00 | 15.00 | 5.00 | — | — |
| Springfield | 66,854 | 20 | 6 | 20.00 | 10.00 | — | 5.00 | 5.00 |
| Somerville | 65,882 | 21 | 7 | 14.28 | 28.57 | — | — | 9.52 |
| New Bedford | 65,574 | 31 | 20 | 22.58 | 12.90 | 6.45 | 3.22 | — |
| Holyoke | 48,065 | 13 | 7 | 23.10 | 15.40 | — | — | 23.10 |
| Brockton | 43,208 | 12 | 3 | 16.67 | — | — | — | — |
| Haverhill | 40,392 | 6 | — | 16.67 | 16.67 | — | — | — |
| Salem | 36,567 | 11 | 6 | 9.09 | — | — | 9.09 | — |
| Newton | 36,336 | 7 | 1 | — | 14.30 | — | — | — |
| Malden | 35,390 | 12 | 4 | 25.00 | — | 16.67 | 8.33 | — |
| Chelsea | 35,264 | 18 | 9 | 11.11 | 16.67 | 5.55 | — | — |
| Fitchburg | 33,848 | 10 | 2 | — | 50.00 | — | — | — |
| Taunton | 32,759 | 7 | — | 28.60 | 28.60 | — | 28.60 | — |
| Everett | 27,114 | 3 | 1 | — | — | — | — | — |
| North Adams | 26,583 | 10 | 3 | 70.00 | 10.00 | 10.00 | 10.00 | — |
| Gloucester | 26,121 | 8 | 2 | 25.00 | — | 25.00 | — | — |
| Quincy | 25,307 | 7 | 2 | 42.90 | — | 14.30 | — | 14.30 |
| Waltham | 24,612 | 5 | — | 60.00 | — | — | — | — |
| Pittsfield | 22,311 | 6 | 1 | 33.33 | 16.67 | 16.67 | — | — |
| Brookline | 21,679 | 3 | — | — | — | — | — | — |
| Chicopee | 20,390 | 7 | 4 | 42.90 | — | 14.30 | — | — |
| Medford | 20,014 | 1 | — | — | — | — | — | — |
| Newburyport | 14,478 | 2 | — | — | — | — | — | — |
| Melrose | 13,384 | 3 | 2 | — | 66.67 | — | — | — |
| Westfield | 13,038 | 4 | — | — | — | — | — | — |
| Attleboro | 12,846 | — | — | — | — | — | — | — |
| Adams | 12,813 | — | — | — | — | — | — | — |
| Milford | 12,516 | — | — | — | — | — | — | — |
| Framingham | 12,109 | — | — | — | — | — | — | — |
| Peabody | 11,957 | — | — | — | — | — | — | — |
| Revere | 11,894 | 1 | — | — | — | — | — | — |
| Gardner | 11,544 | 1 | 1 | — | — | — | — | — |
| Weymouth | 11,337 | 3 | 1 | 33.33 | — | — | — | — |
| Southbridge | 10,838 | 3 | — | 33 33 | — | — | — | — |
| Watertown | 10,600 | 2 | — | 50.00 | 50.00 | — | — | 50.00 |
| Plymouth | 10,336 | — | — | — | — | — | — | — |

Deaths reported, 2,892; under five years of age, 888; principal infectious diseases (smallpox, measles, scarlet fever,

cerebrospinal meningitis, diphtheria and croup, diarrheal diseases, whooping cough, erysipelas, fevers and consumption) 704, acute lung diseases 352, consumption 329, scarlet fever 22, whooping cough 17, cerebrospinal meningitis 10, smallpox 11, erysipelas 3, measles 6, typhoid fever 73, diarrheal diseases 131.

From whooping cough, New York 2, Chicago 2, Baltimore 2, Pittsburg 2, Providence 1, Boston 4, Worcester 1, Cambridge 1, North Adams 2. From measles, New York 1, Chicago 2, Baltimore 1, Pittsburg 1, Providence 1. From erysipelas, Pittsburg, Lowell and Lynn 1 each. From smallpox, New York 1, Pittsburg 6, Boston 4.

In the seventy-six great towns of England and Wales, with an estimated population of 14,862,163, for the week ending Oct. 18, the death-rate was 17.4. Deaths reported, 4,969; acute diseases of the respiratory organs (London) 251, whooping cough 61, diphtheria 68, measles 137, smallpox 2, scarlet fever 67.

The death-rate ranged from 2.8 in Hornsey to 25.1 in Middlesbrough; London 17.0, West Ham 15.5, Brighton 14.2, Portsmouth 19.6, Southampton 13.5, Plymouth 10.4, Bristol 19.9, Birmingham 18.3, Leicester 18.8, Nottingham 16.7, Grimsby 4.8, Bolton 16.8, Liverpool 23.7, Manchester 20.6, Salford 23.0, Bradford 18.1, Leeds, 17.9, Hull 18.9, Newcastle-on-Tyne 15.7, Cardiff 13.9, Rhondda 20.9, Birkenhead 17.6.

## METEOROLOGICAL RECORD

For the week ending Nov. 1, in Boston, according to observations furnished by Sergeant J. W. Smith of the United States Signal Corps:

| Date | Barometer | Thermometer. | | | Relative humidity. | | | Direction of wind. | | Velocity of wind. | | We'th'r * | | Rainfall in inches. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Daily mean. | Daily mean. | Maximum. | Minimum. | 8.00 A.M. | 8.00 P.M. | Daily mean. | 8.00 A.M. | 8.00 P.M. | 8.00 A.M. | 8.00 P.M. | 8.00 A.M. | 8.00 P.M. | |
| S...26 | 30.50 | 39 | 44 | 34 | 78 | 63 | 70 | N | S | 7 | 15 | O. | R. | T. |
| M..27 | 30.04 | 55 | 66 | 44 | 84 | 82 | 83 | S | S | 13 | 11 | O. | O. | T. |
| T..28 | 29.46 | 58 | 68 | 47 | 92 | 71 | 82 | S | W | 20 | 15 | R. | C. | 1.84 |
| W.29 | 29.94 | 42 | 47 | 36 | 63 | 52 | 58 | W | W | 12 | 12 | C. | C. | T. |
| T..30 | 30.45 | 42 | 50 | 33 | 59 | 58 | 58 | W | S W | 6 | 14 | C. | O. | |
| F..31 | 30.36 | 48 | 58 | 39 | 62 | 67 | 64 | S W | N | 12 | 9 | C. | C. | |
| S....1 | 30.47 | 42 | 48 | 36 | 70 | 78 | 74 | N W | S E | 8 | 4 | C. | C. | |
| ☞ | 30.17 | | 54 | 38 | | | 70 | | | | | | | 1.84 |

* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow. † Indicates trace of rainfall. ☞ Mean for week.

## OFFICIAL LIST OF THE CHANGES OF STATION AND DUTIES OF COMMISSIONED AND NON-COMMISSIONED OFFICERS OF THE PUBLIC HEALTH AND MARINE HOSPITAL SERVICE FOR THE SEVEN DAYS ENDING NOV. 6, 1902.

WHITE, J. H., assistant surgeon-general. Granted leave of absence for fifteen days from Nov. 8. Nov. 6, 1902.

MAGRUDER, G. M., surgeon. Granted leave of absence for twelve days from Nov. 17. Nov. 6, 1902.

COFER, L. E., passed assistant surgeon. Relieved from temporary duty at the Immigration Depot, New York, N. Y. Nov. 3, 1902.

KORN, W. A., assistant surgeon. Granted leave of absence for twenty-one days from Nov. 18. Nov. 6, 1902.

BOGGESS, J. S., assistant surgeon. Granted seven days' extension of leave of absence from Nov. 16. Nov. 5, 1902.

ALEXANDER, E., acting assistant surgeon. Granted two days' extension of leave of absence. Nov. 5, 1902.

WALKER, AGNES, medical inspector. Granted leave of absence for thirty days from Nov. 1. Oct. 31, 1902.

O'GORMAN, T. V., senior pharmacist. Relieved from duty at Louisville, Ky., and directed to proceed to New Orleans, La., and report to the medical officer in command for duty and assignment to quarters. Nov. 1, 1902.

### BOARD CONVENED.

Board convened to meet at Port Townsend, Washington, Nov. 4, 1902, for the physical examination of such officers of the Revenue Cutter Service as may present themselves. Detail for the Board: Passed Assistant Surgeon C. H. Gardner, Chairman; Assistant Surgeon M. H. Foster, Recorder.

## SOCIETY NOTICES.

BOSTON MEDICAL LIBRARY.— The first regular meeting for the season, 1902-1903, will be held at Ware Hall, Medical Library Building, The Fenway, Monday, Nov. 17, at 8.15 P.M., sharp. Dr. William T. Councilman will preside.

Programme: Statement by the President; Dr. Charles F. Painter, "The Malignancy of Bone Tuberculosis." Dr. Edward H. Nichols will show lantern slides to illustrate "Tubercular Lesions in Bone"; Dr. Joel E. Goldthwait will speak of "Climatological Treatment of Tubercular Bone and Joint Diseases"; Dr. Francis S. Watson, "Some Clinical Observations on the Value of the Phloridzin Test in Estimating the Capacity of the Renal Function"; Dr. Elliott P. Joslin, "Errors in the Estimation of Urea by the Squibb's Apparatus"; Dr. W. T. Bailey, "Cryoscopy. The Freezing Point of the Urine and Blood in the determination of the Renal Function and Sufficiency. Demonstration of the Blood in Pernicious Anemia."

ARTHUR K. STONE, M.D., Secretary,
543 Boylston Street.

AMERICAN PUBLIC HEALTH ASSOCIATION.— The thirtieth annual meeting of the American Public Health Association will be held at New Orleans, La., beginning Dec. 8 and continuing five days.

## RECENT DEATH.

DR. HENRY M. COX, a leading practitioner of Warren County, died at his home in Washington, N. J., on Nov. 7, of cancer of the stomach. He was sixty-five years of age, and during the Civil War served as a surgeon in the Union Army.

## BOOKS AND PAMPHLETS RECEIVED.

Physician's Pocket Account Book. By J. J. Taylor, M.D. Philadelphia: The Medical Council. 1902.

The Fixation of a Movable Liver and Report of a Case of Hepatopexy. By J. H. Carstens, M.D., Detroit, Mich. Reprint. 1902.

An Introduction to Dermatology. By Norman Walker, M.D. Illustrated. Second edition, revised and enlarged. New York: William Wood & Co. 1902.

A Textbook of the Science and Art of Obstetrics. By Henry J. Garrigues, A.M., M.D. Illustrated. Philadelphia and London: J. B. Lippincott Company. 1902.

The Relation of Personnel to Bed-Capacity in Military Hospitals. By Captain John Stewart Kulp, Medical Department, United States Army. Illustrated. Reprint. 1902.

Report of Five Cases of Laparotomy for Intestinal Obstruction. By August Schachner, M.D., of Louisville, Ky., Professor of Surgery in the Louisville Medical College. Reprint. 1902.

Diet and Food Considered in Relation to Strength and Power of Endurance, Training and Athletics. By Alexander Haig, M.A., M.D. (Oxon.), F.R.C.P. Fourth edition. Illustrated, Philadelphia: P. Blakiston's Son & Co. 1902.

The Practice of Surgery. A Treatise on Surgery for the Use of Practitioners and Students. By Henry R. Wharton, M.D., and B. Farquhar Curtis, M.D. Illustrated. Third edition. Philadelphia and London: J. B. Lippincott Company. 1902.

Quiz-Compends, No. 4. A Compend of Human Physiology, especially adapted for the Use of Medical Students. By Albert P. Brubaker, A.M., M.D. Eleventh edition, revised and enlarged. Illustrated. Philadelphia: P. Blakiston's Son & Co. 1902.

A Manual of Practical Anatomy. By the late Professor Alfred W. Hughes, M.B., M.C. (Edin.), F.R.C.S. (Edin.), F.R.C.S. (Eng.). Edited and completed by Arthur Keith, M.D. (Aberd.), F.R.C.S. (Eng.) In three parts. Part III. Illustrated. Philadelphia: P. Blakiston's Son & Co. 1902.

(Sole Authorized English Translation.) The Work of the Digestive Glands. Lectures by Prof. J. P. Pawlow. Translated into English by W. H. Thompson, M.D., M.Ch., F.R.C.S. (Eng.). Illustrated. Philadelphia: J. B. Lippincott Company; London: Charles Griffin & Company, Limited. 1902.

Human Anatomy: A Complete Systematic Treatise by Various Authors, including a Special Section on Surgical and Topographical Anatomy, edited by Henry Morris, M.A. and M.B. (Lond.), F.R.C.S. (Eng.). Illustrated. Third edition, revised and enlarged. Philadelphia: P. Blakiston's Son & Co. 1902.

# Address.

## BARBER-SURGEONS.[1]

BY FREDERIC W. TAYLOR, M.D., CAMBRIDGE, MASS.

(Concluded from No. 20, p. 537.)

The Company also constituted itself censor of publications. 20th March, 1578, it was ordered:

"That yf any man of this misterie shall at any tyme hereafter make any booke or bookes of Surgerie the same shall not be published unles the same booke or bookes be first presented unto the masters governors and examenors of this Companie for the tyme beinge upon payne of xli."

As the practice of surgery became more scientific, the surgeons who were not barbers, naturally objected to being examined and licensed by a board composed in part of men who were barbers only, and they petitioned for separate incorporation. They declared that they were now a numerous and considerable body, who had rendered the profession and practice of surgery of great public benefit, that the union with the barbers was inconvenient, and in no degree conducive to the progress or improvement of the art of surgery. Their petition was granted, and the quaint, and at times strained, union, which had existed without material change of charter for two hundred years, was broken, and the surgeons and barbers were separately incorporated in 1745. The property of the Company was not divided, but remained with the barbers.

The education of their members, especially the instruction of apprentices in anatomy and surgery, was an important duty of all the guilds, and the efforts made to accomplish it were sincere and often successful. Instruction was given by means of lectures and of demonstrations in dissection. In London four public anatomies were held annually in the hall of the Company. These were anatomical demonstrations on the cadaver. They were provided for by the Company's charter, and the subjects were the bodies of criminals, the Government allowing four a year for this purpose. In addition to these four exercises, a varying number of private anatomies were held.

These differed from the public ones, in that they were conducted by any member who had obtained an interesting subject that he wished to dissect, and in that attendance on them was by invitation. They took place at the guild hall, and only by permission of the Company, neglect to obtain such permission being punished by a considerable fine. For example, in 1573 John Deane was fined ten pounds "for having an anatomy in his house, contrary to an order in that behalf."

Attendance at the public anatomies was compulsory. "It was enacted in 1572 that every man of the Company using the mystery or faculty of surgery, be he freeman, foreigner, or alien stranger, shall come unto the Anatomy lecture, being by the beadle warned thereto. And for not keeping their hour, both in the forenoon and also in the afternoon, and being a freeman, shall forfeit and pay at every time four pence. The foreigner (or one who was not free of the Company) in like manner, and the stranger sixpence. The said fines and forfeits to be employed by the anatomists for their expenses. Excuses were sometimes admitted, for a few years earlier Robert Mudsley 'hath license to be absent from all lecture days without payment of any fine because he hath given over exercising of the art of Surgery and doth occupy only a silk shop and shave.' In later years, the higher the position of the defaulter in the Company, the heavier was his fine for non-attendance; so that the assistants of the Company, who corresponded to the Council of the present Royal College of Surgeons, were fined 3s. 4d. for each lecture they missed."

In his biography of William Harvey, Mr. D'Arcy Power gives so good a description of the public anatomy, that I take the liberty of giving it to you as he has written it.

"The lecturer upon Anatomy, apart from the fact that he was a Doctor of Physic was a person of considerable importance in the sixteenth century. The greatest care was taken of him, as may be understood from the directions which the Barber-Surgeons gave to their Stewards in Anatomy or those members of the Company who were appointed to supervise the arrangements for the lectures. They were ordered 'to see and provide that there be every year a mat about the hearth in the Hall that Mr. Doctor be made not to take cold upon his feet, nor other gentlemen that do come and mark the Anatomy to learn knowledge. And further that there be two fine white rods appointed for the Doctor to touch the body where it shall please him; and a wax candle to look into the body, and that there be always for the doctor two aprons to be from the shoulder downwards and two pair of sleeves for his whole arm with tapes, for change for the said Doctor, and not to occupy one Apron and one pair of sleeves every day which is unseemly. And the Masters of the Anatomy that be about the body to have like aprons and sleeves every day both white and clean. That if the Masters of the Anatomy that be about the Doctor do not see these things ordered and that their knives, probes, and other instruments be fair and clean accordingly with Aprons and sleeves, if they do lack any of the said things afore rehearsed he shall forfeit for a fine to the Hall forty shillings.'"

"The whole business of a public anatomy was conducted with much ceremony, and every detail was regulated by precedent. The exact routine in the Barber-Surgeons' Company is laid down in another series of directions. The clerk or secretary is instructed in his duties in the following words: 'So soon as the body is brought in deliver out your tickets which must be first filled up as followeth four sorts:

"'The first form, to the Surgeons who have served the office of Master you must say: Be pleased to attend &c. with which summons you send another for the Demonstrations: to those below the Chair [i. e., who have not filled the office of Master of the Company] you say: Our Masters desire your Company in your Gown and flat Cap &c. with the like notice for the Demonstrations as you send to the ancient Master Surgeons. To the Barbers, if ancient masters, you say: Be pleased to attend in your Gown only, and if below the Chair, then: Our Masters desire &c. as to the others above, but without the tickets for the demonstrations.

"'The body being by the Masters of Anatomy prepared for the lecture (the Beadles having first given the Doctor notice who is to read) and having taken orders from the Master or Upper Warden [of the Company] of the Surgeons' side concerning the same, you

[1] Annual address delivered before the Middlesex South District Medical Society, April 16, 1902.

meet the whole Court of Assistance [i. e. the Council] in the Hall Parlour where every gentlemen cloathes himself [i. e. puts on his livery or gown], and then you proceed in form to the Theatre. The Beadles going first, next the Clerk, then the Doctor, and after him the several gentlemen of the Court; and having come therein, the Doctor and the rest of the Company being seated, the Clerk walks up to the Doctor and presents him with a wand and retires without the body of the Court [i. e., the theatre in which the assemblage of the company technically constituted a "court"] until the lecture is over when he then goes up to the Doctor and takes the wand from him with directions when to give notice for the reading in the afternoon which is usually at five precisely, and at one of the clock at noon, which he pronounces with a distinct and audible voice by saying, This Lecture, Gentlemen, will be continued at five of the clock precisely. Having so said he walks out before the Doctor, the rest of the Company following down to the Hall parlour where they all dine, the Doctor pulling off his own robes and putting on the Clerk's Gown first, which it has always been usual for him to dine in. And after being plentifully regaled they proceed as before until the end of the third day, which being over (the Clerk having first given notice in the forenoon that the lecture will be continued at five of the clock precisely at which time the same will be ended) he attends the Doctor in the clothing room where he presents him folded up in a piece of paper the sum of ten pounds, and where afterwards he waits upon the Masters of Anatomy and presents each of them in like manner with the sum of three pounds, which concludes the duty of the Clerk on this account.

"'N.B.— The Demonstrator, by order of the Court of Assistants is allowed to read to his pupils after the public lecture is over for three days and till six of the clock on each day and no longer, after which the remains of the body is decently interred at the expence of the Masters of Anatomy, which usually amounts unto the sum of three pounds seven shillings and five pence.'"

"The study of Anatomy seems to have been regarded universally as an exhausting occupation, for throughout Europe it was the custom to present the auditors with wine and spices after each lecture, unless some more substantial refreshment was provided."

Although the Company was explicitly permitted to take bodies of executed criminals for the demonstrations, they found difficulty at times in obtaining them, not because of any lack of executions, for English laws furnished these in abundance, but because of the opposition of the common people to such disposal of the body. The executions were public, and were witnessed by people more in sympathy with the malefactor than with science. To the beadles belonged the duty of procuring the body at Tyburn, and bringing it to the Hall. They were often vigorously attacked by the populace, and even by soldiers, who sometimes succeeded in rescuing the body, presumably for the relatives of the deceased. The following entries in the Warden's accounts indicate such frays.

"28th May, 1713. Ordered that the Clark go to the Secretary at War for a Guard in order to gett the next Body [from Tyburn]."

"1719-20. Paid the Beadles expences for going to Tyburn for a Body for the Muscular Lecture when they could not get one by reason of a great Mobb of Soldiers and others . . . . . 0—13—0

"1720-1. Pd the High Constable of St. Giles's Parish for assisting the Beadles in recoving a Body which had been taken from the Beadles by the Mobb . . . 0— 7—6

"Paid the Hangman for the Dead mans cloths which were lost in the Scuffle and for his Christmas Box . . . . . 0—15—0

"1735-6. Paid the High Constable for the expenses at the late execution when the body was rescued . . . . . 3—13—6

"Paid the Beadles expenses in prosecuting John Miller, one of the Persons who assaulted the Constables and rescued the body . . . . . 2— 2—0

"1739. Paid the Beadles for their being beat and wounded at the late execution 4— 4—0

"1740. Paid for mending the Windows broke upon bringing the last Body from Tyburn . . . . . 0— 6—0

The dead man's clothes were among the perquisites of the hangman, and the Christmas box was his annual "tip."

It occasionally happened that after the body had been successfully brought to the Hall, the dissection could not take place, as in the instance recorded as follows:

1587. The 20 of Februarie, a strange thing happened a man hanged for felonie at Saint Thomas Wateringes, being begged by the Chirurgions of London, to have made of him an Anatomie, after hee was dead to all mens thinking, cut downe, stripped of his apparell, laide naked in a chest, throwne into a carre, and so brought from the place of execution through the Borough of Southwarke over the bridge, and through the Citie of London to the Chirurgions Hall nere unto Cripelgate: The chest being there opened, and the weather extreeme cold hee was found to be alive, and lived till the three and twentie of Februarie, and then died.

The surgeons appear to have been annoyed by this occurrence, and to prevent a repetition of it passed the following rule:

13th July, 1587. I'tm yt agreed That yf any bodie wch shall at anie tyme hereafter happen to be brought to or Hall for the intent to be wrought uppon by Thanatomistes of or Companie shall revyve or come to lyfe agayne as of late hathe ben seene The charges aboute the same bodie so revivinge shal be borne levied and susteyned by such p'son or p'sons who shall so happen to bringe home the Bodie. And further shall abide suche order or ffyne as this Howse shall Awarde.

A century and a half later, we find the following narrative recorded:

"November the 23d, 1740.

"This day Wm. Duell (who had been indicted at the old Bayley for a Rape and had received sentence of Death for the same) was carried to Tyburne in order to be executed where having hung some time was cutt down and brought to this Company's Hall in order to be dissected where he had not been five minutes before Life appeared in him & being let blood and other means used for his recovery in less than two hours he sat upright drank some warm wine and look'd often round him and before he was carryed back to Newgate which was about Twelve o'the Clock at Night he severall times pronounced distinctly the word DONT when anybody touched him though was thought to be mostly insensible of anything but paine which in a great measure he endured by his most violent screamings & was often in strong convulsions in his bowells which he then exprest by applying his hands to those parts.

"The Sheriffs having ordered him back to Newgate he was carryed out in a blanket putt into a Coach & was seemingly much composed & quiet not making any manner of noise wherein 3 or 4 days time he recovered

sufficient to converse & eat & drink very freely but never could give any reasonable account of what had passed. He afterwards obtained a reprieve in order to be transported for life which he was accordingly in the 16th year of his age.

"(Vide his Tryall in the Session paper of that time.)"

Besides the four public anatomies, and the indefinite number of private ones, there were many lectures and readings. These were sometimes conducted by the Masters and Governors of the Company in turn, who were allowed time for preparation; at other times by a physician or surgeon not a member of the Company, but connected with the College of Physicians, and such an one received an annual salary, and in some instances held his position a number of years. For example, we find under date of 17th September, 1612:

"This daye itt is ordered (upon a motion by the Mr. propounded touchinge that one of the Colledge shold read in this howse the weeklie lectures of Surgery on Tewsdaies) That the Mrs shall conferr with the Mr President of the Phisitions Colledge to see whether they will give Consent that Mr Doctor Davis or some other sufficient phisition whome the company shall please shall read the weeklie lectures in or howse And yf the president & Colledge shall not consent thereto then this howse is to deale & compound with some other of our owne company to read their lecture in this howse whereof ye Mrs are to make certificatt unto the said Mr President And to take such order that the howse may not in anywise be charged towards ye same Lecture.

Also Oct. 16, same year:

"This daie upon the motion made of Mr Doctor Gwyne to be lecturer Itt is by this Court ordered that the said Mr Doctor Gwyne shall be reader of the weeklie lectures of surgery wch the said Mr Doctor accepted of In Consideracon whereof the Mrs have allowed unto the said Mr Doctor Gwyne an yerelie paymt of xli to contynewsoe long as he shall be reder of the lecture."

Four years later:

"Mr Doctor Gwyne is by this Court ordered & entreated that he wold proceed in his reading of or lectures out of Gwydoes Surgery."

Dec. 13, 1627, it was recorded that:

"Whereas, Mr Doctor Gwin our lecturer is lately dead by reason whereof wee are destitute of a lecturer it is very expedient either to choose a Doctor to Reade our lectures on tuesdayes or every Surgion in his turne according to his antiquitye to reade his lectures as formerly the Surgions of this house hath bene used, whereupon deliberacon being had it is by this Court full concluded and agreed that our weekely lectures shalbe reade according to the ancient custome of the Companie by the Surgions of our Companie approved according to lawe and that it shall begin with the ancientest Maister Mr Richard Mapes and soe after every Surgion in his antiquitye and degree in the Companie."

It thus appears that Dr. Gwyne served the Company as lecturer for fifteen years.

The appointments of others are recorded, for instance:

"28th December, 1632. This daye was reade in Court the letter directed to or Mr from Mr Richard Andrews Doctor in Phisick whereby be doth desire to be excused from reading or weekely lectures in Surgerye, & thereupon this Court did goe to a new election, takeing notice of Mr Alex: Reade Doctor in Phisick approved by the Colledge of Phisitions London whoe was bredd a Chirurgian in ffraunce and hath bene a long time free of or Companie did make choice of the said Doctor Reade to be or Lecturer in Surgerye at such days and tymes as by order of Court is formerly ordered by this Court. And this Court doth further order that ev'ry Surgian in the Lecture bill shall yearely paye towards the reading of such Lecture a certeyne some p'ticulerly, and that all those moneys gathered being cast up to a totall some shall out of the stock of this house be yearely made up xxli compleately for the said Doctor, Readeing."

The lectures of this Dr. Reade may be read in a book still existing, entitled:

"The Chirurgicall Lectures of Tumors and Ulcers delivered on Tuesedayes appointed for these exercises, and keeping of their Courts in the Chirurgeans Hall there three yeeres last past, viz. 1632, 1633 and 1634. By Alexander Read Doctor of Physick, and one of the Fellowes of the Physitians College of London. London 1635."

Besides the lectures directed and supported by the Barber-Surgeons Company, there were a few endowed courses for the benefit of all surgeons. One of these, the Lumleian, was established by Lord Lumleie and Richard Caldwell in 1582. A program of semi-weekly lectures was arranged, so that the whole subject of surgery was treated in a course lasting six years, and at the expiration of that time, the course was to be repeated. It was directed that the lecture occupy one hour, and be delivered in Latin three quarters of an hour, and in English one quarter. Perhaps the best known of the Lecturers appointed under this gift was William Harvey, who held the position forty-one years, 1615-1656. The manuscript notes of his first lecture are now in the British Museum. He formulated, for his own guidance in the conduct of an anatomical lecture, the following rules:

RULES FOR HIS OWN GUIDANCE.

1. To show as much as may be at a glance, the whole belly for instance, and afterwards to subdivide the parts according to their position and relations.
2. To point out what is peculiar to the actual body which is being dissected.
3. To supply only by speech what cannot be shown on your own credit and by authority.
4. To cut up as much as may be in the sight of the audience.
5. To enforce the right opinion by remarks drawn from far and near, and to illustrate man by the structure of animals according to the Socratic rule [given by Aristotle and affixed as an extract to the title-page of the lectures]. To bring in points beyond mere anatomy in relation to the causes of diseases, and the general study of nature with the object of correcting mistakes and of elucidating the use and actions of parts for the use of anatomy to the physician is to explain what should be done in disease.
6. Not to praise or dispraise other anatomists, for all did well, and there was some excuse even for those who are in error.
7. Not to dispute with others, or attempt to confute them, except by the most obvious retort, for three days is all too short a time [to complete the work in hand.]
8. To state things briefly and plainly, yet not letting anything pass unmentioned which can be seen.
9. Not to speak of anything which can be as well explained without the body or can be read at home.
10. Not to enter into too much detail, or into too minute a dissection, for the time does not permit.

11. To serve in their three courses according to the glass (that is, to allot a definite time to each part of the body). In the first day's lectures the abdomen, nasty, yet recompensed by its infinite variety. In the second day's lecture the parlour [that is, the thorax?]. In the third day's lecture the divine banquet of the brain.

It is doubtful if in other countries the Barber-Surgeons were as rational and careful in the education of their apprentices as in England. A satirical account of the work and difficulties of the French apprentices, published in 1726, gives us a picture which may be somewhat overdrawn:

"The cock has scarce done crowing, when the apprentice must rise to sweep and throw open the shop, lest he lose the least payment that the tricks of the trade may bring him — some early beard to be shaved. From this time on to two o'clock, there are fifty customers; he must comb the wigs, hang about the parlour or the staircase selling his stock, put folks' hair in curl papers, cut it, or singe it. Toward evening, if the young man wishes to improve his mind, he will take a book; but the dulness and weariness of learning, which come of his not being used to it, soon bring him a sound sleep, with interruptions from the door-bell, warning him some rustic wants his hair cut. Never did anyone ask so much of a servant, never in The Islands did a white man seek so greedily to get profit out of a black one, as a master barber-surgeon tries to make gain out of the bread and water he gives his apprentices. If it is not their afternoon out, he will not let them leave the shop, not even to go to Lecture, for fear of losing the worth of some beard which perhaps will not come after all. That is why the professors, out of kindness, give their Lectures to these unhappy young men at four o'clock in the morning."

In regard to these lectures I quote from Stephen Paget's book on "Ambroise Paré and his Times."

"These lectures given in Paris and other University towns to the apprentices of the surgeons and barber-surgeons, were not such as to stand the test of being delivered at four in the morning. They were of course given by physicians, or by University professors, not by surgeons; 'probably the lecturer limited himself to expounding those portions of Guy de Chauliac which treated of wounds, tumours, and ulcers, adding a few general remarks on fractures and dislocations.' The honour of the University forbade the professor to speak French, and the apprentices did not understand Latin. At Montpelier, a compromise was made; the professor read out his authority in Latin, and then commented on him in a mixed eloquence, half Latin, half French. We have the lectures given at Lyon by Jehan Falcon in 1520, and published by his widow in 1559. He begins with a careful study of the title of the book he is reading to his audience; observing that the word "title" is derived either from the Latin "tueri," because it protects the author's work, or from the Greek "Titan," which means the sun, and as the sun throws light on the world, so the title throws light on the book. Then, warming to his subject, he goes on to consider (1) To what part of philosophy does surgery belong? (2) What is the order of this book in regard to other books on surgery? (3) What is the subject chiefly treated in this book? (4) How many causes has this book?

"I find it has four causes: efficient, formal, final, and material. The efficient cause is twofold: universal, and particular. The universal cause is God, who is the cause of all things in this world. The particular cause is the doctor Guido (Guy de Chauliac), who was a very excellent man in medicine and in surgery, as he teaches you by his book. The material cause of this book is the human body, potent alike for health and for sickness, determined to manual operations, with which difference it is the subject of this book. And here we take material cause for matter, wherewith science is concerned."

These lectures of Jehan Falcon extend over 610 pages quarto; we can only hope that Ambroise served his apprenticeship in some small country town, far from physicians and professors.

Paget gives the following facts about the French barber-surgeons:

"The corporation of barber-surgeons was a body of some antiquity; they are mentioned so far back as the year 1301, and new rules were made for them in 1371. The King's chief barber was their head; the church of Saint Sepulchre, in the rue Saint-Denis, was their centre; Saint Cosmo and Saint Damien were their patron saints. In 1572, they prescribed a four years' course of study to their apprentices; the examination-fees were a crown to each examiner; and to obtain the title of Master it was necessary to pay a further fee to the Faculty of Medicine, to undertake the dissections in the schools, and to take an oath, renewed every Saint Luke's Day. They were jealously restricted in the amount of surgery they might practise; fighting their way up into the territory of the surgeons, just as the surgeons were fighting against the supremacy of the physicians."

In spite of incomplete and often erroneous instruction, in spite of the unfavorable circumstances incident to their positions, many apprentices undoubtedly proved themselves diligent students and conscientious and skillful practitioners. From the rank of barbers some rose to barber-surgeons, and a few of these again, to surgeons. Perhaps the most noted of such is Ambroise Paré, a man who has been likened to John Hunter, in his earnestness to acquire knowledge and in the value which he put on experience, rather than tradition, as a teacher. He acted in accordance with the advice which John Hunter afterwards gave to Jenner: "Don't think: try," Experience convinced him, and he had the courage of his convictions.

Barber-surgery as an institution has disappeared from progressive countries of the present time, but it may be said to its credit that it has disappeared, not by reason of degeneration, but by reason of disintegration, because that in it which was the more important became scientific and grew away from the less important, until the two parts could no longer remain associated, and while we congratulate ourselves that we have escaped its treatment, let us remember that it came to the suffering poor with what it had for their relief at an age when hospitals caused more deaths than they prevented, and a well-educated surgeon was too rare a person to be able to serve the masses, even though he were willing to do so.

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THE governor of Cochin China reports that the university being erected in Annam is almost completed. This was founded by the French Government for the instruction of native physicians, especially for observation regarding tropical diseases. The institution is to have a bacteriological department under the auspices of the Pasteur Institute, Paris, and an agricultural laboratory. — *Philadelphia Medical Journal.*

# Original Articles.

## TETANY IN GASTRIC DISORDERS.

BY LAWRENCE W. STRONG, M.D., BOSTON,
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The following cases of tetany are given in the order of their completeness, without claiming certainty of diagnosis for all:

Case I. The patient, a Nova Scotian girl of eighteen, was employed as a cook and general housemaid. She had always been well, was well nourished and of good habits. She showed no neuropathic tendencies, she had never suffered from indigestion, her bowels were habitually regular, and her catamenia were normal. She was accustomed to drink three or four cups of tea daily. For a week previous to the attack to be described she had worked hard to prepare for a vacation, and she was consequently overtired. One morning, on awaking she complained of a severe headache, which continued throughout the day. She had eaten nothing unusual, and her bowels had moved naturally. At ten in the evening she vomited a small amount of greenish fluid, and at 3 A.M. she vomited again, profusely, the vomitus being brownish. She was unable to sleep, and the headache grew more intense during the succeeding day. At 8 P.M. she took some bromide which she promptly vomited, and then began to complain of numbness and cramps in her hands, which lasted about a half-hour. She was seen at 1 A.M., and presented the following symptoms:

There was a firm, tonic spasm, involving both forearms and hands; the arms were crossed on the chest, the forearms partly flexed, with slight flexion of the wrists. The fingers were flexed at the metacarpophalangeal joints, and extended at the distal phalangeal joints; the fingers were pressed together, the thumbs were adducted and inserted between the ring and middle fingers. The position of the fingers, then, was the characteristic one described as the obstetrician's hand. The spasm was continuous, and of uniform intensity during the three hours in which the patient was under observation, but when she finally fell asleep it lessened, and it had entirely disappeared when next she was seen at noon. Voluntary motion in the arms was possible, but much restricted; the girl made repeated unavailing efforts to open her hand, using the fingers of the other hand as a wedge. The spasm was painless in itself, but there was marked hyperesthesia in both arms, and to a lesser degree over the whole body. There was absolutely no spasm of the trunk or legs; swallowing and speaking were not impeded; the consciousness was perfect, but at intervals the girl gritted her teeth violently, showing spasm of the muscles of mastication. Tapping on the facial nerve and on the masseters failed to produce spasm in the intervals when the jaw was relaxed. Pressure on all the nerve trunks called out much more complaint of pain than seemed natural. Trousseau's sign was not observed. It can hardly be said to have been absent, however, for the muscular spasm was continuous and intense at all times, so that there was no opportunity to test it accurately. The knee jerks were equal and not increased. Babinski's sign and Kernig's sign were both absent. There was no ankle clonus. The temperature was 99.8° and the pulse 60. Sensation to touch was normal over the entire body, but there was a general increased sensibility to pain as tested by pin prick, while deep pressure on both nerves and muscles was acutely painful.

On the following afternoon the spasm had entirely disappeared, the patient had no complaints except for weakness and for some soreness in the muscles, especially of the back. Tenderness to pressure had disappeared. Trousseau's sign could not be obtained, but tapping on flexor and extensor tendons of the forearm and on the triceps tendons produced quick contractions of the muscles. Tapping on the muscles themselves did not produce contractions, so that the direct muscular irritability appeared normal. The electrical observations taken at this time were not satisfactory. There was quick contraction of the flexors and extensors to weak faradic and galvanic currents, but not more so in the originally affected muscles than in unaffected ones. Polar changes did not occur.

No causative factor appears in this case, but the repeated vomiting justifies the assumption of a gastric origin. The headache, slight fever and prostration suggest a mild toxemia.

Case II. Reported by permission of Dr. Withington on whose service at the Boston City Hospital the case was seen, March, 1902.

An unmarried American man of twenty-eight, employed as a collector. For six years the patient had had attacks of vomiting lasting a week or two, and recurring at intervals of weeks or months. The patient's habits were fairly good, without excesses in any direction. Bowels habitually constipated. There had been a considerable loss in weight.

The attack of vomiting which led to his entrance into the City Hospital was the longest and severest he had ever experienced. It was preceded by violent abdominal pains. There had been an occasional light streaking of the vomitus with blood.

Physical examination showed general emaciation and a very large area of gastric tympany. During the examination the patient vomited 32 oz. of sour, dark-colored fluid, free from blood. Following the vomiting occurred a general muscular spasm. The arms were flexed at the elbows and crossed on the chest; the thumbs were drawn in under the fingers, which were slightly flexed. The legs were drawn up, but they could be partially extended during the attack. The lips were fixed, and the patient was unable to speak. This attack lasted two or three minutes, and was followed by several shorter and milder spasms. The spasm could be brought on in the intervals by pressure in the region of the brachial plexus. Chvostek's phenomenon was not recorded; apparently it was not tested. Knee jerks were normal. In other respects the physical examination revealed no abnormality.

A few days later the gastric capacity was tested by inflation and it was found to be greatly increased. Tympany extended from the nipple line and two inches outside this to the umbilicus. The right border extended to the right mammary line.

A test breakfast was given, and an attempt was made to wash out the stomach, but the tube was vomited together with the remains of the breakfast. Analysis of these showed free HCl, .18; total acidity, .30. No lactic acid; occasional blood globule. No tetany resulted from this attempt to pass the stomach tube.

Two days later, after vomiting, there was a slight attack of tetany. Trousseau's sign was present.

Two days later, while passing the stomach tube, which he vomited twice and pulled up once, he had a marked attack of tetany, lasting eight minutes. The jaw and lips were affected, the legs and toes were flexed and rigid. The knee jerks were very lively.

A diagnosis of probable cicatricial stenosis of the pylorus from gastric ulcer, with subsequent gastric dilatation was made, and gastro-enterostomy was advised, but the patient improved so much on restricted diet that he refused operation.

Peristaltic waves were commonly observed, passing from left to right and from above slightly downward, in the left hypochondriac region. No further attacks of tetany occurring, the patient was discharged relieved.

Case III. Service of Dr. J. L. Morse, Boston City Hospital, 1901.

A Russian pedler of forty-three, married, had been troubled with epigastric pains for six months. Bowels persistently constipated; often no movement for one

or two weeks. The patient almost always vomited after eating, and experienced relief thereby. Two weeks before entrance, the man had an attack of cramps in his feet, lasting two hours. The day before entrance there was a general cramp, the feet and legs being drawn up, the face contorted, the hands clenched and strongly flexed on the forearms. The attack lasted all night and persisted off and on until entrancé into the hospital.

Examination upon entrance showed the fingers strongly contracted, the hands flexed at the wrists, and the arms flexed at elbows. The legs were flexed on the thighs. The attack lasted one-half hour, and pressure over the nerve trunks called forth the spasm in the intervals. The stomach was inflated with tartaric acid and sodium bicarbonate, when the greater curvature was found to extend one and one-half inches below the umbilicus.

A test breakfast was given, and one hour later three quarts of green, foul gastric contents were expressed. Free HCL, .0365; total acidity, .21; lactic acid present. The stomach, being filled with water, extended 7 cm. below the umbilicus, and held 80 oz. The stomach was washed daily, but no more tetany occurred. Gastro-enterostomy advised but refused. Discharged relieved.

CASE IV. Service of Dr. V. Y. Bowditch, Boston City Hospital, 1898.

The patient was a Russian tailor, age forty-four, married. He had suffered from diarrhea, nausea and belching of gas for a year, and had lost twenty pounds in six months. He complained of weakness and stiffness of hands and legs. Stomach tympany extended one inch below umbilicus. It is noted that on entrance his hands were flexed with the fingers in extension. A week after entrance and for the next three days the patient had distinct attacks of tetany, with characteristic flexion of hands and arms and some stiffness of jaws. Unfortunately there are no notes as to the presence of Trousseau's and Chvostek's symptoms.

CASE V. Service of Dr. Charles F. Withington, Boston City Hospital, 1897.

An elderly laborer, married, age not definitely known, had been sick for six months with vomiting, hiccough and loss of weight. The vomitus was streaked with blood; no blood was present in the stools. Nothing palpable in abdomen, but carcinoma ventriculi was suspected, and an attempt was made to wash out stomach.

Two days after entrance I tried to pass the stomach tube, which was, however, taken with difficulty. Suddenly the whole body became rigid, the teeth were clenched, the arms and legs twitched and then became rigid. With some difficulty the jaws were separated, and the tube was removed. The patient, however, remained in a tetanic condition, and died several hours later. The spasm did not occur until the tube had been fully introduced and some water had been poured into the stomach.

This case, while too incomplete to allow of a diagnosis, is given on account of its similarity to the fatal attacks of tetany which occasionally occur in grave gastric disease. Bouveret and Devic give the mortality as 70% and Loeb as 71.4% for the ultimate outcome of gastric tetany. These figures can mean little more than that gastric tetany generally appears in cases of carcinoma ventriculi or cicatricial stenosis, conditions which in themselves finally end fatally. Fleiner regards the occurrence of tetany as a sign of such serious import as to be a contra-indication to the operation of gastro-enterostomy.

CASE VI. A married American woman of forty, consulting me for general neurasthenic complaints, gave the following history: She had long been troubled with constipation, distress after eating, belching of gas and anorexia. Six months before, she had had an attack of nausea, vomiting and dizziness. Then occurred prickling and numbness in the arms, and later stiffness in the arms and contraction of the muscles. She could not straighten her arms voluntarily, nor hold any article in her hands. A second severer attack two months before she was seen.

Examination revealed nothing suggestive of tetany. Gastric lavage showed no dilatation, and no tetany resulted.

CASE VII. Syrian woman, age thirty-eight, married. No symptoms of gastric derangement. Patient states that every time she becomes pregnant she has attacks of stiffness in arms, legs and face, lasting about half an hour. She has been observed in several of these by Dr. James Stone, who describes them as typical tetany. Attacks never occur after the birth of child.

This case is inserted merely as an example of tetany in a pregnant woman, a condition hitherto unreported in America, and of rare occurrence in Europe. It will not enter into the further discussion of these cases. Four cases of tetany during lactation have been reported in America.

The descriptions of all these cases are more or less incomplete, either from an incompleteness of the original record, or in the actual failure of some characteristic symptom to be brought out by examination. The question arises what ones, if any of them, are indisputably tetany, or, in other words, what symptoms are essential in the diagnosis?

The most complete and accurate descriptions of tetany come from French and German writers, since tetany is by no means uncommon in Europe; and, as one writer has observed, there appear to be periods of activity and quiescence in the appearance of studies of tetany corresponding to the epidemic years in various cities. Frankl-Hochwart [2] defines tetany as having as its chief symptom tonic, intermittent, bilateral, usually painful muscular contractions, usually occurring without loss or change in consciousness, affecting chiefly the upper extremities, producing the writer's hand or obstetrician's hand, often affecting the lower extremities, less often the muscles of the larynx, face and jaw, rarely affecting the thoracic, abdominal, neck and tongue musculature, while in single cases the diaphragm and bladder have been affected. Sensory symptoms occur mostly in the form of parasthesiæ and pain. The special senses are unaffected. Of especial diagnostic value is the fact that, in the intervals between the contractions, pressure on the brachial plexus starts the spasm (Trousseau's phenomenon). The electrical irritability, at least for the galvanic current, is increased (Erb's phenomenon). Almost constant is the mechanical hyperexcitability of the motor nerves (Chvostek's phenomenon). The sensory nerves are also often excessively irritable to mechanical and electrical stimulation (Hoffmann's phenomenon). Other conditions are inconstant; secretory and trophic disturbances may occur; the reflexes may be normal, increased or absent.

In addition to the typical form, to which the above description applies, Frankl-Hochwart rec-

[2] Nothnagel's System of Medicine, xi, 11.

ognizes "incomplete," "latent," and so-called "tetanoid" forms, where spontaneous spasm is absent, but where Trousseau's, Erb's and Chvostek's signs are present, and he also recognizes cases with typical muscular spasm where the accessory phenomena are absent. It appears, although it is not specifically so stated by the author, that all these incomplete and tetanoid forms occur in cases associated with gastric derangement. Frankl-Hochwart, W. Fleinert and Ury declare that such cases are not to be considered as true tetany, and they limit tetany strictly to such cases as show typical contractures, with Trousseau's, Erb's and Chvostek's phenomena all present. Frankl-Hochwart makes the following subdivisions of tetany:

(*a*) *Tetany of adults.*— (1) Tetany in sound individuals, acute or subacute, mostly mild forms, which in certain localities, as Vienna and Heidelberg, at certain seasons, especially March and April, is very prevalent, and attacks with preference young men of certain callings, namely, tailors and cobblers. This is called idiopathic laborer's tetany, and is often associated with light fever. (2) Tetany of gastric and intestinal affections: diarrhea, dyspepsia, gastric dilatation, helminthiasis. (3) Tetany after poisoning with chloroform, morphin, ergotin, lead. Single cases of each reported. (4) Tetany of acute infectious disease: typhoid, cholera, influenza, measles, scarlet fever. (5) Tetany of puerperal state. (6) Tetany of thyroid extirpation and strumipriva. (7) Tetany in connection with other nerve diseases, exophthalmic goitre, brain tumor, syringomyelia.

(*b*) *Tetany of children with relation to gastro-intestinal disease, acute infectious disease and rhachitis.*— Apart from the reports of individual cases there have been but two studies of the occurrence of tetany in America, namely, those of Griffith and of Morse.

Griffith, from an analysis of all cases of tetany reported in America up to 1894, concludes that there is no essential difference in tetany of adults and of children, nor in continuous and paroxysmal forms. He also states that not every case shows all the cardinal symptoms.

Morse, studying tetany in infants, carries the review up to Jan. 1, 1901, adding thirty-one cases in infants and children. He concludes that tetany, like epilepsy, is a nosological entity and not a definite disease, that its only pathognomonic symptom is spontaneous, intermittent, paroxysmal muscular contraction. Trousseau's symptom, Erb's symptom, and the facial phenomenon are not pathognomonic of tetany because they are not constantly present in tetany and occur in many other conditions.

*(To be continued.)*

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The Colorado Board of Health has issued an order providing that the minimum period of quarantine for smallpox patients shall be not less than four weeks from the first eruption, and in any case not less than ten days after scaling is completed. — *Journal American Medical Association.*

## NOTES ON THE DIAGNOSIS AND TREATMENT OF EARLY MISCARRIAGE.[1]

BY L. V. FRIEDMAN, M.D., BOSTON,

*Assistant in Obstetrics, Harvard University, Physician to Out-Patients, Boston Lying-in Hospital.*

The term "early miscarriage" has been used here in considering pregnancies interrupted before the completion of the eighteenth week. The notes are based on 104 such cases seen at the Boston City Hospital and in the Out-Patient Clinic of the Boston Lying-in Hospital. No attempt will be made to give an exhaustive symptomatology, as I design only to reiterate certain points of practical value in diagnosis and in treatment, which I have seen ignored by good practitioners.

*A. Diagnosis.*— I. Pelvic pain associated with uterine bleeding suggests miscarriage. Frequently the absence of accurate history requires a consideration of the possibility of an excessive menstrual period with pain. In making a differentiation between menstruation and miscarriage, the history of previous amenorrhea, combined with a history of usually painless menstruation; the absence of the characteristic menstrual odor, the presence of a fetid odor, the dark grumous character of the blood and the dilated os, all suggest the interruption of pregnancy. The enlargement of the uterus, its shape and its consistency are to be considered, but one must not mistake the subinvoluted multiparous uterus, with its gaping external os, for a gravid or puerperal uterus.

II. Not rarely do the symptoms of miscarriage simulate those of a bleeding extra-uterine pregnancy. The following points are given as suggestive of extra-uterine pregnancy: (1) Palpation of a tender mass at the side of the uterus or in the fossa of Douglas; (2) the discharge from the uterus of a decidua graviditatis without chorionic villi; (3) disproportion between the severity of the pain and the size of the uterus; (4) disproportion between blood lost and a pulse which indicates hemorrhage; (5) in extra-uterine pregnancy the uterus does not present the globular enlargement of pregnancy and does not increase beyond the size of a ten-weeks' uterus;[2] (6) its enlargement is longitudinal only, never anteroposterior nor transverse.[3]

On the other hand, miscarriage would be suggested by a total absence of the above symptoms and of such peritoneal symptoms as abdominal rigidity and tenderness, vomiting and distention. It is to be noted that in an early miscarriage the uterus is frequently smaller than the history would lead us to expect. This is due to the involution which follows the rupture of the ovum and its partial expulsion.[4]

III. The question of "threatened" or "inevitable" miscarriage must remain always one of personal judgment in the individual case. This is

[1] Read before the Obstetrical Society of Boston, May 20, 1902.
[2] Abel-Bandler; Gynecological Pathology, p. 83.
[3] Webster: Ectopic Pregnancy, p. 163.
[4] In an extra uterine pregnancy an attempt at criminal abortion, if followed by peritoneal symptoms, would obscure diagnosis hopelessly. (See Boston Medical and Surgical Journal, cxlvi, 40.)

illustrated by the following extreme cases. In Case I the head of a four-months' fetus (membranes intact) was engaged in an internal os dilated so as to admit two fingers; yet, under treatment, all symptoms disappeared and the patient was carried over. In Case II there was practically no bleeding, but persistent uterine contractions, which, in two hours, sufficed to dilate the closed os and expel the intact four-months' ovum, repeated doses of morphia having been without effect. But the differentiation between threatened and inevitable miscarriage has not confronted me so constantly as the necessity for decision, whether a case was complete or whether some part of the ovum still remained in utero. This decision is usually difficult. Rarely is one able to find parts of the ovum, even if the discharges have been saved and examined conscientiously. The following data were noted: A firm uterus, closed os and slight ooze of blood indicate, (*a*) where the previous flowing has been slight, a threatened miscarriage; (*b*) where the previous flowing has been profuse and in clots — a complete miscarriage. In partial miscarriages the bleeding persists, and the os almost invariably admits a finger which feels readily the characteristic ragged portion of the ruptured ovum. In fact, where the os is so patulous as to admit one finger easily, the ovum, intact or in part, will be found almost invariably to be in the uterus.

Having suggested the difficulty, in some cases the impossibility of absolute differentiation between threatened, inevitable, partial and complete miscarriage, I shall attempt to formulate a plan of treatment which shall cover all cases. Any such plan must be discretionary, but the limits of discretion can be drawn fairly well.

*B. Treatment.*— In all cases where a high temperature is indicative of sepsis, or where the pulse, in rate or quality, has been affected by the bleeding, the uterus should be emptied at once by the method to be described below. Where neither of these conditions is present, and it is impossible to establish definitely whether the case be threatened or inevitable, partial or complete, the treatment should be directed to the conservation of the ovum, but with careful watching, so that if at any time the mother's condition becomes worse, the treatment may become radical at once.

To be more precise, when no part of the ovum is prolapsed through the os, or when the os is not sufficiently dilated to permit the finger to feel the intact or ruptured ovum within the uterus, if the patient's pulse be good in quality and less than 110 beats per minute, treatment should be expectant. Where miscarriage is not complete, seldom will one be obliged to wait more than twenty-four hours in order to see either an anatomical change which makes clear the diagnosis or a change in condition which demands action. During this expectant period the patient may be left with safety in care of a nurse, or where this is impossible, can be seen once in six hours by the physician.

All writers agree that the mortality in early miscarriage is exceedingly low. None of the 104 cases resulted fatally, although some entered the hospital septic, with temperatures of 104° to 106°, and others were exhausted from hemorrhage (pulse 150-160). Of this series but three cases showed a high pulse as a result of the loss of blood, and these three had bled eight, fifteen and twenty-two days, respectively. It has not been explained why a woman during an early miscarriage can lose so much blood without constitutional effect, but it has been suggested that the loss takes place slowly enough to permit recuperation nearly to keep pace with it. At any event, such bleeding practically never is dangerous until it has continued several days. The emergency is not one of minutes, but of hours or days.

Hirst's request [5] for statistics leads me to offer the following 1,028 cases (none over six months):

I. Six hundred and ten cases treated at the Boston City Hospital (1892-1902), 29 deaths, or 4.75%. Large proportion of induced and neglected cases. The deaths include cases with pre-existing typhoid and pneumonia. With two exceptions those of the twenty-nine deaths obviously due to the miscarriage were caused by septic pneumonia following a miscarriage between four and six months. The other two were due to sepsis after abortion at the third month.

II. There were 418 cases treated as out-patients of the Boston Lying-in Hospital (1892-1902). There were five deaths, or 1.2%; one case could not be traced. The five deaths were due to (1) typhoid; (2) pyonephrosis; (3) pulmonary embolism; (4 and 5) sepsis.

Of the 1,028 cases but seven were twin pregnancies.

*Methods.*— Having decided upon radical measures, ergot and the tampon are to be used, where indicated, as the textbooks direct. The tampon is seldom necessary in cases under four months, as the small amount of requisite dilatation is obtained with rapidity and with little bleeding. When it comes to the emptying of the uterus, instead of immediate recourse to the curette, it was seen that a large majority of the cases could be treated efficiently with the finger, thus leaving the uterine mucosa in a condition much more nearly resembling that of the normal puerperal uterus. The curette, removing practically all of the deeper layers of the decidua serotina and vera, leaves little or none of the glandular element upon which depends the reproduction of the normal endometrium.[6] Whether the subsequent imperfect reproduction is not the cause of much of the persistent endometritis which is seen, is an open question for the pathologist.

Almost every textbook describes the method of digital removal of the ovum [7] and the use of the curette. I have found it very convenient to enter the uterus with the second finger of the left hand, allowing the shorter forefinger to extend outside

[5] Obstetrics, 3d edition, p. 262.
[6] Minot: Human Embryology, p. 21.
[7] Reynolds' Practical Midwifery, p. 60.

of the cervix into the vaginal vault. I have never found ether necessary because of pain, but have used it where a rigid abdominal wall prevented the right hand from fixing and slightly depressing the fundus. Where the finger fails, the curette, always sterilized and at hand, is employed. I have found best a medium-sized sharp curette with so stiff a staff that it cannot be bent, except by exerting considerably more force than is permissible in using it. Only extreme carelessness can result in puncturing the firm-walled uterus of early pregnancy. An exception exists in cases where the uterine wall is broken down by a sepsis of some days' duration.

Whichever method is employed, the uterine cavity should be irrigated thoroughly. I have used corrosive sublimate (1-5,000), formalin ($\frac{1}{2}$ to 2%), and sterile water with equally good results, the quantity being more important apparently than the constituent. The uterus having been emptied, the cessation of bleeding is invariably instantaneous, except for the very slight lochial ooze. The use of rubber gloves causes so little inconvenience in digital maneuvres that their value for asepsis far exceeds the delay they may occasion.

It has been my experience that most women, either through design or unwittingly, underestimate the duration of their pregnancy. I have noticed (and Dr. Minot confirms me) that judging from its length obstetricians generally underestimate the age of the fetus. These errors derive import from the variation in treatment according to the duration of the pregnancy. The following figures are quoted [8]:

| | | | | |
|---|---|---|---|---|
| Fetus | 28 days | = Length | 7.5 mm. | |
| " | 60 " | = " | 28 | mm. |
| " | 3 mos. | = " | 78 | mm. (3 1-16 inches). |
| " | 4 " | = " | 155 | mm. |

It seems misleading to state that before the end of the third month there is no placenta. Embryologists seem to agree that coincident with the development of the ovum there occur those changes in the chorionic villi and the decidua serotina which result ultimately in the formation of the placenta. Before the end of the eighth week the general atrophy of villi, except at the decidua serotina, makes an easily perceptible differentiation.

Frequently in partial miscarriages at seven to nine weeks, I have found that just this small tufted piece of chorion remains attached to the uterine wall (that is, decidua serotina) and causes persistent bleeding; consequently, in very early miscarriages, this immature placenta must be sought. Here also may rest the etiology of subsequent fibrinous mole.

[8] Minot: Human Embryology, pp. 384 et seq.

The health report for the week ending Nov. 8 shows the occurrence of 124 new cases of typhoid fever, the disease being in every ward but the eleventh and twelfth. This is seventeen cases more than last week. Over 500 cases are now being treated.— *Philadelphia Medical News.*

## Clinical Department.

### RECURRENT PAROTITIS FOLLOWING RECURRENT ATTACKS OF APPENDICITIS.

BY DANIEL FISKE JONES, M.D., BOSTON,
*Assistant Surgeon to the Carney Hospital.*

Miss S., age nineteen, had a first attack of appendicitis in Portland in 1897. At this time there was a large abscess about the appendix which extended into the pelvis. The abscess was drained ten days after the onset of symptoms, and forty-eight hours after the operation the right parotid began to ache and swell; forty-eight hours later the left parotid became involved. The pain and swelling continued five or six days, and gradually subsided.

The patient developed a second attack of appendicitis one year later. At this time the abscess extended into the pelvis, as at the first attack, but was much smaller. The abscess was drained forty-eight hours after the onset of symptoms, and forty-eight hours later the right parotid became swollen and painful, followed in two days by the involvement of the left. A week after the onset of symptoms both sides had subsided.

The patient first came under the care of Dr. M. H. Richardson during a third attack of appendicitis in November 1899, two and a half years after the first attack. Thirty-six hours after the onset of symptoms the patient was operated upon, a small abscess about the appendix, extending into the pelvis, was drained, and the appendix removed. Two days after the operation the right parotid became swollen. The patient went through a third attack of double parotitis similar in all respects to the two previous. There was no chill, and the symptoms were comparatively mild; the temperature at its highest ranged between 100° and 101°.

Stephen Paget, in a paper published in the *British Medical Journal* in 1887, gives the following facts regarding parotitis. Out of 101 cases collected by him, 10 were due to disease or injury of the genito-urinary tract, 18 to disease or injury of the alimentary canal, 23 to disease or injury of the abdominal wall, and 50 to disease or temporary derangement of the generative organs. Of the 101 cases, in only seven was any other than the original septic process reported. Thirty-seven out of the 101 died, but all these Mr. Paget says died of the original disease or injury, and not because of the parotitis. In 25 cases of ovariotomy, both parotids were affected in nine. Of 78 cases, 45 went on the suppuration and 33 resolved.

State Hospital for Epileptics.— At a meeting of the Pennsylvania State Convention of the Directors of the Poor, held recently at Somerset, it was recommended that Highland Inn and 100 acres of ground be purchased for the purpose of establishing a State Hospital for Epileptics.— *American Medicine.*

# Medical Progress.

## PROGRESS IN THERAPEUTICS.

BY ELLIOTT P. JOSLIN, M.D., BOSTON.

[Concluded from No. 20, p. 545.]

### HARMFUL EFFECTS OF ORTHOFORM.

IT is unfortunate that so excellent a local anesthetic as orthoform should give rise to so many disagreeable after-effects. The following instance will serve as an example: A 10% orthoform salve was spread on a wound of the abdomen of less than the size of a cent in area. Within two days the whole abdomen, which had been previously treated with hot poultices, showed a moist papular eczema and the whole body showed a markedly purulent papular eruption and edema of the face and extremities. The general condition remained uninfluenced.

### THE SERUM TREATMENT OF EXOPHTHALMIC GOITRE.

This subject was discussed by Goebel at the Twentieth Congress for Internal Medicine at Wiesbaden in April last. Three years ago French authors proposed the treatment of this disease with the blood of myxedematous patients, following out Möbius's contention that exophthalmic goitre is the result of over-production of thyroid extract, just as myxedema ensues from its lack. Möbius then suggested the use of the blood of animals from whom the thyroid had been removed by operation. Lanz modified this by employing the milk of goats whose thyroids had been cut out. Goebel, independently of these authors, used milk and serum from sheep and goats thus operated upon. One of his patients took for seven months the milk of a goat whose thyroid had been removed five months earlier. Later the same patient used the serum from this same animal. The symptoms lessened. Blumenthal confirmed Goebel's results. We report the above as an illustration of the various ways in which different minds are attacking this problem.

### WITHDRAWAL OF CHLORIN FROM THE DIET OF EPILEPTICS.

Schlöss[6] has carefully studied this question, which was first advocated by Toulouse and Richet. Five female epileptic patients received daily a milk and cream diet, about two quarts in amount. The amount of chlorin in this was 2.1 gm., while the average amount of chlorin in the diet before the experiment was 16.2 gm. Medicinal treatment remained the same. Although in the course of the experiment of ten or twelve weeks unsalted beef and eggs were added to the diet to make it more appetizing, all patients experienced a loss of weight of several kilograms, accompanied by weakness and dizziness. On the other hand, the influence of the diet on the number of attacks was striking, for these either ceased entirely or diminished greatly in number.

[6] Die Therap. der Gegen., 1902, p. 279.

The same writer further showed that an exclusive milk and vegetable diet diminished the number of attacks quite as little as a pure meat diet increased them. Fatty and acid foods, or even moderate quantities of alcohol (one litre beer daily), had no influence on the number of convulsions.

### THE OPERATIVE TREATMENT OF BRIGHT'S DISEASE.

A paper by Senator[7] and the discussion which followed on the subject of operation in renal diseases at the Berlin Society of Internal Medicine last winter only confirmed the opinion of most of the physicians there present, that surgical procedures have no place in real Bright's disease. In hemorrhage and colic they are to be resorted to only when all bloodless methods of diagnosis and treatment are exhausted.

### THE PRESENCE OF TETANUS TOXINS IN COMMERCIAL GELATIN.

Lorenz[8] and Levy and Bruns[9] warn against the dangers of tetanus arising from the use of gelatin as an hemostatic. Lorenz records two fatal cases. Levy and Bruns found that heating solutions of gelatin for one hour at 80° C. was not sufficient to free four out of six such solutions from tetanus. Tetanus spores are said to be destroyed after eight minutes exposure to steam. They found in some instances that a longer time was necessary. At any rate, care should be taken in estimating the time of sterilization; count only that portion of time during which the whole solution has reached the required temperature. The subject requires further investigation.

### SUGAR IN THE DIET OF DYSPEPTICS.

Morgan[10] confirms the work of Strauss, that sugar diminishes the amount of acid and ferment secreted by the stomach. It is of especial value in the treatment of hyperacidity, and also tends to counteract the prevailing constipation in this condition. The author believes from his experiments that in sugar we have the means of controlling the amount of total acidity and free HCl in the stomach.

### THE INFLUENCE OF DIFFERENT POSITIONS OF THE BODY UPON THE MOTILITY OF THE STOMACH.

v. Mering[11] reports a series of observations on this subject. His conclusions are as follows: Food leaves the stomach most quickly with the patient lying on the right side. Standing, sitting, lying on the left side and slow walking are less favorable positions and about equal to one another. Lying on the stomach or on the back comes between the two.

### ICE-BAG IN GASTRIC ULCER.

Fleiner[12] emphasizes the use of an ice-bag over the stomach in gastric ulcer, to counteract the re-

[7] Die Therap. der Gegen., 1902, p. 70.
[8] Centrbl. f. die Med. Wiss., 1902, p. 132.
[9] Deutsch. med. Woch., 1902, p. 130.
[10] Die Therap. der Gegen., 1902, p. 279.
[11] Loc. cit., p. 193.
[12] Loc. cit., p. 213

laxation of the organ. This is especially important because such patients are apt to swallow air, and so distend the stomach, thus opening up the ulcer while in process of healing. He adds further, that a properly chosen diet renders the need of medicine unnecessary in the treatment of gastric ulcer.

### THE TREATMENT OF PNEUMONIA.

It is so seldom that any definite claims for a drug in pneumonia are made, that the following extract, from a paper of Dr. Reynold W. Wilcox[13] on this subject, is subjoined:

"Within two years . . . Cassoute and Congier reported that after continuous administration of fairly large doses of creosote carbonate (containing 91% of creosote, and made from it by the action of nascent carbon dioxide), in most cases a typical fall of temperature occurred during the first twenty-four hours of treatment, and if the remedy was persisted in for a sufficiently long period of time, the apyrexia became permanent. Relapses and sequelæ, so frequently seen under other methods, were entirely absent. . . . The daily dose of creosote carbonate was from 2 to 4 dm., the dose interval being six hours. So soon as the temperature reaches the normal, the amount is reduced to one-half, and this is continued so long as auscultatory signs persist. . . . My own (Wilcox) experience covers thirty-three patients, with no deaths. The disease terminated by lysis in nine, by crisis in twenty-four. . . . The present status of the treatment of pneumonia is especially satisfactory where results are considered. To summarize: (1) Continuous, persistent and generous administration of creosote carbonate; (2) careful adjustment of mechanical conditions; (3) thorough evacuation of toxins by all possible ways; (4) temporary supplemental oxygen by inhalation; (5) liquid diet until physical signs disappear.

"To be avoided are: Antipyretics, opiates, ill-advised external applications and slowly acting heart remedies, as digitalis."[14]

### ABSORPTION OF FAT IN NUTRIENT ENEMATA.

Baum[15] has recently conducted some interesting experiments bearing on this question. In order to test the absorption of fat, he has made use of the new drug, iodipin, which is a combination of sesame oil and iodine. If iodipin is taken by the mouth, a reaction for iodine can be obtained a few minutes later, in either saliva or urine. This iodine represents absorbed fat. By the oxidation of the iodipin, which has reached the blood by absorption, iodine is set free and appears in the secretions, chiefly in combination with alkalies. Iodipin, therefore, offers a means of testing when absorption of fat begins after a rectal injection of fat.

For the details of the methods employed, the reader is referred to the original article. It should be remembered that iodipin, given by the mouth, gives the iodine reaction in the urine within fifteen minutes, and that potassium iodide, injected into the rectum, is manifested in the saliva in five to ten minutes.

The results of the experiments showed that, with the exception of when pancreatic ferment was added to the enema, absorption took place only after an average of fifteen hours. It is plain, therefore, that notwithstanding the great caloric value of fat, it has no practical value in enemata.

### TREATMENT OF HEMOPHILIA BY THE INTERNAL ADMINISTRATION OF GELATIN.

Hesse[16] reports the following: The patient was a boy of eight years of age, who had showed signs of hemophilia since the first few weeks of life. Epistaxis, hemorrhages under the skin, in the joints, after the removal of teeth or following trauma were of frequent occurrence. From June, 1901, until the end of December, 1901, the patient took 200 gm. of a 10% solution of gelatin daily, flavored with raspberry or lemon juice. The gelatin was taken without difficulty, and the boy, from being an invalid, gained in strength, so that he was able to play with other children. Hemorrhages into the joints have ceased, and no bleeding has occurred after the removal of some teeth. Ecchymoses have occurred after trauma, but not to the extent they appeared before the treatment with gelatin was commenced. Hesse expressly states that four weeks' treatment was of little avail, but that improvement took place only after months.

## Reports of Societies.

## THE OBSTETRICAL SOCIETY OF BOSTON.

MALCOLM STORER, M.D., SECRETARY.

Meeting of May 20, 1902, Dr. J. B. Swift in the chair.

Dr. G. J. Engelmann showed

### SOME GYNECOLOGICAL INSTRUMENTS OF HISTORICAL IMPORTANCE.

Dr. L. V. Friedman, by invitation, read a paper entitled

### NOTES ON THE DIAGNOSIS AND TREATMENT OF EARLY MISCARRIAGE.[1]

Dr. F. A. Higgins: As given by the reader, the statistics of the City Hospital are rather misleading. In any case of miscarriage treated there from the start, a good result can almost be guaranteed. Cases coming, as many of them do, already septic, are of course much less promising.

I have not been very fortunate in the use of the finger to remove the products of conception, and

[13] American Journal of Medical Sciences, 1902, p. 481.
[14] We cannot but be skeptical over such glowing accounts of a new drug in a disease like pneumonia.— Ed.
[15] Die Therap. der Gegen., 1902, p. 385.
[16] Die Therap. der Gegen., 1902, p. 388.

[1] See page 563 of the Journal.

I do not think that the curette does much damage if properly used. It seems to me that we might as well abandon the old nomenclature of "threatened" and "inevitable" abortion. Although of course many threatened abortions become inevitable, no one knows the borderline between the two. Any case should be treated as a threatened one from the start, as the division is an artificial or rather impossible one.

DR. G. H. WASHBURN: I have always found the curette-forceps a most valuable instrument. By it one can grasp tufts of tissue that would elude the curette. I always use it with or without the curette.

DR. ALFRED WORCESTER: While I agree with much that the reader has said, I must take exception to one or two points. I do not think it is safe advice to say that a visit once in six hours is sufficient attention to a case of threatened abortion. I have seen frightful hemorrhages demanding immediate attention, and I have seen one woman die from hemorrhage who was less than three months pregnant. In the first years of my practice I depended entirely upon the finger, removing by it under ether the easily separated tissues. This is often very easy, especially in multiparæ with soft abdominal walls, but in primiparæ with firm belly walls it is sometimes extremely difficult. I have even seen the posterior vaginal wall torn across by a physician in his attempts to dilate with the finger, counter-pressure from above being incomplete, owing to the rigid abdominal walls. In this case there was prolapse of the intestines through the rent thus made. Since in the last few years I have been using the large curette, I am better satisfied with it than the finger. I distrust the small curette. I do not agree with the writer, that the uterine wall is sufficiently strong to resist the penetration of the small curette. I think the uterus is easily punctured, and feel certain that this is often done without the physician being aware of it. I remember very well once watching an energetic curettage preceding a suspension, and suggesting to the operator that he examine the fundus after opening the abdomen. Several punctures were found. I have seen punctures other times. With the large curette this danger is much less, and also the operation is much more easily performed. The large curette has another advantage, in that it can be insinuated between the membranes and the endometrium. Should the small curette happen to strike this happy plane, it will not by any chance stay there. If with the large curette one is able to do this, the membranes are often easily dislodged and then withdrawn entangled in the loop of the curette.

I agree with Dr. Higgins, that it is foolish to stick to the use of "threatened" and "inevitable" abortion. All abortions are "threatened." I like strongly to insist upon the importance of the character of the discharge. In threatened abortions that under rest and morphia do well, we often see a discharge like the menstrual flow. The serious flow is dark, and also often odorless. If it be light or pinkish red, it is not nearly as serious as if dark; odor is quite unimportant.

I would like to add that a physician, in undertaking to clean up an abortion, should consider it as a surgical operation demanding proper light, a proper table and proper aseptic precautions. Have the patient on a table in the lithotomy position, and before the cervix is dilated let it be drawn down into sight by a tenaculum, which affords a good index of the amount of upward pressure it is safe to exert. Moderate dilatation is all that is needed; just enough to admit the large curette. I see no advantage in operating without an anesthetic. I believe thoroughly in using plenty of water as a douche, and am certain that no antiseptic is needed. If the endometrium be already foul, no quantity of antiseptic will make it clean. Hot water, and plenty of it, is what is needed.

If the abortions that we are called upon to manage were all caused by Dame Nature, our troubles would be much less; or even if they had been left to nature, it would not be so bad: but this is generally not the case. In a case I saw some time ago, the doctor told me something had come down and he had cut it off, supposing it to be part of the fetus. I saw an abdominal section on this case, where it was found he had removed six feet of the ileum. In criminal cases I have many times seen perforation of the posterior vaginal vault with prolapse of the bowel.

Abortion is often an exceedingly dangerous affair, with danger of death from acute hemorrhage, or else a hemorrhage so severe as to leave the woman in a state of great debility. I would also emphasize the great importance of rest after abortion. With all this in mind, I think the physician should stand by an abortion until it is over. No one can tell what a few minutes may bring forth. The profession should stand in strong protest to the position that an abortion is a slight thing.

DR. H. E. MARION: I have never been able to bring away the contents of the uterus with any accuracy with the finger. I always use the curette-forceps, followed by the curette. I thoroughly endorse Dr. Worcester's insistence upon the importance of the lithotomy position, grasping the cervix with the tenaculum and using surgical cleanliness. I remember a case in which thirteen feet of the ileum were cut off. Dr. Munro opened the abdomen and did a beautiful end-to-end anastomosis, but the patient died, being already septic when I saw her.

DR. SAMUEL CROWELL: I always etherize, to keep the patient still and enable me to proceed without having to think of her. She is put upon a table, cleaned up as for a plastic operation, and the uterus drawn down by a tenaculum. I then try to explore with the finger, and then, if necessary, curette. I think in primiparæ under three months it is too much to dilate sufficiently to admit the finger. I remember a case in which the doctor, in dilating the cervix, tore his way into the abdominal cavity, introduced the curette and began to curette the intestines down. Some

months later I saw this case reported in a Western journal as one of rupture of the uterus from violent contractions during a miscarriage!!

Dr. J. B. Blake: I did not understand whether the writer advocated the use of ergot as a routine treatment.

Dr. Friedman: I have not used it, as it never seemed necessary, as vigorous contractions were always present. In a case at four months, which received in the beginning a teaspoonful of ergot from the student in attendance, I had great difficulty two hours later in dilating enough to get in my finger to clean the uterus out.

Dr. W. A. Lane: Theoretically the finger, in combination with the large curette, seems the most advisable method of treatment.

Dr. G. J. Engelmann: I am rather surprised at the reader's statement in regard to leaving the patient. Like Dr. Worcester, I look upon abortion as being as serious as labor. I think much mischief is done by regarding abortion as a trifling matter. Great attention is especially needed in the after-care. The laity should be impressed with the importance of abortion. As regards the curette, I think a large one should be used, if any, but I have always felt that a curette should never be used in these cases as if we were removing fungous growths. I use an instrument like the Recamièr curette that I have devised, with a blade much like a flat spoon, made of somewhat pliable metal, regarding flexibility as of great importance. I always aim at insinuating this between the membranes and the endometrium, and then peel them loose with it. I dislike to grasp the membranes or ovum with forceps; few forceps grasp properly, and generally bite it to pieces. When I have well separated the products of conception, uterine contractions generally will force them out, as the irritation of the manipulation start them up. If they are not expelled, I use a fenestrated forceps like small obstetrical forceps. The spoon is especially valuable in mole formations.

Dr. M. V. Pierce: Several years ago Dr. B. Cushing gave me an instrument much like the one Dr. Engelmann describes, which has given me most excellent results. By it it is generally easy to bring things down where they can be reached by the finger.

Dr. Worcester: I should like to join with those who protest against the use of the curette as in ordinary curettage. It is a great advantage to have one's curette of pliable metal, as often the mass is attached anteriorly and low down. As Dr. Clarence Webster pointed out to us last year, one of the causes of spontaneous abortion is the low attachment of the fetus.

Dr. F. A. Higgins: I do not remember ever seeing more than one curette that did not have a flexible shaft. I do not regard ether as necessary, and I prefer the Sims' position to the lithotomy one. As to the use of the finger, I do not think anyone can curette the uterus with the finger. All that can be done is to sweep out the ovum, and even then one is not sure that all the pieces have been removed. The curette is necessary. It seems to me that the finger is only an added instrument, giving an added chance of sepsis.

Dr. Worcester: I wish to say one word about ergot. I do not believe that it ever did any good in such cases. As far as that goes, I do not believe in ergot anyway, and have not used any for ten years, and I find my cases do just the same without it as when I used it.

Dr. Friedman: My objection to the curette is the objection to complete curettage. I find many men are in the habit of cleaning out the uterus thoroughly. As far as the finger goes, I have never used it to curette, but merely to sweep the ovum down by wiping it across the uterus, as it were. One great advantage of the finger is that it detects whether anything has been left.

## CONFERENCE OF STATE AND PROVINCIAL BOARDS OF HEALTH.

### FIRST DAY.

The seventeenth annual meeting of this organization was held at North Sheffield Hall, New Haven, Conn., Oct. 28 and 29, 1902.

The business of the conference was opened with the report of a committee which was appointed at the last meeting "to report a list of diseases believed by the conference to be communicable and dangerous to the public health." The committee reported the following list:

Typhoid (enteric) fever.
Typhus (ship) fever.
Smallpox (variola, varioloid),
Chicken-pox (varicella).
Measles (rubeola, morbilli).
Scarlet fever (scarlatina, canker-rash).
Whooping-cough (pertussis).
Diphtheria (croup, membranous croup).
Influenza (the grip).
Cholera (Asiatic cholera, epidemic cholera).
Yellow fever.
Bubonic plague.
Mumps (epidemic parotitis).
German measles (rötheln).
Glanders.
Hydrophobia (rabies).
Malaria (fever and ague; intermittent, remittent or pernicious fever).
Consumption (pulmonary tuberculosis).
Epidemic cerebro-spinal meningitis (spotted fever).
Pneumonia (lobar or croupous pneumonia).
Puerperal fever (puerperal septicemia).
Epidemic dysentery.
Erysipelas.
Beri-beri (epidemic neuritis).
Leprosy.
Anthrax.
Actinomycosis.

This list was further enlarged by the addition of "trichinosis" and "venereal diseases."

After considerable delay occupied in adopting a revised constitution for the conference, Dr. Wingate of Wisconsin presented the subject of the

PRODUCTION AND CONTROL OF VACCINE VIRUS AND ANTITOXINS,

in which he briefly discussed the following six points:

(1) Does the commercial element relative to vaccine virus, antitoxin, etc., render these agents dangerous for use? If so, what course should be pursued to eliminate commercialism?

(2) Should the nation or state control the production of the same?

(3) If the nation should control it, should its production and distribution be under the supervision of the Public Health and Marine Hospital Service of the United States?

(4) Is it practicable for state boards of health to institute inspection over the production and sale of these agents; and should the state boards of health propagate them?

(5) Does not the commercial element threaten the public confidence, and if some steps are not taken, can we maintain the reputation that a proper use of these agents fully merits?

(6) Should humanized be used in preference to bovine lymph?

The reading of this paper was followed by a discussion, in which DRS. ABBOTT of Massachusetts, WYMAN and GEDDINGS of the Marine Hospital Service, DR. BRYCE of Ontario, DR. SWARTS of Rhode Island and DR. GUITERAS of Havana, Cuba, participated.

DR. S. W. ABBOTT outlined the marked success which had attended the production of antitoxin by the State Board of Health in Massachusetts, as a measure of economy, efficiency and great saving of life.

DR. PROBST of Ohio read a paper entitled

SOME QUESTIONS TO BE ANSWERED IN DEALING WITH SMALLPOX,

in which he dwelt chiefly on the duties of a state board of health in verifying the diagnosis of smallpox, and in modifying the quarantine regulations of local boards of health. He also proposed a plan for giving assurance as to the purity of vaccine lymph.

FIRST DAY.— AFTERNOON SESSION.

DR. C. A. LINDSLEY of Connecticut read a paper upon

SUMMER RESORTS,

in which he dwelt upon the character of these places, their frequent unsanitary condition, and the consequent danger to the public health. The state should maintain a careful supervision over them.

DR. GORGAS, chairman of the committee on yellow fever resolutions, presented a report upon the subject, and also a paper in which he described the measures which had been successfully carried out at Havana, Cuba, in 1901. Yellow fever has been epidemic there for nearly 150 years, but was now under control. Its prevention had also been accomplished without serious restrictions to commerce or public travel.

A paper by DR. C. T. FINLAY, chief sanitary officer of Havana, entitled

METHOD OF STAMPING OUT YELLOW FEVER SUGGESTED SINCE 1899,

was read by DR. GUITERAS, in which he claimed priority for the discovery of the transmission of yellow fever by the mosquito as early as 1886, having published a paper on the subject at that time.[1]

He also presented the subject at the International Congress of Hygiene at Budapest in 1894, concluding as follows:

"The special measures which might be adopted against the propagation of yellow fever through mosquitoes, must be left to the criterion of those who accept my theory, but the principal indications must be:

"(1) To prevent those insects from stinging yellow fever patients.

"(2) To destroy, as far as possible, the mosquitoes which have been infected, bearing in mind that in close spaces, a temperature of 50° C. is sufficient for that purpose.

"(3) Finally, to consider any place unsafe so long as the last mosquitoes which have stung yellow fever patients may be alive in it; from thirty-five to forty days being the term of their existence under the most favorable circumstances."

The following resolution was then presented and adopted by the conference:

That a committee be appointed to co-operate with the U. S. census authorities, and with other committees of the American Public Health Association, the American Medical Association and other organizations, in the promotion of the uniformity and comparability of mortality and other vital statistics and their satisfactory presentation in statistical reports and bulletins.

The following resolutions, relating to the "Conduct of the Health Authorities of San Francisco in dealing with the Plague Question," were introduced by Professor Robinson of Maine on behalf of the State Board of Health of Maine:

WHEREAS, Bubonic plague has been present in California since March, 1900, complete information as to the extent of the disease being withheld by the local authorities, no effective measures of restriction having been put into operation, and the history of the outbreak, so far as we can ascertain from authoritative sources, being as follows:

On March 6, 1900, a case of bubonic plague was discovered in Chinatown (San Francisco) and the diagnosis was confirmed. March 7, 1900, that part of the city was quarantined and sixty hours later the quarantine was removed by the mayor. In the next few days several more cases were discovered, and attempts were made by the city and state authorities to suppress information upon the subject. Experts appointed to investigate cases were discharged as soon as they had reported them as cases of plague.

From that time (March, 1900), until the past summer, scattered cases occurred in Chinatown, until eighty-eight cases in all are known to have occurred up to Oct. 17, 1902, of which number thirty have occurred since July 13, 1902.

AND WHEREAS, Thirty of these cases have occurred in the months of July, August, September and October, 1902, no information as to their origin or exact location having been furnished, no effective steps having been taken to restrict the spread of the disease, the City Board of Health of San Francisco being helpless, and the mala fides of the State Board of Health of California having been fully established by the foregoing his-

[1] American Journal Medical Sciences, October, 1886, p. 402.

tory supported by documentary evidence in the possession of this Conference, therefore

*Be it resolved*, That the Conference of State and Provincial Boards of Health of North America views with abhorrence the irretrievable disgrace of the present State Board of Health of California, and pronounces the plague situation in California a matter of grave national concern; and

*Be it further resolved*, That the National Conference of State and Provincial Boards of Health of North America does hereby advise the various State Boards of Health of the United States to consider the propriety of calling upon the Surgeon General of the United States Public Health and Marine Hospital Service to arrange at the earliest possible date a joint conference for the purpose of eradicating plague from the United States.

Such a conference is provided for by a recent statute enacted by Congress July 1, 1902, providing that

When, in the opinion of the Surgeon-General of the Public Health and Marine Hospital Service of the United States, the interests of the public health would be promoted by a conference of said service with State or Territorial Boards of Health, quarantine authorities, or State health officers, the District of Columbia included, he may invite as many of said health and quarantine authorities as he deems necessary or proper to send delegates, not more than one from each State or Territory and District of Columbia, to said conference: *Provided*, that an annual conference of the health authorities of all the States and Territories, and the District of Columbia, shall be called, each of said States, Territories and the District of Columbia to be entitled to one delegate:

*And provided further*, that it shall be the duty of the said Surgeon-General to call a conference upon the application of not less than five State or Territorial boards of health, quarantine authorities, or State health officers, each of said States and Territories joining in such request to be represented by one delegate.[1]

Surgeon-General Wyman, who was present, stated that he did not deem it practicable to call such a conference as is provided for by this act, before next April.

Dr. Baker of Michigan then read a paper on the

RESTRICTION AND PREVENTION OF TYPHOID FEVER,

in which he emphasized the importance of treating all excreta, including the urine, with disinfectants.

The following officers were then elected for the ensuing year: President, Dr. I. A. Watson, New Hampshire; Vice-President, Dr. John Guiteras, Havana, Cuba; Secretary, Gardner T. Swarts, Rhode Island; Treasurer, J. A. Egan, Illinois.

Dr. Ross, U. S. Navy, gave the results of experiments which he had made, which confirmed those reported by Drs. Reed and Carroll relative to the mode of transmission of yellow fever.

Dr. Stephens of Louisiana stated that the State Board of Health of Louisiana[2] did not accept the conclusions of recent observers, to the effect that the mosquito (*stegomyia fasciata*) should be regarded as the only medium of transmitting yellow fever, but that fomites are also capable of transmitting it.

[1] Chapter 1370 of the Acts of the Fifty-seventh Congress.

[2] See paper by Dr. Souchon, president of Louisiana Board of Health, Medical Record, Feb. 8, 1902.

FIRST DAY.— EVENING SESSION.

Professor Brewer of Connecticut, president of the State Board of Health, welcomed the members of the congress and gave an outline of the history of public sanitation in that State, the establishment of the State Board of Health and its work up to the present time. He also described the principal sanitary features of New Haven, including its sewerage system, its public parks, cemeteries, etc.

The address of the president of the conference was then given, the topic being

THE STATE IN ITS RELATION TO THE TUBERCULOUS, FROM THE FOLLOWING STANDPOINTS:

(1) The care of advanced and incurable cases; (2) the care of incipient cases; (3) the protection of the uninfected.

He concluded with a series of resolutions, which, with some modifications, were adopted by the conference. These resolutions embodied the principles of notification by attending physicians, of registration of cases by boards of health, and the establishment of sanatoria for the sick.

They were discussed by Drs. Swarts of Rhode Island, Bryce of Ontario, Lindsley of Connecticut and Holton of Vermont. Much stress was laid upon the importance of popular education upon the subject.

The State Board of Health of Maryland, having presented certain amendments to the rules which had been adopted at previous meetings, relative to the transportation of the dead, a committee of three was appointed to meet a similar committee of the National Association of Baggage Agents and of the National Funeral Directors' Association, to confer with them upon the subject.

A paper was then read by Dr. C. L. Wilbur of Michigan, entitled

PROGRESS OF THE MOVEMENT FOR UNIFORM STATISTICS OF CAUSES OF DEATH,

in which he described the efforts which had been made since 1897 to introduce uniformity in the methods of classifying causes of deaths, the Bertillon System, revised, being recommended for this purpose. He also suggested the adoption of a numerical method of tabulating jointly returned causes of deaths, by which a definite standing or percentage value is assigned to each cause. He urged the necessity of eliminating indefinite returns, and invoked the aid of medical men in improving this department of public-health work.

The conference expressed its opinion, by vote, that the vital statistics of states should be placed under the control either of state boards of health or of medically trained experts.

Dr. Wilbur also presented the subject of

BIRTH REGISTRATION,

together with a model form of certificate, containing the essential items for birth registration, together with a stub, or coupon, intended for recording the names of infants who are not named until a considerable time has elapsed after their birth.

## Recent Literature.

*The Practical Medicine Series of Year Books.* Comprising ten volumes on the Year's Progress in Medicine and Surgery. Issued monthly under the general editorial charge of GUSTAVUS P. HEAD, M.D. Vol. I: General Medicine. Edited by FRANK BILLINGS, M.D., and J. H. SALISBURY, M.D. Chicago: The Year Book Publishers. October, 1902.

Two volumes of this series each year are devoted to general medicine — the October volume, which takes up all the general diseases except those of the alimentary tract and those diseases which may be more seasonably presented in the May volume, and the May volume. The May volume of this year included in its table of contents typhoid fever, malaria, yellow fever, dysentery, tropical fevers, peritonitis, diseases of the gastro-intestinal tract, of the esophagus, the liver, the pancreas.

This series aims to fulfil the following requirements of a year book: Completeness, freshness of material, ease of reference, seasonableness, convenient size, low price. The two numbers with which the present reviewer has had to deal, answer these requirements in good measure. We venture to suggest that if résumé is regarded as a French word and is given any accent, it should be given two (résumé) and not one (resumé).

*The Practical Medicine Series of Year Books.* Vol. X: Skin and Venereal Diseases; Nervous and Mental Diseases. Edited by W. L. BAUM, M.D., Professor of Skin and Venereal Diseases, Chicago Post-Graduate Medical School, and HUGH T. PATRICK, M.D., Professor of Neurology in the Chicago Polyclinic. With the collaboration of CHARLES L. MIX, A.B., M.D., Professor of General Medicine in the Post-Graduate Medical School of Chicago. Chicago: The Year Book Publishers. September, 1902.

This publication is in the nature of a brief compendium or résumé of recent progress in the subjects named in the title, the association of which, by the way, does not strike us as particularly pertinent.

There are a number of interesting and useful facts scattered through the short space devoted to venereal and genito-urinary conditions, among which may be mentioned, as examples, what is said of the relative bactericidal power of various drugs, with reference to the genito-urinary organs and the urine, the indications for the radical operations on the hypertrophied prostate and the symptoms of seminal vesiculitis. The work lacks coherence, and is wholly inadequate as a summary, if nothing more is its object. We feel, despite the useful points which it contains, that it does not contribute anything that has not already been as well or better written elsewhere, and that, insofar, it fails to justify its existence.

*An American Textbook of Pathology.* For the use of Students and Practitioners of Medicine and Surgery. Edited by LUDVIG HEKTOEN, M.D., Professor of Pathology in the Rush Medical College, in affiliation with the University of Chicago, and DAVID RIESMAN, M.D., Professor of Clinical Medicine, Philadelphia Polyclinic, Instructor in Clinical Medicine, University of Pennsylvania. With 443 illustrations, 66 of them in colors. Philadelphia and London: W. B. Saunders & Co. 1901.

This is a large volume of more than twelve hundred pages, with an index, printed and bound after the usual manner of the publications of Saunders.

The book is a collaboration by nineteen writers, and, as might be expected, has the well-known virtues and defects of such works. In looking over the list of contributors, one is struck by the absence of the names of some of the better known American pathologists, but it does not necessarily follow that the quality of the work suffers on this account.

The work is designed to be a "comprehensive textbook upon the essential principles and facts in general pathology and pathologic anatomy." It includes a large amount of information, and seems in general to cover fairly evenly and thoroughly the field of medical knowledge with which it deals. In the reviewer's opinion it is too large and voluminous for a textbook for the use of the ordinary medical student, but is much more suitable as a work of reference. As a work of reference, it has been found by the reviewer to be valuable. The various writers have evidently striven to bring their parts up to date and to present a succinct account of the present condition of our knowledge of the subjects assigned to them. There are a good many references to original articles in the literature, but not as many as might be included with advantage in a work of the scope and size of this one. Among these references there seems to be a proper recognition of the good work of American investigators.

The book has 443 illustrations, but, in spite of this apparently large number, the book does not give the impression of being copiously and adequately illustrated. Copious illustration is obviously required in a book of this kind. The illustrations are good, bad and indifferent. In general, the illustrations of the microscopical appearances are not as good as the others. The best illustrations are chiefly half-tone reproductions of the photographs of gross specimens, which add greatly to the value of the work.

Among the sections of the book which seem most satisfactory are those on teratology, the nervous system and the urinary organs. None of the sections are without value.

It seems a singular thing that the work appears to contain no description of the disease known as puerperal eclampsia, except some reference to the focal necrosis in the liver, of this disease, under the general heading of "Focal Necrosis." Puerperal eclampsia is not found in the index.

We consider this book to be a very good one, and we can recommend it as a good presentation of the general subject of human pathology, as it is understood today by its professors. We do not, however, consider that it is the best and most useful book in its field.

*The Medical News Visiting List for 1903.* Weekly (dated, for 30 patients); Monthly (undated, for 120 patients per month); Perpetual (undated, for 30 patients weekly per year); and Perpetual (undated, for 60 patients weekly per year). The first three styles contain 32 pages of data and 160 pages of blanks. The 60-patient Perpetual consists of 256 pages of blanks. Each style in one wallet-shaped book, with pocket, pencil and rubber. Seal grain leather. Philadelphia and New York: Lea Brothers & Co., Publishers.

A visiting list is a useful and convenient possession for the medical practitioner. That issued by the publishers of the *Medical News* is an excellent one, and presents the usual merits which have previously been associated with it. In addition to its blank pages for record, it contains thirty-two pages of printed data, including an alphabetical table of diseases with approved remedies, a table of doses, sections on examination of urine, artificial respiration, incompatibles, poisons and antidotes, a diagnostic table of eruptive fevers, and a plate showing the incisions for ligation of various arteries.

*Gynecological Pathology.* A Manual of Microscopic Technique and Diagnosis in Gynecological Practice for Students and Physicians. By Dr. Carl Abel, Privat-Docent, Berlin. Translated and edited by Samuel Wyllis Bandler, M.D., Adjunct Gynecologist to the Beth Israel Hospital, New York. With a Chapter on the Embryology of the Female Genitalia and Pathological Growths Developing from Embryonal Structures. Illustrated by 100 engravings. New York: William Wood & Co. 1901.

The scope and purpose of this book are accurately indicated by its titles and subtitles. It is divided into three parts, entitled Technique, Diagnosis, and Embryology of the Female Genitalia and the Pathological Growths Developing from Embryonal Structures.

The technique of this special department of surgical pathology, as given in the book, is good and is well described, although it does not contain a recent and important improvement in the technique of frozen sections. It is to be hoped that this defect will be remedied in the next edition.

The part on microscopical diagnosis is also good and is evidently written by one who has had practical experience with the subject. In this part there are a number of useful figures prepared from original drawings by the author.

Part III on the Embryology of the Female Genitalia and the Pathological Growths Developing from Embryonal Structures has the most interest for the reviewer. He considers this the best presentation of this difficult subject that he has seen. Those who are in any way interested in the pathology of tumors may read this part with great profit.

This book should be of great usefulness to workers with the microscope as an aid to clinical diagnosis, and it ought to be placed in every hospital laboratory.

*The Principles of Pathological Histology.* By Harvey R. Gaylord, M.D., Professor of Surgical Pathology in the University of Buffalo, Attending Surgeon to the Erie County Hospital, Buffalo, N. Y., and Ludwig Aschoff, M.D., Professor and First Assistant in the Pathological Institute of the University of Göttingen, Germany. With an Introductory Note by William H. Welch, M.D., Professor of Pathology in the Medical School of the Johns Hopkins University, Baltimore, Md. Illustrated with 81 engravings in the text and 40 full-page plates. Philadelphia and New York: Lea Brothers & Co. 1902.

This book is practically an atlas of pathological histology with text descriptive of the illustrations, together with parts devoted to microscopical technique and to the principles of optics and photomicrography.

The illustrations are excellent reproductions of microphotographs, which are in general remarkably good and quite equal to the best that we have seen published. The authors have wisely limited themselves, in most instances, to medium and not very high power magnifications. Every experienced photographer knows that photographs of sections of tissue at the highest magnifications are usually unsatisfactory and disappointing to the ordinary observer.

The descriptive text is clearly written and seems to be adequate for its purpose. The general pathological orthodoxy, however, of the text is marred by the section on the etiology of carcinoma and sarcoma, in which the scanty and doubtful evidence of the parasitic nature of certain bodies in the tissue of malignant tumors is most ingeniously utilized to support the authors' evident belief in the infectious nature of these tumors.

The part devoted to photomicrography and the principles of the microscope is excellent, and is the best succinct discussion of these difficult subjects that we know of. We take exception, however, to the statement that, "in the apochromatic objectives the spherical aberration even of the peripheral rays is practically eliminated." We have never seen an apochromatic objective of which this was true.

The book is undoubtedly of value, and should be useful to beginners in pathological histology and photomicrography.

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Dr. Herman Knapp, Professor Emeritus.—It is reported that Dr. Herman Knapp, of the College of Physicians and Surgeons of New York, has been appointed emeritus professor of ophthalmology.

THE BOSTON
# Medical and Surgical Journal.

THURSDAY, NOVEMBER 20, 1902

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## PROGRESS OF PLAGUE.

THE continued prevalence of the plague in San Francisco during the past three months, together with the persistent attempts at concealment on the part of State and local authorities, give an unusual interest to reports containing general information upon the subject. The latest extended work in this direction is the report of Dr. R. Bruce Low to the Local Government Board of England, a volume of 446 pages, containing information relative to the progress of the plague throughout the world.

In this report[1] it is Dr. Low's object not only to record chronologically and topographically all recent manifestations of plague, but to indicate in each instance the source of the disease, the extent of its prevalence, its fatality, and the measures adopted in regard to it. His success has varied with the channels of information open to him. Some governments, among them Great Britain, acting in the spirit and letter of the Venice convention, make public the facts as to plague within their territories. Other governments, however, are more reticent or more dilatory, and yield the desired information only after inquiry. There are also governing bodies which withhold or conceal the facts, so that it becomes difficult to secure information.

Dr. Low's narrative deals first with England; next with countries, in regard to which information is interchangeable under the Venice convention. He then considers the prevalence of plague in those countries comprising the great highways, maritime and other, by which orientally derived infection usually gains access to European countries. Later on he deals with the continents of Africa and Asia (giving special attention to India), Australia, New Zealand and America.

During these three years embraced in this report, plague has become widespread, and has extended to every continent. The disease continues to recur in the areas already invaded, as well as to invade new countries and localities. The time, therefore, has not yet come for summarizing the lessons, administrative or epidemiological, to be learned from this pandemic of plague now in progress. But certain points respecting its behavior, and the conditions of its manifestations, brought out in Dr. Low's report, are of present interest and should have a bearing upon further studies of the disease. Outside the Asiatic continent he shows that the disease has manifested small ability to become seriously epidemic. For example, in India, plague was extremely virulent in its character, notwithstanding strenuous effort on the part of well-equipped sanitary authorities to maintain control of the disease.[2] But in other countries in various parts of the world, many of which were quite inferior to India in regard to their equipment for resisting the invasion of disease, the plague failed to produce a serious mortality and proved much less virulent than in well-ordered India.

A remarkable feature in Dr. Low's report is the liability to which he refers of mistakes in diagnosis both on land and on shipboard. Usually the newly developing exotic disease has been confounded with some ordinary current malady such as influenza, malaria, typhoid and typhus fever, etc. Notwithstanding this fact, the disease has seldom become rapidly or largely epidemic in new places, and is in this respect much inferior to cholera. These conditions constitute a reassuring element to countries threatened with plague.

In consequence of this liability to mistaken diagnosis, it becomes difficult to point with certainty to first cases in a given locality, so that the source is liable to remain obscure. When an investigation is ordered the first cases have either died or recovered, and the nature as well as the source of the disease becomes a matter of conjecture. The epidemic at Glasgow in the summer of 1900 appears to have been of this character.

If, as at Glasgow, the plague can, despite the vigilance of a very competent sanitary organization, smoulder for weeks before bursting into flame in such a manner as to ensure detection, it becomes impossible to determine whether the infection was originally directly introduced by human agency or was conveyed there indirectly in some other way, as, for example, by means of rats.

In regard to this other question — the rôle of the rat in the dissemination of plague — Dr.

[1] Reports and Papers on Bubonic Plague, by Dr. R. Bruce Low. An account of the Progress and Diffusion of Plague throughout the World, 1896-1901, and of the measures employed in different countries for repression of this disease. Presented to both houses of Parliament by command of his Majesty. London, 1902.

[2] The cases in India from September, 1896, to the end of June, 1901, were 659,864, and the deaths 525,401, indicating a fatality of 79.6%; the greater numbers, both of cases and deaths, were in the presidencies of Bombay and Bengal, p. 214.

Low has collected a considerable array of facts bearing upon the relation of plague in the rat to plague in the human subject. The records to which Dr. Low has had access, though they confirm the belief that, in regard to plague, man and the rat are reciprocally infective, they fail completely in affording sufficient data for determining the degree to which man is in danger through the rat. So far as plague on shore is concerned, it would appear that in particular localities man and the rat suffered from plague coincidently; that in other localities man suffered before the rat, and that in others again, the rat suffered antecedently to man. Further, it would appear that when, in a particular district, the one (man or the rat) has contracted plague antecedently to the other, the interval between invasion of the first and of the second species has been often a long one — extending sometimes over weeks and months. Finally, it would appear that plague may prevail largely among men without rats becoming conspicuously affected; and conversely, that the disease may cause large mortality among rats of a locality while neglecting to attack its human inhabitants.

As regards plague on shipboard similar facts were evident. The disease does not, under conditions of sea transit, appear to be readily conveyed from the rat to man, or from man to the rat. On the one hand, ships invaded with plague for several weeks in the persons of crew or passengers have come into port with the rats on board apparently altogether exempt from the disease; and on the other hand, ships infected with plague-smitten rats have, after long voyages, arrived at their destinations wholly free from plague as regards crew and passengers.

In his introductory comments upon the report, Chief Medical Officer Power says: "To no small extent the above rat experiences are reassuring; not least to a maritime nation like England, having abundant trade relations with other countries, many of them having plague-infected ports. But our port and other sanitary authorities would be unwise to relax in any sense their precautions against rat-borne plague, while a pandemic of plague is still in progress, and before opportunity has been had for duly digesting and assimilating the lessons which the pandemic can teach us."

These observations apply with nearly equal force to the seacoast cities of the American continent, since it has made its appearance at Buenos Ayres, at Santos, at Rio Janeiro, and at San Francisco, and still appears to linger in the latter city, according to the latest accounts.

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Recent statistics appear to show that cancer is increasing in Italy, while other diseases tend to diminish.

## FOREIGN MEDICAL STUDY.

It has for many years been a tradition in the United States that a young physician's final training for his profession was not complete until he had spent a certain time in study abroad. When our medical schools were gradually emerging from somewhat primitive methods of teaching, often with wholly inadequate clinical facilities, it was natural that the more ambitious students should seek broader and deeper instruction in medical schools of established excellence. This led to the custom of going to Europe, and chiefly to the continent, to fill in the gaps of knowledge. Young men returned to America, having listened to the teachings of Louis, or other great continental medical teachers, filled with a contagious enthusiasm which led others to do the same. Hence the European pilgrimage became a custom, and the foreign medical training was regarded as an inestimable advantage to the physician about to start in practice.

That a very marked change in this attitude has come within the last decade or two is apparent to anyone who has observed. The young physician who has studied in foreign universities is no longer a marked man; the advantages of study in Europe are no doubt the same as they always have been, but the man who has had these opportunities is no longer necessarily the superior of his colleagues who have followed the same course of study at home. The reason for this lies, first, in the extraordinary development of medical education and opportunities for post-graduate instruction in this country, and, in the second place, in the increasing difficulty of obtaining first-hand instruction from the best men in the foreign universities. We are informed by one well capable of judging that much of the instruction now being given by assistants to the large medical clinics, is superficial and in great measure valueless, and it is to this sort of instruction that the Americans abroad are likely to listen. The tendency to write books without end, even among so enlightened a people as the Germans, must, in certain instances, lead to many words and little substance, and to the advancement of poorly substantiated theories and false doctrines. Of all this the American student of to-day is likely to be a victim. There can be no question that the whole situation has changed, to a degree which we are perhaps too slow to recognize. Our students are in many instances turning their backs upon opportunities at home, in search of knowledge which they fail to get abroad. If it were always possible to sit at the feet of the leaders of medical progress rather than merely to catch glimpses of them at a distance, our advice to a student would be, "Go to Europe, as your fathers did before you." As it is,

the wiser advice to the average man is to stay at home for his post-graduate study, entering into the closest possible relation with the great investigators through their published work. This is a far closer acquaintance than the student ordinarily experiences abroad, whatever his introduction may be.

There still remain advantages of a period of study abroad of which one should never lose sight. The benefit of acquiring a foreign language at first hand is not to be minimized; the broadening of one's point of view which comes from seeing how other people work is of value, and finally, acquaintance with great men, if it be merely that of a student on the benches, is a privilege for which it is worth making a sacrifice. It must also be admitted that for the advanced special student in any subject the advantages to be derived from immediate relationship with recognized leaders in that line, cannot be overestimated. This does not, however, alter the general fact that the average recent graduate in medicine does well to prosecute his studies at home, and this is becoming more and more true each year.

## MEDICAL NOTES.

CLINICAL LECTURES ON ORTHOPEDIC SURGERY. — The trustees of the New York Orthopedic Dispensary and Hospital announce that the annual course of clinical lectures on orthopedic surgery will be given by the surgeon-in-chief, Dr. Russell A. Hibbs, at the institution, on Tuesday and Saturday afternoon, at four o'clock, from Nov. 25 to Dec. 27. The course will be free to the medical profession and students.

A CONCESSION FROM CHRISTIAN SCIENCE.— It is generally reported that Mrs. Eddy, the leader of the Christian Science movement, has requested her followers to abstain from the treatment of contagious and infectious diseases in the future. However regarded, this is a significant concession and one which no doubt will be of positive benefit to public health.

### BOSTON AND NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON.— For the week ending at noon, Nov. 19, 1902, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: Diphtheria 42, scarlatina 17, measles 1, typhoid fever 19, smallpox 41.

SMALLPOX IN CONNECTICUT.— According to the *Monthly Bulletin* of the Connecticut State Board of Health, one of the most notable facts relating to the health of the State during the past year was the widespread prevalence of smallpox. Cases were reported from thirty-four different towns, including every county in the State. In only a few places did it assume the character of an epidemic, although regarded as the most contagious of all diseases. In two ways these outbreaks gave testimony to the protective power of vaccination: (1) Connecticut, one of the most densely populated states, and in very intimate relation with the rest of the country, both by land and water, was slow to entertain any cases of the disease long after it was claiming thousands of victims in other states. This exemption can only be explained because so large a proportion of the inhabitants have been rendered immune by vaccination. (2) The spread of the disease has been almost wholly among those who were never vaccinated, or so long ago that its protective power was impaired by time. In still another way its value has been verified, by the prompt arrest of the spread of the disease wherever a general vaccination has been practised. There was 323 cases reported during the year ending Oct. 1, of which only twenty-two were fatal, giving the surprisingly low death-rate of only 6.8%. In all the literature of the disease there is no record of an epidemic of so mild a type. In the three largest cities in the State, where general vaccination is observed, there were only sixteen cases all told.

### NEW YORK.

THE DESTINY OF MRS. STANTON'S BRAIN.— A controversy is going on between the relatives of the late Elizabeth Cady Stanton, the woman suffragist leader, and the department of neurology of Cornell University over the question of whether Prof. Burt G. Wilder, head of that department at Ithaca, will be able to obtain the brain of Mrs. Stanton. Dr. Wilder has divided the brains in his collection into two parts, those of the criminal class and those of the educated class. Among the educated people who have given their brains to Cornell are Dr. Chauncey Wright, the Harvard professor, and Professor Oliver, of Cornell, the mathematician. About two years ago Mrs. Helen Gardiner, the writer, having already willed her own brain, induced Mrs. Stanton to will her brain to the college, and she then wrote, to commemorate the compact, a little humorous poem, the first four lines of which were as follows:

> "Corked in a decanter on shelf so high,
> Their brains at Cornell, their souls on the fly,
> Elizabeth Cady and Helen so small
> Hold converse with scientists all round the wall."

LECTURES ON PREVENTION OF CONSUMPTION.— The committee on tuberculosis of the Charity Organization Society, in pursuance of its plans for systematically combating the disease among the poor, has decided to have lectures given the first

Monday evening of every month, in the public school buildings, on the prevention of consumption. The lectures, it is stated, will be in English, Yiddish and Italian, in the lower east side, and an effort will be made to have an interpreter reach the Chinese residents of Mott and Pell Streets.

A Double Visiting Staff for Jamaica Hospital.— By a vote of the managers of the hospital at Jamaica, Long Island, the medical staff of which has of late consisted exclusively of homeopaths, it has been determined to have two staffs of visiting physicians, one composed of regular practitioners and the other of homeopaths, who shall work independently of each other.

## Miscellany.

### THE CONTROVERSY REGARDING LOOMIS LABORATORY.

In an opinion handed down Nov. 14 by the Appellate Division of the New York Supreme Court, in the case of the appeal by the New York University from a judgment of the Supreme Court decreeing a reconveyance by the university to the Medical College Laboratory of the City of New York of certain property deeded by the Medical College Laboratory to the university in trust, the decision of the lower court is affirmed. The value of the property in question (the Loomis Laboratory, now connected with Cornell University Medical College) is stated in the decree to be from $150,000 to $200,000. According to the findings of the Appellate Court, the transfer to the New York University by deed dated Feb. 8, 1897, was a conveyance in trust or upon conditions. Both the property and the entire control of its medical affairs were to be vested in a medical committee, and each member of the governing faculty of the laboratory was guaranteed a salary of $3,000 per annum for three years. While the deed, on its face, appeared to be unconditional, these, according to the decree, were understood to be the conditions upon which the transfer was made. Two months later, when it seemed that a consolidation of the University Medical College with Bellevue Hospital Medical College was assured, the resignations of eight members of the governing faculty were called for and received. After the consolidation was effected the medical committee was not consulted regarding the affairs of the medical college. A letter from Col. Oliver H. Payne, a member of the council from 1894 who had given enough money to pay off the obligations of the laboratory, is quoted in the decree. He had advised the transfer of the property, and in his letter, dated Jan. 8, 1898, he expressed the opinion that the agreement upon which he relied when giving the advice had been entirely violated, and that his own honor demanded that the property should be returned. The Appellate Court finds that the New York University violated the conditions of the trust, and directs that the property be deeded back to the grantor.

A dissenting opinion is rendered by Justice Van Brunt, which is concurred in by Justice McLaughlin. In it he says: "If the conveyance from the plaintiff to the defendant was made upon an understanding whereby an implied trust arose in favor of the plaintiff, notwithstanding that upon the face of the deed making the conveyance it appeared to have been entirely an absolute one, then it seems to be the settled law, not that the failure upon the part of the grantee to comply with the terms of the implied trust justifies the court in setting aside the conveyance, but that it imposes upon it the duty of enforcing the trust. I cannot find that it has ever been held that where a party has mistaken his rights under a contract, by claiming too much, he thereby loses all claim to protection to rights which were admittedly conferred upon him by the contract. It further seems to me that the weight of evidence is decided against the proposition which has been urged by the plaintiff, that the Medical Committee of the council of the defendant, with the assistance of the faculty of the Medical Department, was to have absolute control of the affairs of such Medical Department. This whole scheme, if the present claim upon the part of the plaintiff is sustained, was a misrepresentation to the world at large of the condition under which this deed of gift was executed. No instrument in writing could be nullified upon what so clearly appears to be mistaken evidence. If deeds solemnly entered into are to be set aside upon oral testimony contradicted by every written communication of every witness, the sooner dependence upon written contracts under seal is abolished, the better." The New York University has decided to carry the case now to the Court of Appeals.

### MILLIONS FOR MEDICAL SCHOOL.

The *Journal of the American Medical Association* informs its readers that the extravagant statements with which the daily papers have been filled for the last few days regarding the new relationship between Rush Medical College and the University of Chicago, in which the writers play at battledoor and shuttlecock with millions, are, like the average so-called historical novel, founded on fact, and also, like the historical novel, on very little fact. On account of possible misconception we mention briefly the progress and present status of the negotiations. For a considerable time Rush Medical College has been affiliated with the University of Chicago, and beginning with this year the first and second years' studies of the medical course have been taken at the university. The trustees of Rush Medical College, forecasting the increase in im-

portance of the school, and appreciating the necessity of a permanent and sufficient endowment, without which their plans of increasing the length of the course of study and raising the standard could not successfully be carried out, early in the spring made a proposition to the university, of organic union instead of affiliation, pledging themselves to raise the sum of one million dollars in case their proposition was accepted. The university considered the matter, approved it, and a few weeks ago presented it to the friends of the university in New York, who also signified their approval. It now remains only for the necessary legal steps as regards charter and so on to be taken by the trustees and for the promised million dollars to be obtained. It is not proposed that the name of Rush Medical College be lost, but that it be incorporated in the official designation of the university in some such way as "Rush Medical School of the University of Chicago." Of course, no one can say that eight million or eighty million dollars may not "ultimately be spent by the University of Chicago for building up Rush Medical College," but the facts just stated include all with which the authorities of the university and college are at present acquainted.

## THE TREATMENT OF ACUTE DYSENTERY.

IN an article in the *Medical Record*, Nov. 8, on the treatment of acute dysentery, by Dr. J. D. Hunter of Arequipa, Peru, we find the following:

"But suppose the ipecac does not cure the patient, or even makes him worse, as happens in a few cases; or that he so immediately vomits it that little or no curative effect is produced; or that, having passed through other attacks of the disease,— dysentery being one of those diseases in which one attack seems to predispose to future attacks,— he refuses to take the ipecac, dreading the extreme nausea which it has caused him on previous occasions, what is to be done? In Peru many medical men give an emulsion of castor and almond oils (*emulsion de Frank*) in small, frequently repeated doses. There is a remedy used by irregular practitioners which sometimes does good. The interior (omentum) of a fowl is warmed until all the fat is dissolved out; this fat is administered in doses of two to ten or more tablespoonfuls in mallow tisane, or even in chicken soup, and may be repeated in the day. In some of these cases I have tried the sublimed sulphur, grs. xx, and Dover's powder, grs. v, every four hours; also the sulphates of magnesium or sodium. The use of these sulphates is comparatively modern, but it is a curious fact that more than thirty-five years ago I knew an old Peruvian physician who had some reputation as a curer of dysentery, and his favorite remedy, especially in cases of chronic dysentery, was a mixture of sulphate of magnesium and manna.

"In some of the cases latterly alluded to, I have even used resin of podophyllum, gr. $\frac{1}{8}$, powdered ipecac, gr. $\frac{1}{8}$, repeated every hour or two until bilious stools were produced; these are always of favorable augury. This reminds me that in some cases where the ipecac has failed palliatives may be used for a few days, then a $\frac{5}{15}$ gr. dose of calomel is given at night, and the ipecac given next morning. It may then produce its curative effect."

## Obituary.

### FREDERICK A. PACKARD, M.D.

PHILADELPHIA has sustained a severe loss in the death of Dr. Frederick A. Packard, which occurred at the Pennsylvania Hospital, Nov. 1, from typhoid fever. Dr. Packard at the time of his death was in his fortieth year. He had had a severe illness complicated by appendicitis lasting about a month, death ultimately resulting from perforation of the bowel. Dr. Packard was born in Philadelphia and was educated at the University of Pennsylvania and at the University of Pennsylvania Medical School, where he distinguished himself as a brilliant scholar. After serving as house physician at two hospitals, he assisted the late Dr. William Pepper for three years in his private practice. From this time on he attained many positions of responsibility and was connected with a large number of the leading hospitals of his city. For several years he was instructor in clinical medicine in the University of Pennsylvania, and in 1901 he became a trustee of that institution. He had a membership in the Association of American Physicians, the American Pediatric Society, College of Physicians of Philadelphia and other scientific associations. He wrote a considerable number of medical papers on the general subject of internal medicine and diseases of children and published a book on dietetics. Several years ago he declined a professorship in a Western university, preferring to remain in Philadelphia. It will, no doubt, be remembered that Dr. Packard read a paper in Boston, before the Suffolk District Medical Society, Oct. 26, 1901, "On the Necessity for Special Study and Experience in Treating Children." He took a particular interest in that branch of practice which relates to the diseases of children. His career had already been a brilliant one, but it gave promise of a far greater amount of accomplishment in the future. It is a source of regret, not only to his immediate colleagues in Philadelphia, but to the profession of medicine at large, that he should have died at so relatively early an age.

### ROBERT TROWBRIDGE ATKINSON, M.D.

DR. ROBERT TROWBRIDGE ATKINSON died Nov. 10, after an illness of about ten days, at the United States Navy Hospital, Portsmouth, Va. His death was probably due to a pernicious type of malaria. Dr. Atkinson was born in 1872, was graduated from Harvard College in the class of 1894 and in the class of 1898 from the Harvard Medical School. After a somewhat brief period of teaching in the department of histology and embryology in the Harvard Medical School, he became a contract surgeon in the government service. During this time he served in the Philippines. Later, leaving the army, he was appointed in 1901 an assistant surgeon in the navy. Since then he had been cruising in various parts of the world, and at the time of his death was on the cruiser "Prairie," to which he had been attached as surgeon Nov. 1. Dr. Atkinson, although still a young man, had had a varied career, and in many departments of work had shown an unusual capacity. His death will be deeply regretted by a large circle of friends.

## Correspondence.

### TUBERCULOSIS AT THE LONG ISLAND HOSPITAL.

Long Island Hospital, Boston Harbor,
Nov. 10, 1902.

Mr. Editor: The following facts may be of interest in connection with the recent opening of a wing for the treatment of tuberculosis at the Long Island Hospital:

The new hospital building consists of two wards on the ground floor, in wings running at right angles to each other, and a small ward on the second floor, directly over the kitchen and dining-rooms. In each of the two lower wards are seventeen beds, and in the corridor running out of each are four private rooms, an office for the head nurse, and a room for dressing stand, medicine closet and sink. At the end of each ward is a large sun-room. In the lavatories, one of which opens out of each ward, are both shower and tub baths. In the upper ward, which will be used for incipient cases, there are six beds, and in private rooms opening out of the ward, three beds. There is also a sun-room on this floor. On the first floor there are small ovens and cooking apparatus for invalid cooking, all heated by electricity. The regular diets will be cooked in the kitchen of the main hospital. All patients able to be up will eat in the two dining-rooms which adjoin the kitchen. The building is heated by both direct and indirect heat, and is lighted by electricity.

During the past two years the number of phthisical patients admitted to Long Island has considerably increased. In 1899 there were 147 in the hospital and admitted, of whom 52 were discharged relieved, 7 unrelieved, 45 dead, and 43 remained in the hospital.

In 1900 there were admitted 114; 40 were discharged relieved, 22 unrelieved, 48 dead, and 40 remained in the hospital.

In 1901 there were admitted 167; 19 were discharged relieved, 56 unrelieved, 74 dead, and 58 remained in the hospital.

In 1902 there have been admitted up to the present time 112.

Our patients are not selected, and fully 90% are so seriously affected that nothing but a temporary improvement can be hoped for, and many are admitted in the very last stages of the disease. Many of the milder cases, but yet those which exhibit physical signs of more or less consolidation, improve, and several of them in the past year have had the process arrested. There is one man in the hospital now, who had signs of cavity in the right chest and consolidation in both chests one year ago, who now has very few signs, and what he has, of a healed or arrested process. Tubercle bacilli have not been found in his sputum in several recent examinations. He has only a slight cough in the morning, with scanty sputum.

Another patient, admitted in February, 1902, was refused admission at Rutland on account of the extent of her process. She has gained twenty-three pounds, coughs only once or twice in the morning, has almost no sputum, has no tubercle bacilli in the sputum, and the physical signs in her chest have disappeared except for slight relative dulness in the apices and slightly increased vocal fremitus.

There are numerous others whose signs have cleared up to a considerable extent, who cough very little, and who have gained considerable weight. It may be said that all but the worst cases improve, temporarily at least, and many are held stationary in an improved condition for a long time.

All consumptives are kept out of doors as much as possible, and during the summer, and even at the present time, there are several men with the least advanced processes sleeping in tents. Others of the same type have private rooms, the windows of which remain open constantly. Very rarely do we have a patient with a tuberculous process in an actual incipient stage, but whenever those cases do come, their disease is arrested or cured, providing their stay is sufficiently long.

Yours very truly,

Geo. C. Wilkins, M.D.,
*Assistant Superintendent.*

### RECORD OF MORTALITY

For the Week ending Saturday, Nov. 8, 1902.

| Cities. | Population Estimated, 1902. | Reported deaths in each. | Deaths under five years. | Percentage of deaths from | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | Infectious diseases. | Acute lung diseases. | Diphtheria and croup. | Typhoid fever. | Diarrheal diseases. |
| New York | 3,665,352 | 1,171 | 350 | 24.00 | 10.67 | 3.93 | 2.30 | 3.84 |
| Chicago | 1,852,828 | 469 | 117 | 24.52 | 14.28 | 3.20 | 3.83 | 5.33 |
| Philadelphia | 1,349,624 | 403 | 93 | 19.85 | 11.66 | .99 | 1.98 | — |
| St. Louis | 603,717 | — | — | — | — | — | — | — |
| Baltimore | 525,330 | 166 | 45 | 31.32 | 6.02 | 3.01 | 3.01 | 2.40 |
| Cleveland | 411,826 | — | — | — | — | — | — | — |
| Buffalo | 375,742 | — | — | — | — | — | — | — |
| Pittsburg | 341,401 | 126 | 42 | 32.53 | 19.04 | 7.13 | 7.94 | 7.13 |
| Cincinnati | 332,032 | — | — | — | — | — | — | — |
| Milwaukee | 304,975 | — | — | — | — | — | — | — |
| Washington | 289,537 | — | — | — | — | — | — | — |
| Providence | 185,870 | 62 | 19 | 20.96 | 20.96 | 3.22 | — | 3.22 |
| Boston | 588,736 | 239 | 82 | 25.93 | 17.57 | 3.34 | 2.51 | 5.44 |
| Worcester | 127,337 | 38 | 17 | 21.05 | 13.15 | — | 5.26 | 5.26 |
| Fall River | 111,872 | 45 | 21 | 28.88 | 20.00 | 2.22 | 2.22 | 13.33 |
| Lowell | 99,574 | 37 | 8 | 13.51 | 16.21 | 8.10 | — | — |
| Cambridge | 96,334 | 18 | 5 | 16.67 | 5.55 | — | — | — |
| Lynn | 71,144 | 21 | 3 | 9.52 | — | 4.76 | 4.76 | — |
| Lawrence | 67,275 | 24 | 5 | 29.16 | 16.67 | — | — | 12.50 |
| Springfield | 66,854 | 13 | — | 7.70 | 7.70 | — | — | — |
| Somerville | 65,882 | 20 | 7 | 25.00 | 20.00 | — | — | 10.00 |
| New Bedford | 65,574 | 31 | 16 | 22.58 | 16.13 | — | 9.68 | 3.22 |
| Holyoke | 48,065 | 17 | 5 | 29.41 | 5.88 | — | — | 23.53 |
| Brockton | 43,208 | 6 | — | 50.00 | — | 16.67 | — | — |
| Haverhill | 40,392 | 7 | 1 | 28.60 | 28.60 | — | 14.30 | — |
| Salem | 36,567 | 18 | 7 | 11.11 | — | 11.11 | — | — |
| Newton | 36,336 | 10 | 3 | — | — | — | — | — |
| Malden | 35,390 | 14 | 4 | 7.14 | 14.28 | 7.14 | — | — |
| Chelsea | 35,264 | 19 | 7 | 10.52 | 10.52 | 5.26 | — | — |
| Fitchburg | 33,848 | 10 | 4 | 30.00 | 10.00 | — | — | — |
| Taunton | 32,759 | 11 | 3 | 45.45 | 9.09 | — | 9.09 | 18.18 |
| Everett | 27,114 | 7 | 2 | — | — | — | — | — |
| North Adams | 26,583 | 8 | 1 | 25.00 | — | — | 12.50 | — |
| Gloucester | 26,121 | 3 | 2 | 33.33 | — | 33.33 | — | — |
| Quincy | 25,307 | 9 | 1 | 33.33 | — | — | — | — |
| Waltham | 24,612 | 7 | 4 | — | 28.60 | — | — | — |
| Pittsfield | 22,311 | 8 | 1 | 25.00 | — | — | 12.50 | — |
| Brookline | 21,679 | 4 | — | — | — | — | — | — |
| Chicopee | 20,390 | 5 | 2 | 20.00 | 20.00 | — | — | — |
| Medford | 20,014 | 5 | 1 | — | 40.00 | — | — | — |
| Newburyport | 14,478 | 7 | 2 | 14.30 | 14.30 | — | — | 14.30 |
| Melrose | 13,384 | 5 | — | — | — | — | — | — |
| Westfield | 13,038 | 3 | 1 | — | 33.33 | — | — | — |
| Attleboro | 12,846 | — | — | — | — | — | — | — |
| Adams | 12,813 | — | — | — | — | — | — | — |
| Milford | 12,516 | — | — | — | — | — | — | — |
| Framingham | 12,109 | 3 | — | — | — | — | — | — |
| Peabody | 11,957 | — | — | — | — | — | — | — |
| Revere | 11,894 | — | — | — | — | — | — | — |
| Gardner | 11,544 | 3 | 1 | — | 33.33 | — | — | — |
| Weymouth | 11,337 | 2 | — | 50.00 | — | — | — | — |
| Southbridge | 10,838 | 5 | 3 | 20.00 | — | — | — | 20.00 |
| Watertown | 10,600 | 2 | 2 | — | — | — | — | — |
| Plymouth | 10,336 | — | — | — | — | — | — | — |

Deaths reported, 3,107; under five years of age, 891; principal infectious diseases (smallpox, measles, scarlet fever, cerebrospinal meningitis, diphtheria and croup, diarrheal diseases, whooping cough, erysipelas, fevers and consumption) 734, acute lung diseases 381, consumption 345, scarlet fever 22, whooping cough 29, cerebrospinal meningitis 3, smallpox 5, erysipelas 4, measles 6, typhoid fever 85, diarrheal diseases 120, diphtheria and croup 103.

From whooping cough, New York 10, Chicago, Philadelphia and Pittsburg 3 each, Baltimore and Providence 1 each, Boston 4, Worcester, Fall River, Somerville and Chelsea 1 each. From measles, New York, Chicago, Philadelphia and Baltimore 1 each, Pittsburg 2. From erysipelas, New York and Pittsburg 2 each. From smallpox, New York, Chicago and Boston 1 each, Pittsburg 2.

In the seventy-six great towns of England and Wales, with an estimated population of 14,862,163, for the week ending Oct. 25, the death-rate was 16.9. Deaths reported, 4,804; acute diseases of the respiratory organs (London) 291, whooping cough 49, diphtheria 84, measles 158, smallpox 1, scarlet fever 60.

The death-rate ranged from 3.5 in Reading to 28.4 in Hanley; London 16.0, West Ham 19.5, Brighton 14.7, Portsmouth 16.0, Southampton 14.5, Plymouth 14.2, Bristol 17.9, Birmingham 19.1, Leicester 17.6, Nottingham 14.8, Grimsby 8.1, Bolton 21.0, Liverpool 26.1, Manchester 18.4, Salford 16.3, Bradford 14.8, Leeds, 18.6, Hull 17.0, Newcastle-on-Tyne 21.2, Cardiff 17.9, Rhondda 16.0, Hornsey 9.0, Middlesbrough 20.1.

## METEOROLOGICAL RECORD

For the week ending Nov. 8, in Boston, according to observations furnished by Sergeant J. W. Smith of the United States Signal Corps:

| Date | Barometer | Thermometer. | | | Relative humidity. | | | Direction of wind. | | Velocity of wind. | | We'th'r * | | Rainfall in inches. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Daily mean. | Daily mean. | Maximum. | Minimum. | 8.00 A.M. | 8.00 P.M. | Daily mean. | 8.00 A.M. | 8.00 P.M. | 8.00 A.M. | 8.00 P.M. | 8.00 A.M. | 8.00 P.M. | |
| S....2 | 30.32 | 50 | 62 | 38 | 83 | 77 | 80 | W | S W | 5 | 8 | C. | C. | |
| M....3 | 30.16 | 53 | 65 | 41 | 96 | 79 | 88 | W | S W | 7 | 6 | G. | C. | |
| T....4 | 30.23 | 48 | 54 | 41 | 86 | 96 | 91 | N | E | 4 | 6 | C. | G. | |
| W..5 | 30.22 | 48 | 56 | 40 | 96 | 90 | 93 | S W | S W | 8 | 10 | G. | C. | |
| T....6 | 30.02 | 56 | 64 | 47 | 90 | 91 | 90 | S | S W | 11 | 11 | O. | O. | T. |
| F....7 | 30 09 | 49 | 61 | 37 | 76 | 63 | 70 | N W | N | 8 | 12 | O. | C. | |
| S....8 | 30.32 | 39 | 44 | 34 | 73 | 69 | 71 | N | N | 11 | 8 | O. | C. | |
| ☞ | 30.19 | | 58 | 40 | | | 83 | | | | | | | |

* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow. † Indicates trace of rainfall.
☞ Mean for week.

## CHANGES IN THE MEDICAL CORPS OF THE NAVY FOR THE WEEK ENDING NOV. 15, 1902.

J. R. WAGGENER, medical inspector. Detached from the Marine Recruiting Station, Boston, and ordered to the Navy Yard, Mare Island, Cal.

J. W. BAKER, surgeon, retired. Ordered to duty at the Naval and Marine Recruiting Stations, Boston, Mass.

N. H. DRAKE, surgeon. Detached from the Navy Yard, Mare Island, Cal., and to continue duty on "Solace."

J. M. MOORE, passed assistant surgeon. Detached from the "Indiana" and ordered to the "Raleigh" when commissioned.

G. F. WINSLOW, medical director. Detached from the Naval Recruiting Station, Boston, Mass., and to wait orders.

H. SHAW, acting assistant surgeon. Appointed assistant surgeon Oct. 28, 1902.

A. W. DUNBAR, passed assistant surgeon. Detached from the Navy Yard, Puget Sound, Wash., and ordered to the "Wyoming" when commissioned.

A. R. ALFRED, passed assistant surgeon. Ordered to the Navy Yard, Puget Sound, Wash.

E. J. GROW, passed assistant surgeon. Detached from the Navy Yard, New York, and ordered to the "Marblehead."

## OFFICIAL LIST OF THE CHANGES OF STATION AND DUTIES OF COMMISSIONED AND NON-COMMISSIONED OFFICERS OF THE PUBLIC HEALTH AND MARINE HOSPITAL SERVICE FOR THE SEVEN DAYS ENDING NOV. 13, 1902.

GEDDINGS, H. D., assistant surgeon-general. To proceed to Delaware Breakwater quarantine for special temporary duty. Nov. 3, 1902.

GODFREY, JOHN, surgeon. Granted leave of absence for one month from Nov. 15. Nov. 12, 1902.

MCINTOSH, W. P., surgeon. Granted leave of absence for three days from Nov. 27. Nov. 10, 1902.

GUITERAS, G. M., passed assistant surgeon. To proceed to Reedy Island quarantine for temporary duty, relieving Assistant Surgeon T. F. Richardson. Nov. 10, 1902.

OAKLEY, J. H., passed assistant surgeon. Granted leave of absence for one day. Nov. 11, 1902.

WICKES, H. W., passed assistant surgeon. To proceed to Cleveland, O., and assume temporary charge of the service during the absence on leave of Passed Assistant Surgeon J. B. Greene. Nov. 15, 1902.

GREENE, J. B., passed assistant surgeon. Granted leave of absence for fifteen days from Nov. 22. Nov. 13, 1902.

HEISER, V. G., assistant surgeon. To proceed to Philadelphia, Pa., and report to medical officer in command for special temporary duty. Nov. 10, 1902.

MACDOWELL, W. F., senior pharmacist and chemist. Relieved from temporary duty in Washington, D. C., and directed to proceed to New York, N. Y., and report to Surgeon G. W. Stoner, Immigration Depot, for duty, relieving Senior Pharmacist and Acting Chemist A. M. Roehrig. Nov. 7, 1902.

ROEHRIG, A. M., senior pharmacist and acting chemist. Upon being relieved from duty at the Immigration Depot, New York, N. Y., to proceed to New York (Stapleton) and report to medical officer in command for duty and assignment to quarters, relieving Senior Pharmacist Charles Miller. Nov. 7, 1902.

MILLER, CHARLES, senior pharmacist. Upon being relieved from duty at New York, N. Y. (Stapleton), to proceed to Pensacola, Fla., and report to the acting assistant surgeon in charge of the Santa Rosa quarantine station for temporary duty. Nov. 7, 1902.

### BOARDS CONVENED.

Board convened to meet at Washington, D. C., for the consideration of the Act of Congress approved July 1, 1902, entitled "An act to regulate the sale of viruses, serums, toxins and analagous products in the District of Columbia, to regulate interstate traffic in said articles, and for other purposes." Detail for the Board: Assistant Surgeon-General L. L. Williams, chairman; Assistant Surgeon-General H. D. Geddings; Passed Assistant Surgeon M. J. Rosenau; Assistant Surgeon B. S. Warren, recorder.

Board convened to meet at the U. S. marine hospital, Chelsea, Mass., Nov. 17, 1902, for the physical examination of officers of the Revenue Cutter Service. Detail for the Board: Surgeon R. M. Woodward, chairman; Assistant Surgeon W. K. Ward, recorder.

## EXAMINATION.

EXAMINATION FOR LICENSE TO PRACTICE MEDICINE IN STATE OF NEW HAMPSHIRE.—The next examination for licenses to practise medicine in the State of New Hampshire will be held at the State House, Concord, on Tuesday and Wednesday, Dec. 9 and 10, beginning at eight o'clock A.M.

All unlicensed physicians who were not in practice in the State on and before March 16, 1897, must pass the examinations in order to receive a license to practise legally their profession. Fee, $10.

Subjects for examination: Chemistry, Surgery, Physiology and Hygiene, Anatomy, Obstetrics, Pathology and Diagnosis, Therapeutics.

No licenses issued by states, or diplomas from medical colleges, are endorsed by the regent in place of examination with one exception, graduates from Dartmouth Medical School may receive a certificate on presentation of diploma, if said diploma shall have been issued between the enactment of the Medical Law, March, 1897, and Jan. 1, 1903.

Application blanks furnished and all information regarding the examination cheerfully given by the Department of Public Instruction, State Library, Concord.

CHANNING FOLSOM, Regent.

## LECTURE.

MÜTTER LECTURE ON SURGICAL PATHOLOGY, COLLEGE OF PHYSICIANS OF PHILADELPHIA.—The Mütter Lecture for 1902 will be delivered in the Hall of the College of Physicians, Tuesday, Dec. 2, at 8 P.M., by Louis A. LaGarde, Major and Surgeon, U. S. Army. Subject: "Poisoned Wounds by the Implements of Warfare."

JOHN H. BRINTON, M.D.,
Chairman Committee of the Mütter Museum.

## ERRATUM.

ERRATUM ON REPORT OF SURGEON-GENERAL OF THE ARMY.—We are requested to call attention to an erratum in the Report of the Surgeon-General of the Army to the Secretary of War for the fiscal year ending June 30, 1902. On page 45, the death-rate from all causes for the year 1901 is incorrectly given as 19.94 per thousand. It should read 13.94 per thousand. The figures are correctly given in Table 1, page 148.

## Original Articles.

# THE NORMAL APPENDIX: ITS LENGTH, ITS MESENTERY, AND ITS POSITION OR DIRECTION, AS OBSERVED IN SIX HUNDRED AND FIFTY-SIX AUTOPSIES.[1]

BY GEORGE H. MONKS, M.D., AND J. BAPST BLAKE, M.D., BOSTON.

For a number of years the Pathological Department at the Boston City Hospital has been in the habit, while making any autopsy, of observing and recording certain facts about the vermiform appendix in all cases, even where no pathological conditions existed in connection with it. This was done at the direction of Drs. Councilman and Mallory, with the idea that sooner or later the facts thus recorded might be of use to the Surgical Department. It occurred to us, therefore, on looking over the records, that there was already a sufficient number of cases to furnish, when tabulated, definite information as to the length of the appendix and its mesentery, and the frequency with which the appendix lay in its different positions, about which points there has been some diversity of opinion among the various anatomical and surgical writers. Upon application to the Pathological Department, the records were placed entirely at our disposal, and we decided to consider all the cases, excepting those in which the cause of death could be traced directly or indirectly to some trouble in the appendix.

Of the 1,400 autopsies recorded between Jan. 10, 1896, and May 29, 1902, we found that a note had been made as to the appendix in a large proportion of them. Omitting from this number the cases in which the appendix bore an etiological relation to the cause of death, there remained some 656 cases of men, women and children indiscriminately, in which some mention or record was made of the appendix. We give under each heading a few extracts from well-known authorities before presenting our figures.

### THE LENGTH OF THE APPENDIX.

Quain (1), quoting Berry and Ranshoff, gives the average length 92 mm. (3½ inches), and the extremes 31 mm. (a little more than 1 inch) and 230 mm. (or a little less than 9 inches).

Gray (2) agrees with Quain exactly.

Treves (3) gives the average length as 4 inches, and the extremes 1 and 6 inches.

Deaver (4) gives the average length as about 4 inches, and the extremes as ½ an inch and 9 inches.

In the series of cases we tabulated, the measurements were originally all made in centimetres, and for this reason they were probably more accurate than if made in inches. In tabulation we have used considerable care to take nothing for granted, except what is spoken of as being assumed.

[1] Contributed to the Thirteenth Series of Medical and Surgical Reports of the Boston City Hospital for 1902.

In the 641 autopsies of our series, in which the length of the appendix is recorded, we found the following:

Average length, 7.90 cm. (3 inches).
Shortest " 1. cm. (a little over 1-3 of an inch).
Longest " 24. cm. (a little over 9 1-3 inches).[2]

*Relation between the length of the appendix and sex, age and body length.*— There does not appear in our figures any apparent difference in the length of the appendix in the two sexes. Children, however, by these same figures, have a proportionately greater length of appendix than adults. Treves says that the appendix obtains its full length quite early in life.

Other than this, the appendix does not bear any necessary relation to body length. The longest appendices in our series, and also the shortest, were found — generally speaking — in bodies of medium length. The converse is also true, that the longest and shortest bodies do not necessarily have the longest and shortest appendices.

*Relation between the length of the appendix and race.*— All the subjects of autopsy were white, except twenty-three negroes, three Chinamen, and one "brown Hindoo." Of the last no length of appendix was given. These cases are too few to allow of any generalization. The average appendix length in the twenty-six bodies was, however, 8.2 cm. (approximately our general average).

### MESENTERY: ITS PROPORTIONATE LENGTH.

Quain says that the appendix has a mesentery for more than half its length. The distal portion is generally quite free.

Gray says that the distal third or so is free from mesentery.

Treves says the mesentery "may extend to the tip of the appendix in the fetus, but in the adult it often only reaches to the centre of the tube, or to the junction of its middle with its distal third."

Deaver says that it occupies "the entire length (as I have usually found it)." It is, however, "at times absent."

Of the 277 cases of our series, in which mention is made as to the mesentery (meso-appendix), we find the following notes, most of them indicating what proportionate distance, measured from the base of the appendix, was supplied by mesentery:

| | | | Per cent. of 243 cases, where measurement is given. |
|---|---|---|---|
| No mesentery, | | | 16 cases (6.5%). |
| Mesentery reaching less than 1-2 the length of the appendix: | 1-3, | 3 | 9 cases (3.7%). |
| | 1-4, | 5 | |
| | "small," | 1 | |
| Mesentery reaching 1-2 the length of the appendix: | | | 16 cases (6.5%). |
| Mesentery reaching more than 1-2, but not for the entire length of the appendix: | 2-3, | 29 | 45 cases (8.5%). |
| | 3-4, | 15 | |
| | 4-5, | 1 | |
| Mesentery reaching (practically) the entire length of the appendix: | "entire" | 128 | 157 cases (64.6%). |
| | "or entire length" | 23 | |
| | "almost entire" | 1 | |
| | "almost for entire length" | 3 | |
| | "complete" | 1 | |
| | "10-11" | 1 | |
| Mesentery present, but no particulars given, | | | 34 cases |
| | | | 277 cases |

[2] Nine and one-third inches in almost exactly the height of this page.

POSITION AND DIRECTION OF THE APPENDIX.

Quain speaks of the principal directions of the appendix as being (in order of frequency): (1) Up and to left; (2) down and to left; (3) into pelvis, and says that the appendix is sometimes entirely behind cecum.

Gray quotes various authorities, all of whom differ.

Treves says: "In the majority of cases in the adult body the appendix, when examined in situ, will be seen to lie behind the end of the ileum, and its mesentery, and to point in the direction of the spleen. In the only other position that may be said to be at all common, the little tube ascends vertically behind the cecum."

Deaver says: "In the majority of cases the appendix will hold one of eight positions. Dr. Bristow suggests a very simple method of classifying these positions and directions, which consists in locating a central point in the right iliac fossa which, in its most common position, will represent the attachment of the appendix to the cecum, and from this central point lines are drawn that radiate in eight different directions." He goes on to say that Fowler substituted the points of the compass for the numbers used by Dr. Bristow. He also states that the central point is a point from 2 to 2½ inches on a line from the anterior superior spine of the ilium in the direction of the umbilicus. Deaver, following Fowler's suggestion as to the points of the compass, states that the appendix is most commonly found in one of the following five positions: (1) N.E.; (2) S.E. or S.; (3) N., to right of colon; (4) N. or N.E., in front of colon; (5) under the cecum, generally N.

We found some note referring to the position and direction of the appendix in 572 cases of our series. We assume that the position of the cecum was in the right iliac fossa in all these cases, unless it was otherwise noted, and that the direction as given corresponded to a line from "a central point" similar to that referred to by Deaver, as above. In some of the cases position only is referred to, as "behind cecum," "in pelvis," etc. These we have thought best to place with the others where direction only was spoken of, but under distinctive headings.

When our cases had been tabulated we found that most of them divided themselves naturally into eight groups, indicating eight different directions from a common centre, and it was not until after we had arranged our diagram that we learned we had been anticipated by others in this method of demonstration. As, however, the nomenclature used by us is somewhat different from that before used in connection with the diagram, we shall later reproduce the latter, as we believe it still to be the best method of graphically recording the different directions in which the appendix may point.

In the following tables we have preserved, so far as possible, the diction used in the original records. Such words, however, as "upwards," "downwards," "inwards," etc., have been shortened to "up," "down," "in," etc.

The groups have been arranged in such a way as to indicate the order of frequency of the different positions and direction:

*Down and in* (the most common position or direction):

| | |
|---|---|
| "Down and in" | 54 |
| "Hanging over pelvic brim" | 116 |
| "Behind cecum, down and in" | 6 |
| "Inner side of cecum, down" | 1 |
| "Below cecum, and in" | 1 |
| "Loops into pelvis, tip just under mesentery of ileum" | 1 |
| | 179 |

*Behind cecum* (the second commonest position[3]; direction not given):

| | |
|---|---|
| "Curled / Coiled" up behind / beneath "cecum" | 68 |
| "Behind cecum" | 32 |
| "Posterior to cecum" | 2 |
| "Back" | 1 |
| "Curled behind cecum at level of costal border" | 1 |
| | 104 |

*Down* (the third commonest position or direction):

| | |
|---|---|
| "Below cecum" | 37 |
| "Behind cecum, down" | 13 |
| "Down" | 8 |
| "Caudad" | 5 |
| "Curled up below cecum in right iliac fossa" | 4 |
| "Below cecum, down" | 2 |
| "Directed down" | 2 |
| "Down and back" | 2 |
| "From anterior surface of cecum passes directly back" | 2 |
| "Directed down, appendix in close contact with abdominal wall" | 1 |
| "Down, back and up" | 1 |
| "Down, back and up, folded on itself" | 1 |
| "Below and behind cecum" | 1 |
| | 79 |

*In* (the fourth commonest position, or direction):

| | |
|---|---|
| "Toward median line" | 53 |
| "Inner side of cecum, curled up" | 2 |
| "To median line" | 1 |
| "Toward median line, 4 cm. from end of cecum, parallel with ileum for 5 cm., then turns back" | 1 |
| "Behind cecum, in" | 1 |
| "In and slightly back" | 1 |
| "Extends to median line at pelvic brim" | 1 |
| "Inner side of cecum, in wards" | 1 |
| "Behind loop of small intestines" | 1 |
| | 62 |

*Up:*

| | |
|---|---|
| "Up behind cecum" | 40 |
| "Up and back" | 5 |
| "Up" | 3 |
| "On top of cecum" | 2 |
| "In front of cecum, directed up" | 1 |
| "Posterior to cecum, cephalad" | 1 |
| | 52 |

*Up and in:*

| | |
|---|---|
| "Up and in" | 23 |
| "In and up behind cecum" | 6 |
| "Inner side of cecum, up and in" | 3 |
| "Up, back and in" | 3 |
| "Up and in for half its course, and doubled on itself" | 1 |
| "Up and in, passes over anterior surface right kidney to within 1 cm. of upper margin, closely united to renal capsule" | 1 |
| "Points almost towards umbilicus" | 1 |
| "Behind ileum and cecum" | 1 |
| | 39 |

[3] It is, of course, true that the great majority of appendices are, *at their origin*, behind the cecum. If we were to add, therefore, to the class "behind cecum" all these which, though originating there, eventually assumed a definite direction, that class would stand first of all. We have not done this, because the full descriptions recorded in each case seemed to us to justify the present classification.

*Up and out:*

| | |
|---|---|
| "Up, behind and to right of cecum" | 7 |
| "Up and outside (or outer side of) cecum" | 6 |
| "Up and out" | 6 |
| "Up and out, behind cecum" | 3 |
| "Up and out, close to iliac crest" | 1 |
| "Up and out, over anterior surface of cecum" | 1 |
| "Up, back and out" | 1 |
| "Up and slightly back on right of ascending colon" | 1 |
| "Up, outside attachment of cecum" | 1 |
| "Outer side of cecum, extends up" | 1 |
| "Outside cecum, up and doubled twice upon itself" | 1 |
| | 29 |

*Out:*

| | |
|---|---|
| "Out" | 2 |
| "Behind cecum, out" | 2 |
| "Behind and to right of cecum" | 2 |
| "Outside of cecum, along parietal wall" | 1 |
| "Curled up on itself, exterior to cecum" | 1 |
| "Back and out" | 1 |
| | 9 |

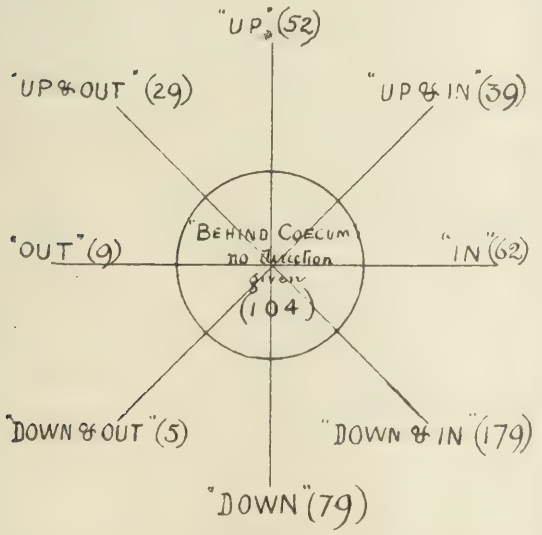
*Down and out:*

| | |
|---|---|
| "Behind cecum, down and out" | 2 |
| "Below and to right of cecum" | 2 |
| "Down and out" | 1 |
| | 5 |

*In pelvis* (unclassified):

| | |
|---|---|
| "Wholly within pelvis" | 4 |
| "Free in pelvis" | 3 |
| "With cecum in pelvis" | 3 |
| "Within pelvis" | 1 |
| "In pelvis, directed upwards" | 1 |
| "S-shaped loop in pelvis" | 1 |
| "Deep in pelvis" | 1 |
| | 14 |

While we do not consider this classification ideal, we deem it the best one under the circumstances. Several of the cases might possibly be classed under some other heading, but these cases are mostly small in number, so that, if they were so placed, they would not materially influence the result.




Reverting to our diagram we find that in more than half (320) of the cases the appendix points within the right lower quadrant (that is, "*in*" "*down and in*" and "*down*"). If now we add to this number those which are classed simply under the heading "behind cecum" without any direction being given (104), we find that in 424 of our total of 572 cases, or in 74%, the appendix is either "behind the cecum" (without specified direction), or it points "in," "down," or "down and in," the last being by far the most frequent position or direction of all.

UNUSUAL CASES.

(*a*) *Conical cecum.*— There were nine cases where it was recorded that the cecum tapered into the appendix.

(*b*) *Fibrous cord.*— There were six cases where the appendix was represented by a white, glistening, fibrous cord (obliterated appendix). In an additional one the distal portion only was obliterated.

(*c*) *Miscellaneous.*— One appendix "is directed up behind cecum; passes over anterior surface of right kidney to within about 1 cm. of its upper margin"; another is "curled up behind cecum, which is situated high up, just below costal margin"; a third extends "up and in, the tip lying close to gall-bladder." A fourth extends "up externally to the right border of the liver"; a fifth lies "between the right lobe of liver and right kidney"; a sixth lies "behind peritoneum under cecum, and extends upward to lower border of right kidney"; a seventh lies "transversely across abdomen, slightly upwards, reaching beyond the middle line."

CONCLUSIONS.

From the foregoing statistics the following conclusions would appear to be justified:

(1) *Length.*— The average length of the appendix in men, women and children, indiscriminately, is 7.9 cm. (or 3 inches); the extremes being 1 cm. (a little over 1-3 of an inch) and 24 cm. (a little over 9 1-3 inches).

There is apparently no relation between the length of the body, the sex or age of the subject, and the length of the appendix, except that children are apt to have an appendix proportionately longer than adults.

(2) *Mesentery.*— Fully one-half of all appendices have a mesentery (meso-appendix) which reaches nearly to, or quite to, the tip. Of the other half by far the greatest proportion have mesenteries reaching as far as the middle point of the appendix or beyond it. Occasionally an appendix has no mesentery at all.

(3) *Position (or direction).*— The commonest position (or direction) for the appendix is "*down and in*" (that is, toward the pelvis), the appendix very frequently hanging over the brim. The second commonest position is "*behind the cecum.*"[4] The third is "*down*" and the fourth is "*in.*" The appendix is in one of these four positions in about three-quarters of all cases.

REFERENCES.

1. Quain. Elements of Anatomy. Tenth edition, 1896.
2. Gray. Anatomy. American edition from thirteenth English edition, 1896.
3. Treves. Lectures on the Anatomy of the Intestinal Canal and Peritoneum in Man, British Medical Journal, 1885, p. 415.
4. Deaver. A Treatise on Appendicitis, 1896.

[4] See footnote on page 582.

## SIX CASES OF RUPTURE OF THE INTESTINES, WITH FOUR RECOVERIES.[1]

BY F. B. LUND, M.D., E. H. NICHOLS, M.D., AND JOHN T. BOTTOMLEY, M.D., BOSTON.

THE following cases of rupture of the intestine which have occurred during the past year are reported simply to emphasize the value of early exploratory operation in cases of abdominal injury.

CASE I. Dr. Lund. Rupture of intestine by fall from bridge. Intestinal resection after twenty hours. Death.

M. P., a boy, seven years of age, was brought to the City Hospital on July 20, 1901, at 1 P.M. The mother said that at five o'clock the night before the boy ran into the house, crying with severe abdominal pain, and said that he had fallen from a bridge. He vomited once, had a chill, and in the evening became feverish. He slept fairly well, and the next morning was able to get up for water. The pain seemed less severe, but the abdomen was tender. The bowels did not move. He was seen by a physician, who ordered his removal to the hospital.

When seen at the hospital the boy lay with his limbs drawn up, his face was pale, expression anxious, tongue dry, and feet and hands cold. Pulse 140, very weak and compressible. Temperature 99.5°. The abdomen was not distended. There was ecchymosis over the crest of the left ilium. The abdominal walls were rigid on palpation, especially on the left side, where there was marked tenderness.

Under ether an incision was made over the outer border of the left rectus, just below the umbilicus. On opening the peritoneum there was an escape of dark brown serum, containing a few flakes of fibrin. The intestines on the left side were injected, and presented flakes of fibrin on the surface. On drawing them out through the wound a coil was found in the left hypochondrium, wrapped up in omentum, which was torn from its mesentery for about three inches, and in its centre a large perforation. It was denuded of peritoneum. The damaged portion of intestine was quickly excised, and the ends brought together by a Murphy button, reinforced by a few sutures of fine silk. The torn mesentery was united by two silk sutures.

The boy was in severe shock and pulseless during the latter half of the operation, which took thirty minutes. The abdomen was washed out and drained with iodoform gauze, and the wound was closed with sutures of silkworm gut. The drainage was carried into the left hypochondrium and into the pelvis.

The boy was stimulated freely, but did not rally, and died two and a half hours after the operation.

CASE II. Dr. Lund. Rupture of intestine, probably due to the kick of a horse. Operation sixteen hours after accident. Recovery.

A. C., forty-six years old, was seen by the writer, in consultation with Dr. A. B. Brown of Newburyport and Dr. Spaulding of Salisbury, at 9 A.M. on May 6, 1902. At 4.30 the previous afternoon he was driving, when his horse became frightened and he was thrown from his carriage, striking his abdomen, he thinks, against the whiffletree, and being kicked in the shin, and, possibly, in the abdomen, by the horse. When seen by Dr. Spaulding at about 7 P.M., he had vomited, was in a state of moderate shock, pulse 100, and of good quality. There was a small red spot on the abdomen, about two inches on the right of the umbilicus, and distinct tenderness and spasm on pressure over the right side of the abdomen. Dr. Spaulding suspected rupture of the intestine, and advised calling a surgeon at once. During the night he vomited three times, and the bowels could not be made to move by enemata.

In the morning, when seen by Dr. Brown and the writer, he was found to be a man of good strength and nutrition. He was lying in bed, feeling well, as he said, facies excellent, pulse 100, and rather compressible, temperature 100°. On the left shin there was a wound, laying bare the tibia, evidently made by the shoe of a horse. On the right side of the abdomen was a small abrasion, as described above. On pressure in the right lumbar region there was moderate tenderness and slight spasm of the muscles. Exploratory laparotomy was advised, diagnosis of probable rupture of the intestine being made.

Under ether an incision three inches long was made through the outer part of the right rectus, the centre being just below the umbilicus. On opening the abdomen there was an escape of turbid serum. Coils of intestine below the incision were injected and coated with flakes of fibrin. On withdrawing several coils from the abdomen and following up the intestine where the fibrin flakes became thickest, a perforation about the size of a lead pencil was found, which was partly closed by the pouting of the mucous membrane through it. This perforation was quickly closed with interrupted sutures of fine silk. The greater part of the small intestine was removed from the abdomen in the search for further perforations, but none were found. The peritonitis was found to involve the pelvis and the right hypochondriac region. The left side of the abdomen and the left hypochondrium were apparently free from inflammation. A considerable amount of turbid serum was washed out of the pelvis and right hypochondrium. After thorough flushing of the entire abdomen the intestines were returned and the wound sutured. A glass tube and two gauze wicks were passed into the pelvis through the lower end of the incision and a gauze drain passed from its upper angle to the bottom of the right hypochondrium.

The patient left the table in excellent condition. The next morning his temperature was normal, and pulse 78, but up to 4 P.M. he vomited frequently. The following day the temperature was normal, and the pulse 82 and of good quality. There was free drainage through the wound. The bowels moved on the second day as a result of enemata. On the third day he had another attack of vomiting, which was relieved by enemata. The movements passed on that day contained peanuts, which he was eating at the time of the accident. The drains were removed on the sixth day after the operation, and two weeks after the operation the wound was healed, except for two small granulating areas where the drains had been taken out.

The patient gradually recovered his strength, and when seen by the writer in August was in good health, except for a slight hernia through the wounds, which he was advised to have operated upon.

CASE III. Dr. Lund. Rupture of the intestine by kick of a horse. Operation nine hours after accident. Recovery.

F. J., aged twenty-eight years, a teamster, was admitted to the Relief Station at one o'clock on Sept. 24, 1902. The patient stated that he was kicked in the abdomen by a horse about 6 A.M. on the date mentioned above. He was thrown about ten feet and was unable to rise. At time of the injury, the patient had a right inguinal hernia, probably containing a loop of intestine. One of the horse's hoofs struck over the sac and the other struck the right lumbar region. No vomiting at any time since the injury, only slight nausea at times. The accident happened at Weston, Mass. A physician advised transfer to city. He was brought to Boston by train on a stretcher.

The patient was well developed and nourished. Lips pale; cheeks looked drawn, pinched and pale. Temperature, 98.6°, pulse 68. Passed urine, which contained no free blood. An enema produced a good movement of the bowels. Chest negative; abdomen full, but not distended. Some muscular spasm and tenderness in lower half of abdomen, most marked in median line. Pressure over bladder and kidneys did not cause special pain. Point of most tenderness over right external ring, where there appeared considerable swelling apparently connected with hernial sac.

[1] Contributed to the Thirteenth Series of Medical and Surgical Reports of the Boston City Hospital for 1902.

Ether and operation advised and accepted at three o'clock. An oblique incision was made over the inguinal canal and tissue about spermatic cord, which were edematous and ecchymotic. On division of the tissue the hernial sac was exposed and incised and found to contain clear fluid. Then the aponeurosis of the external oblique was slit up over sac and incision carried up to internal ring. Pressure on abdomen caused extrusion of turbid light brown fluid from abdominal cavity. Incision was therefore carried up through external and internal oblique and transversalis muscles, a distance of two inches, considerable turbid fluid escaping from abdomen. Numerous coils of small intestine, some distended and some collapsed, deeply injected, and partly covered with delicate flakes of fibrin were found. A loop of intestine was drawn out, and, proceeding in direction where fibrin was thickest, a laceration three-fourths of an inch long was found opposite mesenteric border, crossing intestine obliquely. Fibrin was removed from the edges of the laceration and it was closed as quickly as possible with a double row of continuous fine silk sutures. There were several deeply ecchymotic spots in the neighborhood, along the mesenteric border of bowel, in one of which it looked as though perforation were imminent. This spot, therefore, was inverted and sewed with interrupted Lembert sutures. Another spot, where the integrity of the intestines appeared to be dubious, was also inverted.

Several contusions of the mesentery were noted. In the area exposed were four or five enlarged mesenteric glands, over the largest of which (size of a walnut) was a bright red ecchymosis, showing that this gland and mesentery must have been sharply compressed. All the intestinal coils in the neighborhood removed from abdomen for exploration for further injury, and on being found intact they were thoroughly irrigated with salt solution and returned to the abdominal cavity after thorough irrigation of the latter.

The upper part of the wound was closed with four silkworm gut sutures. Two gauze wicks were placed for drainage about a glass tube which ran into the pelvis, and one wick was placed a little higher up.

The convalescence of this patient up to the present time (Oct. 1) has been uninterruptedly good. The bowels moved on the second day, and the gauze was removed on the fifth day. There was some swelling of the scrotum, probably due to infection of the hernial sac with intestinal contents. The operation for radical cure of the hernia is in contemplation. The incision was made into the hernial sac in this case for the reason that this was the known position of the blow upon the abdominal wall. In the writer's two cases reported above, the incision, instead of being made in the median line, was made over the site of the injury for the following reason: In a case (previously reported)[2] of rupture of intestine by blow of a board thrown off from a circular saw, where the injury was in the left groin, the writer made an incision in the median line. The rupture of the intestine was found and sutured, but the patient died on the tenth day from the rupture of a subperitoneal hematoma in the left groin into the abdominal cavity. This hematoma was probably infected with fecal contents at the time of the accident, and was not found by the writer at the operation. It gradually became purulent, and was the starting point of an abscess which discharged into the peritoneal cavity. In case the incision had been made over the site of the injury, this hematoma would probably have been found and evacuated. Its exact position was between the peritoneum and the anterior pelvic wall formed by the ramus of the pubes, ramus of the ischium, and obturator internus muscle. For the reason that the greatest injury is apt to be located under the seat of the blow, and that concomitant injuries, such as hematomata, may be here best dealt with, the writer is in favor of incising the abdomen as nearly as possible over the site of the injury, even if another incision has to be made in the median line in order to drain the pelvis.

[2] Boston Medical and Surgical Journal, June 6, 1898.

In the third case the tenderness was very slight, there had been no vomiting, and the bowels had moved freely as the result of enemata, but the condition of things disclosed at operation would have rapidly proved fatal. There can be no question in this class of cases, wherever there is any suspicion of rupture of the intestine, that it is far safer to operate at once than to pursue a waiting policy, which will inevitably be attended with an unnecessarily high mortality.

Case IV. Dr. Nichols. Rupture of intestine by kick of horse. Operation three hours after injury. Recovery.

A. A., male, forty-two years, married, teamster. Admitted to the Relief Station of the Boston City Hospital, Aug. 20, 1902.

*History.*— Between one and two o'clock on the day of admission, patient ate his dinner of meat, potato and cabbage. At 5.30 P.M. was kicked in the "pit of stomach" by a horse. He was standing four or five feet from the horse's heels at the time. He was knocked down, and "lost himself" for an instant. The immediate pain was severe, but not so extreme as it became later. He at once was nauseated, and had attacks of retching. The attacks came on at intervals of fifteen minutes, and during the attacks some mucus mixed with bright blood were raised, about a cupful in all. He was brought to Relief Station and seen at 8.30 P.M., just three hours after the accident.

*Physical examination.*— Patient was a large man, about 180 pounds in weight, rather thin and muscular. He was very restless, but perfectly clear mentally. He lay upon his back, with legs fully extended. The face was somewhat pale, with a dusky tinge, and looked rather pinched. Tongue was clean and moist. Temperature was 99.6° F. Pulse was 100, of fair strength, regular, but quite compressible. The chest was not examined. On the right lower abdominal wall was a very slight redness and abrasion. There was no distention of the abdominal wall, but if anything a slight retraction. He complained of general abdominal pain. On palpation there was general abdominal tenderness, not, however, extreme, and no point of marked local tenderness. The abdominal muscles were literally as "rigid as a board" everywhere. On percussion there seemed to be slight dulness in the right iliac region. The diagnosis was made of rupture of the intestine, and operation advised.

The operation was begun just three hours after the injury. Under ether an incision two and one-half inches long was made in the middle line halfway between the umbilicus and the pubes. When the peritoneum was opened there was an immediate escape of considerable cloudy serous fluid, tinged with blood. The intestine beneath the incision was very much injected, and covered in places with small amounts of fibrin. Following up the injected fold an oval perforation one-half an inch long was found in the ileum, opposite the mesenteric attachment, eighteen inches from the ileocecal valve, from which fecal contents escaped. The incision was closed with a continuous right-angled silk suture, reinforced with interrupted silk sutures. A hasty examination of the intestine showed no further rupture. The peritoneal cavity was washed out with very large amounts of normal salt solution. During the process much fecal matter was found in the true pelvis. Irrigation was continued until the fluid was perfectly clear. Gauze drains were put into each flank, under the liver and into the pelvis, with a glass drainage tube into the pelvis.

The condition of the patient was good throughout the operation. On recovering from ether the patient vomited twice, and at no other time during convalescence. The bowels were moved by a high enema the next day. For the first three days nothing was given by mouth, but feeding was by enemata. On the fourth day very small amounts of beef juice and tea were given by mouth. On the seventh day egg-nogg and milk were given by mouth, and on the tenth day soft solids. There was no distention, and tenderness was always slight and rapidly disappeared. The drains were all removed by the thirteenth day. The patient

sat up at the end of three weeks, and left the hospital wearing a fitted swathe on the twenty-third day. The only feature which caused anxiety during the convalescence was an occasional attack of moderate dyspnea, for which no cause ever was found.

CASE V. Dr. Bottomley.

A fisherman about forty years old was brought to the Relief Station in a police ambulance, and gave the following history: Six hours before, while watching a fight, he had been struck on the back "just below the left shoulder blade" by the shaft of an approaching patrol wagon, and had been knocked down. He felt faint for a short time, but did not lose consciousness. Severe abdominal pain, chiefly above the umbilicus, followed the blow. Arising soon, he walked about for a while, took a carriage to the ferry, a short distance away, and after crossing walked three-quarters of a mile to his home. A cup of tea which he took there brought on the first attack of vomiting. His abdominal pain increased in severity and he summoned his physician, who ascribed the severe pain to a distended bladder, which he found, and for the relief of which he advised the patient's removal to a hospital. There had been but one attack of vomiting since the accident, and at the time of his coming to the hospital the only subjective symptom was severe abdominal pain.

He was a well-built, well-nourished man, and while his pulse was only 92, its character was not satisfactory; it was thready and of low tension; his temperature was slightly subnormal, and his pale lips, and ashen pinched countenance showed well the degree of shock in which he was. His pain was severe enough to make him groan constantly, and successful catheterization of the distended bladder gave him no relief from his suffering. His abdominal wall showed no external evidence of injury; it was distended, and everywhere rigid; the muscular spasm and tenderness were general. Dulness was absent even in the flanks; the percussion note was tympanitic everywhere. On his back, over the tenth rib of the left side, and about three inches from the middle line was a red contused area, somewhat larger in size than a silver quarter. This area was tender, and indicated the point of impact of the shaft. The urine was negative.

Immediate operation was advised, but the patient refused. A high enema containing turpentine brought away much gas, but little fecal matter. A quarter of a grain of morphin subcutaneously gave him only slight relief.

Eighteen hours after the accident, having grown steadily worse, the patient consented to operation. He then showed all signs of a diffuse, general peritonitis, except vomiting. His pulse had grown weaker, and had risen to 112.

Under ether a three-inch incision was made in the median line below the umbilicus. Later it became necessary to extend this about two inches above the umbilicus. Upon opening the peritoneum considerable dark brown fluid escaped, some of which was evidently bile stained. It brought with it many flakes of fibrin and particles of partly digested food. The small intestine presented an angry looking, congested peritoneal coat, and a general very free formation of fibrinous exudate. After a rather protracted search, a perforation which would easily admit the top of the forefinger was found in the jejunum, opposite to its mesenteric attachment, and about two and one-half inches from its beginning; through it there was a very free escape of the intestinal contents. Extending downward from it in the long axis of the intestine was a tear through the peritoneal coat of the bowel, one and one-half inches long. The closure of the perforation, which was accomplished by a purse-string suture of silk, was a matter of considerable difficulty; for the jejunum at this point could not be brought outside the peritoneal cavity, and the abdominal wall, even under ether, remained very rigid. The longitudinal tear was repaired by a single row of the Cushing right-angle suture.

At about the midpoint of the ileum for a distance of six inches both the intestine and its mesentery were much thickened; the vessels of the mesentery looked as if thrombosed. However, the circulation of the intestine appeared to be all right, and the loop was replaced. Examination of the kidneys, spleen, stomach, liver and gall bladder gave no evidence of injury. Several ounces of a solution of Epsom salts were injected into the cavity of the small intestine. The peritoneal cavity was irrigated with hot salt solution, and the abdominal wound hastily closed except at the lower end, where sufficient space was left for the passage of two glass drainage tubes into the pelvis. The patient failed rapidly during the operation despite stimulation. The head of his bed was raised and he was given salt solution intravenously. He reacted rapidly and well from the shock of the operation. No vomiting followed, his pain ceased, and by evening his pulse was of much better quality than it had been at any time since his entrance to the hospital.

About six hours after the operation his pelvis was irrigated with hot salt solution through the glass drainage tubes, and much cloudy fluid, with many pieces of fibrinous exudate, was washed out. Rectal feeding was started.

The morning following the operation the patient was given an enema and had a large fecal movement. Another intravenous infusion of salt solution was given and small quantities of water were allowed by mouth. About midafternoon he had a slight attack of vomiting. His pulse was steady and of good volume. Late in the afternoon his pelvis was again washed out through the drainage tubes, and at midnight he was once more infused with salt solution.

He continued to improve till the afternoon of the second day, when a severe diarrhea set in; this was controlled by opium; but his pulse began to rise rapidly. He reacted once more after another infusion of salt solution, and on the morning of the third day his pulse was steady and about 84. During the afternoon of the third day he went to pieces again and never rallied, dying about seventy-two hours after the operation.

CASE VI. Dr. Bottomley.

Dec. 8, 1901, a boy of eight was brought to the City Hospital with a history of having been run over by a team about five hours before. There had been no loss of consciousness at the time of the accident. The boy had complained of considerable pain about the umbilicus and had vomited four or five times before coming to the hospital. He had passed perfectly clear urine.

The patient showed moderate shock. His pulse was 108, his temperature 101°; he was pale and somewhat restless. His abdomen was not distended and the percussion note was dull everywhere. There was general tenderness and muscular spasm of the abdominal wall, both being most marked over the right side of the abdomen; the spasm, however, seemed to be mostly voluntary and later under ether proved to be so. An area of ecchymosis with superficial abrasion occupied the space between the costal margin and the crest of the ileum on the right side.

Under ether an incision was made in the middle line below the umbilicus. When the peritoneal cavity was opened a large quantity of cloudy, blood-tinged serum escaped. After a short search a perforation of the intestine was found at about the midpoint of the ileum, one inch from its attachment to the mesentery and one-third of an inch in diameter; the mucous membrane was pouting through the everted edges of the opening and had prevented the escape of much fecal matter. A double row of Lembert silk sutures closed the opening. The cavity was thoroughly irrigated with hot salt solution, and both flanks and pelvis were drained by tubes and wicks. The external wound was partially closed by through-and-through sutures of silkworm gut.

The boy's convalescence was steady and uneventful.

Case V is unique. Neither from the patient's story nor from that of witnesses, nor from any external sign, could we get evidence of any direct contusion of the anterior abdominal wall. He

was knocked down on a wharf, on a fairly even surface presenting no projections against which he could have been thrown. It seems, therefore, most probable that in this case the rupture was from within, and was the result of sort of a *contre-coup* (if the term may be used here). It is well known that perforation of the intestine in traumatic cases has occurred from within the bowel, the fluid contents of a loop of gut being confined for the time in a narrow space and by the impact of the violence, being thrown into a state of tension sufficiently high to burst through the intestinal wall. Makins of London mentions such cases.

Several cases are on record which had been caused by falls on the back. In all of these the resulting perforation had taken place very close to the beginning of the jejunum, where the gut emerges from beneath and is held down by a fold of peritoneum. The fact that the intestine at this point has but little mobility, and that the blow on the back would give the intestine a sudden, powerful impulse may account for the rupture. In this case the longitudinal tear in the *external* coat of the intestine adds greatly to the probability of its being caused from within.

The important feature — the one thing that means most to both patient and surgeon in all these cases — is the length of time allowed to elapse between the hour of the accident and the hour of operation. Beyond the fourth or fifth hour every hour of delay adds greatly to the danger of a fatal issue. We cannot wait for signs that indicate certain perforation of the intestine. None of us would hesitate to do an immediate operation upon a patient whom we *knew* had a perforation; we would consider an operation his only chance for recovery. But in the great majority of cases we cannot know except by operation, and the best time to know is to know early, when the knowledge will be of service to the patient.

## SOME CASES WHICH WERE NOT PERNICIOUS ANEMIA.[1]

BY JOHN LOVETT MORSE, A.M., M.D., BOSTON.

These cases are reported with the object of emphasizing the writer's belief that the diagnosis of pernicious anemia cannot be made with certainty on the basis of the condition of the blood alone. Due consideration of the physical signs and of the history of the disease is also necessary. Without them a positive diagnosis is impossible. There is no question, of course, but that the condition of the blood in pernicious anemia is most characteristic. Identically the same condition may be found in the blood, however, in the course of other diseases. It is these severe secondary anemias which are mistaken for pernicious anemia, the diagnosis being made on the condition of the blood without sufficient consideration of the history or careful search for a possible cause.

[1] Contributed to the Thirteenth Series of Medical and Surgical Reports of the Boston City Hospital for 1902.

Case I. Frans E., age twenty-seven, single, a carpenter, was admitted to the hospital Oct. 21. His mother died of phthisis. He drank considerable beer and had had gonorrhea, syphilis and rheumatism. He used tobacco, tea and coffee.

Two weeks before entrance he had a chill which was followed by headache, dizziness, bad taste in the mouth and loss of appetite. Shortness of breath soon developed and steadily increased. There was also a dry cough. He had had several slight chills since the first one. There had been no nose-bleed. The bowels were constipated.

He was well developed and nourished. There was marked pallor of the skin and mucous membranes. The tongue was pale, indented and covered with a moist, white coat. The right border of the heart was two fingers' breadth to the right of the right edge of the sternum, the left border two fingers' breadth to the left of the nipple line. The impulse was felt best in the fifth space outside the nipple line. The action was regular. A systolic murmur was heard over the whole precordia, whence it was transmitted into the axilla and upward into the vessels of the neck. The pulse was of fair volume and tension. There was marked pulsation of the cervical vessels. The lungs showed nothing abnormal except occasional dry and moist râles at both bases behind. The lower border of the liver was palpable. The splenic dulness began at the seventh rib; the edge was palpable. There was no edema. The temperature ranged from 102° F. to 100° F. The urine at entrance showed nothing abnormal. The blood, examined at entrance, showed 1,216,000 red corpuscles and 4,200 white corpuscles. Pernicious anemia was suspected. He continued delirious and stupid. There was no improvement under arsenic and iron.

The blood was re-examined on Oct. 24. The count was essentially the same as at entrance. The stained specimens showed marked variation in the size of the red corpuscles, the general tendency being toward increase in size. There was also a decided tendency toward oval forms. There was slight polychromatophilia and poikilocytosis. Eleven nucleated red cells were seen while counting 200 white cells; one of these was a normoblast, the remainder, megaloblasts. One megaloblast showed a nuclear figure. The differential count of the white corpuscles was as follows: Small mononuclear, 30%; large mononuclear, 6%; polynuclear neutrophiles, 57%; eosinophiles, 1%; myelocytes, 6%.

This condition of the blood coincides in almost every way with that found in pernicious anemia. The low red count, the hypoleucocytosis, the increase in size of the red corpuscles, the tendency to oval forms, the excess of megaloblasts, the increased proportion of mononuclear cells and the considerable percentage of myelocytes are all most characteristic. On the strength of this blood picture the diagnosis of pernicious anemia was made. The sudden onset, the very rapid deterioration of the blood and of the general condition, although inconsistent with the usual course of pernicious anemia, were disregarded. They should have suggested a further search for the cause.

This cause was discovered by accident the next day in a more thorough examination of the stained blood, which showed an occasional cresentic form of the estivo-autumnal parasite of malaria.

Quinin was given in doses of 10 gr. three times daily, which were later increased to 15 gr. three times daily. He continued delirious and stupid until about the first of November. He then began to improve a little, and on Nov. 6 sat up in bed, but complained of some vertigo and blurred vision. The temperature had ranged between 99° F. and 100° F. up to this time. It was normal

after Nov. 10. On Nov. 11 he sat up in a chair. He was still very weak and still suffered from blurred vision.

The blood on Nov. 14 showed: Red corpuscles, 1,788,000; white corpuscles, 6,200; hemoglobin, 54%. He continued to improve in every way. The blood on Dec. 3 showed: Red corpuscles, 3,328,000; white corpuscles, 6,600; hemoglobin, 75%. He was discharged well on Dec. 10.

CASE II. Wm. P., age fifty-one, married, a baker; entered the hospital Feb. 13. His family history was good. He had had an attack of rheumatism when thirty-six, lasting for five or six weeks. He was ill with pneumonia in the City Hospital when forty-one. The records unfortunately contain no note as to the condition of his heart or blood at that time. The urine was normal. He began to get very fleshy when about thirty years of age. During the last ten years he had been troubled by dyspnea on exertion and slight swelling of the feet. During the past five years he had always felt tired and ready to lie down. His digestion had been good. He had not been a drinking man except by spells. He used no tobacco and denied any venereal disease. He said he used to be "of good color for a baker." His sight had been dim for a year.

Nine weeks before entrance he began to grow weaker, and four weeks later he had to give up work. The weakness continued to increase so that for a week before entrance he had not been able to sit up more than three hours a day. Associated with the weakness, especially during the last month, had been dizziness, dyspnea on exertion and tinnitus. He had lost twenty pounds in the last two months. His appetite was fair, his digestion good, his bowels constipated. His bowels had always been constipated, requiring drugs.

He was well developed and obese. His skin was pasty. The conjunctivæ and mucous membranes were pale. The tongue was clean and moist. The upper border of cardiac dulness was at the middle of the third rib, the right border 6 cm. to the right of the median line, the left 14 cm. to the left of the median line. The action was regular. The sounds were feeble at the apex, where there was a soft systolic murmur, not transmitted. The second pulmonic sound was accentuated. The pulse was regular but of poor volume and tension. There was a marked venous hum in the neck. The lungs, liver, spleen, abdomen and extremities showed nothing abnormal. There was no enlargement of the superficial lymph nodes. His temperature ranged between 99° F. and 100° F. The urine showed nothing abnormal.

The examination of the blood showed: Red corpuscles, 2,208,000; white corpuscles, 4,400; hemoglobin, 35%. The stained specimens showed considerable variation in the staining qualities and size of the red corpuscles. There was a tendency toward large, but none toward oval forms. Poikilocytosis was slight. One megaloblast was seen in counting 300 whites. The differential count of the white corpuscles was as follows: Small mononuclear, 25%; large mononuclear, 5%; polynuclear neutrophiles, 66%; eosinophiles, 3%; myelocytes, 1%.

Although the condition of the blood in this case did not correspond in every particular to that of pernicious anemia, it was, nevertheless, very characteristic. When it was taken in connection with the history and negative physical examination, no doubt whatever was entertained as to the accuracy of the diagnosis of pernicious anemia which was positively made. Hence no further search for some obscure cause of the anemia was undertaken.

There was no improvement under treatment, however. After he had been in the hospital about two weeks it was reported that some of his stools were mixed with bright red blood. The history was then elicited that he had had bleeding piles for twenty years or more and that they had bled much more freely recently. Examination showed both external and internal hemorrhoids. Operation was advised and he was to be transferred to the surgical side for operation. Unfortunately, however, on his wife's advice, he refused operation and went home.

It is impossible to state positively that the anemia in this case was secondary to the hemorrhoids because no operation was performed, and hence no opportunity was given to study the case after operation. I personally believe, however, that it was and that operation would have been followed by a gradual and permanent improvement in the blood. Repeated small hemorrhages over a considerable period of time lead to marked changes in the blood which often resemble those found in pernicious anemia. These changes seem especially likely to occur as the result of the bleeding from piles. In a number of cases of secondary anemia which I have seen from this cause, but in which the blood changes were not quite as marked, there has been a gradual return of the blood to normal after operation. In all cases of severe anemia repeated small losses of blood should always be considered as a possible cause. The diagnosis of pernicious anemia, no matter what the condition of the blood, should, therefore, never be made until all possible sources of hemorrhage have been investigated and excluded.

CASE III. Dora Z., age fifty-four, married, was admitted to the City Hospital on May 1. The history was very imperfect as she spoke but little English. She had been pale for five years. For four years she had noticed distention of the abdomen. For something more than two years she had been passing bloody urine from time to time. Micturition was associated with burning and pain. Two months before entrance she went to bed because of weakness. This weakness, palpitation and other symptoms of anemia had been more marked for two weeks.

She was well developed and poorly nourished. The skin was harsh, and there was marked loss of subcutaneous fat. The skin was of an extremely pale lemon color. The mucous membranes were also pale. The upper border of cardiac dulness was at the upper border of the third rib; the right was 2½ cm. to the right of the median line, the left 13 cm. to the left of the median line. The impulse was in the fifth space, 12½ cm. to the left of the median line. There was a loud systolic murmur over the whole precordia, which was transmitted upward into the vessels of the neck and downward into the axilla. Its maximum intensity was in the third left interspace and at the apex. The second pulmonic sound was accentuated. There were a few râles at both bases. The liver and spleen were normal. There was considerable edema of the feet and ankles.

The urine was turbid, slightly acid, of a specific gravity of 1,009, and contained 1-10% albumen. The sediment showed much pus, free and in clumps, many large round and highly refractive cells, numerous fatty renal cells and considerable normal and abnormal blood.

The blood showed: Red corpuscles, 1,280,000; white corpuscles, 8,000; hemoglobin, 8%. The stained specimens showed marked poikilocytosis, marked macro- and microcytosis and some polychromatophilia. Two normoblasts and two megaloblasts were seen in counting 100 white cells. The differential count of the white corpuscles was as follows: Small mononuclear,

12%; large mononuclear, 37%; polynuclear neutrophiles, 48%; eosinophiles, 3%.

Another examination on May 8 showed: Red corpuscles, 1,060,000; white corpuscles, 7,600; hemaglobin, 10%. The changes in the red corpuscles were more marked, and two megaloblasts were seen in counting 100 white corpuscles.

The patient was shown at this time at a meeting of the Clinical Club as a case of pernicious anemia. The long history of hematuria, as well as the condition of the urine which pointed to some disease of the pelvis of the kidney or bladder, seem to have been disregarded. The emaciation, which is unusual in pernicious anemia, might also have suggested that there was some cause for the anemia. The condition of the blood was, on the whole, pretty characteristic of pernicious anemia, although the normal white count and the very low percentage of hemoglobin are somewhat unusual when the number of red corpuscles is so low.

Attention was soon after directed more particularly to the bloody urine. On May 12 the urine was turbid, acid, of a specific gravity of 1,013, and contained a large trace of albumin. The sediment contained considerable pus, free and in clumps, considerable normal and abnormal blood and much squamous epithelium. On May 19 the urine was even more noticeably bloody. It was red, slightly acid, of a specific gravity of 1,009 and contained 1-5% of albumin. The sediment showed much pus, much normal and abnormal blood, some round and bladder cells. On May 31 the liver was palpable 4 cm. below the costal border. The abdomen contained a little free fluid, as did the pleuræ.

On June 1 the examination of the blood showed: Red corpuscles, 2,080,000; white corpuscles, 8,600; hemaglobin, 15%. There was marked macrocytosis, microcytosis and poikilocytosis as well as polychromatophilia. No nucleated reds were seen. On June 6 a rather unsatisfactory cystoscopic examination of the bladder was made by Dr. Higgins. One ulcerated patch was seen. The bladder was treated by injections of gelatin. Examination of the blood on June 9 showed: Red corpuscles, 2,560,000; white corpuscles, 14,200; hemoglobin, 20%. She died suddenly on June 9.

During the whole stay in the hospital she had six or seven loose movements daily, and vomited occasionally. At times the stools contained a few clots of blood. The urine continued bloody. The temperature was irregular, ranging from normal to 100° F.

No autopsy was allowed. Several pieces of greyish-white, tough tissue with blood clots were removed through the urethra after death. Microscopical examination by Dr. Mallory showed connective tissue, muscle tissue and in places foci of round cells. Irregular cellular areas surrounded by connective tissue in which medium sized cell masses were irregularly grouped were also seen. The cells of these masses were epithelial in type, lay closely packed, had round or oval nuclei, and showed frequent mitoses. The anatomical diagnosis was carcinoma.

In this case the anemia was probably due partly to the continuous loss of blood in the urine and partly to the cachexia from the cancer. After the attention was directed to the bloody urine and other diseases duly considered, pernicious anemia was at once dropped from the list of probabilities. It is merely another instance to show how necessary it is not to attach too much importance to the blood condition alone to the neglect of other methods of diagnosis.

## A CASE OF POISONING BY THALLIUM.[1]

BY WILLIAM N. BULLARD, M.D., BOSTON.

The metal thallium was discovered by Brookes in 1861, and since then we have obtained some knowledge, through experiment, of its toxic effect on animals. Cases of poisoning in man are, however, not common.

### POISONING IN ANIMALS.

The principal symptoms found in animals have been general listlessness, loss of appetite, nausea and vomiting, diarrhea with dejections often tinged with blood, and intestinal pain, sometimes severe. There is slowing of the respiration, and dyspnea. The chief action, however, seems to be upon the heart, on which it is supposed to act as a direct poison. It causes slowing and weakening of the heart's action, and the heart stops in diastole.

In addition to these symptoms, it produces general tremor of the limbs and a marked incoordination, usually more evident in the hinder extremities. Luck notes a marked swaying on standing, and a slow, uncertain, swaying gait. Richet found in chronic poisoning a generalized muscular atrophy: not a simple leanness, but an almost total wasting of different muscles.

Curci states that thallium does not act on the nervous system of animals, but that it is exclusively a muscular agent.

Both Buschke, in 1900, and Bettman, in 1901–1902, succeeded in producing alopecia in animals with acetate of thallium.

The only definite abnormal conditions found pathologically were swelling, congestion and small hemorrhages of the gastric and intestinal mucous membrane, sometimes congestion and small hemorrhages in the lungs, and mild parenchymatous nephritis. The heart is usually stopped in diastole, the right cavities dilated.

### POISONING IN MAN.

The instances of this are rare. Brookes states that he swallowed .065 to .130 gm. of thallium salt without any effect. Pozzi and Courtade employed the iodide of thallium in doses of .010 gm. daily in certain cases of syphilis, with favorable results. As unpleasant symptoms were mentioned pain in the stomach and vomiting. They also found in a few cases that the gums were painful and swollen, and that there was a blue line at their junction with the teeth. I have not found these symptoms elsewhere mentioned.

In 1898 Combemale advocated the use of the acetate of thallium in the profuse sweats of pulmonary tuberculosis, and found it most efficient for this purpose. The ordinary dose was 10 cgm., the maximum 20 cgm. He never observed any evidences of toxic action while the drug was being taken, but noticed a falling of the hair later. This was said to be *total* and extraordinarily rapid. Huchard, writing a report on this paper for the *Académie de Médicine*, states that

[1] Contributed to the Thirteenth Series of Medical and Surgical Reports of the Boston City Hospital, 1902.

he had tried this drug on two patients in the last stages of phthisis. They were attacked with very sharp pains in the lower extremities during the time thallium was taken, and he concluded that these pains could not have been due to the phthisis, because they ceased immediately on stopping the thallium.

Jeanselme, in the same year, reported a case in which a woman, fifty-nine years old, was given cachets, each containing 3 cgm. (.03) of acetate of thallium for profuse sweats. In the course of three days she took nine cachets, .27 gm., when the medicine was stopped, on account of diminution of the sweats and because of the occurrence of rather sharp pains in the abdominal and lumbar regions. Fifteen days later her hair suddenly began to come out in masses, and she lost about one-third of it.

Guinard also, in 1898, reports loss of hair after nine pills of .05 cgm. of acetate of thallium.

It was thus quickly established that thallium, when given even in small doses, was liable to cause a loss of hair or alopecia in men. This usually occurred some days after the administration of the drug had ceased. It was found that the loss of hair produced by the administration of thallium was so serious that the use of the drug has been practically abandoned, although it proved a most efficient agent for sweats. I have been unable to find any further reports of toxic symptoms in man from this drug.

My case was that of a gentleman, twenty-seven years old, a physician, who was admitted to the Boston City Hospital as a private patient of Dr. V. Y. Bowditch, and whom I saw in consultation a number of times. He had taken sulphate of thallium for purposes of experiment, "not over eight grains in all and probably not over half a grain at a time; four grains is probably nearer the exact amount." Later he writes: "From half a grain to a grain was taken at a time, and the first time was taken perhaps every other day for three or four doses. Then there was an interval of about two months, then three or four doses were taken again in the same manner. Nothing was noticed after the first lot was taken, but within two or three days after the last dose the numbness in the toes and finger tips was noticed."

On admission to the hospital he gave the following account of his symptoms: Three weeks ago slight diarrhea which readily yielded to treatment, and at the same time numbness in the toes of both feet and the fingers of both hands, which in the course of two or three days extended up the lower extremities and involved the lower abdomen, the perineum, the inside of the thighs and the inner surface of the legs, being less marked over the tibiæ. The nerves of the lower extremities were painful, and there was considerable weakness and partial paralysis of the lower extremities. Almost from the onset he was confined to bed or to a wheel chair. He grew worse for the first seven to ten days, then his condition became stationary, and now he considers himself slightly better.

On admission the balls of his feet were exquisitely tender, and there was some tenderness over the whole metatarsal region of both feet and slight tenderness along the inner border of each tibia. There was loss of the power of motion of both big toes, which he could ordinarily move freely. The other toes could be moved without pain.

All other movements of the lower extremities were present though weak. There was some wasting of the lower extremities, and there was a diminution of sensation over all the toes. The muscles of the lower extremities were lax. Knee jerks lively. Plantar reflexes not obtained. No ankle clonus. There was also some diminution of sensation over the fingers. The internal organs were all natural and no other abnormal signs were found. The right pupil was slightly larger than the left, but he states that this had been the case since scarlet fever, when he was five or six years old.

The physical examination a few days later gave similar results. Has but little power of motion in lower extremities. Cannot move the big toes, but can now move the fifth toes, which he formerly could not do. There is now diminution of sensation over the external border of both feet and the internal third of the right leg. The most tender points now are on the soles of the feet near the middle of the metatarsi. Knee jerks increased. No clonus.

Eight days after entrance to the hospital it is noted that he has had for some days considerable difficulty in sleeping. The numbness has now extended so as to involve both knees. He has troublesome twitching pains in both legs and in feet.

Ten days later (eighteen days after admission): Improving. Limbs pain him much less. Sleeps better.

Twenty-sixth day after admission: Great improvement. Able to be up and out in wheel chair. Has had electricity since last report.

A week later we find that traces of lead were discovered in the urine; also $\frac{1}{300}$ to $\frac{1}{400}$ mgm. of arsenic, "probably too slight to account for symptoms."

Thirty-third day after admission: Discharged.

During his stay in the hospital the urine was frequently examined: it showed at first slight traces of albumin, which gradually disappeared. On the day of entrance the condition was as follows: Pale, acid, specific gravity, 1,016; slightest possible trace of albumin; no sugar. Occasional abnormal globules and degenerated small renal cells and leucocytes.

Twelve days later: High color; trace of albumin; much pus, mostly in clumps; many normal red corpuscles, some abnormal; occasional small and large round degenerated cells; calcic phosphate crystals.

Ten days later: It was normal; acid, 1,024.

The treatment, besides rest in bed and dry heat to his limbs, consisted only in iodide of potassium in small doses. Later, when the pains had ceased, electricity was applied to the lower extremities.

About three months after the onset of the illness the patient wrote: "Have resumed work but am not absolutely well. Played golf yesterday without discredit. Am getting used to the cold weather. After leaving the hospital there was *total loss of hair.*"

REMARKS.

The condition here was plainly a multiple neuritis. It followed the usual course of this affection, and the patient eventually recovered completely.

I do not consider the report of the existence of lead in the urine important. I cannot now determine with certainty by whom the examination was made or what tests were used. It is possible that the tests were really given by thallium. The patient lived in a large institution, where many other persons were exposed to essentially the same conditions as himself, none of whom showed any signs of lead poisoning. On the other hand, the source of the thallium was known and the symptoms occurred immediately after its ingestion.

## TETANY IN GASTRIC DISORDERS.

BY LAWRENCE W. STRONG, M.D., BOSTON,
*Assistant in Hygiene, Harvard Medical School.*

(Concluded from No. 21, p. 563.)

Continuing the review of American literature, the cases which I here record, together with one reported by Bundy, one by Larrabee and one by Locke, are the only ones in adults which I have been able to find since 1894. Since Morse's last summary there have been four cases in infants reported by Adams and Davis.

A comparison of German and American ideas of tetany, as expressed by Frankl-Hochwart and by Morse, shows that the former leaves doubts, both in the definition and the classification as to whether it is a disease in itself or a symptom-complex, while the latter regards it simply as a symptom-complex. The fact that it occurs in so many varied conditions, of which presumably there is no common cause, is strong evidence against its being a disease in itself. It is possible that the first group of Frankl-Hochwart's classification, the epidemic form of tetany, may represent a disease in itself, infectious in character, which has received its name from its only objective symptom, the muscular spasm, tetany.

But one instance of this form of tetany has been reported in America, that of Vaughn in New York in 1893, where seven cases occurred in Italians, five being in the same family, with several other unrecorded cases in Italians in the same quarter at the same time. The cases were accompanied by mild fever. The hypothesis of an infectious disease, however, does not explain all features of Frankl-Hochwart's first group, such as its occurrence in individuals who are in other respects well, for although mild fever is common it is not invariable, and also its prevalence in certain occupations. This group and the epidemic in New York may equally well be explained by the supposition of a toxemia from working materials, foods or other conditions of the environment.

No other group of Frankl-Hochwart's classification appears as a disease in itself; the variability of the conditions making it plain that it is a symptom produced by various unknown causes.

No classification of the groups of tetany can be satisfactory in our present ignorance of the underlying causes. The divisions made by Frankl-Hochwart do not express these causes; they are groups of convenience representing frequency of occurrence which will ultimately be replaced by empirical divisions expressing the etiology.

We cannot assume, for instance, that Frankl-Hochwart's third class, where tetany follows the use of ergot, chloroform, morphin, anthalminithics, and in lead poisoning, is a true division. The natural explanation of these is an intoxication, but since the drugs mentioned are in common use, and only single cases of tetany have been referred to them, we cannot regard the drugs as the causative agents. The same may be said of tetany following infectious disease, and in connection with other nervous diseases.

An illustration of the uncertainty of the commonly assigned etiological factors is that Griffith gives rheumatism, or exposure to cold and wet, as a cause in almost one-fifth of his cases, while Frankl-Hochwart does not even mention this as a cause.

Notwithstanding its artificial basis, the classification is useful to separate epidemic, gastric and infantile tetany, and to point out its occurrence after thyroid extirpation and in the puerperium. Further than this it seems impossible to go, and even here it must be admitted that all these groups may be the same thing, and that many cases have been reported which cannot be assigned to any of them.

As to what symptoms are essential and pathognomonic, the German ideas are best expressed by Fleiner's recent article on gastric tetany. In a "festschrift" to William Erb, Leipsic, 1900, he published five cases of which he had previously published four in *Archiv. f. Verdauungskrankheiten*, Bd. i-v. While he regards ordinary tetany as a neurosis with a favorable prognosis, he considers tetany of gastric origin as a sign of bad import, implying a high grade of pyloric stenosis and marked gastric dilatation. Of his five cases Nos. 1, 3 and 4 are called tonic, muscular spasms, and 2 and 5 are actual tetany. The distinction is based upon the absence in Cases 1, 3 and 4 of Trousseau's and Chvostek's phenomena, and the presence of Trousseau's in Case 5, and of Trousseau's and Chvostek's in Case 2. In other respects the cases are alike. Apart from the fact that a series of five cases seems too small to establish positive laws for the essential symptoms, an examination of the various phenomena shows that they cannot be regarded as unvarying. Chvostek's phenomenon of hyperirritability of the facialis

occasionally occurs in normal individuals. Trousseau's phenomenon was absent according to Professor Erb in one of his cases of gastric tetany.

Adhering to the strict rule set down by Fleiner, not one of the seven cases here reported can be regarded as tetany. The muscular spasm itself, and these three so-called characteristic phenomena, all depend upon the same condition, an increased irritability, which may be either central or peripheral.

Its location can only be surmised, as no characteristic lesions have been found in the few autopsies recorded; hypothetically it should be central.

The hyperirritability involves chiefly the motor neurons, although the sensory neurons are somewhat affected, as is shown by the parasthesiæ almost invariably present at the outset, and by the hyperesthesiæ as in Cases I and II of my series, as well as the anasthesiæ occasionally reported.

There are rarely signs of involvement of the higher centres, as in hallucinations and other psychoses, but these are not characteristic. The common reflex arcs are either unaffected, or if involved the changes are not characteristic, as the knee jerks may be normal, increased or absent, and the pupillary reflexes are unaffected.

The direct muscular irritability does not appear to be increased, unless Chvostek's sign may be taken to indicate this. Tapping upon the face might naturally produce more irritation of the facial musculature than the nerve trunk. These three phenomena, then, mean one and the same thing with the muscular spasm itself, and the accidental absence of any one of them cannot be held to imply any fundamental peculiarity of the individual case, but only a difference in the extensiveness of the muscles affected.

The tonic, intermittent spasm, producing the characteristic postures, is the only pathognomonic symptom. The diagnosis will be strengthened by the onset with parasthesiæ, and by the almost invariable presence of Trousseau's phenomenon. Chvostek's phenomenon is of much less significance since it has been demonstrated in normal individuals. Erb's phenomenon is inapplicable in most cases since it implies standards of normal electrical irritability.

If we exclude all cases from true tetany which do not present each typical sign, we merely increase our difficulties, for we must find a separate cause for this separate class as well as for true tetany. These may be called tetany-like spasms, but no point of difference is given except their incompleteness. If they have the same cause they become one and the same thing, and there is no evidence that they are produced in any different way from true tetany.

Two theories are commonly advanced for the etiology of the symptom-complex tetany — that of autointoxication and of reflex action. In support of autointoxication are adduced the cases of tetany after thyroid extirpation. F. Blum holds that the thyroid is a poison-destroying organ which displays its activity in meat eaters. Vegetarians bear removal of the thyroid comparatively well. Meat eaters die without exception when fed on meat, but if fed on starch and milk they stand the operation fairly well. Most authorities ascribe an antitoxic property to the gland which counteracts the iodine products of metabolism. Westphal relates the case of a patient suffering from goitre where the thyroid was partially removed by operation. Two days later occurred a typical attack of tetany. Six months later there were epileptic seizures alternating with tetanic attacks. After treatment with thyroid extract both the epilepsy and the tetany disappeared and the mental condition was greatly improved.

Tetany of gastric origin has also been regarded as an autointoxication. Bouveret and Devic attempted to isolate a toxic substance by Brieger's method from cases of gastric dilatation and hyperchlorhydria, but their experiments were inconclusive. Fleiner points out that the substances they isolated were not preformed in the stomach nor did they come from patients who had tetany.

While he does not deny the possibility of poisonous products of metabolism, he regards them of minor importance to other factors and incapable of acting without them. These are the heightened mechanical and electrical irritability of muscles and nerves, and especially the influence of voluntary innervation of the muscles in the presence of a disposition to tetany. That is, he regards a spasm of tetany as a passing over of a voluntary into an involuntary muscular contraction. He does not regard an attack of tetany apparently resulting from gastric lavage as a reflex action, but as a passing over of some more or less intentional muscular movement of the arms or legs into a tetanic spasm. He cites as an illustration a cramp which may result from yawning or from strong contraction of any tired muscle when tetany does not exist.

This supersedes, in Fleiner's opinion, the reflex theory, which gave no explanation of the underlying cause of the irritable condition of the nervous system. The assumption of autointoxication being unsupported by proof, he seeks another explanation for the heightened mechanical and electrical irritability and the tendency of voluntary contractions to become involuntary. This he finds in Kussmaul's theory of the deprivation of the tissues of water, which he says is a clinical fact observed in all of his cases of gastric tetany. In all cases the patients were weakened by a lengthy gastric disease and were more or less emaciated. All but one had a high grade of pyloric stenosis and gastric dilatation. Thus the debilitated body lost in a comparatively short time an appreciable quantity of water. He thinks that the drying up of the tissues, especially the muscles and nerves and the central nervous system, is most likely to explain the disposition to tonic muscular cramps. This theory necessitates a separation of gastric tetany from all other forms, for no such drying up of the tissues occurs elsewhere. It also prevents us from including such cases as that reported by Larrabee and my

first case under gastric tetany. Larrabee's case, at least, had every indication of being gastric in origin, coming after indiscreet eating and profuse vomiting.

The reflex theory plainly is no explanation of the irritable condition of the nervous system; but that reflex activity is not heightened, as Fleiner claims, is equally inadmissible.

Fleiner calls attention to his fifth case, where all reflexes, plantar, patellar, cremasteric and abdominal, were lost, and where the pupils reacted sluggishly.

Against this appears the case of F. Muller, where percussion of the stomach brought out the spasm, and general reflex irritability was greatly heightened, as well as my first case, where all the tendon reflexes of the upper extremities were increased. While the action of the common reflexes is inconstant in tetany, it must be remembered that their regions of activity, as the legs, abdomen and eyes, are less often and to a less degree affected than the arms, where tendon reflexes are comparatively inconspicuous. The causative agent of tetany, whether toxic or not, exerts a marked selective action, which accounts for irregularity of distribution, both in muscular spasm and other symptoms.

There is no reason why both the direct and the reflex irritability of the nerves should not be increased, and indeed this appears to be the case. Whether the direct muscular irritability is increased or not is not determined. My own observation on one case showed that it was not.

Fleiner's observation on the passing over of a voluntary into an involuntary contraction is of considerable interest, and appears reasonable, both from analogy with ordinary muscular cramps and from instances in the cases of tetany, as in that of Locke, where a man using a heavy hammer was unable to loosen his grasp, and from this contraction the characteristic spasm of tetany followed. But this cannot be given as the usual mode of production of the spasm; the association of gastric lavage or vomiting with the onset of the contraction is too frequent to ignore the existence of a reflex action.

Intoxication is the only theory for the production of tetany yet advanced which is entirely tenable. The intoxication may be autogenous or exogenous; the gastric and thyroid extirpation cases suggesting the former and the epidemic cases suggesting the latter.

It is difficult to imagine an intoxication in all reported cases, although perhaps a better understanding of the nature of the condition may lead to the discovery of the toxic element in the future. Thus, in Bundy's case, reported as simple tetany, there was a very distinct gastric onset. In Locke's case the vomiting and temporary albuminuria suggest an intoxication, possibly produced by products of fatigue.

It is to be hoped that future reports of cases will not quote as etiological factors the various "assigned causes" given when the condition was even less understood than now.

SUMMARY.

(*a*) The condition is a symptom-complex, indicative of an increased nervous irritability, probably central in location.

(*b*) The muscular spasm is a reflex phenomenon set loose by some mechanical stimulation, as vomiting or lavage, with possibly a direct action, in the case of pressure and electrical stimulation of peripheral nerve trunks. The spasm, however, cannot be produced without the antecedent nervous irritability.

(*c*) The chief factor in the diagnosis is the muscular spasm itself, affecting the arms in a characteristic manner. Other symptoms, while usually present, are not of absolute diagnostic value.

(*d*) The etiology of the underlying nervous hyperirritability is unknown. The theory of intoxication is the only one adequate to explain the condition.

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## Reports of Societies.

### THE MEDICAL ASSOCIATION OF THE GREATER CITY OF NEW YORK.

Stated meeting, Oct. 13, 1902, the president, Andrew H. Smith, M.D., in the chair.

Dr. Simon Flexner, professor of pathology in the University of Pennsylvania, made an address on

#### INFECTION WITH THE BACILLUS OF DYSENTERY, WITH ESPECIAL REFERENCE TO ITS ROLE IN THE SUMMER DIARRHEAS OF CHILDREN.

It would seem to be the tendency in modern medicine, he said, to characterize a disease by its etiology, to differentiate a disease or a group of clinical phenomena by its underlying cause rather than the pathological conditions presented. Perhaps the best example of this is to be found in the case of diphtheria. Grouped under this designation are now many pathological conditions which formerly it was not customary to regard as

belonging to the category of diphtheria; yet all are characterized by the presence of its distinctive micro-organism. This differentiation has been of great benefit to the subject of diphtheria, and so it seems likely to be the case as regards that group of symptoms constituting dysentery.

It may be asked what justification there is for this mode of classification here. The study of the causation of dysentery has tended more and more to bring us to the conclusion that there is a specific organism constituting the etiological factor in the great majority of intestinal infections which go by the name of dysentery. Such a distinctive bacillus dysenteriæ was made known to the world in 1898 by Shiga of Japan. As to the grounds upon which this organism is assumed to be the cause of this wide group of infections, it may be stated that the bacillus is never found in the intestine when the individual is in a state of health; that it is present in various types of dysenteric disease; that animals may be inoculated with the disease by cultures from it, and that agglutinative reactions are obtained with it which cannot be secured from any other organisms found in the intestines. Since 1898 this bacillus has been carefully looked for in cases of dysentery by many observers. Dysentery is a disease which is endemic in Japan. Frightful epidemics of it occur there every year, in which thousands of persons are attacked, and in which the mortality is often as high as 50%. The organism was first isolated from a number of cases in the hospital at Tokio. Since then it has been found in the Philippines and other parts of the Orient, and also in this country, in institutional outbreaks, in isolated cases, and in terminal dysentery (where the disease appears at the close of chronic Bright's disease, liver diseases, etc.). In Germany it was found in 1899, especially among the troops returning from China. It has also been recognized in England and Holland, and, in fact, wherever it has been definitely looked for.

What is the type of such dysentery, not as determined by symptomatology, but by the lesions in the intestines? We have been accustomed to think of special types of the disease, as, for instance, amebic dysentery. The form which is characterized by the presence of amebæ we know well as a chronic, not an acute disease, and no one ever heard of this amebic variety occurring as an epidemic, though it is much more common in tropical than in temperate climates. The lesions are located in the large intestine. No false membranes are found, but there is much thickening of the gut. The bacillus dysenteriæ has not been discovered in connection with it. Many observers have been skeptical as to amebic dysentery as a distinct type, regarding the presence of the ameba as an epiphenomenon. The subject has not yet been cleared up, and, as a matter of fact, one or two cases of acute amebic dysentery have recently been reported from the Philippines.

Now, the particular form of dysentery associated with the bacillus is an active disease, and the great epidemics are unquestionably due to it. Pseudo-membranous colitis may be regarded as typical of it; yet the greatest variations are met with, and false membranes are not infrequently absent. Sometimes there is ulceration and sometimes not. Anyone who reads the reports of dysentery during the civil war or as it has occurred in institutional outbreaks will recognize the varieties of the disease in which the bacillus is now found. Again, the tendency of such dysenteries to become chronic is well known. In the chronic form, in place of much exudation, we have deep ulceration, thickening, new tissue formation, as the typical lesions. The conditions are different from those met with in amebic dysentery. We can therefore recognize, as caused by the bacillus, two types (without reference to the mode of occurrence), acute dysentery and chronic dysentery. In the chronic there are proliferative changes in the intestinal mucosa, and exacerbations occur which are due to new developments of the organism.

During the past season, under the auspices of the Rockefeller Institute, the opportunity was afforded to study the conditions met with in the summer diarrheas of children, and the work was carried on at the Thomas Wilson Sanitarium near Baltimore by Messrs. Duval and Bassett, students respectively in the University of Pennsylvania and the Johns Hopkins University. Mr. Duval was peculiarly qualified for the investigation, as he had made a special study of dysentery as it occurred in outbreaks at New Haven and other places in this country. At the beginning of the study they endeavored to obtain from the dejecta as many organisms as possible. All of these they tested with the blood serum of the sick children, and in no other instance than in the case of the Shiga bacillus was the agglutinative reaction observed. They were not so possessed with the idea that this was the characteristic bacillus of the disease present that they were not constantly on the lookout for others; but all the other organisms found resisted the tests applied to them. The cases were characterized by an acute onset, elevation of temperature, and the presence in the feces at some stage of mucus and blood. Of fifty-one or fifty-two cases of this character, in almost none was there a failure to recognize the bacillus. The organism was found in all the cases, with few exceptions, in which the disturbances were severe. There were other cases of a lighter grade, which might be designated as dyspeptic diarrhea, where the bacillus was not found. Some of these milder cases, however, afterwards became of a severe type, and then the organism was found to be present. The conclusions arrived at were that this bacillus is a stranger in the system, and that its etiological relation to the disease met with is shown by its presence, its constancy, and the peculiar blood-reaction obtained from it.

This organism, it may be said, has important relations with the colon bacillus and the great typhoid group in general. Yet while it belongs to this group, it has its own distinct individuality, and its differentiation is perfectly simple to those

familiar with its characteristics. It more closely resembles the typhoid bacillus than any other, and yet in the disease in question the characteristic agglutinative reaction could never be obtained with the latter. As to the practical results of these discoveries, they seem likely to prove of great value, first as regards the prevention of the infection, and, secondly, as regards its successful treatment. As to the matter of prevention, the first consideration is to discover where the organism is found in nature, as it has been shown to be absent from the normal intestinal flora. While at present we know nothing positive on this point, there is indirect evidence to the fact that it is associated with contamination of water. It would appear, like the germs of typhoid and cholera, to gain access to water. Like these organisms, it is easily destroyed. It is killed by a temperature much below the boiling point. Where else it may occur we have no knowledge. Proceeding on the general basis of vaccination, it is entirely feasible to protect small animals, like guinea-pigs, against it. The horse, it is found, is more susceptible to such immunization than either the guinea-pig or man, but the guinea-pig is no doubt the best for experiment. As it is extremely difficult to get men always to drink boiled water in the tropics, it would perhaps seem justifiable that troops stationed in some parts of the Philippines, for instance, should be inoculated with the attenuated serum as a protection against dysentery. Such inoculation is attended with no danger whatever, but whether it would be effective or not could only be determined after extended observation.

In the case of children, inoculation would not be justifiable. What we would hope for for them would be the production of a serum which would prove successful as a means of treatment. In doubtful cases the blood can be tested for the agglutinative reaction, which always occurs within the first ten days, if at all. In active cases, however, it is best not to wait for the blood reaction, but to immediately examine the dejecta for the bacillus which may be looked for after the first twenty-four to thirty-six hours. If an effective serum can be produced, it would seem justifiable to use it in suspected cases at the earliest possible moment. It is at present certain that with an immunizing serum it is perfectly easy to protect guinea-pigs against an infection which, without such protection, would often be fatal. It is to be hoped that this subject will be taken up by many investigators and that practical results of great value will eventually be obtained.

### DISCUSSION.

Dr. Francis Delafield said he could well realize how difficult Dr. Flexner must have felt it to be to cover the whole subject of inflammation of the colon. There were a great many different conditions, and what was good for one was not good for another. As regards the character and treatment of the disease, he feared that we had not as yet got beyond local experience. If you live in New York, he went on to say, you know what people here are likely to have. Whether you call the disease dysentery or colitis, there are certain things you see, and certain things you do not see. Pretty regularly we have an acute inflammation of the colon, attended with congestion and a free discharge of mucus, which may occur either in adults or children. The trouble may be principally confined to the rectum, or involve the whole length of the colon. In the former case it runs its course inside of a week, and the patient gets well. If the whole colon is involved, adults generally recover, while children are apt to die. Then, especially in hot weather, we have an acute inflammation (met with in adults even oftener than in children) in which there is a very large transudation of serum. It is not fatal in adults, but is likely to prove so in children. The etiology does not appear to be settled. Again, there is a rarer form of inflammation in which there is an infiltration of the connective tissue coat of the colon with pus, such as sometimes occurs in the stomach and is known as purulent or phlegmonous gastritis. This is apparently always fatal, whether it attacks adults or children. It behaves like the other streptococcus infections. Still again, there is a colon inflammation with more or less necrosis, and several different kinds have been observed. Thus, the glandular coat may be involved, or the connective-tissue coat, or the whole intestinal wall. In New York the only variety met with is that in which the glandular coat is affected. The acute cases last about three weeks, and may be fatal. The chronic cases last for months, and may also eventually prove fatal. There is another form of necrotic colitis, the croupous, and this would appear to come under the category described by the speaker. It is a form of dysentery met with in both tropical and temperate climates. Its severity depends partly on the part which is affected and partly on the intensity of the infection.

Dr. Delafield expressed his surprise at Dr. Flexner's regarding amebic dysentery as essentially a chronic affection. It seemed to him that the acute cases were not so very rare. He had seen them not only coming from Cuba, but also occurring in New York. These were classified as severe acute amebic dysentery and mild acute amebic dysentery. Then, there were the subacute and chronic cases. On the whole, he thought there was a good deal of amebic dysentery. In his remarks he said he had been speaking simply from a local standpoint.

Dr. L. Emmett Holt said that as the result of the researches described by Dr. Flexner we had the first ray of light upon the uncertain etiology of our summer diarrheas. In the past many things were suspected, but very little had been proved. The blood reaction now obtained established something more than mere conjecture. The fact that it was observed in fifty cases in a single institution showed that the infection was not rare. Long ago he had been struck with the similarity of the lesions in many cases in children to those met with in dysentery. There was a

croupous and follicular inflammation. These were not the only cases, but they constituted the largest number of fatal cases. The isolation of the bacillus of dysentery in summer diarrhea was a great step forward. Heretofore there had been great confusion in our bacteriological investigations, but now this organism was distinctly differentiated from the colon bacillus. It seemed to him that we were on the eve of great progress. A large part of the work accomplished had been done by Dr. Flexner, or under his direction, and for his indefatigable efforts in the cause of scientific medicine the profession was greatly indebted to him.

DR. E. K. DUNHAM said there was but little difficulty in identifying the bacillus. While in Maine, during the past summer, he had had the opportunity of doing this in four cases, two of which were in adults and two in children. In three of them the agglutinative reaction was obtained, while in the fourth cultures were made from the dejecta.

DR. H. D. CHAPIN said that in listening to Dr. Flexner's remarks it occurred to him that if the bacillus was conveyed in water, it might also be in milk. He was also struck by Dr. Delafield's remarks on local experience. That the types of summer diarrhea and the mortality from the disease varied very greatly in different localities and at different times, was shown by a study of its statistics in New York City and State during the past ten years. In some years the death-rate was high in the city and small in the country, and in other years this state of affairs was reversed. In 1901 the mortality in the city was very great. This could not very well be attributed to the milk as it was shipped to New York, since the same milk was used in the country. During that summer the streets were very much torn up, and it seemed probable that some local infection was imparted to the milk after its arrival in the city. A series of very interesting experiments had been made by Drs. Babcock and Russell, in regard to putrefaction in clots of milk. The conditions were altogether favorable for the contamination of milk with impurities, and he could not but believe that this was the source of a good deal of the trouble. In children we did not ordinarily meet with dysentery, but had an ileocolitis.

DR. JAMES EWING said that in regard to amebic dysentery his experience coincided with that of Dr. Delafield. The acute disease did occur here and cases of it were found among the troops in camp at Montauk Point during the Spanish-American War. The main point was the demonstration of the same bacillus in dysentery and in the summer diarrhea of children. The question naturally arose whether all types of summer diarrhea are due to this organism. In some cases recently reported to the New York Pathological Society the disease was apparently not caused by Shiga's bacillus, as no blood reaction could be obtained. As to a serum against dysentery, it would certainly be a triumph if one could be secured which would control lesions of the intestines. Up to the present time, antityphoid serum had proved practically useless, notwithstanding the fact that in the laboratory animals had been protected by it from infection. He therefore thought it doubtful if a serum of sufficient power to control this formidable disease could be prepared. It seemed to him that Dr. Delafield had taken the correct ground. Some varieties of dysentery were due to the streptococcus, and others were due to different causes. Further study was required before we could arrive at definite conclusions in regard to the scope of the Shiga bacillus.

DR. HENRY KOPLIK said it was a fact of far-reaching importance that in a certain set of cases occurring in the summer in children and infants, the bacillus which had previously been isolated in the dysentery of adults had been found to be the distinctive etiological factor. Yet a few years ago the Pediatric Society had thought seriously of excluding dysentery from the diarrheal diseases of childhood. There could be no question that the term summer diarrhea includes many types. He said that he could not get away from the standpoint of Dr. Delafield. We meet a large number of cases of all varieties, ranging from the very mild to the severe choleraic. Dr. Flexner has pointed out that certain cases are due to a particular bacillus, and, as Dr. Holt remarked, this is certainly a step in advance.

DR. HENRY ILLOWAY said: Why not call the cases in which Shiga's bacillus is found dysentery at once? The so-called summer diarrheas are made up of a large number of groups. Personally he designated only that variety which is caused by heat as summer diarrhea. The heat is the sole factor in its production, and if the child is removed to a cool climate, the disease at once disappears. If removal is impossible, a cure can be effected by creating the conditions which are antagonistic to heat diarrhea. Hence we resort to the cold pack, etc., plus such treatment as seems to be required for the correction of dyspeptic symptoms. In this class of cases the bacillus cannot be the cause, for the reason that the disease develops so rapidly and disappears so rapidly when the child is removed to a cold place. The other diarrheas are those which we have in winter as well as summer. He thought it would simplify the matter, therefore, if Dr. Flexner would say that we have cases of dysentery in childhood.

DR. C. A. HERTER spoke on the therapeutic aspect of the subject. During the past summer serum prepared by Dr. Flexner had been used in the case of a child, five years old, which he saw in association with Dr. Theodore Dunham. The serum was employed for the following reasons: (1) The patient was desperately ill; (2) Dr. Flexner had demonstrated the fact that in animals his serum protects against the bacillus; (3) the bacillus of dysentery had been shown to be present in children suffering from summer diarrhea; (4) the experience of Shiga in the treatment of dysentery was borne in mind. Out of 500 cases at the hospital in Tokio, 280

were treated with serum, the others being treated in the ordinary manner. Shiga reported that the mortality among those receiving the serum treatment was very much less than in the case of the others. It was only 9 or 10%, while in the others it amounted to from 30 to 50%, 39% being the average. He also reported that under the serum treatment there was a prompt amelioration of the symptoms, and the course of the disease was very much shortened. In view of these facts, the serum treatment was resorted to in the case in question. The child had been ill for nearly a week, repeated vomiting had taken place, and enemata could not be retained. There was great prostration, and several periods of collapse had occurred, in which it was feared that the patient would die. For three days no food had been retained. About the seventh or eighth day of the disease there was noticed much distention of the abdomen. The movements, which were very numerous, consisted of mucus stained with blood. Within the last thirty-six hours the patient had clearly lost ground.

Injections of 10 or 12 cc. of the serum, three times a day, or oftener, were then commenced. An immediate improvement was observed after the first injection. The number of movements was diminished and the tenesmus relieved, the temperature and pulse were lowered, and the patient became distinctly more comfortable. Restlessness, which had been extreme, was relieved to a remarkable degree. The injections had such a good effect that on the third day it was decided advisable to discontinue them. In the course of some hours, however, there was a recurrence of the symptoms and they were resumed. As soon as one large dose was given there was again a striking improvement; but after three or four injections it was decided to diminish the dose, as it seemed doubtful whether the serum was now doing any good. The movements did not increase in number, nor did the blood reappear in the passages, but there was considerable abdominal distress, and the temperature rose to 105°. It seemed probable that secondary infections were present at this time. On the whole, Dr. Herter thought that this was a line of investigation which offered great promise. He could not assent to the opinion that the fact that we had not succeeded with typhoid serum was any reason why we should not succeed here. Of course, much study and research as well as extended observation were still needed before this application of serum therapy could be placed on a well-grounded basis.

Dr. E. Libman corroborated from his personal observations the occasional occurrence in New York of acute amebic dysentery.

Dr. Flexner said the question was an open one. He did not think that any one person was likely to designate the exact scope of the disease. He believed that the bacillus of dysentery was associated with a wide divergence in symptoms and lesions, and it was gratifying to know that there were now many centres of investigation, through the instrumentality of which the demarcation of the disease would, no doubt, be accomplished, as had been the case in diphtheria. He would like to give a word of caution. He did not believe that those interested in investigating the subject would succeed easily in collecting the organisms from ordinary stools. The stools must be quite fresh, for even if the bacilli were present in large numbers, they would disappear within a short time. They had no chance with the colon bacillus, and it was therefore necessary that the material should be plated at once. It was also advisable to select material which was not much admixed with fecal matter. This was an organism of the mucosa, which in the intestinal material went very well by itself, but very badly if it had to contend against the colon bacillus and other micro-organisms. He thoroughly agreed with Dr. Delafield in most of his statements, and he was much pleased to learn that he had had experience with acute amebic dysentery. As he had mentioned in his previous remarks, cases had recently been met with in the Philippines. As to the disease as it occurs in children, he could not speak as a clinician. He had used the term summer diarrhea simply because it was one in general use. Now, as it seemed, there was afforded an opportunity to differentiate the disease. We look not for a definite pathological anatomy, but for a definite bacillus. The etiology will enable us to determine whether there is really one or more diseases. False membranes are by no means always present, but it may be said that when they are met with in adults, the bacillus will invariably be found.

## Recent Literature.

*Die Röntgenstrahlen im Dienste der Chirurgie.* By Dr. Carl Beck. München: Verlagsbuchhandlung Seitz and Schaub. 1902.

The work consists of Part I, a well-written treatise of 138 pages, on the general principles and technique of the production of the Röntgen rays, their value to surgery and their application therapeutically. This part is not indexed, and in printing is poorly arranged as a book of reference.

Part II contains 65 plates illustrating Dr. Beck's apparatus, the cases referred to in Part I, and various other interesting bone lesions. He uses an induction coil with a mercury interrupter, and advises a spark length of at least 40 cc. The importance of understanding each tube is well compared to the necessity of a good violinist understanding his violin. In his views on taking skiagraphs the distance of tube from the patient is given as 12 cc. This is nearer than is generally believed advisable, both for clearness of definition and safety of the patient. His time of exposure for different parts is very much the same as that of other men with good apparatus at their disposal.

In the discussion of skiagraphs of different anatomical parts he emphasizes the importance of the

proper interpretation of negatives. Considerable attention is paid to the different forms of gall, kidney and bladder stones. The different forms of burns and their treatment are considered in the section on therapeutic uses. In the severe burns producing necrosis he advises the removal of all necrotic tissue and then treating the case as an ordinary wound. His theory as to the so-called burns is that they are produced, not by the caustic effect of the rays, but by metabolic changes in the tissues and the formation of toxic substances.

In the treatment of most of the epitheliomas he believes that the knife should first be used and the x-rays employed later to prevent recurrence. The plates in Part II are with few exceptions below the standard of the best American x-ray work, even allowing for the fact that half-tones are always much less clear than the negatives. The advantage of standard positions in taking skiagraphs of the same part in different subjects does not seem to have been realized.

*Elementary Hygiene for the Tropics.* By AZEL AMES, M.D. Pp. 180. Boston: D. C. Heath & Co. 1902.

To write an elementary science book is more difficult than to prepare a full treatise on the same subject. It is extremely important that in elementary works no statements should be made that cannot be fully verified. It is equally important in a book on hygiene that the reader should be informed of the latest ascertained facts. The writer of this book seems to have erred in both directions, for undue prominence is given to partially discredited views, and a good many quite erroneous statements are to be found. It is certainly misleading to say that "many of the diseases of tropical climates — throat, lung and bowel troubles, agues, fevers, etc., come from living upon damp and filthy land and from breathing the air that is made foul by it"; or that the germs of typhus, scarlet fever and ague are carried in water; or that sulphurous acid gas is a "sure" disinfectant after contagious disease; or that scurvy is "caused by salt food." It is also very questionable whether it is wise advice that a little powdered alum be stirred into muddy water to purify it; or that the drain and the soil about the house should be disinfected and planted and ploughed for several years to get the tetanus poison out of it; or that "good water" has any part in the prophylaxis of measles and chickenpox. Many of the illustrations are poorly chosen, and the one of a drop of magnified water is certainly misleading.

*Diseases of the Nose, Pharynx and Ear.* By HENRY GRADLE, M.D., Professor of Ophthalmology and Otology, Northwestern University Medical School, Chicago. Pp. 547; illustrated. Philadelphia and London: W. B. Saunders & Co. 1902.

This is in many respects a most attractive book. There is no similar manual on the subject which reviews the different diseases and abnormal conditions of these cavities, with a better perspective, a better judgment or a clearer definition. It does not try to be complete or final, but suggests more a series of useful didactic lectures. It follows the general line of recent advance in the subject as well by what is left out as by what is put in. We are spared elaborate arguments on the etiology of diseases of which we know little, and, better still, long therapeutic procedures for cold in the head and other conditions, the treatment of which depends more on art than on science. On the other hand, as is proper, relatively much space is devoted to the accessory sinuses.

The principal criticism which suggests itself to the teacher and student is the selection or combination of subjects. We have four cavities, the nose, the pharynx, the larynx and the ear, which are studied in various combinations one with the other in different clinics. A textbook should include the larynx. The study of the larynx can not be separated from the pharynx, whereas the ear is in our schools often so separated. For the instructor a simplicity of textbooks is of practical importance.

Of the text little can be said in criticism. No expert reader can read another's sketches without an occasional feeling that he is not quite in accord. A few subjects, such as neoplasm, might well have received a little more space.

As a whole the book is especially recommended to those who want a good concise textbook without therapeutic zeal.

*Atlas and Principles of Bacteriology and Textbook of Special Bacteriologic Diagnosis.* By PROF. DR. K. B. LEHMANN, Director of the Hygienic Institute in Würzburg, and R. O. NEUMANN, Dr. Phil. and Med., Assistant in the Hygienic Institute in Würzburg. Authorized Translation from the Second Enlarged and Revised German Edition. Edited by GEORGE H. WEAVER, M.D., Assistant Professor of Pathology, Rush Medical College, Chicago. Two volumes. Philadelphia and London: W. B. Saunders & Co. 1901.

The illustrations in the atlas portion of this work are lithographed in colors, are numerous enough, and, as far as concerns the gross appearances of cultures of bacteria, are fairly satisfactory. Pictures illustrating the microscopical appearances of bacteria and their colonies, however, are not satisfactory, and show clearly the inferiority of drawings over photomicrographs for illustrating these subjects.

The descriptive part of the work is good, and contains more condensed information about bacteria than is usually found in publications of the size of this one. A creditable feature is the inclusion of numerous references to special articles in literature.

We have found the work very useful for reference in the laboratory. It should be an excellent textbook for students and others interested in bacteriology.

*Quain's Dictionary of Medicine.* By Various Writers. Third edition. Largely rewritten and revised throughout. With 14 colored plates and numerous other illustrations. Edited by H. Montague Murray, M.D., F.R.C.P., Joint Lecturer on Medicine, Charing Cross Medical School, and Physician to Out Patients, Charing Cross Hospital, Senior Physician to the Victoria Hospital for Children, Chelsea, and to the Foundling Hospital. Assisted by John Harold, M.B., B.Ch., B.A.O., Physician to St. John's and St. Elizabeth's Hospital, and Demonstrator of Medicine at Charing Cross Medical School, and W. Cecil Rosanquet, M.A., M.D., M.R.C.P., Physician to Out Patients, Victoria Hospital for Children, Chelsea, and Pathologist to Charing Cross Hospital; Late Fellow of New College, Oxford. New York: D. Appleton & Company. 1902.

This dictionary of medicine, now in its third edition, includes a consideration of the subjects of general pathology, general therapeutics, hygiene, and the diseases of women and children, in addition to many other matters relating to the science of medicine. The general design of the book, as originally planned by the writer, Sir Richard Quain, has been preserved, that special emphasis should be laid on diagnosis and treatment. The present editor has deemed it advisable to depart somewhat from this original plan. Certain articles have been omitted, and the inevitable tendency to repetition in works of this sort has been as far as possible excluded. New articles have been added, others rewritten, and the dictionary now appears in a single volume. The so-called special branches of medicine and surgery have received more adequate recognition than heretofore. Reference to the list of contributors, very largely made up of English names, is sufficient guarantee of the excellence of individual articles. It is worthy of special comment that so large a material and such varied aspects of medicine should be condensed into a volume of less than two thousand pages. The type, though somewhat small, is extremely clear and satisfactory. Illustrations are not particularly numerous, but when undertaken the best processes have been employed and in many cases special paper provided. The volume is attractively bound.

*The Medical Record Visiting List or Physicians' Diary for 1903.* New revised edition. New York: William Wood & Company. 1902.

This well-known Visiting List retains its compact form and attractive appearance. It is covered with flexible leather and is of a size to fit easily into an ordinary pocket. Certain changes have been made in revision, with the general plan of increasing the amount of information useful to physicians in relation to emergencies, and cutting out matter which may better be found in books. An ingenious obstetrical chart has also been added, which should prove of much practical use as a means of ready reference. The Visiting List is, in general, to be warmly commended.

THE BOSTON

# Medical and Surgical Journal.

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## REPORT OF THE SURGEON-GENERAL OF THE NAVY.

There has for some time past been a growing feeling that the position of medical men, both in the army and navy, was not in accord with the dignity of their profession. Men who are in the best position to judge have long felt that the medical service in both of these departments would be very greatly improved if the position of surgeon were placed on a somewhat more suitable plane. In this connection it is of particular interest that the last report of the surgeon-general of the navy takes up in much detail questions relating to the matter of opportunities for advanced medical work in the navy as now constituted. It is evident at the outset that men who enter the service of the army or navy make a certain sacrifice of independence which should so far as possible be compensated for by advantages coming to them within the service. This appears not to have been the case, with the somewhat inevitable result that the applications of men for these positions are not what the authorities desire.

Surgeon-General Rixey comments on the fact that it is worthy of commendation that the duties of the officers of the medical corps have been adequately performed in spite of the increase in the amount of work put upon them. Hospitals with twice the number of patients as in 1897 now actually have fewer surgeons to care for them. Medical officers at sea have been cut down one-third to one-half. Shore stations in certain instances are required to depend in medical matters upon the inadequate skill of a pharmacist. Young medical officers entering the service have not been promoted as they had hoped, and the resignations for the year 1901 were five, or nearly one-fourth of the number taken into the service during that period. In tracing a reason for these resignations it was found that there was dissatis-

faction with the opportunities for professional work and for advancement in an overworked and undermanned service. A special instance of dissatisfaction is recorded, where two promising candidates, after passing exceptionally good examinations, refused commissions in the navy, but accepted those offered by another branch of the government service. It has been estimated, with the proposed and already authorized increase in the navy, that one hundred and fifty more medical officers will be necessary properly to perform the duties which will be required in the near future. An urgent recommendation is therefore made that Congress be asked to provide a substantial increase of surgeons during the coming session.

Attention is also called to the question of the education of newly appointed medical officers in matters relating to the peculiar exigencies of naval and military life. Since the war with Spain young medical officers have been placed immediately in active duty, many of them on board ship or in foreign stations, with no adequate knowledge of the requirements of the service. Mistakes and a loss of efficiency have been the inevitable results. It is maintained with much reason that the knowledge demanded of such medical men is becoming increasingly great, particularly in view of the recent annexation of distant territory. The army or navy medical officers, furthermore, lead a peculiarly isolated professional life. Their laboratory facilities are often meagre and their access to experts in the various branches of medicine for purposes of consultation impossible. The re-establishment of a school of instruction for newly commissioned medical officers is suggested as a partial way, at least, out of the difficulty. The reasonableness and practical necessity of this suggestion can hardly be questioned.

Another defect to which attention is directed, is that in recent years it has not been possible for medical officers to widen and deepen their knowledge through post-graduate study. Ambitious officers now have no opportunity to do systematic work outside of their routine duties. The former custom of permitting leave of absence for this purpose has been abolished. On this important matter the report makes the following statement:

> The circumstances mentioned above, of a force numerically weak for the duties to be performed, have made it necessary to withdraw even this privilege. The medical officer of today finds himself, after a three-year cruise, in which his professional field of operation has been restricted to practise among the small numbers of the crew of the vessel to which he has been attached, and where he has been separated from the stimulation of criticism and competition of his fellows, ordered immediately to duties which require all his time and which, perhaps, are again in a restricted professional field, or are even those requiring little or no professional application, such as administrative work or recruiting duty. He has been rusting at sea, and the rusting process has been continued on shore. The Bureau is strongly of the opinion that it would add much to the value of the medical officer could he be given a period of duty either at home or abroad in some one of the medical centres, where he would have opportunities to get in step with the march of progress which has gone on in the work of his profession while he has been at sea. He should have a chance, also, to perfect himself in some specialty, or take up some line of research; and not only should he be given such opportunities, but he should be required to take advantage of them and report on the work accomplished. It is expected that, with the development of the naval medical school and an increase in the number of the corps, it will be found feasible to give opportunities of this character to a limited number of officers returning from sea service, that they may recover the ground lost while out of touch with the growth and advancement of the medical profession.

One thing may be put down as absolutely certain, and that is, that unless these various recommendations are met wholly or at least in part, the naval service will not increase in attractiveness to ambitious young medical men. It is too much to expect that desirable men should voluntarily give up their independence, and at the same time their hope of developing their medical knowledge beyond the meagre opportunities offered by the service itself. If on the other hand the authorities see fit to carry out the recommendations made in this clearly presented statement of the existing situation, we can easily imagine that with the increasing competition in civil practice, men of high attainment might be induced to enter a service, carrying with it the assurance of a competence and the possibility of productive scientific work. The opportunities for such work in our naval service at the present time and in the future cannot be doubted; it is as little to be doubted that there are men in abundance, waiting to accept the opportunities, provided only the positions are made worthy of the aspirations of thoroughly equipped young professional men.

## OPERATION FOR NEURALGIA OF THE FIFTH NERVE.

OUR correspondent in this issue takes exception to the following statement, recently made in an editorial comment on the above subject: "It is now generally recognized that operation sooner or later is a necessity in neuralgia of the fifth nerve." It was not our intention to maintain that operation was required in all cases of trifacial neuralgia, although we can see that the sentence quoted might easily be so construed, nor was it our intention to urge radical operation in place of other preliminary forms of treatment. We are still of the opinion, however, that in this particular type of neuralgia surgical interference in

many cases is an ultimate necessity, if a permanent relief from pain is to be expected. Various palliative measures are no doubt frequently useful and often apparently curative in certain cases of facial neuralgia; we should not wish to be understood as minimizing their value. All such means of treatment should certainly be employed before recourse is had to surgery. The type of case to which our correspondent refers, and about which he wrote in 1895, comes in this category, and should without question be treated as he suggests. But there are other cases, and a great many of them, in which no such local cause is to be found, and which completely baffle treatment by hygienic measures or drugs. These demand that radical treatment which surgery alone is capable of providing. We are quite willing to amend our statement to read: "It is now generally recognized that operation is very frequently a necessity in neuralgia of the fifth nerve."

## MEDICAL NOTES.

Monument for Rudolf Virchow.— The German Committee in charge of the celebration in honor of Rudolf Virchow's eightieth birthday — Professor Waldeyer, chairman; Professor Posner, secretary — has begun collecting funds for the purpose of erecting a monument in memory of that great and unique man and physician. The undersigned are anxious and ready to receive contributions, which will be duly acknowledged: Frank Billings, president of the American Medical Association, 100 State Street, Chicago, Ill.; Thomas D. Coleman, 505 Greene Street, Augusta, Ga.; A. Jacobi, 19 East 47th Street, New York City; W. W. Keen, president of the Congress of American Physicians and Surgeons, 1729 Chestnut Street, Philadelphia, Pa.; Wm. H. Welch, 935 St. Paul Street, Baltimore, Md.

Buildings for the University of Michigan.— According to the *University of Michigan News-Letter* three new buildings are being erected near the university hospital, Ann Arbor. One of these, the psychopathic ward, is to cost $50,000. The appropriation was obtained from the state legislature largely through the efforts of Dr. William J. Herdman. The first stages of insanity will be studied here. The state has generously provided for the maintenance of the ward. The late Mrs. L. M. Palmer bequeathed $20,000 for the establishment of a ward for children. The building, which is to be known as the "Palmer ward," is fast approaching completion. Mrs. Palmer also bequeathed $15,000 as an endowment for the maintenance of this ward.

Fourteenth International Medical Congress.— The American Committee of the Fourteenth International Congress of Medicine announces that blank forms of application addressed to the Bureau des Logements in Madrid, forms of application for those who desire to read papers at the congress, as well as other literature bearing on the subject, may be obtained upon request from the secretary of the committee, John H. Huddleston, M.D., 126 West 85th St., New York.

Appointment of Prof. Friedrich Kraus. — It is reported that Prof. Friedrich Kraus of Graz has been appointed to succeed the late Professor Gerhard at the University of Berlin, regarded as one of the most important chairs of clinical medicine in Germany. Comment is being aroused by the fact that Professor Kraus is an Austrian.

### BOSTON AND NEW ENGLAND.

Acute Infectious Diseases in Boston.— For the week ending at noon, Nov. 25, 1902, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: Diphtheria 39, scarlatina 21, measles 11, typhoid fever 27, smallpox 13.

The Progress of Cremation.— The New England Cremation Society is represented in every State in New England, except Vermont, and has a total membership of about two hundred. At the Mt. Auburn crematory in 1901 and until Nov. 1 this year, 232 cremations took place. At Forest Hills crematory in 1901 and until Nov. 10 of this year, there were 253 cremations. Since the crematory was opened at Forest Hills in 1894, there have been 1,408 cremations, and in the United States last year there were 2,591 cremations.

Foot and Mouth Disease.— The so-called foot and mouth disease has appeared among the cattle in certain parts of Massachusetts. It has been traced indirectly to Rhode Island, where it has been prevalent for about two months. A quarantine has been established and every precaution is being taken to prevent the spread of the disease.

Appointment of Dr. W. B. Cannon.— Dr. W. B. Cannon has been appointed assistant professor of physiology at the Harvard University Medical School. Dr. Cannon had served several years as instructor in this department.

A Centenarian.— At the age of one hundred years Mrs. Bridget Barry of Roxbury, Mass., died last week. Mrs. Barry, who was born near the Lakes of Killarney, in Ireland, came to Boston more than half a century ago.

NEW YORK.

REPORT OF NEW YORK BOARD OF HEALTH.— The quarterly report of the Board of Health for the first three months of the present year has just been issued. The vaccinations done by the Division of Contagious Diseases were as follows: Primary vaccinations, 34,306; revaccinations, 239,498; vaccinations in schools, 51,545. The number of cases of communicable diseases reported was: Diphtheria, 4,057; croup, 13; scarlet fever, 4,199; measles, 10,996; tuberculosis, 3,342; typhoid fever, 345; mumps, 8; cerebrospinal meningitis, 1; chicken-pox, 1,325; whooping cough, 97; smallpox, 685; erysipelas, 12; total, 25,080. By the Division of Medical School Inspection 3,485 children were excluded from the public schools. By the Division of Bacteriology 4,155 tests for the bacteriological diagnosis of suspected diphtheria were made: 1,908 of the cases were found to be true diphtheria, and 1,596 not; in 651 the bacteriological diagnosis was indecisive. Seventy-three bacteriological examinations of healthy throats in infected families were also made. Of 1,795 bacteriological examinations of sputum from cases of suspected tuberculosis, tubercle bacilli were found in 1,795, and not found in 643; 56,025 cubic centimetres of diphtheria antitoxin were produced. The total number of deaths in the city during the quarter was 18,364, and the death-rate was 20.52. There were 159 deaths by suicide, of which 61 were in natives of the United States, 38 in natives of Germany, and 15 in natives of Ireland. Of 599 deaths by accident and negligence, 120 were caused by falls, 104 by burns and scalds, 99 by fractures and contusions, 84 by railroads, 66 by illuminating gas, 31 by drowning and 26 each by vehicles and poison. Of deaths of persons 100 years of age and over only one is recorded, that of Mary Silk, a native of Ireland, who died March 8, from pleurisy, at the age of 101 years.

A CENTENARIAN.— On Nov. 18 Mrs. Mary Meany, a native of Ireland, died at a home for the aged in Brooklyn, at the age of 100 years.

SUSPENSION OF A THROAT DEPARTMENT.— At a meeting, held Nov. 19, of the Board of Directors of the New York Eye and Ear Infirmary a resolution was adopted indefinitely suspending the throat department of the institution and also thanking the laryngologists who had been connected with it for their faithful services. The reason assigned for this action is that since the energetic efforts of the Health Department to combat trachoma among public school children were inaugurated the infirmary has been so overcrowded with eye cases that it is now impossible, with its present accommodations, to treat throat patients also. Thus, it is stated that between Sept. 15 and Oct. 23 of this year there were 871 cases of trachoma, as against 79 cases in the same period of 1901, and so great has recently been the crush of eye patients applying for treatment that it has been necessary to have a policeman stationed inside the door to keep them in line. The opinion was expressed by some of the directors that the city ought to pay for the treatment of patients sent to the infirmary from the public schools, and it was said that the president of the Board of Health had expressed his willingness to go with the directors before the mayor, should they decide upon this course, and advocate a per capita payment. It was said also that if the city authorities would consent to rent a suitable building for the treatment of trachoma cases, and would provide $500 a month for its running expenses, the infirmary would be willing to furnish an attending medical staff for such an institution.

HOSPITAL OF FRENCH BENEVOLENT SOCIETY. — The corner-stone of the new hospital of the French Benevolent Society in West 34th Street was laid by Ambassador Cambon on Nov. 18. The site is on the block adjoining that of the present hospital buildings, and the ground was paid for by Henry Maillard, the president of the society, at a cost of $80,000. It is estimated that the cost of construction will be $260,000, and of this, $200,000 has now been subscribed. At the corner-stone ceremonies it was announced that the Duc de Loubat had sent a contribution of $4,000 to the building fund. In the course of his address M. Cambon expressed the hope that the French government would show its appreciation of the work which the society was doing by increasing its benefactions. In the evening Ambassador Cambon was the guest of honor at a dinner given at Delmonico's by President Maillard, in celebration of the laying of the corner-stone.

A PHYSICIAN'S FEES SUSTAINED.— Whether a physician who attended a case in a summer resort was under obligation to continue treatment for the same rate of payment he there received after his return to the city was recently passed upon by a supreme court jury. Dr. Jacob H. Asch of New York sued a patient for some $250 on account of visits paid at Arverne, Long Island, a seaside settlement about an hour's distance by rail from Manhattan. The patient, who first called in the physician while both of them were at Arverne, asserted that $15 a visit was too much to charge after leaving the resort, and that the trips out of town ought to have been charged at the same rate as visits made when both were at Arverne. After deliberating for five hours the jury decided in favor of Dr. Asch, awarding him the full amount of his claim.

Abolition of Board of Coroners.— At a meeting of the New York County Branch of the State Medical Association held Nov. 17 a resolution was adopted authorizing the president to appoint a committee to investigate and report upon the abolition of the Board of Coroners in the City of New York; also to confer on the subject with the committee on legislation of the State Medical Association and other such committees representing medical bodies.

## Miscellany.

### AN EDITORIAL SYMPOSIUM ON MRS. EDDY'S LATEST PRONUNCIAMENTO.

We take from the last issues of our medical contemporaries the following editorial comments on Mrs. Eddy's latest communication to her followers:

"EDDYISM AND INFECTIOUS DISEASES.

"The deaths of patients suffering from diphtheria while under the care of their 'healers' have at last convinced the Eddyites that they must stop treating those afflicted with infectious diseases. We should have said the law has convinced them instead of the deaths. For the deaths alone these fanatics have shown no regret or care, but for the results of illegally produced deaths — well, that is a different thing. Mrs. Mary Mason Baker Glover Patterson Mother Eddy has therefore ordered her children not to treat patients suffering from infectious diseases. This is the first limitation we have known to be set to the infinite powers of these babies and their mother, who at one word have extinguished the material world, together with philosophic and medical science. Omnipotence they thus at last renounce — but not omniscience! Without having studied medicine, while disbelieving in the very existence of disease, these silly children claim the right to decide in every case whether the disease is infectious or not. Thus there are two kinds of disease, the nonexistent, noninfectious disease, which the Mother Eddyite babes treat, and the nonexistent infectious disease which they must not treat. How there can be two kinds of nonexisting disease would puzzle any but a child of Mother M. M. B. G. P. Eddy to explain. The next movement we have to undertake is to compel the confession that the children are as little omniscient as they are omnipotent. They cannot distinguish diseases any better than they can extinguish the material universe. The law must stop their pretence as to the diagnosis of disease. The physical world may be trusted to take care of its own existence." — *American Medicine.*

"MOTHER EDDY RUNS TO COVER.

"It is doubtless a good sign of the power of public opinion that the wily old woman who dominates the Christian Scientists has decided to beat a retreat. Mrs. Eddy, with the grand style of a pontifex maximus, forbids her followers any longer to treat 'infectious' diseases. The prospects of that law-suit at White Plains, and the memory of the recent death of a victim in Washington, are evidently not relished by the supreme prophetess.

"We do not suppose for a moment that the great majority of Mrs. Eddy's dupes will detect the glaring inconsistency of her position. If 'infectious' diseases are not to be cured by prayer, the world at large would like to know why not. If any disease needs curing in these days, it is an infectious disease. If Mrs. Eddy cannot cure such a disease, she is of about as much use as a tin prophetess on wheels. Her religious devotees will be loath to believe that the power of the Almighty, as represented by Mrs. Eddy, stops short at infectious diseases. Yet this is the logic of the situation.

"Of course, rational men do not need such a course of argument to convince them that Mrs. Eddy's 'Christian Science' is a delusion. The practical question with such men is to control this vulgar superstition, and to penalize its 'practitioners' for their death-dealing customs. This should be done simply for the protection of the public, not for the conversion of the Christian Scientists. Their conversion is a matter of little concern. Most of them, if turned from their present belief, would soon lapse into some other equally absurd."— *Philadelphia Medical Journal.*

"CHRISTIAN SCIENCE HEALERS AND THE REPORTING OF INFECTIOUS DISEASE.

"We have said so much of late on the subject of Christian Science, that we are not looking for opportunities to say any more. But Mrs. Eddy's recent ukase, ordaining that 'until public thought becomes better acquainted with Christian Science the Christian Scientists shall decline to doctor infectious or contagious disease,' is such a clear sacrifice of her essential first principles as to the absolute non-existence of disease, and therefore, necessarily, of any distinction between one class of diseases and another, that it deserves to be put on record. Practically, we do not imagine that it will make any material difference, at any rate at first, in the proceedings of the healers; because, if they treat a case of 'sore throat' which turns out to be diphtheria — well — they 'didn't know it was diphtheria,' that's all. Indeed, we understand that a prominent representative of Eddyism has expressed the cynical view that in regard to the reporting of infectious diseases their responsibility 'is that of private citizens only.' Doubtless, in a certain number of light cases it will go at that by default, and much infection will continue to be spread in consequence; but if the healer relies on that prop in some case serious enough to arouse public attention, we have little doubt that he will soon be undeceived, even as the law now stands.

"There has been much difficulty in framing medical laws which shall check unlicensed practice without bearing harshly on certain rights of the individual in regard to unlicensed practices, as was shown by the fate of the attempted legislation at Albany last year. But it is practically unanimously agreed that in the public interest infectious diseases must be reported; clearly, as the general public cannot be expected to be competent to diagnosticate infectious disease, that onus must lie on whatsoever person presumes to undertake the treatment of the sick, whether physician, herbalist, Christian Scientist, or what not. It should not, therefore, be difficult so to amend the wording of the sanitary laws relating to infectious diseases, as specifically to impose the full burden of technical professional responsibility, not merely upon 'physicians,' but upon 'all persons who practise healing (other than by gratuitous efforts for the relief of members of their own household) by any method whatsoever.' The clause in parentheses would, it seems to us, cover every possible legitimate exemption from the burden of professional liability."—*New York Medical Journal.*

"THE SURRENDER OF EDDYISM.

"The latest revelation of the 'profitess' of Eddyism is in effect that the public mind has not yet reached the point where Eddyite practice can control infectious diseases. Therefore the diplomaed output of the rapid process, $300 courses of lectures, are not to attempt any more to cure such disorders by present or absent treatment. One or two recent experiences of her followers, with possible legal proceedings in prospect, may have had something to do with this latest pronouncement, but whatever the cause, it is a confession of failure and — what is still better — a chance for life for many of her deluded followers. We shall never know how many human lives have been sacrificed by Eddyism, Dowieism, etc., to say nothing of the needless disease and suffering they have caused. The same announcement authorizes and advises the reporting of contagious diseases to the proper authorities, Mrs. Eddy, or the literary syndicate of Eddyism — a great scheme, by the way — having at last interpreted the Scripture injunction to 'render unto Cæsar the things that are Cæsar's' as applying to this point. It would have been better for the public if she had done this earlier, but it is well that it is done now.

"It cannot undo the mischief that has been done, nor is it an absolute assurance against mischief in the future. The ablest physician is not always able to certainly diagnose dangerous communicable disorders in their beginnings, but he can advise precautions while reserving his opinion. Is the Eddyite healer to be expected to be a better diagnostician or to have the modesty to refrain from meddling where he or she is — by this confession of the 'profitess' — incompetent? We fear not, and there may be future tragedies as sad as those that have stirred the public in the past. It is, moreover, not in contagious or infectious diseases alone that this possibility exists; we have all heard of cases of neglected injuries, retained placenta, etc., that the most ordinary general practitioner would not have neglected, go on to fatal septicemia in Eddyite hands. Who can tell the countless hours of needless suffering and the massacres of the innocents that this Moloch has caused, and will yet cause, unless the high-charging C. S. D.'s diplomaed by Mrs. Eddy and her syndicate have the self-denial to forego their lucrative perquisites? Is there any good reason to believe that they will recognize contagion in time to prevent its spread, or that the public ought to trust them to foresee the dangers that can only be properly guarded against by the earliest possible recognition? As the *New York Herald* says, the only possible safeguard for the individual and the public is to 'insist that no Christian Scientist shall treat any patient unless the exact nature of the ailment has been determined, either by a competent physician or by a local health official.'

"There is still another aspect of this latest revelation that we can also properly notice. The whole Eddyite cult is wrapped up in its healing claims that are indicated in the title of its sacred book, 'Science and Health.' With the latest pronouncement the greater part of these are sacrificed at one sweep, for with the advance in medical science the list of communicable diseases is increasing daily, and includes nearly all the commoner serious disorders. The range of Eddyite treatment is thus seen to be pretty seriously limited, but the most damaging effect would be naturally expected to be on the faith itself of its followers. A sa clergyman, commenting on Mrs. Eddy's order, says:

"'This, then, is the comfort given to multitudes of followers who have made an offering of lives more precious than their own, that they might be faithful to Mary Baker Eddy's teaching. Under her directions mothers and fathers have refused to permit a doctor to attend their children, and have seen them die rather than depart from the teaching that there is no infectious or contagious disease. Now they are told that there are such diseases.'

"Let us hope that this is the beginning of the end of the Eddyite delusion."—*Journal American Medical Association.*

DR. MARIE E. ZAKRZEWSKA.

AT the regular meeting of the New England Hospital Medical Society, held Oct. 16, 1902, the following resolutions were adopted:

We, the members of the New England Hospital Society, in regular session assembled, commemorate with deep emotion the loss of our oldest and most prominent member, Dr. Marie E. Zakrzewska.

We desire to record our appreciation of her pioneer work. She was, in this country, among

the first women who studied medicine; and by her ability, perseverance and high moral tone did much to overcome existing prejudices against women physicians.

*Resolved*, That this Society is indebted to her as one of its organizers, and as its presiding officer and hostess for many years. We testify to her constant attendance at our meetings and to the enthusiasm that inspired us to more scientific work.

*Resolved*, That we are grateful for the years she dwelt among us, and that, stimulated by her example and magnetic influence, we pledge ourselves to redoubled interest in maintaining this Society.

*Resolved*, That a copy of these resolutions be sent to her family, and, also, be printed in the *Boston Medical and Surgical Journal*.

MARY A. HOBART,
MARY A. SMITH,
JANE KELLY SABINE,
} Committee.

## Correspondence.

### OPERATION FOR NEURALGIA OF THE FIFTH NERVE.

BOSTON, Nov. 19, 1902.

MR. EDITOR: I note your statement that "it is now generally recognized that operation sooner or later is a necessity in neuralgia of the fifth nerve." It is a cause of regret that in a progressive journal one should find such inaccuracy in diagnosis. Every pain must have a cause. In the issue of your journal for April 25, 1895, I explained this cause for pain in the usual situation for "neuralgias of the fifth," as likely to be found in the nose. Pressure upon a sensitive nerve anywhere is usually sufficient to cause pain. In the nose this pressure need not be greater than what may be produced by congestion. Filling of the venous sinuses of the erectile tissues when these have been surrounded by hypertrophied or thickened masses is sufficient.

When the nerve filaments are hyperesthetic, as they become in many persons in and about the region of the "genital areas" in the nose, the pressure induces other disturbances, such as flushing of the face, palpitation of the heart and nausea. Treatment in these cases directed to the general system first, and later directly to the nose, will, in the majority of cases, prove effective. I have yet to hear of a case of this kind where operative measures were advised or undertaken that a nasal affection was not found. Intermittency in the attacks, together with their intense severity, is accounted for by this increase of the vascular tension which is also present locally. In fact, the paroxysm usually begins with a slight flushing of the conjunctival membrane even in a mild case. This reflex vasomotor disturbance results from the lack of proper sympathetic inhibition, and is distinctly akin to the "glaucomatous state" which has induced certain misguided enthusiasts to remove cervical sympathetic ganglia while entirely neglecting to examine the nose.

Ziem of Dantzic, Berger of Paris and many other eminent observers have clearly shown the intranasal origin of many obscure affections, and a study of their writings will repay any medical man who thinks of the nose mainly as a prominent feature of the face to be interrogated in behalf of nature study.

Truly yours,

EDMUND D. SPEAR, M.D.

### METEOROLOGICAL RECORD

For the week ending Nov. 15, in Boston, according to observations furnished by Sergeant J. W. Smith of the United States Signal Corps:

| Date | Barometer. Daily mean. | Thermometer. Daily mean. | Thermometer. Maximum. | Thermometer. Minimum. | Relative humidity. 8.00 A.M. | Relative humidity. 8.00 P.M. | Relative humidity. Daily mean. | Direction of wind. 8.00 A.M. | Direction of wind. 8.00 P.M. | Velocity of wind. 8.00 A.M. | Velocity of wind. 8.00 P.M. | Weather.* 8.00 A.M. | Weather.* 8.00 P.M. | Rainfall in inches. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S....9 | 30.16 | 40 | 46 | 35 | 83 | 79 | 81 | N | N | 15 | 15 | O. | O. | |
| M..10 | 30.00 | 52 | 68 | 37 | 72 | 71 | 72 | W | N | 6 | 19 | C. | C. | |
| T..11 | 30.38 | 40 | 47 | 33 | 77 | 65 | 71 | N W | S | 6 | 10 | C. | F. | |
| W..12 | 30.04 | 53 | 64 | 42 | 93 | 76 | 84 | S | S W | 14 | 12 | O. | O. | .09 |
| T..13 | 30.36 | 46 | 60 | 33 | 100 | 100 | 100 | N E | N W | 14 | 10 | R. | R. | .02 |
| F..14 | 30 17 | 51 | 68 | 34 | 90 | 77 | 84 | S W | S W | 15 | 5 | O. | C. | T. |
| S...15 | 30.04 | 58 | 70 | 47 | 93 | 79 | 86 | S W | S W | 8 | 13 | O. | O. | |
| ☞ | 30.16 | | 60 | 37 | | | 83 | | | | | | | .11 |

*O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow. †Indicates trace of rainfall. ☞ Mean for week.

### RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, NOV. 15, 1902.

| CITIES. | Population Estimated, 1902. | Reported deaths in each. | Deaths under five years. | Percentage of deaths from: Infectious diseases. | Acute lung diseases. | Diphtheria and croup. | Typhoid fever. | Diarrheal diseases. |
|---|---|---|---|---|---|---|---|---|
| New York . . | 3,665,352 | 1,141 | 343 | 23.22 | 12.62 | 3.76 | 2.45 | 3.16 |
| Chicago . . | 1,852,828 | 486 | 132 | 27.36 | 10.90 | 3.90 | 4.31 | 5.76 |
| Philadelphia. | 1,349,624 | 445 | 113 | 17.30 | 15.73 | .90 | 2.24 | — |
| St. Louis . . | 603,717 | — | — | — | — | — | — | — |
| Baltimore . . | 525,330 | 169 | 49 | 26.03 | 10.65 | 1.77 | 2.37 | 2.96 |
| Cleveland . . | 411,826 | — | — | — | — | — | — | — |
| Buffalo . . . | 375,742 | — | — | — | — | — | — | — |
| Pittsburg . . | 341,401 | 158 | 50 | 27.21 | 24.68 | 4.43 | 10.76 | 1.90 |
| Cincinnati . | 332,032 | — | — | — | — | — | — | — |
| Milwaukee . | 304,975 | — | — | — | — | — | — | — |
| Washington . | 289,537 | — | — | — | — | — | — | — |
| Providence . | 185,870 | 52 | 16 | 26.92 | 9.61 | 1.92 | 3.85 | 9.61 |
| Boston . . . | 588,736 | 210 | 65 | 20.95 | 17.14 | 3.81 | 1.43 | 2.86 |
| Worcester. . | 127,337 | 36 | 10 | 19.23 | 19.23 | — | 2.78 | 2.78 |
| Fall River. . | 111,872 | 43 | 18 | 16.27 | 11.62 | — | — | 11.62 |
| Lowell . . . | 99,574 | 32 | 10 | 31.25 | 18.75 | 9.37 | 3.12 | — |
| Cambridge . | 96,334 | 28 | 7 | 17.85 | 21.42 | — | — | — |
| Lynn. . . . | 71,144 | 16 | 5 | 6.25 | — | 6.25 | — | — |
| Lawrence . . | 67,275 | 15 | 5 | 26.66 | 20.00 | — | 6.66 | — |
| Springfield . | 66,854 | 19 | 1 | 5.26 | 10.52 | — | — | — |
| Somerville . | 65,882 | 19 | 1 | 31.57 | 10.52 | — | — | 5.26 |
| New Bedford. | 65,574 | 25 | 8 | 28.00 | 12.00 | 8.00 | — | — |
| Holyoke . . | 48,065 | 14 | 5 | 21.42 | 14.28 | — | — | 7.14 |
| Brockton . . | 43,208 | 9 | 1 | 33.33 | — | — | — | — |
| Haverhill . . | 40,392 | 16 | 5 | 6.25 | 18.75 | — | — | — |
| Salem . . . | 36,567 | 12 | 2 | 25.00 | — | — | — | — |
| Newton. . . | 36,336 | 8 | — | 12.50 | 12.50 | — | — | — |
| Malden . . . | 35,390 | 7 | 3 | — | 14.30 | — | — | — |
| Chelsea. . . | 35,264 | 17 | 5 | 17.65 | 29.41 | 5.88 | — | 5.88 |
| Fitchburg. . | 33,848 | 6 | 4 | — | 16.67 | — | — | — |
| Taunton . . | 32,759 | 17 | 2 | 29.41 | 11.76 | — | — | — |
| Everett. . . | 27,114 | 6 | 2 | — | — | — | — | — |
| North Adams | 26,583 | 4 | — | 25.00 | — | 25.00 | — | — |
| Gloucester . | 26,121 | 5 | — | 40.00 | — | — | — | — |
| Quincy . . . | 25,307 | 7 | 4 | 28.60 | 14.30 | 14.30 | — | 14.30 |
| Waltham . . | 24,612 | 7 | 3 | 14.30 | — | — | — | — |
| Pittsfield . . | 22,311 | — | — | — | — | — | — | — |
| Brookline. . | 21,679 | — | — | — | — | — | — | — |
| Chicopee . . | 20,390 | 7 | 2 | 28.60 | — | 14.30 | — | — |
| Medford . . | 20,014 | 1 | 1 | — | — | — | — | — |
| Newburyport | 14,478 | 8 | 2 | 25.00 | 12.50 | — | — | — |
| Melrose . . | 13,384 | 5 | 2 | 20.00 | 20.00 | — | — | — |
| Westfield . . | 13,038 | 1 | 1 | 100.00 | — | — | 100. | — |
| Attleboro . . | 12,846 | — | — | — | — | — | — | — |
| Adams . . . | 12,813 | — | — | — | — | — | — | — |
| Milford . . | 12,516 | — | — | — | — | — | — | — |
| Framingham | 12,109 | 2 | — | — | — | — | — | — |
| Peabody . . | 11,957 | — | — | — | — | — | — | — |
| Revere . . . | 11,894 | 2 | — | — | — | — | — | — |
| Gardner . . | 11,544 | 4 | 1 | — | — | — | — | — |
| Weymouth . | 11,337 | 1 | — | — | — | — | — | — |
| Southbridge . | 10,838 | — | — | — | — | — | — | — |
| Watertown . | 10,600 | 3 | — | 33.33 | — | — | — | — |
| Plymouth . . | 10,336 | — | — | — | — | — | — | — |

Deaths reported, 3,079; under five years of age, 882; principal infectious diseases (smallpox, measles, scarlet fever, cerebrospinal meningitis, diphtheria and croup, diarrheal diseases, whooping cough, erysipelas, fevers and consumption) 700, acute lung diseases 417, consumption 334, scarlet fever 21, whooping cough 16, cerebrospinal meningitis 9, smallpox 10, erysipelas 8, measles 13, typhoid fever 89, diarrheal diseases 92, diphtheria and croup 95.

From whooping cough, New York 6, Chicago 5. Pittsburg, Providence, Boston, Lawrence and Melrose 1 each. From measles, New York 6, Chicago 3, Pittsburg 2, Philadelphia and Haverhill 1. From erysipelas, New York 2, Chicago 2, Philadelphia, Baltimore, Pittsburg and Cambridge 1 each. From smallpox, Pittsburg 7, Boston 2, Cambridge 1.

In the seventy-six great towns of England and Wales, with an estimated population of 14,862,151, for the week ending Nov. 1, the death-rate was 16.6. Deaths reported, 4,734; acute diseases of the respiratory organs (London) 298, whooping cough 51, diphtheria 76, measles 163, smallpox 7, scarlet fever 58.

The death-rate ranged from 3.5 in Reading to 28.4 in Hanley; London 16.3, West Ham 17.8, Brighton 12.6, Portsmouth 13.3, Southampton 16.0, Plymouth 13.3, Bristol 19.3, Birmingham 17.8, Leicester 15.7, Nottingham 17.2, Bolton 18.6, Liverpool 22.8, Manchester 17.2, Salford 16.1, Bradford 15.7, Leeds, 18.6, Hull 19.3, Newcastle-on-Tyne 20.0, Cardiff 17.9, Rhondda 12.0, Swansea 13.2.

## RECENT DEATHS.

DR. FRANK LIVERMORE of New York died on Nov. 18 in the sixty-second year of his age. He was a veteran of the Civil War and was graduated in medicine at the University of Paris in 1868.

DR. WILLIAM H. HAYNES of Brooklyn, N. Y., died in St. John's Hospital on Nov. 15, at the age of forty-six years. At the time of his death he was attending physician to the Central Throat Hospital and assistant neurologist to the Eye and Ear Hospital, Brooklyn.

## BOOKS AND PAMPHLETS RECEIVED.

Drainage Versus Radical Operation for Suppuration in the Female Pelvis. Charles P. Noble, M.D., Surgeon-in-Chief, Kensington Hospital for Women, Philadelphia. Reprint. 1902.

Some Facts About Vaccination. By Heman Spalding, M.D., Chief Medical Inspector Department of Health, Chicago. Reprint. 1902.

The Practice of Medicine as a Scientific Pursuit. By F. Park Lewis, M.D., Buffalo, N. Y., Member of the American Medical Association, etc. Reprint. 1902.

Chancre of the Tonsils. By William Cheatham, M.D., Louisville, Ky. Reprint. 1902.

Enteroptosis and Pregnancy. By Charles D. Aaron, M.D., Detroit, Mich. Reprint. 1902.

Two Cases of Deciduoma Malignum. By Charles P. Noble, M.D., Surgeon-in-Chief, Kensington Hospital for Women, Philadelphia. Illustrated. Reprint. 1902.

Report of a Case of Epithelioma of the Clitoris, with Operation. By Charles P. Noble, M.D., Surgeon-in-Chief, Kensington Hospital for Women, Philadelphia. Illustrated. Reprint. 1902.

Remarks on Intrathoracic Pressure, with the Illustration of the Author's Method of Lung Immobilization. By Charles Denison, A.M., M.D., of Denver, Colorado. Illustrated. Reprint. 1902.

X-Rays as a Therapeutic Agent. By A. V. L. Brokaw, M.D., St. Louis, Mo. Illustrated. Reprint. 1902.

The Medical Epitome Series. Diseases of the Skin. A Manual for Students and Practitioners. By Alfred Schalek, M.D. Series edited by V. C. Pedersen, A.M., M.D. Illustrated. Philadelphia and New York: Lea Brothers & Co. 1902.

Studies from the Department of Pathology of the College of Physicians and Surgeons, Columbia Univerity, N. Y. Vol. VIII. For the Collegiate Year 1901-1902. Reprint.

Gynecology, Obstetrics, Menopause. In three parts, being a Revised and Enlarged Reissue of three Serial Articles, appearing in "The Medical Council." By A. H. P. Leuf, M.D. Philadelphia: The Medical Council. 1902.

The Development of the Human Body, a Manual of Human Embryology. By J. Playfair McMurrich, A.M., Ph.D. Illustrated. Philadelphia: P. Blakiston's Son & Co. 1902.

Spectacles and Eyeglasses, Their Forms, Mounting and Proper Adjustment. By R. J. Phillips, M.D. Third edition, revised. Illustrated. Philadelphia: P. Blakiston's Son & Co. 1902.

The Medical Record Visiting List or Physicians' Diary for 1903. New revised edition. New York: William Wood & Co.

Textbook of Medical Jurisprudence and Toxicology. By John J. Reese, M.D. Sixth edition. Revised by Henry Leffmann, A.M., M.D. Philadelphia: P. Blakiston's Son & Co. 1902.

The Pharmacological Action and Therapeutic Uses of the Nitrites and Allied Compounds, including the Croonian Lectures for 1893. By the late Daniel John Leech, M.D. (Lond.), D.Sc. (Vict.), F.R.C.P. Edited by R. B. Wild, M.D. (Lond.), M.Sc. (Vict.), M.R.C.P. Manchester: Sherratt & Hughes. 1902.

A Textbook of the Diseases of the Ear, for Students and Practitioners. By Professor Dr. Adam Politzer. Translated and edited by Milton J. Ballin, Ph. B., M.D., and Clarence L. Heller, M.D. Fourth edition, revised and enlarged. Illustrated. Lea Brothers & Co., Philadelphia and New York. 1903.

The Elements of Bacteriological Technique. A Laboratory Guide for the Medical, Dental and Technical Student. By J. W. H. Eyre, M.D., M.S., F.R.S. (Edin.). Illustrated. Philadelphia and London: W. B. Saunders & Co. 1902.

Diseases of the Pancreas and their Surgical Treatment. By A. W. Mayo Robson, F.R.C.S., and B. G. A. Moynihan, M.S. (Lond.), F.R.C.S. Illustrated. Philadelphia and London: W. B. Saunders & Co. 1903.

The American Textbook of Obstetrics, for Practitioners and Others. By various authors. Richard C. Norris, M.D., editor; Robert L. Dickinson, M.D., art editor. Illustrated. Second edition, revised. Vols. I and II. Philadelphia and London: W. B. Saunders & Co. 1902.

Reprints from Publications by George M. Edebohls, A.M., M.D., New York. Migrated Ovarian and Parovarian Tumors. On Bandages for Nephroptosis. Is the Kraske Operation Justifiable in Women? Panhysterokolpectomy: A New Prolapsus Operation. The Cure of Chronic Bright's Disease by Operation. 1900.

The Practical Medicine Series of Year Books, comprising ten volumes of the Year's Progress in Medicine and Surgery. Issued monthly. Under the general editorial charge of Gustavus P. Head, M.D. Vol. X. Edited by W. L. Baum, M.D., Hugh T. Patrick, M.D. September, 1902. Illustrated. Chicago: The Year Book Publishers. 1902.

The Treatment of Tabetic Ataxia by Means of Systematic Exercise, an Exposition of the Principles and Practice of Compensatory Movement Treatment. By Dr. H. S. Frenkel. Only authorized English edition, translated and edited by L. Freyberger, M.D. (Vienna), M.R.C.P. (Lond.), M.R.C.S. (Eng.). Illustrated. Philadelphia: P. Blakiston's Son & Co. 1902.

A New Substitute for Silver Nitrate. By Albert C. Barnes, A.M., M.D., Late of Pharmacological Institute, University of Heidelberg; Member of American Therapeutic Society, and Hermann Hille, Ph.D., Late of Chemical Institute, Heidelberg; formerly Assistant in Physiological Chemistry, University of Würzburg, Philadelphia, Pa. Reprint. 1902.

Medical Representation in Hospital Management. By Augustus A. Eshner, M.D., of Philadelphia, Professor of Clinical Medicine in the Philadelphia Polyclinic; Physician to the Philadelphia Hospital; Assistant Physician to the Philadelphia Orthopedic Hospital and Infirmary for Nervous Diseases; Physician to the Hospital for Diseases of the Lungs at Chestnut Hill. Reprint. 1902.

International Clinics. A Quarterly of Illustrated Clinical Lectures and Especially Prepared Articles on Medicine, Neurology, Surgery, Therapeutics, Obstetrics, Pediatrics, Pathology, Dermatology, Diseases of the Eye, Ear, Nose and Throat, and other topics of interest to Students and Practitioners. By leading members of the Medical Profession throughout the world. Edited by Henry W. Cattell, A.M., M.D. Vol. III. Twelfth Series, 1902. Philadelphia: J. B. Lippincott Company. 1902.

# Address.

## THE RÔLE OF THE PHYSICIAN.[1]

BY CHARLES DEAN YOUNG, M.D., ROCHESTER, N. Y.

Twelve years ago this month I bade adieu to my Alma Mater Medica. David W. Cheever, Harvard's revered and renowned professor of surgery, welcomed the class to the ranks of practicing physicians, and sent us out into the world with a terse, sententious utterance on the elements of success in the practice of medicine, and in life. No notes were taken of this last lecture of our course, and none are now needed to bring back the forceful words. A single thought will suffice me today. "Begin as a general practitioner," he said. "You may remain such with honor and profit. No man should become a specialist, not even in surgery, until he has had at least ten years of general practice."

It needs no very acute powers of observation to note the trend of modern medical practice towards specialism. Though many able writers and teachers have sought to stem the tide, the sea will rise, in spite of good King Canute's command, until the waves lap the feet of the objectors, and then, obeying universal law, it will just as surely recede. There are not wanting observers who think that the flood is already reached, and who discern signs of the beginning ebb. But the student of history will recall that in ancient Egypt there was a physician for every organ of the body, with the high priest of the temple to assign the particular specialist needed for each new case of illness within his jurisdiction. This has been held by some to mark the climax of the Egyptian civilization, and even to foretell its downfall. We have not yet reached this height of specialization, and so need have little fear of immediate catastrophy.

The cause of this development of specialism is to be found partly in the nature of medical education, the student being trained by a body of teachers who are, almost without exception, specialists, but chiefly in the limitations of time and capacity of the student himself. It is, of course, not confined to medicine, nor even to science. In every department of human activity today, the novice is trained to do some one thing with special skill. Even the factory hand is a specialist, working day after day on some small part of the finished product. In medicine, as in the making of shoes, specialization is essential to progress. If it has its manifest advantages, its dangers are no less obvious, and if, in the nature of things, we must all be specialists to a greater or less degree, it is fitting that we stop occasionally to view the road we are traveling, spy out its pitfalls and discover, if possible, the best way to the goal we are all seeking, — the alleviation of human sickness and suffering.

Dr. Oliver Wendell Holmes humorously illustrates the disadvantages of specialization in "Over the Teacups." One of the Teacups is telling the story of a friend who, at the solicitation of his wife, went the rounds of the specialists: —

"In the course of the year I experienced a variety of slight indispositions. For these I was auriscoped by an aurist, laryngoscoped by a laryngologist, ausculted by a stethoscopist, and so on, until a complete inventory of my organs was made out, and I found that if I believed all these searching inquirers professed to have detected in my unfortunate person, I could repeat with too literal truth the words of the general confession, 'And there is no health in us.' When the bills for 'professional services' came in and the new carpet had to be given up, and the old bonnet trimmed over again, and the sealskin sack remained a vision, we both agreed, my wife and I, that we would try to get along without consulting specialists, except in such cases as our family physician considered to be beyond his skill."

But Dr. Holmes, in the same place, tempers his criticism by a just recognition of the many advantages of specialization.

The danger which has seemed to many writers most immanent and portentious, in the development of specialism, is the gradual extinction of the general practitioner. But even should we go on to the stage reached in Egypt of old, there would still remain as the highest type of specialist the one sufficiently skilled in diagnosis to assign each case to the proper specialist. He would be the ideal general practitioner.

The introduction of an aseptic technique was the signal for the marvelous development of surgery which has marked the last quarter of a century. That this advance has been of untold benefit to humanity, countless addresses and reviews in lay and professional journals testify. The example of renowned and clever operators, heralded throughout the medical world, has fired the ambition of the student everywhere, until today no one, even in the smallest village, need suffer for lack of a surgeon bold enough and sometimes skillful enough to attack the seat of the disease and remove it if possible. The "torch of surgery" has blazed, some think, too brightly in recent years, and warning voices are raised. Edward Reynolds of Boston, himself a gynecologist, recently said: "It is now some years since the leaders of the profession recovered from their mania, . . . but too many of the lesser men are still more impressed by the ease of operating than by the disadvantages of mutilation." Again: "Much of our future efforts must be devoted to learning to know with certainty those cases in which cure without the knife may be relied upon."

Professor Fitz of Harvard, in the anniversary address before the New York Academy of Medicine last year, called attention to the advisability of paying "more attention to the subsequent history of the patient than to the immediate success of the operation." Of operations of last resort, he said: "Experience has shown that immediate death, extremely short relief or prolonged suffering, have resulted from operations designed to give longer life or greater freedom from distress than the physician could hope to offer." Dr. Foote of New York has reported the case of a young man who complained of abdominal pain. The physical examination showed the scars of four laparotomies, one of which had been performed in Russia and three in this country. At the same meeting Dr.

[1] President's address before the Rochester Pathological Society, June 20, 1902.

Gibson stated that a normal appendix, seven inches long, had been removed from a patient who claimed to have had seven attacks of recurrent appendicitis. The same patient subsequently applied to Roosevelt and Bellevue hospitals for treatment for appendicitis! Exploratory operations, which have been so strongly urged by eminent surgeons, are condemned without qualification by the conservative physician. They should never be made for diagnosis simply. Indiscriminate exploratory operating, like too great reliance on laboratory methods, blunts diagnostic acumen. This tendency towards needless laparotomies was well characterized at the last meeting of the Monroe County Society by Dr. Chambers of Baltimore, when he said: "Formerly the gynecologist operated on a definite pathological condition to stop the patient's worrying; now he operates to prevent worrying over some possible future pathological condition."

As a natural result of the brilliant work done in surgery since the days of Lister, this particular field of practice is rapidly becoming hopelessly overcrowded. Every recent graduate hopes to become a Lawson Tait — a man whose example has produced harm in perhaps even greater proportion than it has good. This attitude of the student is natural, but it is none the less unfortunate, because it evidences a failure to apprehend the medical needs of the time.

Another and more serious effect of the dazzling brilliance of operative surgery is that it has blinded the eyes of many to the equally wonderful, though less showy, progress of medical science and art in recent years. The development of the laboratory and its application to all phases of medical science have revolutionized not only the education of the student, but the practice of the physician as well. The immersion lens has opened up whole realms of knowledge wholly unexplored when many of you were students. The test tube, the centrifuge, the blood counter and other laboratory tools have added and will continue to add much to the sum of our knowledge of disease and its processes. All these aids go to strengthen in the student that prime requisite of the physician, — skill in diagnosis. And yet we must ever be mindful that laboratory methods are not all of clinical diagnosis. Knowledge gained at the bedside, in the study of the individual patient, is to be supplemented, not supplanted, by the laboratory findings. The old-fashioned family doctor of a hundred years ago cured his patients almost, if not quite, as frequently as we do today. We must remember, with Weir Mitchell, that "the dying century did not invent common sense, and genius is of every age."

Skill in diagnosis is to be had only at the price of painstaking study of every patient followed by careful thought and reading, reaching a conclusion only when every other possible cause has been excluded. Dr. Goldthwait gave us no better advice the other day than when he said: "If a patient complain of pain in the arm or leg, strip him and examine his back." Such careful physical exploration would many times save us the annoyance of having the specialist make a diagnosis for us. Diagnosis is the business of the physician. He may and must call upon the specialist for special lines of treatment, but he should be able to make his own diagnosis.

Next in importance to the study of the patient comes the study of books. Osler has said: "To study the phenomena of disease without books is to sail an uncharted sea, while to study books without patients is not to go to sea at all." The action of the Rochester Academy of Medicine in making one of its constitutional duties "the development and maintenance of a medical library" cannot be too strongly commended. As time goes on this library will doubtless be made more valuable and more available, but even as it is today, it should be used far more than it is. Osler tells of a physician living within an hour's ride of the surgeon-general's library, who brought him his child, aged twelve, suffering with infantile myxedema. In reply to questions the doctor said he had never seen anything in the journals about the thyroid gland and had seen no pictures of cretinism — his mind was a blank on the subject. Osler's comment is: "It is astonishing with how little reading a doctor can practice medicine, but it is not astonishing how badly he may do it."

Another important element in acquiring diagnostic skill, and so of success in the practice of medicine, is the careful taking of notes. Nothing helps clear thinking more than the habit of recording all the important details of every case seen. The most helpful medical literature of the day is written by men who have the records of their cases available for study. Perhaps not all, but most truly successful physicians, the leaders of the profession, are careful note takers. Sir Benjamin Brodie, lecturing to students at St. George's Hospital, London, in 1838, said: "You should investigate cases for yourselves; you should converse on them with each other; you should take written notes of them in the morning which you may transcribe in the evening, and in so doing you should make even what are regarded as the more trifling cases the subject of reflection. Hereafter, when these faithful records of your experience have accumulated, you will find them to be an important help in your practice."

By these and other means which I must not bore you with dwelling upon, there is being developed among us what I have called the highest type of specialist, — the general practitioner of medicine. It is not proven, as has been asserted so much of late, that hygiene and surgery are to monopolize the healing art. Outside the comparatively limited field of operative surgery, already overcrowded, the problems which confront the surgeon and the physician are the same. The solution of these problems demands special training of the mind just as surgery demands special training of the hand. The future is pregnant with discoveries which will lessen rather than enlarge the scope of operative treatment. The needs of the day are greater knowledge of pathology and greater accuracy of diagnosis. Medicine in all its varied departments is calling for workers as never before. The student who will avail himself of these opportunities for work need have little fear of a lack of demand for his skill when he takes up the practice of medicine. The general practitioner is not doomed to extinction. Broadly trained in the

schools and workshops of medicine, with wisdom ripened by experience at the bedside, he will again take his rightful place as the trusted family counselor.

To close with the words of the great surgeon whose thought gave me my text: "The practice of medicine requires a higher type of mind — makes more demands upon your faculties — than does surgery. Take everything that comes to you, and do the best you can."

## Original Articles.

### SOME OBSERVATIONS UPON THE VALUE OF THE PHLORIDZIN TEST FOR ESTIMATING THE FUNCTIONAL CAPACITY OF THE KIDNEYS; RENAL SUFFICIENCY.[1]

BY FRANCIS S. WATSON, M.D., AND W. T. BAILEY, M.D., BOSTON.

The growing realization of the inadequacy of the ordinary methods of urinary analysis for estimating the sufficiency, or the reverse, of the renal function has led recently to further efforts to improve them. As a result there have been brought forward a number of new tests for the purpose, the most noteworthy of which are as follows: —

(1) Cryoscopy, which name has been given to the test that consists in a comparison of the freezing points of the urine and of the blood of patients whose kidneys are diseased, with those of the same fluids of persons whose kidneys are normal.

(2) The so-called "Toxic" test (this being more especially addressed to the study of uræmia).

(3) The Methyl blue test (by which the permeability — as it is termed — of the kidney is established).

(4) The Phloridzin test.

The last of these is the subject of this communication.

The authority of those who are its advocates and the claims which they make in its behalf are such, if the latter be substantiated, as to give it a place of great importance among the recent advances in clinical medicine. The claim, in brief, is as follows:

That the phloridzin test is a means for estimating the sufficiency of the renal function[2], superior to the ordinary methods of urinary analysis hitherto employed for that purpose, and that it is so delicate and accurate as to be a reliable basis for decision with regard to the performance of such surgical operations as depend for their success, in any important degree, upon the integrity of the renal function. The most conspicuous example of this class is, of course, that of cases in which nephrectomy is contemplated, and in which it is of the utmost importance to know beforehand whether or no the kidney which is to remain after the operation will be capable of doing the increased amount of work that will be demanded of it. The test in these cases is applied to the urine taken from each kidney separately by means of ureteral catheterization, or by segregation of the urine in the bladder by Harris' instrument, or other contrivance for the purpose.

The technique of the phloridzin test is exceedingly simple. It consists of the administration of a subcutaneous injection of a sterilized preparation of the drug to which an equal quantity of $Na_2CO_3$ is added, the latter being used to hold the phloridzin in solution.[3] The dose of phloridzin is five milligrams for persons of moderate size and weight, and twice this quantity for those of large size and unusual weight. The bladder should be emptied just before the injection is given. Half an hour after the administration of the drug, sugar should appear in the urine if there is normal sufficiency of the renal function. Serious disease of the kidneys is indicated if none is present. And if its appearance is delayed, or only a small percentage is found, it is taken as an indication of renal insufficiency. The *quantity* of sugar in these tests that shall be taken for the standard by which to determine renal sufficiency or the reverse is a somewhat arbitrary one. In our own series of observations we took for the point of division between the normal and abnormal performance of the renal function the sugar percentage which stood midway between the average percentage of the cases in which the kidneys were believed to be normal, and the same of those in which renal disease was known to be present, which we found to be .30 of one per cent, all percentages of sugar falling below this number being taken as an indication of renal insufficiency in proportion to the degree in which they were less.

The following things may be taken as clearly established.

Phloridzin is a drug from which glucose is separated in the course of its passage through the body, as is shown by the presence of sugar in the urine, subsequent to its administration.

The Phloridzin test shows that the two kidneys, under normal conditions, have an equal functional capability.

Phloridzin is perfectly harmless.

In addition to the above, it is further asserted, though less well proved, that the separation of sugar from phloridzin takes place in the epithelial structure of the glomeruli and tubules of the renal cortex, and in no other part of the body.

That much of the value of the test depends upon the truth of this statement is obvious when we remember the twofold nature of the renal function.

There are, as we know, two distinct factors involved in it, both of which are necessary to its proper performance. These are, *first*, the integrity of the epithelial structure just mentioned, without which it cannot effect chemical changes in certain substances and deliver them to the urine in the form of waste products, such as urea, etc., and *second*, the normal degree of permeability of the membranes which interpose between the blood and the urine in the renal parenchyma.

Now, if we find sugar in the urine according to the requirements of the test, and if it is true that the separation of sugar from phloridzin *does* take

[1] Read at Boston Medical Library Medical Meeting, Nov. 17, 1902.

[2] The term "sufficiency" is used in the sense given to it by Sir Andrew Clarke, to indicate the degree of functional working capacity of the kidneys sufficient for the maintenance of bodily well-being, not only in ordinary conditions, but also under the strain of surgical operations, accidents, intercurrent illnesses, etc.

[3] In this series of experiments we were supplied with a preparation of the drug, carefully and admirably put up in sealed glass capsules by the chemist, Mr. W. C. Durkee, 392 Boylston Street, to whom we are much indebted for the assistance he gave us.

place by virtue of the first of these two factors, we must necessarily conclude that the second of them has been properly performed also, since the drug could not have reached the epithelial structure without passing through the membranes referred to and had the latter not been normally permeable. Thus phloridzin tests *both* functional factors of the kidneys, and is therefore superior to other methods, such as the methyl blue, which gives information only with regard to one of them, namely, permeability.

There is one experiment, however, which so far as one experiment can do so, speaks strongly against the exclusive power of the renal epithelium to separate sugar from the drug. It is one undertaken by Domenicis.

He gave a known dose of phloridzin to a dog, and found, within a specified time afterward, a certain quantity of sugar in the blood. Some days later he removed both kidneys from the animal, and repeated the test as before. He then found a larger quantity of sugar in the blood than on the first occasion, conclusively showing that the separation of sugar from the drug was capable of being accomplished by some part of the organism other than the kidneys, since, in his last test, there were no kidneys present by which it could have been done.

What has been said thus far is a brief resumé of the experience of other observers up to the present time. What follows has to do with our own observations.

In the course of one term of hospital service, the number of cases in which the test could be applied to determine the condition of each kidney independently — more especially in cases of contemplated nephrectomy — is too few to make that particular investigation seem worth while, but it was thought that the value of the test could be estimated without confining it to this special class.

It also occurred to the writer that it would be of interest to use the test for the purpose of estimating the effect of ether anesthesia upon the renal function, and to compare the results with those which have been already arrived at through the thorough study of the same subject by means of the ordinary methods of urinary analysis. The latter, it will be remembered, have shown that both ether and chloroform anesthesia are followed, in a large proportion of cases, by the appearance *de novo*, in the urine, of casts, albumen, and other signs of renal disturbance, which have been assumed to be evidence of the injurious influence of these anesthetics upon the kidneys and their function.

In addition to this, I sought to utilize the test to determine the following points : —

1. The average amount of sugar eliminated by the kidneys within a specified time after phloridzin is administered ;

2. The rate of the sugar excretion ;

3. The effect of ether anesthesia upon the renal function ;

4. The value of phloridzin test as compared with that of the ordinary methods of urinary examination, in the detection of kidney disease, and finally to note such matters of interest as might be furnished by individual cases.

Our observations extended over a period of seven months, and would not have been possible for me to carry out, without the disinterested collaboration of Dr. Bailey, who devoted a great deal of time to the detail of the work. I am also greatly indebted to my colleague Dr. H. L. Burrell, who gave every facility that his wards afforded during the earlier experiments, and to the surgical house-officers who took much pains to ensure their success.

The following general rules were observed with regard to the manner of doing the tests : —

1. First, a routine test for sugar was made in all cases, in order to be sure that it was not already present in the urine.

2. The bladder was emptied just before the phloridzin injection was given.

3. The test specimens of urine were drawn with a catheter.

4. *Two* specimens were taken in as many cases as possible, both before the patients were etherized and during anesthesia. In the latter, the phloridzin injection was given just as anesthesia was begun. The first specimen was taken at the end of the first half hour and the second at the end of the first hour after the administration of the drug. Thus in the full tests, five specimens were examined in each case. The tests which were made prior to etherization we called the *Preliminary*, and those during anesthesia, the *Ether phloridzins*.

5. Twenty c.c. of urine was used for each test.

The total number of patients tested was seventy.

We have formulated our observations with reference to the different points to be studied.

The average quantity of sugar and its rate of elimination when the kidneys are normal were established by calculating the average percentages found in both the half-hour and the hour tests made in the same cases, the patients not being anesthetized. Of these there were forty-six. The average sugar percentages in the half-hour and hour tests were, respectively, .44% and .38%. *The rate* of sugar elimination is seen by comparing these figures, which show that the quantity of sugar eliminated in the first half hour was greater than that in the second half hour, by .06%.

The *effect of ether anesthesia* was determined by comparing the quantities of sugar in the half-hour and hour urines of the ether phloridzins with the same in the preliminaries, where both were taken in the same cases, and with patients not having kidney disease. The number available for this purpose was twenty.

The half-hour and hour sugar percentages of the ether phloridzins in these were, respectively, .68% and .53% as compared with .42% and .36% in the preliminaries, from which it will be seen that the effect of ether anesthesia is to increase both the rate and the quantity of sugar elimination. The rate is shown by the relatively, as well as actually larger quantity of sugar in the first half hour than in the second, as compared with that of the corresponding preliminaries, the difference in the ether phloridzins being .15%, that in the preliminaries .06%, or less than half as much.

It is to be regretted that we were unable to examine the urines of these patients for casts, albumen, urea, etc., while the kidneys were under the same degree of anesthesia as they were for the

phloridzin tests. The failure to do so leaves this experiment defective, in that we cannot say what proportion, if any, of the cases of the etherized patients may have shown evidences of renal disturbance by the ordinary methods of analysis of the urines.

### CASES OF RENAL DISEASE.

Our next object was to test the value of phloridzin in estimating the condition of the renal function in disease of the kidneys, which we judged by applying the test to the cases in which the latter was known to exist. Of these there were thirteen. One of them, in which the sugar percentage was exceedingly high, 1.30%, was omitted from the calculation, because to include it gives an erroneous impression with regard to the sugar elimination of the rest. The average sugar percentages in the half-hour and hour preliminary phloridzins in the remaining twelve cases were respectively .21% and .20%; those of the corresponding ether phloridzins were .22% and .20%.

These general averages present a striking and significant contrast to the percentages of sugar found in the cases in which the kidneys were normal, the latter having almost twice as much sugar in the urines of their preliminary, and three times as much in their ether phloridzins.

Another noticeable point in these cases is the very slight difference in the amounts of sugar eliminated in the first and second half hours of preliminary and ether phloridzins, as compared with those in which there was no renal disease. Thus for the former the half-hour and hour preliminaries show a difference of only .01%, and in the ether phloridzins of only .02%, while the same tests in the latter give, respectively, differences of .06% and .15%.

This failure of ether anesthesia to increase the elimination of sugar in cases in which the kidneys are diseased, seems to the writer to be the strongest testimony furnished by our observations in support of the delicacy of the phloridzin test.

The cases of renal disease are given in detail in the following table: —

### CASES IN WHICH RENAL DISEASE OR INJURY WAS ALREADY PRESENT WHEN THE PHLORIDZIN TEST WAS MADE, AS SHOWN BY ORDINARY URINARY TESTS.

The total of these was thirteen. Of this number, complete tests, that is, both preliminary and ether, were made in eight.

These cases are as follows: —

| | Prelim. Phlor. | Ether Phlor. |
|---|---|---|
| 1. Prostatic hypetrophy. Chronic interstitial nephritis. Aortic valvular disease of heart. Prostatectomy. Death. Death due in part to renal failure | .12% | .10% |
| 2. Urethral stricture. Chronic nephritis. Operation. Recovery. Serious constitutional disturbance following operation. Urinary suppression threatened | .22% | .13% |
| 3. Urethral stricture. Chronic nephritis (?). Slight constitutional disturbance, post operative. Recovery | .40% | .55% |
| 4. Unilateral calculous pyelonephritis. Nephrolithotomy. Uneventful convalescence | .16% | .13% |
| 5. Tubal pregnancy. Moderate parenchymatous nephritis. Operation. Death. General peritonitis | .22% | .18% |
| 6. Cervical adenitis. Moderate parenchymatous nephritis. Operation. Uneventful recovery. | .25% | .40% |
| 7. Axillary abscess. Chronic nephritis. Operation. Slow recovery | .13% | .13% |
| 8. Fractured femur. Chronic nephritis | .15% | .17% |
| Total per cent | 1.65% | 1.79% |
| Average per cent | .20% plus | .22% |

In addition to these eight cases in which the *preliminary* and *ether tests* were made, there were four other renal cases in which *only preliminary phloridzins* were made, as follows: —

| | Prelim. Phlor. | Post-op. |
|---|---|---|
| 1. Amyloid disease of kidneys | .22% | |
| 2. Kidney fixed in abnormal position by adhesions. Urine from both kidneys gave | .13% | |
| In this case after nephrectomy one kidney alone gave sugar per cent of | | .30% |
| 3. Ruptured kidney, urine from other kidney alone. Nephrectomy. Death | .48% | |
| 4. Unilateral pyonephrosis. Sugar per cent of urine from both kidneys was | .22% | |
| Total per cent | 1.05% | |
| Average per cent | .26% | |

### INDICATIONS FURNISHED BY THE STUDY OF SPECIAL CASES.

The general results of our observations, which have thus far occupied us, are almost wholly in confirmation of the claims made for the value of the phloridzin test. When we come to study it with relation to individual cases, however, certain contradictions and defects become apparent. These are as follows: —

First, a group of seven cases, in which not the slightest evidence of renal disease could be found by any of the usual methods of examination, but in which the phloridzins gave very low sugar percentages in every instance, as will be seen in the following table: —

### CASES IN WHICH RENAL DISEASE OR DEFECTIVE RENAL FUNCTION COULD NOT BE DEMONSTRATED BY ANY OF THE USUAL METHODS OF EXAMINATION.

| Case. | Half-hour Phlor. | Hour Phlor. | Disease. |
|---|---|---|---|
| 1 | .13% | .14% | Hernia. |
| 2 | .16% | .14% | Osteomyelitis. |
| 3 | .13% | .11% | Hydrocele. |
| 4 | .13% | .11% | Sprained ankle. |
| 5 | .13% | .15% | Fractured patella. |
| 6 | .16% | .13% | Cellulitis of neck. |
| 7 | .18% | .16% | Cervical abscess. |

None of these cases were, it is true, submitted to the practical test of operation upon the urinary organs, but the entire absence of evidence of renal disease or impaired function that the ordinary methods of examination showed is enough to make one suspicious of the value of the phloridzins and their findings in these cases.

Six further cases furnish contradictory evidence of the worth of the phloridzin test. Two of them are examples of the reverse of the seven cases given above, in that they show high sugar percentages in cases in which kidney disease was present, both patients being the subjects of chronic interstitial nephritis, one of them having a sugar percentage of 1.30% and the other of .47% for single three-quarter-hour tests in each case.

Two others were old men suffering from serious forms of prostatic hypertrophy. The sugar percentages of the preliminary tests were low in both, being respectively .12% and .15%. In the former there was slight evidence of renal insufficiency shown by the ordinary urinary analysis, in the latter there was none forthcoming. The result of prostatectomy in the first was death with marked uræmic symptoms, and in the second, recovery without the least disturbance of the renal function, yet the phloridzin test had given almost equal warning of trouble to be expected in both. There was a postoperative

phloridzin test made in each of these cases, however, in which the results differed widely, the patient who died showing a still lower sugar percentage than in the preliminary tests, namely, .10%, while the patient that lived had a postoperative sugar percentage of 2.00%, the highest in the whole series of our cases. There was nothing to explain this very high figure.

Of the two final cases, one showed a very low percentage of sugar, — .09%, — which proved a sound guide, in that the patient had very serious symptoms after being operated upon for relief of urethral stricture, threatened suppression of urine being prominent amongst them. The second, on the contrary, made a perfectly uninterrupted convalescence after a nephrectomy, although there had been here also a very low sugar percentage shown by the preliminary phloridzins, it being .13% in this instance. There was one peculiarly interesting feature in this last case, which was, that the single kidney remaining after the operation secreted, within a very short time subsequently, a much larger quantity of sugar than the two kidneys together had done prior to operation, namely, .30%. This might be taken as another example of those which have been cited elsewhere as showing the inhibitory influence upon the functional activity of one kidney, exercised by injury or disease of its fellow. The case was one in which the left kidney was bound down by dense adhesions in an abnormal position, and in which the patient was practically disabled by the constant renal pain due to this condition. The ordinary methods of urinary analysis showed no evidence of renal disease in either of the above cases.

Here, then, are eleven cases out of the seventy in which the phloridzin tests apparently furnished unreliable indications.

There were but three cases in which the urine of either kidney was tested independently of the other.

The first is that already described, in which one kidney was fixed in an abnormal position.

The second is one in which the writer performed lumbar nephrotomy six years ago for the relief of acute pyonephrosis. The urine from that kidney has been wholly discharged through a fistulous opening in the loin ever since. Its function, judged by the ordinary methods of examination, has been usefully though imperfectly carried on up to the present time, there being a fair amount of the urinary solid constituents excreted. The urine coming from the other kidney has been normal, showing that that organ has compensated well for the damage done to the other. The phloridzin tests in this case confirmed the testimony given by the usual methods with regard to the sound kidney, showing a good sugar percentage in both the half-hour and hour tests. But in the case of the damaged kidney, they indicated a graver condition than was suggested by the usual urinary analysis. In the latter instance, I believe, from what I know of the condition of the kidney, that the phloridzin is nearer the truth than the other. The phloridzin half-hour test showed no sugar at all in the urine from the damaged kidney, and only .25% in the hour test.

The last case of these three is that of a man with a ruptured left kidney, which was removed by abdominal nephrectomy, the patient dying four days later. In this case the ureter of the injured kidney was torn across so that no urine from it reached the bladder. That which came from the other kidney was tested after being drawn from the bladder, and showed a sugar percentage of .48%. The point of interest here being that the function of the sound organ was apparently undisturbed by the destruction of its fellow or the shock of the system, which was severe.

### CONCLUSIONS.

The conclusions that seem warranted by the results of these observations are as follows: —

1. That the average quantity of sugar eliminated in the first half hour after the administration of the drug subcutaneously in the doses stated, and when the kidneys are normal, is about .45% ; and that the first half-hour's elimination is greater than the second half-hour's by about .06%.

2. When renal disease exists, the first half-hour's quantity of sugar eliminated is, for a series of cases, about one half as much as that when the kidneys are normal, and there is but very little more in the first half hour than in the second.

3. The effect of ether anesthesia is to stimulate the kidneys to greater functional activity, but the renal function is not, if judged by the phloridzin test, in any way impaired by the anesthesia. This is true of the kidneys when normal only ; when they are diseased ether fails to stimulate their function, and there is, moreover, relatively much less sugar eliminated in the first than in the second half hour after phloridzin has been given than is the case when the kidneys are sound.

If judged by the average results of a series of cases taken collectively, the phloridzin test gives accurate indications of the condition of the renal function and of the existence of renal disease. In a certain number of individual cases, it even appears to be more delicate and discriminating than the ordinary urinary tests, but the relatively large number of instances in this series of observations, in which the reverse of this is true, show it to be too variable to be trustworthy, or to incline us to urge its adoption in preference to the former methods of urinary analysis for estimating the functional capacity of the kidneys.

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## CRYOSCOPY.[1]

BY WILLIAM T. BAILEY, M.D., BOSTON.

CRYOSCOPY is the name given to the process whereby the freezing point of certain liquids may be compared with that of distilled water. It was first introduced by Raoult of Grenoble for the purpose of measuring urinary toxicity, as well as furnishing enlightenment upon the metabolic changes in the blood, cerebrospinal and pleural

[1] Read at the Boston Medical Library Medical Meeting, Nov. 17, 1902.

fluids. He was the first to establish the fact that the freezing point of liquids was directly proportional to the number of molecules contained in them, that is to say, the freezing point of a liquid is the measure of its molecular concentration.

The greater the number of molecules which are dissolved in a liquid, the lower will be its freezing point as compared with that of distilled water. The applications of this principle as an aid to diagnosis were first made and enlarged upon by Dreser, Winter and, more especially, by Koranyi of Budapest, with reference to the freezing points of the blood and urine in connection with the renal function of the normal and diseased kidney.

A more definite and exact knowledge of the work which the kidney performs has long been desired. This work is measured by the total amount of excreted substances and by the urinary concentration. The concentration of the solids dissolved in the urine is measured generally and approximately by the specific gravity. This is only approximate, however, for the weight of the solid matter excreted is not a true index of kidney work, it is determined instead by the number of molecules excreted. Therefore, the freezing point of the urine being directly proportional to the number of its contained molecules gives a more certain information of the true work that the kidney is doing. To illustrate: If the freezing points of the blood and urine of a person with a severe kidney lesion be taken, it will be found that the blood freezes at a much lower temperature than normal, while the freezing point of the urine will be much higher. The reason is evident, for those solids which should have been excreted in the urine are, on account of impaired renal function, retained in the blood. The proof that this condition takes place is afforded by the experiments of Richter and Roth, who found that a decided lowering of the freezing point of the blood took place within twenty-four hours after double nephrectomy in animals, while removal of one alone had no such effect unless the other kidney was injured, when the same result took place.

It has been found that the freezing point of the *urine* shows at times considerable variations which are not indicative of kidney insufficiency. Koranyi stated in his first article that large abdominal tumors, and especially those of the kidney, may be accompanied by a high freezing point of the urine without actual impairment of renal function. Kummell also, in his last article, emphasizes this fact, and advises a careful estimation in addition of urea, and the carrying out of the phloridzin sugar test, in order to avoid possible error in diagnosis. Kummell also states in the same article that the nearer the freezing point of the urine comes to that of distilled water, and the greater the diminution of urea, so will be found a corresponding destruction of the secreting renal tissue.

The conclusions drawn at the Thirteenth International Medical Congress, by the discussions of Albaran, Bernard, Achard and others, were that inferences as to the condition of the kidneys are justified only by a consideration of the freezing points of both urine and blood, as well as of the total quantity of urine.

Renal insufficiency and permeability must be carefully distinguished from one another; they do not vary in constant ratio. Diminution of renal permeability to methelyn blue does not prove a renal lesion. Albaran and Bernard found no definite and constant relation between renal disease and the excretion of the blue, and Nesti concludes that the methelyn blue test has absolutely no value.

It may be stated then, from the results of the observations and experiments of those most interested and active in developing this line of research work, that cryoscopy, the phloridzin test, and the determination of the quantity of nitrogenous products in the urine, together offer a delicate and precise knowledge of the renal function.

To the surgeon, especially, a definite knowledge as to the sufficiency of the kidneys would be invaluable in cases of renal disease. The information obtained by cryoscopic examination of the blood and of the urine obtained from the kidneys by the ureteral catheter, previous to an intended nephrectomy, would be an intelligent basis upon which to determine whether surgical interference is advisable or unsafe.

Kummel and his coworkers have probably done more work in developing the practical application of cryoscopy in renal disease than any one else, and in one of his latest articles gives the results obtained from over 250 cases. He finds the normal or average freezing point of the blood in healthy persons without kidney lesions to be .56° C., varying from .55° to .57° below zero. That of the urine being more variable, standing between 1.2° and 2.3° below zero. A freezing point, therefore, of the blood of .58° or lower, or of 1° or higher of the urine, as compared with that of distilled water, indicates a degree of renal insufficiency or impairment, making operative interference on the kidney dangerous and unjustifiable.

The method of obtaining the freezing point is a fairly simple one: The amounts of blood and urine required being about 15 to 20 cc. The urine must be obtained by means of the ureteral catheter; the blood by use of a small trocar inserted into one of the prominent veins of the arm and collected in a perfectly clean test tube. The blood may be kept for several days if necessary in an ice chest, coagulation not affecting the delicacy of the test in the slightest, nor the presence of albumen in the urine even in large amounts.

The apparatus is that devised by Beckmann, and consists of a large jar containing a mixture of cracked ice and salt. Into the center of this mixture is forced a large glass cylinder or test tube, and supported by the cover of the jar. The large test tube is the receiver for a smaller test tube, which is to contain the blood or urine, kept from contact with the walls by means of a cork and a rubber band about the bottom of the smaller tube. In the small tube is suspended through the stopper closing its mouth the thermometer. The thermometer is a special one, graded to $\frac{1}{100}$° C., with an absolutely correct zero point. The value of the test, of course, depends upon the correctness of this point, which should be occasionally verified.

To find now the freezing point of the blood or urine, a sufficient amount should be placed in the small test tube to completely cover the bulb of the

thermometer. The liquid should be stirred occasionally, as also the ice and salt mixture, by means of a wire or spiral passing through the stopper.

The column of mercury will at first fall to a point where it remains for a short time stationary, after which it will slowly rise to a permanent level — the freezing point. Meanwhile can be seen small crystals of ice forming in the tube, which are destroyed by the stirring process. On account of the great delicacy of the thermometer, particular care should be taken that the column of mercury be not broken by sudden jars or otherwise. The whole test should not take over fifteen to twenty minutes.

To summarize very briefly: The results of cryoscopy in renal disease, as reported in the different foreign medical journals, would appear to be of the greatest value, and if by further work in this line its value receives additional corroboration, the surgeon of the future will have a means of diagnosis which will be invaluable in all prospective operations upon the kidneys.

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## A NOTE ON PLEURISY IN TYPHOID FEVER.[1]

BY GEORGE G. SEARS, M.D.

A REPORT of the following case, whose true character was not suspected until the patient had been under observation for a number of days, may be of interest in calling attention to the probable fact that pleurisy resulting from infection with Eberth's bacillus may be less rare than published cases give reason to suppose, but is overlooked because it simulates so-called idiopathic pleurisy and does not receive sufficient study to be recognized.

An Italian laborer, twenty years old, was admitted to the first medical service of the Boston City Hospital on Feb. 26, 1902. He had been seized fourteen days before with a sharp pain in his right chest, which was followed by cough with frothy expectoration and progressive dysponœa. There was fever and headache. Examination showed the right chest to be well filled with fluid, and 2,000 cc. of clear serum with a specific gravity of 1,025 and containing ½% albumen were immediately withdrawn. While only a small portion of the fluid recollected, the temperature kept up between 102° and 104°, and the chart strongly suggested the typhoid curve. His mental state was also suggestive of the same disease, but his condition at no time gave cause for special anxiety. The bowels were slightly loose, but the stools were not characteristic. Except for a possible enlargement of the spleen, examination of the abdomen showed nothing abnormal. No rose spots were noticed. The Widal test was negative on the thirty-fifth day of the disease, but positive on the thirty-eighth and later. A marked reaction was also obtained with the serum which was aspirated on the fifty-ninth day. Positive proof of the presence of Eberth's bacillus was lacking as the effusion was sterile, but strong presumptive evidence was present in the appearance of the Widal reaction after its previous absence, in our inability to discover tubercle bacilli in many examinations and in the failure of the patient to respond to tuberculin injections. The temperature chart as convalescence set in was typical of typhoid.

Although pleurisy as a complication of typhoid has long been recognized, the direct dependence of one condition on the other has been definitely shown only since the discovery of the bacillus typhosus. It appears, however, to be one of the rarer complications. Betke [2] found 58 instances among

[1] Contributed to the thirteenth series of Medical and Surgical Reports of the Boston City Hospital.

[2] Quoted by Gerhardt, Mitthell. a. d. Grenzgeb. d. Med. u. Chir. Bd. v., 1900.

1,420 patients. Osler [3] met with it 5 times among 389 cases; Gillies [4], 6 times in 249; Ivanoff [2], 11 times in 143; Stritzl [2], 7 times in 122; while A. A. Smith [5] makes no mention of it in an analysis of 87 cases. Remlinger [6] found it occurring 7 times among 1,055 cases. Among 1,065 cases admitted to the Boston City Hospital since Jan. 1, 1899, it was positively diagnosed but 18 times. It is doubtful in the latter instance, at least, if the proportion is not considerably understated, partly owing to the difficulty of diagnosis between it and pneumonia, which is greatly increased when dealing with patients too ill to render any assistance to the examiner, and partly because in the cases which develop late, and, as usually happens, insidiously, it may easily be overlooked from the disinclination to examine too carefully patients whose condition is critical. A fairer estimate may perhaps be obtained from autopsy records, although the percentage of mortality is low among the published cases. It was present in 6.7% of 1,073 autopsies recorded by Holscher, and in 9.5% of the fatal cases among Betke's patients. It occurred 3 times among 53 autopsies at the Montreal General Hospital.

Although reference is made in these statistics to a considerable number of cases, Remlinger in 1900 was able to collect from the literature only 31, including 7 of his own. These, with a few overlooked by him, a few which have been published since, and 18 taken from the City Hospital records give a total of 57, which may be used for analysis; but positive demonstration of the presence of the typhoid bacillus was lacking in a number of these cases. References were found in a somewhat hurried search to a number of others which, in the meagre details furnished, closely corresponded to the more fully reported cases. Forty-eight of these patients were males, nine were females, a disproportion for which no explanation is apparent.

Except as an initial event, when it may be the most prominent feature and mask the real condition, pleurisy as a complication of typhoid is rare during the first week. It is most common after that date while the temperature is still high, but it may be delayed until convalescence seems fully established or even occur as a complication of a relapse. It may show itself by the usual symptoms of pleurisy, but more frequently its onset is insidious and its presence is only discovered on physical examination.

Neither side seems especially liable, since out of 56 cases in which it was defininitely localized in the reports the right and left pleura were each affected 24 times, while in 8 it was double. Twelve of the cases were not aspirated, and the character of the effusion remains in doubt, but as all but one recovered it was probably serous. Among the others it was serous in 16, purulent in 17 and hemorrhagic in 7, while in one case pus was present, in one pleura and serum in the other. The process was represented in 4 solely by a friction rub. References were found to other cases in which the effusion was loculated, the pockets containing different forms of exudate. Pneumothorax was an occasional occurrence, which was secondary in some cases to pulmonary infarction; in others it was attributed to straining at stool.

Etiologically Eberth's bacillus has been demonstrated as the cause in a considerable proportion of cases, and in a few of those in which the onset of the disease was marked by pleural symptoms, the mild course and the absence of abdominal symptoms, save for a slight digestive disturbance, give reason for questioning if the bacilli may not have been confined in their activities to the pleura. Only two cases, however, were found by the writer in which it was definitely proved that the typhoid bacilli were localized there, in both of which the infection was secondary to tuberculosis. One was reported by Charrin and Roger [7], the other by Kelsch [8].

In the former the typhoid bacillus appeared in pure culture; in the latter tubercle bacilli were also present. Autopsy showed a complete absence of typhoid lesions. In the later cases emboli have been demonstrated in a few as the carriers of infection, and the proportion in which pleurisy was preceded by phlebitis of the femoral veins or intestinal hemorrhage, which showed the depth of the ulcerative process, among the City Hospital cases, was suggestive of this method of distribution, phlebitis occurring in three cases, and hemorrhage in two, while both were present in one. In a smaller proportion pleurisy was the result of a secondary infection with other bacteria, staphylococci or streptococci. In two cases, not included in the above, an empyema was secondary to abscess of the lung, but while the typhoid bacillus in one was fairly distributed in the various organs, staphylococci alone were found in lungs or pleuræ. An interesting point in the bacteriology of these cases was the tendency of Eberth's bacilli to disappear from the effusion which later became sterile.

The Widal reaction with serum drawn from the pleural cavity has been tried in a number of cases with varying results. In some it was negative, while in others a more intense reaction was obtained than when the blood was used. Achard succeeded by a special method in cultivating the bacilli in serum, which gave a very distinct reaction.

The white cells have been counted in only a few cases, but these seem to show that their number either remains normal or is but slightly increased, unless the effusion is purulent, when a marked leucocytosis is to be expected.

The character of the effusion, which shows a close relation to the period of the disease in which it develops, has an important bearing on prognosis. None of the initial cases ended fatally, the course being often noticeably mild, while a considerable proportion of the later ones died. None, however, which came on before the twelfth day were either hemorrhagic or purulent. A serous effusion seemed to add but little to the gravity of the original disease, while 2 of the 7, in which it was hemorrhagic, and 6 of the 18, in which it was purulent, died. Free incision and drainage of an empyema was usually required, yet a few recovered after repeated aspiration, with or without the injection of antiseptics.

[3] Johns Hopkins Hospital Reports, vol. v, 1895.
[4] Montreal Medical Journal, vols. xxix, xxx.
[5] Medical News, New York, Dec. 9, 1899.
[6] Rev. de Méd., vol. xx, 1900.
[7] Soc. Méd. des Hop., 1891.
[8] Semaine Méd., 1892.

## INFANT FEEDING.[1]

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THE feeding of infants under one year of age presents one of the most important, and frequently one of the most perplexing, problems which confronts the physician.

To cover the subject in detail is not the purpose of this paper; but rather to bring out a few points which may be of interest.

It is during the early months of infancy that the future welfare of the child is provided for, as well as its present growth and wellbeing. At this time much can be done to favor or retard; frequently the question is decided during the first three months.

The child must be fed so as to avoid the immediate dangers of acute gastroënteric disturbances, but also to guard against some of the more chronic diseases, as rickets, scurvy, or marasmus. To feed thus, we should not be deceived by the temporary or apparent success which frequently follows the use of improper foods. Reference is made especially to the numerous proprietary foods which are in the market, advertised freely, used by the laity with no knowledge of the requirements for proper nutrition, and frequently not too wisely by the profession. It must be remembered that a growing infant requires the same elements for its nutrition as the adult, but in different and more digestible forms.

The ideal food for an infant is a good breast milk, or rather one which agrees with the individual, and on which it shows a steady gain in weight from week to week. In selecting a substitute for human milk, we should seek one which corresponds most nearly to it in its constituents. The best substitue for human milk is that of the cow, properly modified, as will be shown by comparison with woman's milk, and also by comparison with some of the more common proprietary substitutes.

Freshly drawn human milk is bluish white in color, sweet to the taste, usually alkaline in reaction, but sometimes neutral, with an average specific gravity of 1.031. Cow's milk has a specific gravity of 1.028 to 1.033, and is acid in reaction. It is more opaque, due partly to the fats but also to the calcium phosphate which is combined with the casein. The total solids are slightly more abundant.

The average human milk contains 4% fat, 7% sugar in the form of lactose, 1.5% proteids, and .20% salts.

The average cow's milk contains 3.5% fat, 4.5% sugar, also in the form of lactose, and 4% proteids. It is thus seen that the chief difference lies in the quantity of the proteids and sugar: cow's milk containing nearly three times as much proteid and about two thirds the amount of sugar found in woman's milk.

The difference in the amount of fat is much less. In some breeds the fat may exceed that in woman's milk.

The proteids of cow's milk are more coagulable than those of woman's milk, as is shown by chemical tests and, also, by the infant's stomach. This is due to the abundance of casein, whereas lactalbumin is more abundant in woman's milk. There is no particular difference in the fats, except the globules in cow's milk are slightly larger.

By a comparison of woman's milk with the following foods it will be seen that the constituents are all out of proportion to the requirements of a growing infant and that some contain substances foreign to any known milk.

Nestlé's Food, which is well known, contains 5.48% fat, 11% proteids, 45.57% soluble carbohydrates, consisting of dextrins, cane sugar and lactose. It contains in addition to this excess 29.95% starch, a substance which a child under nine months of age does not digest, as the starch ferment is not secreted.

Mellin's Food contains .31% fat, 10.7% proteids, no milk sugar, but 82.57% carbohydrates, consisting of dextrins, dextrose and cane sugar. It does not, however, contain starch.

Malted milk contains 2.66% fat, 15.18% proteids, 67.91% carbohydrates, including cane sugar.

Ridge's Food contains 1.11% fat, 11.93% proteids, 2.91% soluble carbohydrates and 77.96% starch.

One other preparation to which attention was recently called, Lacto-Preparata, contains 12.35% fat, 14.51% proteids, 63.68% milk sugar. In the advertisement it is stated that the different ingredients are in the same proportion as in mother's milk, and that the addition of boiled water renders it in every respect exactly like woman's milk in appearance, food value and digestibility. The analysis shows that it contains about three times the proportion of proteids and carbohydrates found in woman's milk.

The difference between these preparations, modified with water to correspond with milk, may be seen another way by reference to the table: —

| | Breast Milk. | Mellin's Food. | Malted Milk. | Nestlé's Food. | Ridge's Food. |
|---|---|---|---|---|---|
| | Per cent. | Per cent. | Per cent. | Per cent. | Per cent. |
| Fat | 4.00 | 0.04 | 0.39 | 0.76 | 0.16 |
| Proteids | 1.50 | 1.50 | 2.28 | 1.54 | 1.67 |
| Soluble Carbohydrates | 7.00 | 11.56 | 10.18 | 6.38 | 0.41 |
| Insoluble Carbohydrates | .. | ... | .. | 4.19 | 10.91 |
| Inorganic Salts | 0.20 | 0.45 | 0.50 | 0 24 | 0 07 |
| Water | 87.30 | 86.45 | 86.65 | 86.89 | 86.78 |

— *Holt.*

It is thus seen that these foods are deficient in fats and that they contain an excess of carbohydrates, consisting for the most part of forms not found in milk, and some of them for which an infant has no digestive ferment. The fats and proteids, moreover, are of vegetable origin and not animal.

The statement is frequently made that many children apparently thrive on some one of these preparations. They may increase in weight, but there is not a corresponding increase in strength or in the power to resist disease. It is their easy digestibility which gives a false sense of security. That they may at times serve a useful purpose is admitted, but their continued use is dangerous and frequently leads to disaster. They are useful

[1] Read before the Middlesex North District Medical Society.

in later childhood, and in some cases where we wish to withdraw the fats and proteids for a short time only. We should not be influenced too far by the statements of those interested in the manufacture and sale of these preparations. We would not accept their opinion on a question of diagnosis or treatment. Why, then, should we accept their ideas of what constitutes a proper diet for a growing infant?

Under the etiology of scurvy, Holt states that in most cases the diet has been either some form of proprietary food or condensed milk, and that it may occur when fresh milk has been added. The essential cause of rickets is dietetic, although surroundings are to a lesser degree a factor.

That the best results may be obtained, the fats, proteids and carbohydrates must be supplied in the proper proportions. The food should be of animal origin and not vegetable, as an infant is a carnivorous animal. These proportions can be obtained within a small fraction of 1%, by the proper modification of cow's milk.

That milk may be modified intelligently, it may be well to consider briefly the requirements for proper nutrition.

The proteid elements are used to replace the continuous nitrogenous waste. They alone may sustain life, but by so doing a great excess is required, and the digestive powers are sorely overtaxed. In feeding cow's milk, especially during the early months of infancy, they should be reduced somewhat below the percentage in woman's milk, owing to their less digestible character; but in so doing there is great danger in keeping an infant for too long a time on a low proteid. They should be gradually increased provided there are not contra indications. Insufficient proteids are indicated by anæmia, feeble circulation and a general failure of nutrition; later an inability to digest the other elements.

The fats are closely associated with the proteids in the building up of the body. They are not only heat producers, but they tend to diminish nitrogenous waste, so that the whole energy of the proteids may be expended in the growth of the body. They add to the body weight by being stored up. They aid in the absorption of the inorganic salts. A nursing infant requires a greater proportion than the adult.

A large part is discharged in the stools, to which fact is due their soft consistency. The carbohydrates are important as heat producers, but they are also converted into fat and so go to increase the body weight. The proportion required in infancy is smaller than in adult life.

The form which is supplied by nature is milk sugar. While this form is preferable, it is not so essential as that the fats and proteids be of animal origin and obtained from milk.

The reasons for modifing cow's milk are to reduce the proteids to the proportions found in woman's milk and to make up the deficiency of the other elements.

If plain cow's milk is reduced so that the proteids are in the same proportion as in woman's milk, the other elements are reduced to about one third the desired quantity.

No attempt will be made to present any method of milk modification which can equal the laboratory for accuracy, but one which will enable us to prepare a mixture approaching closely the proportions found in woman's milk, and one by which, if intelligently carried out, the mother or nurse can attain good results. This can be done if we have a cream of known strength. Cream varies in strength whether obtained by the separator or by skimming.

If obtained by the gravity process, it varies with the method of skimming and also by the length of time which it has set.

The idea frequently prevails that cream is a substance entirely different from milk. Analyses show that it is essentially milk with an excess of fat, the other elements not being materially changed.

The proportion of proteids and carbohydrates vary slightly in different analyses, but the differences are so small that for practical purposes they may be disregarded.

These variations may be seen in the following table: —

| | Whole Milk. | Cream. | | | |
|---|---|---|---|---|---|
| Fat | 4.00 | 8.00 | 12.00 | 16.00 | 20.00 |
| Sugar | 4.30 | 4.30 | 4.20 | 4.00 | 3.80 |
| Proteids | 4.00 | 3.90 | 3.80 | 3.60 | 3.20 |
| Salts | 0.70 | 0.70 | 0.64 | 0.60 | 0.55 |

— *Holt.*

It will be noticed that the diminution of the proteids, even in 20% cream, is less than 1%.

The mixed milk of a herd is preferable to that of a single cow, for the reason that its quality is less likely to be disturbed by the feed or disease.

It is the custom of the writer to set the mixed milk from a herd of sixty cows in a cylindrical can holding ten quarts, placed in ice water. At the end of eleven hours, approximately the lower three-quarters are withdrawn. This leaves in the can a layer of cream and a layer of milk, which is then drawn, mixed and sent to the ward, where the various mixtures are prepared by the nurse.

By testing the fat of this mixture, it is found that the upper five pints or upper quarter of the morning's milk averages 10% to 10.5%, a very slight variation. The night's milk set and drawn the same way gives a fat of 12% to 13%; so that instead of using the upper five pints the upper three quarts are used, and a cream averaging 10% to 10.5% fat is obtained. To account for this variation in the strength of the cream, it was found that the night's milk averaged 3.6% to 3.8% fat, and the morning's milk about .4% less. Allowing, then, that this cream contains 10% fat and about 4% proteids and 4% sugar, it is evident that one ounce diluted twenty times will give .5% fat, .2% proteids and .2% sugar. One tablespoonful of milk sugar added to this will raise the percentage 2%.

For convenience the twenty-ounce mixture is used as a basis for figuring the percentages. Thus if eight ounces of cream, two and one-half tablespoonfuls of milk sugar, one ounce of lime water, and boiled water to twenty ounces are ordered, a mixture is obtained containing 4% fat, about 6.6% sugar and about 1.6% proteids, which closely resembles mother's milk.

It is rarely necessary to feed a higher proportion of fat than can be obtained by this method.

If a high proteid and a low fat is desired, it can be obtained by adding the fat-free milk from the bottom of the can, or by the addition of the white of an egg.

This method can be carried out in the family by using any glass jar with cylindrical sides for raising the cream.

When a fat analysis cannot be made, the essential thing is a cream of uniform strength. The upper quarter, set as described above, may be used if it is remembered that the percentage of fat may vary from 10% to 13%.

The mixture having been made, the required amount for each nursing should be measured into bottles, plugged with cotton, and Pasteurized for twenty minutes, then placed on ice till used. Pasteurization can be done by placing the bottles in a pail or kettle with a cover, and raising the temperature to 167° F. This does not change the character of the milk, but does destroy the ordinary forms of bacteria. Boiling causes a greater coalescence of the fat globules and also changes the character of the other elements.

Minute directions should be given the nurse or mother for the care of all bottles, glasses and utensils which come in contact with the milk.

The nursing bottle should be washed in cold water and scalded after each nursing; it should then be filled with cold water till used again, when it should be scalded immediately before filling with milk.

The nipple should be boiled, turned inside out and kept in cold water, to which has been added a pinch of soda bicarbonate.

Rubber tubing connected with a nursing bottle should never be used.

A bottle should not be warmed over for a second feeding.

It may be well to call attention briefly to a few of the signs and symptoms which are valuable guides in preparing a mixture for an individual case.

Insufficient sugar is usually indicated by a failure to gain properly in weight, provided the other elements are in the proper proportions. An excess of sugar is indicated by colic or thin green watery stools. It may also be indicated by the eructation of gas, or the regurgitation of food.

One of the most important indications of a low fat is constipation, and the stools are harder and dryer than normal. These stools are, however, occasionally seen with a 3% or 4% fat.

Vomiting or regurgitation of food an hour or two after nursing is indicative of an excess of fat. The bowels may be loose and small masses of fat may be passed. Occasionally there is colic.

The most valuable sign of an excess in the proteids is the passage of curds in the stools. There may be diarrhea or constipation, frequently a green movement. These symptoms may, however, all result from over feeding, even when the different constituents are in the proper proportion.

The occasional occurrence of some of these symptoms, if of temporary duration, is not necessarily an indication to change the food; but their persistence demands investigation, for it is the neglect of some of these danger signals which may lead to failure.

In feeding milk, any one fixed formula should be avoided. The mixture should be prepared to meet the requirements of each individual case.

In sick and debilitated cases do not increase the strength too rapidly. The age of the child is to be considered, but that is of less importance than the weight, size, growth and digestive powers which must be closely observed, that the best results may be obtained.

[Analyses from Holt, and by the author.]

## Reports of Societies.

### THE NEW YORK STATE MEDICAL ASSOCIATION. NINETEENTH ANNUAL MEETING.

HELD IN NEW YORK CITY OCT. 20–23, 1902. ALVIN A. HUBBELL, M.D., OF BUFFALO, PRESIDENT.

#### FIRST DAY.

THE annual meeting of the Council and Fellows was held on this day, and, in this way, most of the executive business was transacted before beginning the regular scientific sessions. The Committee on Conference with the State Medical Society reported that it had been agreed that the association should take the name of the old state society, and that the society should accept the association's new plan of organization, and that the two organizations should apply for a new charter, the new state society to be the sole representative of the state in the American Medical Association. The joint committee had not yet come to an agreement with regard to the code of ethics.

The Council and Fellows then adopted for the State Association the plan of associated medical defense of its members, which has been in practical operation during the past year in the New York County Medical Association.

The following officers were elected: *President*, Dr. FREDERICK HOLME WIGGIN of New York; *Vice-President*, Dr. WILLIAM H. THORNTON of Buffalo; *Secretary*, Dr. GUY D. LOMBARD of New York; *Treasurer*, Dr. E. H. SQUIBB of Brooklyn.

#### SECOND DAY.

##### THE PATHOGENESIS OF ECLAMPSIA.

DR. FREDERICK P. HAMMOND of New York read this paper. After discussing some of the theories concerning the etiology of this affection, he stated that the degree of toxicity of the blood formed a fair basis for prognosis in the individual case. Where the urine was of low specific gravity and was excreted in diminished quantity, even if no albumen were present in it, the condition was one which called for active prophylactic treatment. Ten minims of the tincture of the chloride of iron, given in lemon juice three times a day, would increase the quantity of urinary solids, and a proper dietary would reduce to a minimum the accumulation of toxins in the system. The morning meal should consist of fresh fruit, tea or coffee, and water, but no meat. Only at the mid-day meal should red meat be allowed. When headache, disturbed vision and vertigo were present, the patient should at once be

placed on a diet consisting of milk with some shell-fish broths. Laxatives should be administered from time to time, and if the symptoms were urgent the physician should lose no time in emptying the uterus. To avert the attack itself, the author preferred to use chloral.

BACTERIAL FLORA OF THE VAGINAL AND CERVICAL CANAL IN HEALTH, WITH REMARKS CONCERNING INFECTIONS OF THE FEMALE GENITAL TRACT.

Dr. William E. Swan of Saratoga Springs read a paper with this title. He gave a review of the literature, which showed that a great variety of micro-organisms were found in the vagina, but that when this canal is healthy even actively virulent organisms are disposed of in from six to thirty hours. As a warning against meddlesome interference it was pointed out that if antiseptic douches were employed it took from twenty hours to three days for the vagina to rid itself of the organisms.

TREATMENT IN GYNECOLOGY FROM A MEDICAL STANDPOINT.

Dr. Mary Gage-Day of Kingston presented this paper. For the treatment of endometritis in women who had not yet reached the menopause she preferred ordinarily to use a mixture of iodine, one drachm; boric acid, two drachms, and glycerine, four ounces; but if there was much uterine tenderness ichthyol should be substituted. In two cases of hemorrhagic metritis she had obtained good results from the administration by the mouth of five to ten drops of solution of adrenalin chloride, four times a day. For women past the menopause better results would be obtained from the local use of the following than from the mixture of iodine and glycerine already referred to: Irish moss, half an ounce; glycerine, two drachms; alcohol, four ounces; boric acid, two ounces; water sufficient to make one quart.

Dr. J. Riddle Goffe of New York said that the allusion to adrenalin chloride prompted him to say that the local use of this solution was extremely valuable in preventing oozing during operations for the repair of lacerations of the cervix or perineum.

WHAT ADVICE SHOULD BE GIVEN TO A WOMAN SUFFERING FROM FIBROID TUMOR OF THE UTERUS?

Dr. J. Riddle Goffe of New York presented this paper. He said that the spontaneous diminution or disappearance of fibroid tumors of the uterus was so rare as not to be worthy of serious consideration in framing an answer to the question propounded. Only in an exceedingly small number of cases had these tumors disappeared after electrical treatment, and it was not improbable that these were instances of spontaneous disappearance. The fact should be emphasized that electrical treatment of fibroids was not only ineffective in most cases, but was usually decidedly dangerous. The author favored prompt removal by operation of all fibroid tumors of the uterus, whether large or small, and without regard to whether they occurred in single or married women. The only exceptions were in the aged or when such tumors complicated pregnancy. In the latter class of cases there was usually a normal delivery at term, but, in any case, it should be remembered that Cæsarean section at full term was safer for both mother and child than myomectomy during gestation.

THE PRINCIPLES INVOLVED IN THE REPAIR OF LACERATIONS OF THE PELVIC FLOOR.

Dr. James Hawley Burtenshaw of New York read this paper. He said that it was now generally conceded that the sole function of the so-called perineal body was to give support to the curve of the rectum during straining efforts leading to increase of intra-abdominal pressure. He doubted if modern perineorrhaphy actually restored the pelvic floor to its normal condition; to do this it was essential that the levator ani muscle and its fascia be carefully approximated and sutured.

Dr. E. D. Ferguson of Troy confessed that he had not always found it possible in actual practice to recognize the different layers of retracted muscle and fibrous tissue, but he believed that good union would ordinarily result from bringing together the pelvic fascia by any method of suturing.

Several others discussed the paper, and while differing as to details they were pretty generally agreed as to the underlying principles of treatment.

SYMPOSIUM ON COLDS. ETIOLOGY.

Dr. James J. Walsh of New York opened the symposium on colds with a paper on the etiology. He objected to interfering with the serous flow observed in the early stage of an acute coryza, on the ground that this discharge was nature's effort at eliminating infection and reducing congestion. He pointed out that the immediate passing from a hot and crowded public hall into the cold air outdoors was fraught with danger, because at the time the mucous membrane of the upper air passages was the resting place of numerous micro-organisms of various kinds, so that it was easy to light up that infectious process popularly spoken of in a general way as "a cold." Greater attention to cleanliness, and particularly the adoption of more sanitary methods of cleaning places of amusement would no doubt prove a valuable prophylactic measure.

SYMPTOMATOLOGY OF COLDS.

Dr. George F. Cott of Buffalo described the well-known symptoms of a cold, and emphasized the importance of fully appreciating the fact that a cold is not a primary but a secondary diseased condition.

THE TREATMENT OF COLDS.

Dr. A. Alexander Smith of New York discussed this part of the subject. He said that if a person suffering from a cold had a temperature of 100° F. or over, time would be saved and comfort promoted by at once insisting upon the person's remaining in the house, and preferably in bed. Some colds were certainly cut short by a dose of quinine and Dover's powder at night and a cathartic in the morning. The same result in the case of a cold in the head would often follow the *early* administration of "rhinitis tablets," pushing them

almost to the point of giving the physiological effect of the contained belladonna. In lithæmic subjects a most satisfactory treatment consisted in giving one drachm of bicarbonate of sodium in half a glass of water flavored with a few drops of lemon juice, and repeating the dose in one hour. For those whose stomachs were not easily disturbed by salicylate of sodium, this drug might be substituted, giving at first two doses of ten grains, an hour apart, and then giving five grains every five or six hours. Where the skin was hot and dry and muscular pain or headache was prominent, relief would be afforded by giving small doses of quinine in combination with phenacetin or acetanilide. In cases characterized by very free mucopurulent secretion, one minim of creosote, or its equivalent in guaiacol carbonate, should be given every hour for the first day, and afterward at longer intervals. For children under twelve years he preferred to give small and frequently repeated doses of the tincture of aconite. Cod liver oil was very useful in preventing recurrences, but when it was not well borne, small doses of quinine with a vegetable bitter should be prescribed.

Dr. W. H. Thornton of Buffalo said that oily sprays containing eucalyptol and thymol were apt to be used in too great concentration, thus provoking an unpleasant reaction. He recommended the use of a weak alkaline spray followed by a spray of five grains of camphor to the ounce of one of the oily bases.

Dr. G. W. Murdock of Cold Spring said that he often succeeded in breaking up colds by giving at night one or two doses of ten to twenty drops of the fluid extract of gelsemium.

Dr. Cott said that when children suffered frequently from colds the cause was usually a removable obstruction in the nasopharynx. The harrassing cough of tracheitis could generally be relieved by an intertracheal injection of a five per cent solution of menthol in oil.

### THE NEWER RELATION OF THE PANCREAS TO GENERAL MEDICINE.

Dr. Alfred Stengel of Philadelphia presented a paper on this subject, in which he pointed out that the pancreas probably secretes something which is concerned in the formation of sugar. No reliance could be placed either on indicanuria or on fatty diarrhea as evidence of the presence of disease of the pancreas. Sudden and intense epigastric pain, followed by collapse, was fairly characteristic of acute pancreatitis.

### A PRELIMINARY STUDY OF THE METABOLISM IN MYXŒDEMA BEFORE AND AFTER THE ADMINISTRATION OF THYROID EXTRACT.

Drs. C. N. B. Camac and Thomas Hastings of New York presented in this communication the results of an elaborate study of one patient. A loss of twenty pounds occurred in two months, but apparently this was not due to proteid destruction.

### THE PRESENT POSITION OF GALLSTONE SURGERY.

Dr. William Wotkyns Seymour of Troy called attention in this paper to the excellent prognosis in uncomplicated cases of gallstone if operated upon early, and also to the fact that jaundice was not a very prominent symptom. His own experience comprised forty-four gallstone operations, with six fatalities, but these were late operations in complicated cases.

### A STUDY OF THE INDICATIONS OF NEPHROPEXY.

Dr. Augustin H. Goelet of New York was the author of this paper. He believed that this operation was indicated when the kidney was prolapsed so as to be entirely below the border of the last rib anteriorly.

Dr. A. Ernest Gallant of New York argued that the operative treatment was far from satisfactory, for the reason that in 95% of the cases the symptoms persisted after operation, and that unless the abdomen were carefully supported afterward a cure would not result. He had himself obtained very good results in the treatment of prolapsed kidney by the application of the modern straight-front corset in such a way that firm support was given below, while the corset was very loose above.

Dr. Parker Syms of New York said that many of these patients were neurasthenic, and that when this condition was plainly the result of the displacement of the kidney, an operation was indicated.

Dr. Max Einhorn of New York said that he had had a large experience with these cases, yet he had not met with any cases which, in his opinion, required operation. Moreover, statistics showed that nephropexy was attended by a mortality of two per cent. He had systematically examined the urine, and had rarely found in these patients disease of the kidney as such. In nearly 95% of the cases there was gastroptosis, and in very many cases a general enteroptosis.

Dr. Goelet replied that he had done 139 nephropexies on 112 persons, without a single death. He had not found general enteroptosis in more than 25% of the cases. In almost every case of prolapse of the kidney to the third degree, or over, he had found, on microscopical examination, evidence of renal disease.

### THE SURGICAL DISEASES OF THE KIDNEYS FROM THE STANDPOINT OF A GENERAL COUNTRY PHYSICIAN.

Dr. George A. Leitner of Piermont reported a case of stone in the kidney, one of abscess of this organ, and a case of adenocarcinoma of the kidney, and exhibited the pathological specimens.

### THE RELATION OF OBESITY TO IMPROCREANCE.

Dr. Heinrich Stern of New York discussed this subject chiefly from the light of his own experience, but quoted from the literature the experience of breeders of animals. Over-alimentation, compulsory rest and lack of sunlight were expedients made use of by breeders, and he thought it was probable that holding the sexual functions in abeyance might aid the fattening process.

### A CASE OF IDIOPATHIC BRAIN ABSCESS WITH FOCAL SYMPTOMS DIAGNOSED AS BRAIN TUMOR.

Dr. Herman G. Gordinier of Troy presented

this interesting report, which emphasized the necessity for exploratory puncture in every apparently inoperable case of brain disease, and also confirmed the value of local convulsive movements as a means of locating brain disease.

### A CASE OF MELANCHOLIA AGITANS.

Dr. William E. Douglas of Middletown reported this case.

### REPORT AND PRESENTATION OF A CASE OF IDIOPATHY ATROPHY OF THE SKIN.

Dr. R. Abrahams presented the clinical aspect, and Dr. W. S. Gottheil gave the results of a microscopical study of the case.

### UNRECOGNIZED TOXIC INSANITIES.

Dr. T. D. Crothers of Hartford, Conn., the author of this communication, asserted that a large percentage of the insanities of the higher classes were dependent upon the use of drugs and spirits, though this cause was largely unrecognized in the early stages.

## THIRD DAY.

### STRANGULATED HERNIA IN CHILDREN UNDER ONE YEAR OF AGE.

Dr. W. B. Reid of Rome, N. Y., reported a herniotomy that he had done successfully on a male infant only twenty-seven days old. The strangulation was found at the internal ring, and was so tight as to require two incisions for liberating the hernia. From his search of the literature it would appear that strangulation of a hernia in infants under one year of age was very rare, as he had been able to find only eight other cases.

Dr. A. J. Ochsner of Chicago said that this rarity of strangulation in children was only apparent, and was due to a failure of surgeons to place them on record. He had himself seen eight or nine such cases.

### LOCAL ANESTHESIA IN RADICAL CURE FOR INGUINAL HERNIA.

Dr. J. A. Bodine of New York read this paper, giving a personal experience with operations under cocaine anesthesia on forty-eight cases of inguinal hernia which were fairly easy and uncomplicated. In no case had he used more than half a grain of muriate of cocaine. The point was to recognize and specially cocainize the three main nerve trunks supplying the part. Sometimes it was only possible to find the iliohypogastric nerve, but even then the anesthesia would be fairly satisfactory. The needle of the syringe should be inserted just beneath the scarf epithelium, and a one per cent solution of cocaine injected so as to produce edematization and acute anæmia of the skin. This would anesthetize the skin for an hour and a half. It was safe to boil the cocaine solution for a minute or two.

Dr. J. A. Wyeth of New York said that the importance of being able to operate on herniæ under local anesthesia might be inferred from the statement that probably half of the hernia patients who refuse operation do so because of their dread of narcosis. This method was not, in his opinion, applicable to difficult hernia cases. By injecting two or three drops of a weak cocaine solution directly under the integument, and then incising before making further injections, the anesthesia was almost instantaneous, and as the excess of the cocaine escaped there was no danger of cocaine toxæmia.

Dr. Alexander Lyle of New York said that he had used cocaine anesthesia in thirteen herniotomies, using the infiltration method and a half per cent solution. The three nerves had been recognized in seven of the cases. He did not fear cocaine poisoning, because morphine was a perfect physiological antidote.

Dr. A. Ernest Gallant remarked that the addition of one grain of boric acid to four ounces of cocaine solution would perfectly preserve the latter for a year or two.

### CAVERNOUS ANGIOMA; TREATMENT BY INJECTION OF BOILING WATER.

Dr. J. A. Wyeth of New York exhibited a little girl with a very large cavernous angioma of the back. In this, and in several other cases, he had secured fairly good results from his method of injecting boiling water.

### INTESTINAL OBSTRUCTION.

Dr. John B. Harvie of Troy reported a number of cases of intestinal obstruction, some of them with pathological specimens.

### RADICAL OPERATIONS FOR THE CURE OF CANCER OF THE STOMACH.

Dr. William J. Mayo of Rochester, Minn., was the author of this paper. He quoted statistics of various operators, and came to the conclusion that about 8% of cases operated upon for cancer of the stomach should survive the operation three years. Gastroenterostomy usually prolonged life about three months, and, as a rule, the patient was comfortable until shortly before death. Although these figures represented the results of past work, the speaker declared that the stomach was a favorable organ for operative intervention, and the results should be better. That they were not was chiefly because the diagnosis was not made early enough. He deprecated the wasting of time in elaborate and more or less prolonged attempts, by various methods, to arrive at an accurate and positive diagnosis. A suspicion of malignant disease should be sufficient ground for demanding a surgical consultation. Early operation should give as good results as in cancer of the breast or uterus. As a rule, extension to neighboring viscera and lymphatic involvement contraindicated operation, while the presence of extensive adhesions must greatly increase the primary mortality. Extension along the lesser curvature was less favorable than along the greater curvature of the stomach. His own experience included twenty pylorectomies, with two deaths, showing that it was possible to obtain satisfactory results in these operations.

SURGERY OF THE STOMACH FOR THE RELIEF OF NON-MALIGNANT PATHOLOGICAL CONDITIONS.

DR. A. J. OCHSNER of Chicago read this paper. He had personally operated upon twenty-seven patients for non-malignant disease of the stomach. All operations done more than twelve hours after perforation of a gastric ulcer yielded an exceedingly bad prognosis, and even earlier operations were far from giving a good prognosis. This showed the importance of proper surgical treatment of ulcer of the stomach before perforation. Serious ulceration of the stomach only occurs when there is faulty drainage. It was not generally necessary to excise the ulcer, but permanent drainage should be established. This was best done by making an anastomosis between the *lowest* point in the stomach and the duodenum, at a distance of about 40 cm. from the point at which the duodenum issues through the mesentery of the transverse colon.

PRESIDENT'S ADDRESS: "REFLECTIONS ON SOME OF THE PURPOSES AND WORK OF THE NEW YORK STATE MEDICAL ASSOCIATION.

DR. ALVIN A. HUBBELL of Buffalo delivered this address, the general nature of which is well indicated in the title. The Association was congratulated on the work of the past, and the prediction made that, under the new plan of organization, its future would be still more brilliant.

SYMPOSIUM ON TYPHOID FEVER. — PATHOLOGY AND BACTERIOLOGY.

DR. GEORGE BLUMER of Albany opened this series of papers by a consideration of the pathology and bacteriology. He said that the early failures to isolate the typhoid bacillus were due to a faulty technique. The bacilli were not usually present in the urine until the end of the second week, and then only in about 29% of the cases. When present, they were very numerous, thus emphasizing the importance of disinfecting the urine of a typhoid patient as carefully as the stools.

THE SERUM REACTION IN TYPHOID FEVER.

DR. THOMAS W. HASTINGS of New York presented in this paper statistics, culled from many sources, going to show that a positive Widal reaction is obtained in about 95% of cases of typhoid fever with a dilution of one in fifty, and that the reaction is similar in adults and children.

PARATYPHOID FEVER.

DR. NATHAN E. BRILL of New York reverted to the series of cases that he had reported five years ago, in which there was the general picture of typhoid fever without the Widal reaction. Although his laboratory study of these cases had proved negative, he had expressed the opinion that these cases represented a distinct disease. Clinically the disease was characterized by an unusual degree of apathy and prostration, a fever reaching the maximum in five days and a duration of a little over two weeks. These paracolon infections were now known not to be so very rare.

ARTERITIS AND ARTERIAL THROMBOSIS IN TYPHOID FEVER.

DR. W. S. THAYER of Baltimore reported five cases of that condition described as "arteritis," which occurs more particularly in the later stages of typhoid.

THE MODERN TREATMENT OF TYPHOID FEVER.

DR. W. GILMAN THOMPSON of New York discussed this part of the subject. He was not an advocate of the antiseptic treatment, because the wide distribution of the typhoid bacilli cast serious doubts on the efficacy of such a plan of combating this disease. In a recent series of cases the typhoid bacilli had been found in the blood in 87.5% of the cases. An initial purge of calomel was well enough, but its frequent use was apt to cause salivation and no corresponding benefit. Water should be given freely to typhoid patients, and when milk was not well borne, broths, egg albumen mixture, peptonoids, and panopepton could be added to the dietary. As soon as the temperature reached normal, or thereabout, soft-boiled eggs, junket and boiled rice might be added to the dietary, and a little later, scraped beef. He favored giving tub baths at 75° F. for fifteen minutes, whenever the body temperature reached or exceeded 102.5° F., using friction the whole time, and preceding the baths by alcoholic stimulants. He was positive that this bathing, if properly done, gave rise to no serious results, and it was a powerful nerve stimulant. When intestinal hemorrhage complicated typhoid fever, food should be withheld by mouth and the patient placed under the influence of opium by giving the tincture by the mouth. He had found suprarenal extract rather uncertain in its action in these cases. When the hemorrhage was so profuse as to cause marked prostration, 1,000 cc. of saline solution should be given by infusion or hypodermoclysis.

REPORT OF AN INTERESTING CASE OF TYPHOID INFECTION.

DR. ALBERT W. PRESTON of Middletown reported a case of hemorrhagic typhoid pleurisy, in which repeated tappings were required. There were only about a dozen such cases on record.

DR. W. H. THORNTON of Buffalo said that in his city quite extensive use had lately been made of a new remedy, acetozone. It was an excellent intestinal antiseptic and antifermentative, and the cases in which it had been used had run a mild and short course.

FOURTH DAY.

THE ADVANTAGES OF NITROUS OXIDE IN GENERAL SURGERY; EXHIBITION AND DESCRIPTION OF A STOPCOCK FOR ITS ADMINISTRATION WITH VARYING PERCENTAGES OF OXYGEN.

DR. H. W. CARTER of New York read this paper and exhibited the new stopcock. He said that the gas should be administered as nearly as possible at the atmospheric pressure, and during its administration the patient should not be disturbed by talking or other sounds. No other

method of inducing anesthesia required so much skill as that by nitrous oxide and oxygen, but the rapid and pleasant induction of narcosis, the rapid recovery without vomiting and other unpleasant after-effects, make up for the trouble and expense of this method.

SUGGESTIONS FAVORING A STANDARD TECHNIQUE IN OPERATIVE SURGERY.

DR. EDWARD WALLACE LEE of New York made a plea in this paper for a standardizing of surgical technique by a surgical congress, to the end that there might be less confusion among students and those who only practice surgery occasionally.

POINTS IN THE CONTROL OF EMERGENCY HEMORRHAGE, BOTH MEDICAL AND SURGICAL.

DR. ROBERT H. M. DAWBARN of New York, the author of this paper, first spoke of the control of inaccessible hemorrhage, for example, in cases of hemoptysis and cerebral apoplexy, by knotting towels or handkerchiefs around three of the extremities, at their junction with the body, with sufficient firmness to check the venous return, and thus keep out of the general circulation a considerable quantity of blood. By this means the blood pressure would become lowered to such a degree that the person would feel faint. It accomplished what the older practitioners did by bleeding, but saved the blood. The limbs should be watched and kept warm, and after two or three hours the circulation should be slowly restored. In speaking of the treatment of epistaxis, Dr. Dawbarn advised the cauterization of the bleeding point, in emergencies, by heating a hairpin, or of checking the bleeding by the application of a ten per cent solution of ordinary kitchen gelatine. He then described the method of plugging the posterior nares, and advised that the effectiveness of this tamponade should be tested by pouring fluid in the nares to see if any leakage occurred posteriorly.

DR. F. W. HIGGINS of Cortland spoke of the value of oil of origeron in the treatment of hemorrhage, and said that many cases of epistaxis could be successfully treated by pressure made on a spot situated about one-third of an inch within the nostril.

DR. A. J. OCHSNER of Chicago spoke of a new method of treating hemophilia, that is, by giving the whites of from four to six eggs three times a day. He also mentioned the treatment of the hemorrhages associated with cholæmia by giving drachm doses of pure chloride of calcium, largely diluted, three times a day.

DR. WILLIAM J. MAYO of Rochester, Minn., said that nasal hemorrhage could often be stopped by telling the patient to hold the nose tightly with the fingers for a few minutes. He had tried the chloride of calcium treatment in cholæmic cases, and had been pleased with the results.

SYMPOSIUM ON PNEUMONIA. PNEUMONIA FROM A BACTERIOLOGICAL STANDPOINT.

DR. A. C. ABBOTT of Philadelphia opened the symposium on pneumonia with this contribution. He spoke of the work of Friedlander, Wechselbaum, Fraenkel and our own Sternberg, and said that, although there were many technical difficulties in the way of producing pneumonia experimentally in animals, there was conclusive proof that the pneumococcus can produce spreading inflammatory exudates having all the characteristics of the exudate of acute pneumonia in man. There was as yet no evidence that there was any relation between the virulence of this organism and the production of toxin.

DR. ALEXANDER LAMBERT of New York said that he had made use of an antipneumococcus serum in thirteen cases of pneumonia occurring in his hospital practice, but aside from an apparent disposition to check general septicaemia, the action of the serum was negative.

LEUCOCYTOSIS IN PNEUMONIA.

DR. ALEXANDER LAMBERT of New York contributed this paper. He said that the intensity of the leucocytosis was not always in proportion to the intensity of the symptoms or to the amount of exudate, the maximum leucocytosis being reached when there were good resistance and intense infection. Mild cases would show from 6,000 to 12,000 to the cubic millimeter; severe cases, 30,000 to 50,000. In a study of 87 cases of acute lobar pneumonia, a persistently subnormal leucocyte count — below 7,000 — pointed almost invariably to a fatal issue. An extension of the pneumonic process was marked by increased leucocytosis, and the occurrence of empyema as a complication was associated with a doubling of the leucocyte count.

TREATMENT OF PNEUMONIA.

DR. JOSEPH W. GROSVENOR of Buffalo was the author of this paper, but owing to lack of time only the conclusions were read. He stated that the physician should recognize the toxæmia as the main factor, and should combat it by increasing elimination and augumenting vital resistance; in short, treat not only the disease but the patient.

THE FINSEN LIGHT TREATMENT OF SMALLPOX; ALSO THE FINSEN LIGHT TREATMENT OF VARIOUS DERMATOSES BY CONCENTRATED CHEMICAL RAYS, WITH EXHIBITION OF THE LAMP.

DR. FRANCIS P. KINNICUTT of New York described the Finsen treatment of smallpox during the stage of suppuration, that is, by keeping the patient in a room illuminated only by red light, and said that Finsen and many others claimed that, if the treatment were faithfully carried out, the patient would usually recover without suppuration or scars. Speaking of the therapy of concentrated chemical rays, Dr. Kinnicutt said that lupus vulgaris was especially amenable to this treatment. Of 456 cases at the Finsen Institute, 130 were free from recurrence at the end of periods of from one to five years. Of 25 cases of acne vulgaris, 13 were cured. A lamp similar to the one used in London was exhibited, and the method of using it demonstrated.

DR. MILTON FRANKLIN of New York observed that this, or any other lamp in which the light

passed through glass, was necessarily ineffective, because no kind of glass at present manufactured would permit the passage of the ultraviolet rays. Rock crystal should be substituted for the glass.

DR. L. DUNCAN BULKLEY said that he had recently visited the Finsen Institute, and while the results in lupus vulgaris were remarkable, some of the cases had required three hundred to five hundred sittings, of one hour each. For the last two years the electric light had entirely superseded sunlight at this institute.

SYMPOSIUM ON THE ROENTGEN RAY.

DR. EDEN V. DELPHEY spoke of "The Roentgen Ray; its Mechanics, Physics, Physiology and Pathology," and on "The Roentgen Ray in Gynecology." He said that the chief use of the Roentgen ray in gynecology was in connection with new growths in the pelvis and in the treatment of carcinoma of the uterus.

DR. CARL BECK of New York spoke of "The Operative Treatment of Fractures as Indicated by the Roentgen Rays," illustrating his remarks by the exhibition of many radiographs.

DR. JOSEPH B. COOK of New York discussed "The Roentgen Ray in Obstetrics," and after reviewing the possible uses of this agent came to the conclusion that, in comparison with the ordinary methods of diagnosis, it could hardly prove of special advantage unless, perhaps, in cases of multiple pregnancy.

RESULTS IN FIFTY CASES OF CANCER TREATED WITH THE AID OF THE ROENTGEN RAYS.

DR. CHARLES WARRENNE ALLEN of New York read this paper. The 50 patients forming the subject of this communication ranged in age from fifteen to eighty years, 22 of them being males. There were 33 rodent ulcer cases and 10 cancers of the breast. Of the whole number, 26 cases, or 52%, had been discharged as cured; 20% were improved but were still under treatment, and only 8% were unimproved. The author's principal conclusions were: (1) Symptoms referable to the systemic effects may arise from the direct action of the ray or indirectly from absorption of the products of disintegration; (2) carcinoma may develop in scar tissue following an x-ray burn; (3) the method is not to be used in all forms of cancer, and the indiscriminate use of this potent remedy should be discouraged; (4) by the proper use of shields, dermatitis may usually be entirely avoided, and (5) the improvement under this treatment is better than can be effected at the present day by any other known method.

DR. WILLIAM JAMES MORTON of New York exhibited a very simple and inexpensive portable lamp, which by the use of iron electrodes instead of carbon in the arc gives a light which is extremely rich in ultraviolet rays. He objected to the use of shields in the x-ray treatment of carcinoma, because our object should be to secure a very wide application of the x-ray.

DR. WILLIAM B. COLEY of New York said that after a fairly large experience he had come to the conclusion that the greatest future of this treatment is as a prophylactic agent, used immediately after every operation for primary carcinoma. His experience had been that many of these cases subjected to x-ray treatment recur in a short time.

## Recent Literature.

*Diseases of the Intestines.* Their Special Pathology, Diagnosis and Treatment, with Sections on Anatomy and Physiology, Microscopic and Chemic Examination of the Intestinal Contents, Secretions, Feces and Urine. Intestinal Bacteria and Parasites; Surgery of the Intestines; Dietetics, Diseases of the Rectum, etc. By JOHN C. HEMMETER, M.D., Ph.D., Professor in the Medical Department of the University of Maryland, etc. In 2 volumes. Vol. I. P. Blakiston's Son & Co. 1902.

America owes a debt of gratitude to Dr. Hemmeter for this excellent volume. It reaches the highest standard of medicial publications at home or abroad. The author excels in compiling the work of others and presenting it to his readers in an attractive manner. But the volumes represent far more than a compilation; they are full of the author's original ideas. Type, paper and illustrations are of the very best, but the binding is not sufficiently strong for so heavy a volume.

The first volume consists of 742 pages, and is divided into three parts. In the first part the anatomy, physiology and pathology of the intestines are considered, together with physical methods of diagnosis. Prof. J. Holmes Smith writes an interesting chapter on Anatomy, Prof. William Royal Stokes that on Intestinal Bacteria, with especial consideration of the typhoid bacillus, and Prof. Harry Adler presents the diagnostic significance of the examination of the feces and urine.

The chapters on the Physiology of the Intestines are remarkably good. They not only record the latest scientific data, but they present these in a way that will be useful clinically. These chapters stand for applied physiology. The author has wisely made those chapters the foundation of his whole treatise, and they should be widely read. We cannot agree with the author that fat is absorbed to any considerable extent from the rectum, and in this belief we find support in the article recently published on this point from v. Moring's laboratory.

We are glad to see that the writer states so clearly the danger of puncture of the abdomen to relieve meteorism. We think it also an omission that he does not advise emptying the bladder before tapping for ascites. The first part closes with a chapter on duodenal intubation — a procedure with which our readers know Dr. Hemmeter's name is closely associated.

Part Second deals with diet and treatment of intestinal diseases. Diet claims the more attention, and into its principles the author enters fully, preserving the same scientific spirit displayed in the earlier portion of the book. Under treatment, besides medicinal measures, massage, electricity, hydrotherapy and mineral springs are considered.

Part Third is devoted to the intestinal clinic,

which includes in the first volume chapters on Diarrhea, Constipation, Intestinal Colic, Meteorism, Intestinal Indigestion, Enteritis, Ulcers and Neoplasms. These sections are excellently written, and one finds little to criticise other than favorably. We feel the author loses more than he gains, however, when he departs from Nothnagel's classification of diarrhea, which was at once simple and rational. The term "dystryptic diarrhea" does not appear appropriate. In the first place it exceeds our present knowledge, and, in the second place, in the sense with which it is used it is hardly comprehensive enough. There is lack of uniformity in the matter of weights and measures in the bills of fare suggested for diarrhea and constipation.

The chapter on Constipation is exhaustive. We would call attention again to the beautiful illustrations of this part of the volume. The bibliography at the end of nearly every chapter is one of the useful features of the volume.

*The Theory and Practice of Infant Feeding, with Notes on Development.* By HENRY DWIGHT CHAPIN, A.M., M.D., Professor of Diseases of Children at the New York Post-Graduate Medical School and Hospital; Attending Physician to the Post-Graduate, Willard Parker and Riverside Hospitals; Consulting Physician to the Randall's Island Hospital. With numerous illustrations. New York: William Wood & Co. 1902.

This interesting work of Dr. Chapin's is unique, in that it develops the subject of infant feeding from the standpoint of biology and physiology rather than from that of chemistry. He first takes up the cell, and then considers briefly digestion and its chemistry, and compares it in various animals. He shows that the food and milk of young animals is suited to the characteristics of their digestive tracts, and concludes that the peculiarities of various milks are of importance in developing the digestive system. From the standpoints of digestion and development the milks of various animals are, therefore, not interchangeable. He continually emphasizes the point that cow's milk is not woman's milk, and cannot be changed into it by any modification. He, nevertheless, considers cow's milk to be the best substitute for woman's milk.

Several chapters are devoted to the methods of obtaining and testing milk as well as to its bacteriology and composition. Every one must agree with his dictum that the first requisite in successful infant feeding is to get clean, fresh cow's milk. He then develops his well-known views as to the use of cereal diluents and dextrinized gruels in the preparation of cow's milk for infant feeding. He also describes at length his method for the home modification of milk.

The chapters on cereals and vegetable foods, meats and eggs, and proprietary foods, contain much useful information as to their nutritive value. Chapters are also added on the treatment of constipation and diarrhea, and on the growth of healthy infants. Dr. Hrdlicka's original tables are of much value.

While one cannot agree with Dr. Chapin in many of his arguments and conclusions, one cannot read the book without finding much food for thought and consideration.

*The Medical Epitome Series.* Genito-Urinary and Venereal Diseases. A Manual for Students and Practitioners. By LOUIS E. SCHMIDT, M.Sc., M.D. Series edited by V. C. PEDERSEN, A.M., M.D. Illustrated. Philadelphia and New York: Lea Brothers & Co. 1902.

This "manual" of Venereal and Genito-Urinary Diseases is a book of 242 small pages, and contains a rather astonishing amount of information. It is undoubtedly true that any syllabus or manual which assists a medical student in the formulation and arrangement of his knowledge is of value to him. There are numbers of such publications, and this one is the last and one of the best of them. For the practitioner of medicine, however, the value of such books is questionable. As books of reference they are inadequate, and as descriptions of the subject matter they are supposed to contain they do not interest or attract the reader.

*Atlas and Epitome of Special Pathologic Histology.* By DOCENT DR. HERMANN DÜRCK, Assistant in the Pathologic Institute, Prosector to the Municipal Hospital L. I. in Munich. Authorized Translation from the German. Edited by LUDWIG HEKTOEN, M.D., Professor of Pathology in Rush Medical College, Chicago. 2 volumes. Philadelphia and London: W. B. Saunders & Co. 1901.

These two small volumes can be confidently recommended to students of pathological histology as an aid in their laboratory courses. The colored lithographic plates are excellent, and reproduce the microscopical appearances both of color and of structure in a very satisfactory manner. All the important histological processes are illustrated. The work deserves a large sale.

*Saunders' Question Compends.* Essentials of Diseases of the Ear. By E. B. GLEASON, S.B., M.D., Clinical Professor of Otology, Medico-Chirurgical College, Philadelphia; Surgeon in Charge of the Nose, Throat and Ear Department of the Northern Dispensary, Philadelphia, etc. Third edition, thoroughly revised. A 16 mo. volume of 214 pp., with 114 illustrations. Philadelphia and London: W. B. Saunders & Co. 1902.

This little book will certainly be of great value to one who wishes quickly to review the many points in relation to treatment of the ear. Practically every question has been covered thoroughly, though briefly, and the volume should be of great assistance to a physician taking a post-graduate course.

*The Physician's Pocket Account Book.* Consisting of a manila-bound book of 208 pp. and a leather case. By J. J. TAYLOR, M.D. Philadelphia: Published by the Medical Council. 1902.

The Physician's Pocket Account Book consists of a book of 208 pages, 4½ by 7¾ inches in size, bound in heavy manila, with cloth back, and, for convenience, enclosed in a substantial leather case. The object of this book is to give the active physician a simple, economical and yet accurate means of keeping his accounts. We see no reason why it should not completely fulfill this end.

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## FOOT-AND-MOUTH DISEASE.

AFTER a period of more than thirty years the epizoötic aphtha, or foot-and-mouth disease of cattle, swine and sheep, has reappeared in New England. It had evidently been smoldering somewhere for several months, when it was discovered by Dr. Austin Peters of the Massachusetts Cattle Bureau. Had it not been for his vigilance and energy, it might have remained unrecognized until widely disseminated, for it took at least ten days for the National Government, after having been informed, to convince itself, believe the incredible, and promulgate the national quarantine order. The rest of the country has to thank Massachusetts for a prompt diagnosis and equally prompt action.

This disease is widely disseminated over the continent of Europe. Epizoötics pass over it at more or less regular intervals, causing severe losses to agricultural interests. Its origin is obscure, but historical evidence indicates that it was well-known two centuries ago.

Foot-and-mouth disease occasionally passes to the human subject, and therefore it usually is accorded a place in textbooks of medicine. Its importance, however, even in Europe, is not great, for in the twenty-four volumes of Nothnagel's Spezielle Pathologie, only thirteen pages are given to it. At the same time the physician in times of epizoötics should know the salient characters of the disease, so as to be prepared to recognize it.

It belongs to the class of eruptive diseases, for it is characterized by fever and the appearance of vesicles in the mouth, on the feet, and, more rarely, on the udder in cows. The virus which is contained in the fluid of the vesicles has given much trouble to bacteriologists. It has been described as a bacterium, a bacillus, a streptococcus and a protozoon. The work of the recent German commission headed by Professor Löffler has brushed these aside. The virus has not been recognized morphologically by these investigators, but they have demonstrated that it is so small that it will pass through the pores of filters which retain the bacteria. Unfortunate for the proper development of vaccines is the fact that thus far the virus has not been cultivated artificially. The effort to obtain a protective serum has been only partially successful, since the immunization of large animals could be carried on only with the lymph from vesicles.

Fortunately the virus is not very resistant. In milk and meat it is destroyed by thorough cooking. In nature it is easily rendered harmless by drying and disinfectants, and experience has shown that it does not, as a rule, survive in the surroundings of recovered animals more than two weeks. Yet it is probable that in dark, moist places it may live much longer — months perhaps — and form the starting point of new outbreaks when carried to susceptible animals.

In cows the disease manifests itself as a fever after three to five days' incubation. On the gums, the tongue and the lips appear small vesicles, which enlarge and may coalesce. Salivation is increased, and frothy masses drop from the mouth, while a peculiar smacking noise is heard. The vesicles soon burst, leaving erosions or shallow ulcers which heal promptly. The eruption in the mouth is accompanied by a similar one on the corona of the toes and in the base of the cleft. Vesicles also may appear on the teats. The disease usually subsides in one to two weeks, and leaves the cow with greatly lessened milk secretion and much less in weight.

Human beings are most frequently infected by drinking raw milk. The virus seems to be incorporated with the milk when the vesicles on the teats are broken during milking. That the virus which is known to exist in the blood during the febrile stage is excreted in the milk is less certain. Butter and cheese (probably in a very fresh condition only) have been known to induce the disease.

Children are most susceptible, although adults have infected themselves with success experimentally. A light fever, associated with a sense of dryness and heat in the mouth, precedes the eruption of vesicles, which appear most commonly on the lips and tongue, more rarely on the hard palate and in the throat. The eruption is accompanied by salivation and by considerable swelling of the lips and the tongue, making mastication and deglutition painful. The vesicles, after attaining the size of peas, burst and leave rapidly healing erosions. The disease in man, on the whole, is not one to cause alarm. Deaths have been reported from intercurrent intestinal disturbances, but in these cases,

it is stated, the children were in very poor condition at the start.

Infection through wounds on the hands of milkers has been noted, but the resulting vesicles and ulcers heal promptly when properly treated. The danger of secondary infection should be considered and anticipated by proper antiseptic treatment. The sanitary precautions which follow as necessary corollaries from what has been stated above, should comprise a prohibition of the sale of milk until the disease has entirely disappeared from the herd, as well as a prohibition of the sale of the flesh of animals slaughtered while sick. The movement of animals in infected localities must come to an end until the danger of disseminating the virus is past, for, like smallpox, this disease seems to spread in a most insidious manner and appear unexpectedly in distant places.

The physician, especially in rural districts, should take an interest in this disease for several reasons. As a malady likely to attack man, it naturally enough commands his attention. But the disease in man needs more study, and there is no better opportunity than under present conditions. Again, the disease is nothing less than a public calamity, as it interferes with the production of our most valuable food products. Hence, whatever can be done individually by the physician in exposing hidden foci of this disease will be of great value in the eventual eradication of this plague.

## A NEW OUT-PATIENT BUILDING FOR THE CARNEY HOSPITAL.

On Thanksgiving Day a new out-patient building at the Carney Hospital was opened for the reception of patients. The circumstances attending the construction of this building, and its full significance in the medical work of Boston, should be widely known.

Some years ago, when the need of increased facilities for the treatment of ambulant patients at this hospital became apparent, an appeal was made to the State for assistance. Objection was at first made on the natural ground that it was not the function of the State to assist sectarian institutions financially. This objection was met by those interested in the project by the following facts: That outside of the pauper department of the city, there was absolutely no other provision for persons suffering from chronic disease, and especially for those included under the general head of orthopedic patients; that patients went to the Carney Hospital from various parts of the State; that many of these cases would have become dependents without the treatment they there received, and that through rescuing such patients from a life of invalidism the State had actually been a gainer financially. Based on these considerations the State finally, in a large-minded spirit, agreed to contribute ten thousand dollars for a new building, provided the hospital would hold itself responsible for ten thousand dollars more. It was definitely stipulated that the money should be used for the erection of a building and not be dissipated in other ways.

From this as a starting point an admirably equipped building has been constructed, at an ultimate cost of about ninety thousand dollars. This provides for the adequate treatment of a great variety of ambulant cases. Surgery, medicine, gynecology, skin, throat, nose, eye, ear, and orthopedics are represented as special departments.

The most noteworthy feature of the work of this new out-patient department is related to the general subject of orthopedic surgery, which has, during the past few years, been developed at the Carney Hospital to a very remarkable degree. This development began in 1895, and has continued steadily up to the present time under many difficulties as regards facilities for clinical work. Since 1895 the number of patients applying for treatment in this department has increased almost threefold. In 1901, 2,880 patients were treated as against 1,018 in 1895. Gradually more and more beds have been set aside in the hospital for the use of orthopedic patients, until now ten are provided. A fact which is perhaps not generally known is that the orthopedic department of this hospital does not confine itself to the treatment of children, but has broadened its scope to include adult cases as well. Largely through the establishment of this type of work, an increasing interest is being aroused in various joint and bone lesions, which have been too long neglected, and the study of which will undoubtedly in time lead to results of great significance. This orthopedic department, which is perhaps the distinguishing feature of the general excellent work done by the Carney Hospital in many fields of medicine, will undoubtedly continue to expand under its new opportunities for work, bringing still further credit to the institution and to the city at large.

## A FOREIGN SERVICE MEDICAL CORPS.

In commenting on the annual report of the surgeon-general of the army (Nov. 13) we noted the fact that the number of contract surgeons in the army had decreased materially during the past year, a reduction of one hundred and four having been made during that time. There are no new contracts, and this branch of the service is being gradually reduced through natural causes. It has

been a branch of the service not always satisfactory either to the government or to the individuals composing it. It has been described as a "status in the military service humiliating to professional pride, derogatory to the best efficiency, and one that it should be beneath the dignity of a great and liberal government to offer to medical men." On the other hand, the term of service of the present corps of volunteer medical officers in the army, provided for by an Act of February, 1901, and numbering two hundred we believe, expires next February.

We are in receipt of a draft of a bill accompanied by a letter forwarded from Manila to the Surgeon-General's office at Washington and signed by a number of volunteer medical officers of standing and experience, a bill which the signers hope may be presented to and acted upon by Congress, either in its present or some similar form.

The purpose of this bill is stated in the following paragraphs: —

"To establish a permanent Medical Corps similar to the British East Indian Medical Service, whose duty it will be to serve the military and civil services of the United States in those countries which, while under the United States Government, are separated as to their people and country from the United States proper. It is felt that properly qualified medical men will not come in sufficient numbers to the tropics to enable the officials and other civil employees of the government to obtain that expert medical attention which they would receive in the United States, unless incentive is offered them; that men who have not devoted time and study to tropical surgery and medicine cannot attain to that proficiency which will be given by those who are specially trained for this work.

"Men experienced as medical officers are accustomed to sustain discipline and render loyal allegiance when acting under the orders of superiors. The provisions of this measure at once place a body of men trained in medical military tropical service at the command of the United States, to be used either by the civil or military authorities as the necessities may require.

"That when serving under the authority of the civil governments they must be subject to and act under civil law and civil superiors.

"That with a fixed tenure of office, and provision for old age, a better quality of medical service may be had for less cost.

"That these men are needed particularly in the care of the constabulary, and other native forces, and in the management of epidemic disease, falling under the jurisdiction of civil governments, as well as to replace in the army those volunteer surgeons who are soon to be discharged by expiration of law, and the contract surgeons who are now employed in the tropics."

The framers of the bill claim that it requires but little argument to prove that such a corps of medical men, organized upon some such lines, is needed to meet the new requirements, conditions and responsibilities now confronting the government of the United States. They also claim that in addition to its service in civil functions to the government, it will reduce expenditures by replacing at a lessened expense the present corps of volunteer medical officers, and by obviating entirely in the tropics, and in large measure elsewhere, the necessity for the contract surgeon system. It is also claimed that through its provisions especial care is taken that no injustice shall accrue to the present permanent medical corps of the army.

Any provisions on the part of Congress which should accomplish the fundamental objects aimed at in this bill would certainly seem to be desirable. In commenting (Nov. 27) on the urgent recommendation of the surgeon-general of the navy that Congress be asked to provide, during the session, a substantial increase, one hundred and fifty, of surgeons in the navy, we stated that, —

"There has for some time past been a growing feeling that the position of medical men, both in the army and navy, was not in accord with the dignity of their profession. Men who are in the best position to judge have long felt that the medical service in both of these departments would be very greatly improved if the position of surgeon were placed on a somewhat more suitable plane. In this connection it is of particular interest that the last report of the surgeon-general of the navy takes up in much detail questions relating to the matter of opportunities for advanced medical work in the navy as now constituted. It is evident at the outset that men who enter the service of the army or navy make a certain sacrifice of independence which should, so far as possible, be compensated for by advantages coming to them within the service. This appears not to have been the case, with the somewhat inevitable result that the applications of men for these positions are not what the authorities desire."

## MEDICAL NOTES.

PNEUMONIA AND DIPHTHERIA IN CHICAGO. — The Chicago Board of Health reports increasing prevalence and malignancy of diphtheria and pneumonia for the week ending Nov. 22.

KING VICTOR EMMANUEL'S BEQUESTS TO HOSPITALS. — King Victor Emmanuel has signalized the birth of a daughter, born Nov. 19, by giving $20,000 to the Foundling Hospital at Rome, and $20,000 to the free hospitals.

DIFFICULTIES REGARDING VACCINATION IN CHICAGO. — It is reported that about sixty students of Northwestern University have recently refused to be vaccinated. Radical measures did not bring them to terms, and gentler means of persuasion are to be used to induce them to submit to the operation. Exclusion from class rooms will no longer be enforced.

Foot-and-Mouth Disease. — Eczema Epizootica, F. Fièvrea phtheuse, G. Maul und Klauenseuche, I. Alcola. A contagious febrile disorder, with a vesicular eruption in the mouth and about the feet. It affects horned cattle more especially, but sheep, pigs, dogs and men may suffer from it. — *Billings.*

BOSTON AND NEW ENGLAND.

Acute Infectious Diseases in Boston. — Cases of infectious diseases reported to the Board of Health for eight days, ending Dec. 3, 1902: Diphtheria 53, scarlatina 45, typhoid fever 29, measles 7, smallpox 17.

A Centenarian. — Mrs. Alice Hanson died Nov. 28, in Boscawen, N. H., at the reputed age of one hundred and four years. She had, at the time of her death, twenty-five living grandchildren.

Centenarian. — Maxim Gogan, an extremely old man and the richest citizen along the shores of the Gulf of St. Lawrence, has recently passed away at Cocagne, N. B., at the wonderful age of one hundred and eight years and seven months. His grandfather, Louis Gogan, fought under Montcalm in the defense of Quebec in 1759. He drank, for more than sixty years a quart of brandy and a pint of extra dry champagne every day. Until he was eighty years old, he could lift a larger load than any man he had ever met. Last April, when he was one hundred and eight years of age, he walked to the spring in the rear of his home, and, holding his full weight on his hands and toes, drank from the pool without letting his knees touch the ground. — *Transcript.*

Smallpox about Boston. — A new case of smallpox has been reported to the Brookline Board of Health, the third for the year in that town. A case has also occurred in Chelsea, Mass. The Brookline Board of Health has prepared a circular for distribution urging the need of immediate vaccination. A list of physicians is given in the circular who are appointed to conduct free vaccination.

Two New Professorships in the Harvard Medical School. — The Corporation and Board of Overseers of Harvard University have somewhat recently established two new professorships in the Harvard Medical School, — the George Higginson Professorship of Physiology and the James Stillman Professorship of Comparative Anatomy, each with an endowment of one hundred thousand dollars. Although the action of the governing boards in formally establishing these professorships is recent, the funds for their maintenance were contributed last winter.

Production of Vaccine by the State. The Norfolk District Medical Society has placed itself on record as favoring the manufacture and distribution of diphtheria antitoxin and vaccine virus by the State. In the resolutions passed at the last meeting of the society it was urged that inasmuch as the State makes vaccination compulsory, it is bound to protect its citizens as far as possible from any mishaps attending the procedure. To this end the society believes that the best guaranty of safety is the production of the vaccine virus by the State itself.

NEW YORK.

New York County Medical Society. Address of Retiring President. — At the last meeting of the Medical Society of the County of New York, held Nov. 24, addresses were made by the retiring president, Dr. Frank Van Fleet, and the president-elect, Dr. Charles N. Dowd. Dr. Van Fleet spoke particularly of the efforts which the society had been making for a number of years to suppress violators of the medical laws, and said that if the kind of work it is now doing were persisted in, it would eventually lead to protecting the community from the unscrupulous designs of those who, under the cloak of religion, prey upon the weak and distressed. The law, however, was lax, and when the Supreme Court of the United States rendered a decision, as it recently did to the effect that absent treatment is a matter of opinion, and that dupes who subject themselves to it, as well as those who wax rich in practicing it, have the same rights and privileges as those who practice scientific medicine in accordance with the law, it showed that we are in need of a campaign of education. Surely the time had arrived, therefore, when the medical profession should exert itself, and start out on such a campaign.

Address of President-elect. — Dr. Dowd's address was mainly devoted to the need of improvements in the medical service of the army and the militia. He quoted a number of statistics showing that the great percentage of deaths is in the camps, and not in the battlefields. "It should be remembered," he said, "that the men, with the high death-rate in their camps, who did not have a chance at service, were picked men, examined by physicians before they were admitted to the National Guard, and re-examined before they were accepted for the Government service, and the death-rate was appalling." One great reason for this was the total inadequacy of the medical staff of the army. Thus, during the war with Spain there were in the latter but one brigadier-general, five colonels and seven lieutenant-colonels, while they and those under them were all dependent on the Quartermaster's Depart-

ment, which was in a helpless position. At the conclusion of his address a committee was appointed to confer with the officers of the National Guard of the State in regard to improving the efficiency of the medical service.

NORWEGIAN HOSPITAL. — On Nov. 24 ground was broken for the new building of the Norwegian Hospital, in Brooklyn. Its estimated cost is $140,000.

NEW YORK WATER SUPPLY. — In accordance with the request of the Commissioner of Water Supply, Mayor Low has appointed three engineers to report on the sources of water supply for the city of New York. They are Prof. William H. Burr, of Columbia University; Rudolph Gerring, of New York, and John H. Freeman, of Providence, R. I., all of whom have special qualifications for the work intrusted to them. They will be asked to investigate all the available watersheds and give detailed information as to their capacities and the cost of obtaining a supply from each, and at the same time to devote attention to the stoppage of waste, which has become a serious problem. From the surveys which have already been made, very full data in regard to one or two of the most important sources of supply will be immediately at the service of the commission.

DEPUTY SUPERINTENDENT, BELLEVUE HOSPITAL. — Dr. Stewart, the superintendent of Bellevue Hospital, having resigned, that position is at present occupied by the deputy superintendent, who is probably more familiar with the internal affairs of the institution than any other person. At the age of sixteen, when a poor lad, he was run over by a truck and had his leg amputated in Bellevue. While he was still under treatment, he managed to make himself useful in the wards, and after his recovery he was given a job in the hospital. He has remained there ever since, having been promoted from one post to another, until he is now acting superintendent. As deputy he receives the salary of four thousand dollars a year.

MORTALITY STATISTICS. — The condensed quarterly report of the Bureau of Records of the Health Department shows that there were 2,280 less deaths recorded, and a lowered death-rate of over three points in the quarter ending Sept. 30, 1902, as compared with the third quarter of the year 1901. In 1901 the death-rate was 22.04 and the corrected death-rate 21.15, while in 1902 the death-rate was 18.96, and the corrected death-rate, 18.06. The greatest decrease, 1,176, occurred among the deaths reported from sunstroke, the summer of 1901 being one of the hottest and most deadly recorded in the history of the department. The next greatest decrease was among the diarrheal diseases; 947 fewer deaths being reported from this cause in children under two years' old. Substantial decreases were also shown in smallpox, measles, scarlet fever and pulmonary tuberculosis, there having been 122 less deaths from the last-mentioned disease. During the three quarters of 1902 there were 514 less deaths from pulmonary tuberculosis than in the corresponding period of the previous year. Pneumonia, broncho-pneumonia and acute bronchitis showed a total increase of 219 deaths, due to atmospheric conditions. There was an increase of 52 deaths from diphtheria and croup, and of 122 deaths from whooping cough. Twenty-two thousand two hundred and seventy-four births were reported as against 20,838 during the third quarter of 1901.

## Obituary.

### WALTER REED, M.D.

DR. WALTER REED, long identified with the United States Army, died Nov. 23, at the age of forty-five. He was born in Virginia, was graduated from the medical department of the University of Virginia, and later from the Bellevue Hospital Medical College, New York. Soon after his graduation he was commissioned first lieutenant and assistant surgeon, and rose rapidly in rank, until in 1893 he attained the position of major and surgeon. At the time of his death he was the senior major of the medical department of the army. Post-graduate studies at the Johns Hopkins Hospital at Baltimore on the general subject of bacteriology led to his becoming bacteriologist in the surgeon-general's office. During the Spanish war, he was one of the medical officers appointed to investigate matters relating to typhoid fever, and did valuable work for the government in this capacity. He will, however, be best known in the future for his services in connection with the investigation of yellow fever. The work of the board, of which he was chairman, which concerned itself with the study of the etiology of this disease, has become one of the notable events in connection with preventive medicine. On his return from Cuba he served as curator of the Army Medical Museum; he was also professor of bacteriology and pathology in the Army Medical School in Washington. Dr. Reed was one of those of whom there are not too many anywhere, a man whose scientific attainments and enthusiasm for his profession will leave a place hard to be filled in the medical department of the army.

## Correspondence.

### IS PELIAS BERUS VENOMOUS?

BOSTON, Nov. 24, 1902.

*Mr. Editor:* In the *British Medical Journal* of the 15th inst. is the report of a man thirty years of age, who was bitten on the middle finger by a snake in Lancashire. Severe local symptoms followed, such as pains, swelling, red lines and ecchymoses of arm and chest. Also vomiting, diarrhea and collapse. He recovered in about a week.

The snake was an "adder, *vipera berus*," the only venomous kind in Great Britain. I would like to ask if this is the same variety of "adder" that we have in New England, "pelias berus," and also if any of your readers have ever known of anyone here being bitten by them, and if the symptoms resembled those above mentioned.

Yours very truly,

GEORGE W. GAY, M.D.

## GLYCERINIZED VACCINE LYMPH.

Boston, Dec. 1, 1902.

Mr. Editor, — In your issue of Nov. 6, 1902, you refer to a paper written by Dr. J. S. Howe, of Boston, and entitled "Ten Cases of Bullous Dermatitis following Vaccination." This paper was read before the American Dermatological Association, and many of its members, who had not seen the cases, were fairly skeptical as to the vaccinal origin. A like report was presented a few years ago to the same society by Dr. J. T. Bowen, and his paper met with a similar reception.

Now, having observed most of the cases reported, as well as some others of the same nature, I have no hesitation in saying that I thoroughly believe the eruptions to have been due to the previous vaccinations, and I also do not hesitate to say that in an experience covering over ten years of daily public vaccinations, I never saw anything approaching these cases, either in the severity or the duration of the lesions. It is, perhaps, an easy matter to regard such manifestations as accidental, and so dismiss the whole matter; but such an explanation will neither satisfy the family of the afflicted nor advance the cause of vaccination. It is true, also, that owing to the vast number of vaccinations and revaccinations of the last few years, it would be strange if there were not some untoward effects. Nevertheless, it is our plain duty to search into such effects, with a view to preventing them if possible.

A short time ago my attention was called to some experiments of Wunscheim on the use of glycerine as a solvent for antiseptics, and his results were a bit variable. For instance, undiluted glycerine destroyed various bacteria. High percentages of glycerine with water differed according to the bacterium with which they came in contact. Glycerine-soap solutions with carbolic acid, lysol and creolin were not so strong in bactericidal power as simple soap solutions with the same agents. There were other experiments, but these will suffice.

It occurred to me, then, that these reported bullous cases were only of the last few years, and I feel certain of that — in regard to Boston, at least — as I am positive that had they before existed they would have been brought to my knowledge either in the way of consultation or suit for damages. Now, the only radical change that has taken place in the method of vaccination has been the substitution of the glycerinized lymph for the dry point formerly used. Why may not the glycerine used as a solvent modify the vaccine virus in such a way as to produce formerly unknown lesions? I claim no originality for the suggestion; it may have been made before. I simply wish to emphasize the necessity of searching for and eliminating anything which may be a hindrance to an absolutely universal vaccination.

Although my opportunities of observation have been restricted in the last few years, I have no doubt that the new virus has, in some measure, modified the period of incubation of vaccinia. We used to expect a full vesicle in a week, and in ten days an extended areola, pustule beginning to crust, and constitutional symptoms at their height; after that, retrogression. I have been, in several cases lately, unable to detect any change at the site of inoculation in a week's time, and yet within a few days afterward would find a true vaccinal vesicle. This lengthening of the incubation period is of great importance, especially when variola is rife, because in vaccinating people who have lately been exposed to smallpox we rely on the relatively short incubative stage of the vaccinia, and expect to modify, or absolutely forestall, the graver disease by substituting for it the less severe one.

Variola has been existent and persistent in this and many other cities, notwithstanding the most strenuous efforts to check it. Does glycerinized lymph protect to the same extent as the dry point? This last question I have no means of answering, but, until further investigation, believe it to be at least conservative to continue the use of a form of virus which I have found reliable in its action, and reasonably safe, namely, the *undiluted* dried lymph.

Respectfully yours,

Wm. G. Macdonald, M.D.

## RECORD OF MORTALITY

For the Week ending Saturday, Nov. 22, 1902.

| Cities. | Population Estimated, 1902. | Reported deaths in each. | Deaths under five years. | Percentage of deaths from Infectious diseases. | Acute lung diseases. | Diphtheria and croup. | Typhoid fever. | Diarrheal diseases. |
|---|---|---|---|---|---|---|---|---|
| New York . . | 3,665,352 | 1,073 | 295 | 26.47 | 15.56 | 3.45 | 2.61 | 4.38 |
| Chicago . . . | 1,852,828 | 460 | 147 | 25.00 | 17.17 | 5.00 | 1.95 | 6.74 |
| Philadelphia. | 1,349,624 | 448 | 117 | 18.08 | 18.75 | 2.45 | 3.12 | .22 |
| St. Louis . . | 603,717 | — | — | — | — | — | — | — |
| Baltimore . . | 525,330 | 181 | 52 | 25.96 | 13.26 | 2.21 | 3.31 | 2.76 |
| Cleveland . . | 411,826 | — | — | — | — | — | — | — |
| Buffalo . . . | 375,742 | — | — | — | — | — | — | — |
| Pittsburg . . | 341,401 | 140 | 48 | 26.43 | 29.28 | 4.28 | 3.57 | 3.57 |
| Cincinnati . . | 332,032 | — | — | — | — | — | — | — |
| Milwaukee . | 304,975 | — | — | — | — | — | — | — |
| Washington . | 289,537 | — | — | — | — | — | — | — |
| Providence . | 185,870 | 63 | 18 | 11.10 | 11.10 | 1.58 | — | 1.58 |
| Boston . . . | 588,730 | 194 | 56 | 19.58 | 17.00 | 1.54 | 2 58 | 2.06 |
| Worcester . . | 127,337 | 30 | 8 | 13.33 | 3.33 | — | — | — |
| Fall River . . | 111,872 | 29 | — | 20.69 | 31.03 | 3.44 | — | 10.34 |
| Lowell . . . | 99.574 | 25 | 8 | 16.00 | 32.00 | 4.00 | 4.00 | — |
| Cambridge . | 96,334 | 23 | 6 | 30.44 | 4.34 | — | — | 8.69 |
| Lynn . . . . | 71,144 | 14 | 3 | 7.14 | — | 7.14 | — | — |
| Lawrence . . | 67,275 | 24 | 10 | 20 83 | 33.33 | — | — | 1.25 |
| Springfield . | 66,854 | 26 | 2 | 7.70 | 7.70 | 3.85 | — | — |
| Somerville . | 65,882 | 16 | 4 | 43.75 | 6.25 | — | — | 12.50 |
| New Bedford | 65,574 | 25 | 9 | 24.00 | 16.00 | 8.00 | — | — |
| Holyoke . . . | 48.065 | 7 | 2 | 14.30 | 14.30 | — | — | — |
| Brockton . . | 43,208 | 7 | 2 | — | — | — | — | — |
| Haverhill . . | 40,392 | 11 | 1 | 9.09 | 18.18 | — | — | — |
| Salem . . . . | 36,567 | 10 | 3 | 10.00 | — | — | — | — |
| Newton . . . | 36,336 | 9 | 4 | — | — | — | — | — |
| Malden . . . | 35,390 | 12 | 3 | 25.00 | 16.67 | — | 8.33 | — |
| Chelsea . . . | 35,264 | 14 | 2 | 14.28 | 7.14 | — | 7.14 | — |
| Fitchburg . . | 33,848 | 6 | 3 | — | 33.33 | — | — | — |
| Taunton . . . | 32,759 | 8 | — | 12.50 | 37.50 | — | — | — |
| Everett . . . | 27,114 | 5 | 1 | 20.00 | 20.00 | — | — | — |
| North Adams | 26,583 | 10 | 4 | 50.00 | 20.00 | 10.00 | 10.00 | 10.00 |
| Gloucester . | 26,121 | — | — | — | — | — | — | — |
| Quincy . . . | 25,307 | 6 | — | 16.67 | — | — | — | — |
| Waltham . . | 24,612 | 3 | — | 33.33 | — | — | — | — |
| Pittsfield . . | 22,311 | 6 | 1 | — | — | — | — | — |
| Brookline . . | 21,679 | 3 | 1 | — | 66.67 | — | — | — |
| Chicopee . . | 20,390 | 8 | 7 | 12.50 | 12.50 | — | — | — |
| Medford . . | 20,014 | 3 | — | — | 33.33 | — | — | — |
| Northampton | 19,460 | 6 | 0 | — | — | — | — | — |
| Beverly . . . | 14,814 | 4 | — | — | 50 00 | — | 25.00 | — |
| Clinton . . . | 14,645 | 1 | — | — | — | — | — | — |
| Newburyport | 14,478 | 5 | 1 | 20.00 | — | — | 20.00 | — |
| Woburn . . . | 14,285 | 6 | — | 33.33 | 16.67 | — | — | — |
| Leominster . | 13,953 | — | — | — | — | — | — | — |
| Hyde Park . | 13,858 | — | — | — | — | — | — | — |
| Marlboro . . | 13,609 | 2 | 1 | 50.00 | — | — | — | 50.00 |
| Melrose . . . | 13,384 | — | — | — | — | — | — | — |
| Westfield . . | 13,038 | 3 | 1 | — | — | — | — | — |
| Attleboro . . | 12,846 | — | — | — | — | — | — | — |
| Adams . . . | 12,813 | — | — | — | — | — | — | — |
| Milford . . . | 12,516 | — | — | — | — | — | — | — |
| Framingham | 12,109 | — | — | — | — | — | — | — |
| Peabody . . | 11,957 | — | — | — | — | — | — | — |
| Revere . . . | 11,894 | 2 | — | 50.00 | — | — | — | — |
| Gardner . . . | 11,544 | 3 | 1 | 33.33 | — | — | — | — |
| Weymouth . | 11,337 | 6 | 0 | 16.67 | 16.67 | — | 16.67 | — |
| Southbridge . | 10,838 | 4 | — | 25.00 | — | — | — | 25.00 |
| Watertown . | 10,600 | — | — | — | — | — | — | — |
| Plymouth . . | 10,336 | — | — | — | — | — | — | — |

Deaths reported, 2,941; under five years of age, 821; principal infectious diseases (smallpox, measles, scarlet fever, cerebrospinal meningitis, diphtheria and croup, diarrheal diseases, whooping cough, erysipelas, fevers and consumption) 679, acute lung diseases 489, consumption 326, scarlet fever 28, whooping cough 17, cerebrospinal meningitis 6, smallpox 11, erysipelas 3, measles 9, typhoid fever 74, diarrheal diseases 107, diphtheria and croup 92.

From whooping cough, New York 5, Chicago 4, Philadelphia 1, Baltimore 1, Pittsburg 3, Boston 3. From measles, New York 4, Chicago 3, Baltimore 1, and Gardner 1. From erysipelas, Chicago, Philadelphia and Providence 1 each. From smallpox, Pittsburg 7, and Boston 4.

In the seventy-six great towns of England and Wales, with an estimated population of 14,862,151, for the week ending Nov. 8, the death-rate was 17.3. Deaths reported 4,923; acute diseases of the respiratory organs (London) 332, whooping cough 48, diphtheria 76, measles 198, smallpox 2, scarlet fever 67.

The death-rate ranged from 6.2 in Hornsey to 36.6 in Bootle; London 17.1, West Ham 18.0, Brighton 11.3, Portsmouth 12.5, Southampton 13.5, Plymouth 14.7, Bristol 14.2, Birmingham 18.3, Leicester 18.6, Nottingham 22.3, Bolton 21.3, Liverpool 23.1, Manchester 19.7, Salford 20.3, Bradford 15.2, Leeds 19.9, Hull 16.8, Newcastle-on-Tyne 22.4, Cardiff 22.8, Rhondda 15.2, Reading 10.6, Hanley 20.9.

## METEOROLOGICAL RECORD

For the week ending Nov. 22, in Boston, according to observations furnished by Sergeant J. W. Smith of the United States Signal Corps:

| Date | Barometer. | Thermometer. | | | Relative humidity. | | | Direction of wind. | | Velocity of wind. | | We'th'r * | | Rainfall in inches. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Daily mean. | Daily mean. | Maximum. | Minimum. | 8.00 A.M. | 8.00 P.M. | Daily mean. | 8.00 A.M. | 8.00 P.M. | 8.00 A.M. | 8.00 P.M. | 8.00 A.M. | 8.00 P.M. | |
| S. 16 | 30.18 | 52 | 61 | 44 | 87 | 78 | 82 | N W | E | 8 | 3 | C. | F. | O. |
| M. 17 | 30.30 | 44 | 47 | 40 | 96 | 88 | 92 | N E | N E | 9 | 9 | R. | O. | T. |
| T. 18 | 30.30 | 44 | 49 | 39 | 92 | 86 | 89 | N | N E | 10 | 14 | O. | O. | O. |
| W. 19 | 30.17 | 46 | 49 | 43 | 89 | 93 | 91 | N | N | 6 | 8 | R. | F. | T. |
| T. 20 | 30.24 | 46 | 52 | 40 | 88 | 89 | 88 | N W | S | 10 | 6 | F. | C. | O. |
| F. 21 | 30.00 | 51 | 60 | 42 | 88 | 74 | 81 | W | S W | 7 | 9 | O. | F. | O. |
| S. 22 | 29.60 | 57 | 65 | 49 | 82 | 72 | 77 | S W | S W | 7 | 24 | O. | R. | T. |
| Mean. | 30.11 | - | 55 | 42 | | | 83 | | | | | | | T. |

*O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow. †Indicates trace of rainfall. Mean for week.

## CHANGES IN THE MEDICAL CORPS OF THE UNITED STATES NAVY FOR THE WEEK ENDING NOV. 22, 1902.

W. R. DUBOSE, surgeon. Ordered to the Navy Yard, League Island, Pa., for duty in connection with fitting out the "Maine," and ordered to the "Maine" when that vessel is placed in commission. Nov. 14, 1902.

T. W. RICHARDS, passed assistant surgeon. Detached from the bureau of medicine and surgery, Navy Department, and ordered to the "Arkansas." Nov. 17, 1902.

E. O. HUNTINGTON, passed assistant surgeon. Unexpired portion of sick leave revoked; ordered to the Naval Hospital, New York, N. Y., for treatment. Nov. 18, 1902.

W. H. BUCHER, passed assistant surgeon. Sick leave extending one month. Nov. 20, 1902.

E. M. SHIPP, passed assistant surgeon. Detached from duty at Port Isabela, P. I., and ordered to the naval station, Cavite, P. I. (Orders received from senior squadron commander of Asiatic Station.) Nov. 20, 1902.

C. M. OMAN, assistant surgeon. Detached from the naval station, Cavite, P. I., and ordered to duty at Port Isabela, P. I.

C. MCLARTY, pharmacist. Reported at the Navy Yard, Norfolk, Va., Oct. 7, 1902. Nov. 15, 1902.

### FOR THE WEEK ENDING NOV. 29.

B. F. JENNESS, acting assistant surgeon. Appointed assistant surgeon Nov. 11, 1902.

J. F. PEARSON, pharmacist. Detached from the Naval Academy, and ordered to the Naval Training Station, Newport, R. I.

G. P. LUMSDEN, surgeon. Detached from the "New York" and ordered to the "Hancock."

E. M. SHIPP, passed assistant surgeon. Detached from the naval station, Cavite, P. I., and ordered to the "Wilmington."

## OFFICIAL LIST OF THE CHANGES OF STATION AND DUTIES OF COMMISSIONED AND NON-COMMISSIONED OFFICERS OF THE PUBLIC HEALTH AND MARINE HOSPITAL SERVICE FOR THE SEVEN DAYS ENDING NOV. 20, 1902.

WHITE, J. H., assistant surgeon-general. Granted seven days' extension of leave of absence from Nov. 24. Nov. 20, 1902.

COFER, L. W., passed assistant surgeon. Department letter granting Passed Assistant Surgeon Cofer leave of absence amended so that said leave shall be effective up to and including Dec. 10. Nov. 10, 1902.

GRUBBS, S. B., passed assistant surgeon. Granted leave of absence for one month from Dec. 8. Nov. 20, 1902.

FRICKS, L. D., assistant surgeon. Relieved from duty at Savannah, Ga., and directed to proceed to Cape Fear quarantine station and assume temporary command, relieving Assistant Surgeon T. B. McClintic. Nov. 17, 1902.

HEISER, V. G., assistant surgeon. To report to Assistant Surgeon-General L. L. Williams, chairman of Board of Examiners, for examination to determine his fitness for promotion to the grade of passed assistant surgeon. Nov. 15, 1902.

MCCLINTIC, T. B., assistant surgeon. Upon being relieved from duty at Cape Fear quarantine station to proceed to Washington, D. C., and report to the director of the Hygienic Laboratory for duty. Nov. 17, 1902.

KORN, W. A., assistant surgeon. Leave of absence granted Assistant Surgeon Korn for twenty-one days from Nov. 18 revoked. Nov. 15, 1902.

BERRY, T. D., assistant surgeon. Department letter granting Assistant Surgeon Berry leave of absence on account of sickness amended so that it shall be for one month and twenty-seven days. Nov. 13, 1902.

FRANCIS, EDWARD, assistant surgeon. To proceed to New York, N. Y., for special temporary duty. Nov. 14, 1902.

RUCKER, W. C., assistant surgeon. Relieved from duty at San Francisco, Cal., and directed to proceed to Reedy Island quarantine station, and report to medical officer in command for duty and assignment to quarters. Nov. 19, 1902.

BARNESBY, P. N., acting assistant surgeon. Granted leave of absence for twenty-one days from Nov. 10. Nov. 10, 1902.

GIBSON, L. P., acting assistant surgeon. Granted leave of absence for ten days from Nov. 12, 1902, on account of sickness. Nov. 15, 1902.

### BOARDS CONVENED.

Board convened to meet at Washington, D. C., Nov. 18, 1902, for the examination of Assistant Surgeon V. G. Heiser, to determine his fitness for promotion to the grade of passed assistant surgeon. Detail for the Board: Assistant Surgeon-General L. L. Williams, chairman; Assistant Surgeon-General G. T. Vaughan; Assistant Surgeon-General H. D. Geddings, recorder.

Board convened to meet at the marine hospital, San Francisco, Cal., Nov. 24, 1902, for the physical examination of a candidate for appointment as second assistant engineer, revenue cutter service. Detail for the Board: Passed Assistant Surgeon W. G. Stimpson, chairman; Passed Assistant Surgeon A. R. Thomas, recorder.

## RECENT DEATH.

H. MELVILLE SMITH, M.D.—Dr. H. Melville Smith of South Orange, N. J., died on Nov. 28 of cardiac disease, at the age of fifty. For seventeen years of his professional career he practiced in Jersey City, and during the greater part of this time he was on the medical staff of Christ Hospital there.

## THE CARTWRIGHT LECTURES.

THESE LECTURES OF THE ALUMNI ASSOCIATION OF THE COLLEGE OF PHYSICIANS AND SURGEONS (Medical Department of Columbia University) will be given in the hall of the Academy of Medicine, No. 17 West 43d Street, on Dec. 17, 29 and 30, at 8.15 P.M., by Dr. Richard C. Cabot of Boston.

First Lecture.—A Study of the Urinary Analysis and post-mortem findings in 500 cases of disease affecting the kidneys.

Second Lecture.—A Clinical Study of the action of alcohol in disease, with special reference to its effect on the circulatory system.

Third Lecture.—Truth and Falsehood in Medicine; an experimental study.

## BOOKS RECEIVED.

Transactions of the American Otological Society, Thirty-fifth Annual Meeting. Pequot House, New London, Conn., July 16, 1902. Vol. VIII, Part 1. Mercury Publishing Co., New Bedford, Mass. 1902.

Obstinate Hiccough: the Physiology, Pathology and Treatment, based on a collection of over one hundred and fifty cases from British and foreign works. By L. F. B. Knuthsen, M.D., Edinburgh. J. & A. Churchill, London, and P. Blakiston's Son & Co., Philadelphia. 1902.

Memoranda on Poisons. By Thomas Hawkes Tanner, M.D., F.L.S. Ninth Revised Edition. By Henry Leffmann, A.M., M.D. P. Blakiston's Son & Co., Philadelphia. 1902.

Nothnagel's Practice. Diseases of the Bronchi, Lungs and Pleura. By Prof. Dr. Friedrich A. Hoffmann, Prof. Dr. O. Rosenbach and Dr. E. Aufrecht. Edited, with additions, by John H. Musser, M.D. Authorized translation from the German, under the editorial supervision of Alfred Stengel, M.D. Illustrated. W. B. Saunders & Co., Philadelphia and London. 1902.

A Treatise on Diseases of the Eye, Nose, Throat and Ear, for Students and Practitioners. By various authors. Edited by William Campbell Posey, A.B., M.D., and Jonathan Wright, M.D. Illustrated. Lea Brothers & Co., Philadelphia and New York. 1903.

Manual Therapeutics. A Treatise on Massage, Its History, Mode of Application and Effects, Indications and Contraindications. By Douglas Graham, M.D. Third edition, revised, enlarged, and illustrated. J. B. Lippincott Company, Philadelphia and London. 1902.

Surgery of Tubercular Cavities of the Apex of the Lung. By DeForest Willard, M.D. Philadelphia. Reprint. 1902.

# Original Articles.

## INFANTILE PARALYSIS; AN EPIDEMIC OF THIRTY-EIGHT CASES.[1]

BY CHARLES F. PAINTER, M.D., BOSTON.

THESE cases occurred in Gloucester, Mass., in the summer of 1900. They were noted, in point of time, from the latter part of June to the first part of September. In point of space they were within a radius of four miles, at the very extreme limit, and most of them were in a comparatively narrow compass. My purpose in reporting them is to put on record one more series of cases, and it is one of the largest, which goes to show the possible infectious and epidemic character of this disease.

For a moment let us see what the present feeling is as regards the epidemic and infectious character of this disease as shown in the textbooks of medicine. One naturally looks to the neurological and pediatric books. Holt, in his 1897 edition, makes no mention of the epidemics, but states that it is his belief that recent autopsies prove the inflammatory character of the disease.

The article in Keating's "Encyclopedia," written by Sinkler, refers to the Lyons epidemic, but is not prepared to accept Cordier's conclusions regarding the epidemic character of infantile. This was written in 1890.

In Pepper's system, the article on "Infantile Paralysis" was written by Dr. Mary Jacobi, who makes no reference to epidemics.

Rotch, in his last edition, says, "It occurs in epidemics, and is therefore supposed to be infectious in its origin; but no specific organism has been discovered."

Dr. P. Marie, in his lectures on "Infantile Paralysis," cites the foreign epidemics as the most conclusive proof of the infectious character of the disease, and states that he had contended for some years, from a study of the autopsy reports, that such would eventually be proven.

Dana, in the fifth edition of "Diseases of the Nervous System" (1901), says that 80% of the cases occur between June and September, and that it frequently follows in the wake of measles and other acute infectious diseases. He attributes to overexercise and chilling of the body the chief etiological factors. He makes no reference to the epidemic form.

Collins, in his "Treatment of Diseases of the Nervous System," published in 1900, does not refer to the epidemics, though he says it may occur either sporadically or epidemically.

Oppenheim, in his "Diseases of the Nervous System," says that cold, trauma and infection are concerned in the etiology, but makes no special reference to the bearing of epidemics upon the probable character of the disease.

Henriques and Hallian have produced the same lesions in the anterior horns of animals, by means of infection with organisms, that have been observed and described by Cornil, Prèvost and Vulpius, Charcot and Joffroy, and more recently by Goldschreider [2] and by Seimerling [3] as being characteristic of anterior poliomyelitis. They also observed the same lesions in a case of chronic sulphonal poisoning.

The principal epidemics reported are the following: —

Colmer [4] reports an epidemic of "teething paraly-

[1] Read before the American Orthopedic Association, in Philadelphia, June 5, 1902.

[2] Zeitsch. f. Klin. Med., 1892. [3] Arch. f. Psych., January, 1894.

[4] American Journal of Medical Sciences, 1843.

## EPIDEMIC INFANTILE PARALYSIS
### GLOUCESTER, MASS.,
### JULY AND AUGUST, 1900.

| No. | Name | Date. | Age. | Paralysis at onset | Cerebral | Sphincter |
|---|---|---|---|---|---|---|
| 1 | E.H. ♂ | July 13 | 4 | Four limbs. Trunk. Facial convulsions | Both. | bladder persists |
| 2 | D.H. ♀ | July 7 | 2½ | 3d nerve Right arm | 3d nerve (a) Ptosis of lid | None |
| 3 | M.K. ♀ | July 24 | 6½ | Both legs only | None but convulsions | None |
| 4 | R.P. ♀ | July 6 | 3 | Both legs and spine | None | Urinary incontinence Since |
| 5 | M.N. ♀ | Aug 28 | 5 | Both legs. Rt arm. | None | Urinary incontinence Since |
| 6 | E.B. ♂ | June 30 | 3 | All extremities Trunk | None | Both temporarily |
| 7 | H.P. ♂ | June 30 | 1½ | Both legs and Trunk | None | Not involved |
| 8 | P.S. ♂ | July 10 | 3 | Legs first, later trunk | Delirium (?) | Urinary incontinence Since |
| 9 | J.J. ♂ | July 8 | 13 mos | Both legs. | None | None |
| 10 | C.M. ♀ | July 15 | 3¼ | do | do | do |
| 11 | M.B. ♂ | July 15 | 2½ | Right arm & leg | do | do |
| 12 | R.R. ♂ | Sep 4 | 10 | All extremities | do | do |
| 13 | W.L. ♂ | July 12 | 3½ | Left leg | do | do |
| 14 | R.N. ♀ | Aug 11 | 2½ | Left leg | do | do |
| 15 | F.E. ♂ | Aug 15 | 7½ | Both legs | do | do |
| 16 | J.D. ♂ | July 10 | 1 | Right leg | do | do |
| 17 | F.K. ♂ | June 30 | 3 | Both legs Right arm | do | do |
| 18 | ? ♂ | Jul 10 | 2 | Both legs at first | do | do |
| 19 | J.S. ♂ | Jul 5 | 2 | Right arm | Right facial paralysis | do |
| 20 | E.G. ♂ | Jul 20 | 1½ | Left leg | None | do |
| 21 | L.P. ♀ | Jul 10 | 2½ | Right leg | do | do |
| 22 | E.R. ♂ | Jul 15 | 4 | do | do | do |
| 23 | W.P. ♂ | Jul 4 | 1½ | Both legs | do | do |
| 24 | E.K. ♂ | Aug 16 | 10 | Extremities Trunk | do | do |
| 25 | R.K ♂ | Aug 16 | 3 | Both arms | do | do |
| 26 | E.B. ♀ | Jul 19 | 3 | Right leg | do | do |
| 27 | ♂ | Jul ? | ½ | Left arm. Right leg | do | do |
| 28 | C.C. ♂ | Jul 4 | 2¼ | Both legs | do | do |
| 29 | ♀ | | | | | |
| 30 | E.F. ♂ | June 30 | 2½ | Right arm | do | do |
| 31 | R.H. ♂ | June 23 | 2½ | Right leg | do | do |
| 32 | E.Y. ♂ | Jul 1 | 1¾ | All extremities | do | do |

sis" (eight to ten cases), occurring in a radius of three miles, in a period of time covering three months. This was in West Feliciana, La. The cases were apparently typical of anterior poliomyelitis.

Bergenholtz, in Umea, Sweden, observed a group of thirteen cases in one and one-half months. This occurred in 1881.

Oxholm, in Mendal, Norway, reported at about the same time nine cases in a small community in an interval of six weeks.

Medin in 1887 witnessed and has carefully reported an epidemic occurring in Stockholm. There were forty-four cases and three deaths. The epidemic lasted from Aug. 9 to Sept. 23, 1897.

Cordier reported the occurrence of a group of thirteen cases in the neighborhood of Lyons, France, in 1885, observed in June and July of that year.

Caverly reported a large epidemic occurring in Vermont, in the valley of the Otter River. In the number of cases reported it exceeds all others on record, as there were one hundred and twenty-six, with a mortality of eighteen. This epidemic has been carefully reviewed by a number of neurologists, and all are not agreed as to its being a *bona fide*, uncomplicated epidemic. The mortality was extraordinarily high, and there were some features which suggested the epidemic cerebrospinal meningitis.

A small epidemic of undoubted cases occurred in Cherryfield, Me., and has been reported. There were eight or ten cases involved without mortality.

Brackett reported an epidemic of about the same size occurring in North Adams, Mass., in 1896.

Leo Newark of San Francisco reports a small group of five cases in a population of forty-nine, in the San Joachin Valley in California. This occurred in 1899.

E. Berglieb, in his inaugural dissertation at Jena, in 1890, reported five cases in epidemic form.

Quite a large epidemic occurred at Poughkeepsie in the summer of 1901, and was brought to my attention by Dr. H. L. Taylor at the discussion of this paper before the Orthopedic Association.

Gloucester is a city of about twenty-five thousand inhabitants, a considerable number of whose citizens are engaged in fishing, or in caring for and curing the fish when landed at the wharves. The town is situated on Cape Ann, and is virtually surrounded by water, for the ocean bounds it on one side, the harbor of Gloucester on another, and the Annisquam River and its branches connect these two bodies of water on a third side, thus forming a triangle. Parts of it are fairly high, and solid rock underlies practically the whole of it, and so near the surface of the soil is this that trenching for water or sewer purposes is attended with the utmost difficulty; in fact, sewers have never been attempted in the city on this account, and in consequence every house has, instead, a cesspool in its own yard.

In spite of these, to say the least, not wholly ideal hygienic conditions, the published reports of the Board of Health show that the death-rate of the city is low, leaving out the deaths of its inhabitants at sea. Diseases of an infectious character are not conspicuously prevalent. The death-rate for this year of 1900 was higher than that for five years previous, and this could not have been due to this epidemic, as there is only one death reported as the result of that. There were a few cases (two in all) of death from cerebrospinal meningitis during the two months this disease (anterior poliomyelitis) was present. These were sporadic cases. There are no official meteorological observations made in the city, but through the kindness of the secretary of the Board of Health I have been able to secure the records kept by him from June 15 to Sept. 15 of this year. An investigation of the sources from which the families in which these cases occurred procured their milk, ice and meat, revealed the fact that all three of these articles were secured indiscriminately at one place or another, and that in no possible way could they be regarded as playing any part in the etiology.

The following is the report of the cases occurring in this epidemic, most of whom were personally seen by the writer. A few cases it was impossible to see, but in these cases the family or attending physician has kindly given the information used.

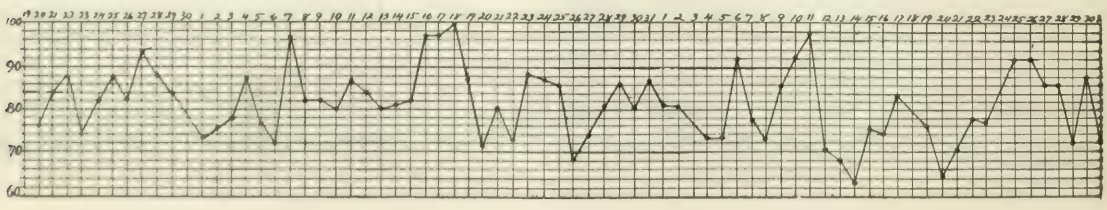
CASE I. July 13, 1900. E. H., five years of age. Seen with Dr. T. Conant. The child was perfectly well up to the day that he was taken sick with infantile. He was taken with an attack of fever followed by convulsions, coma and vomiting, the latter continuing for three days. Paralysis was complete of both upper and lower extremities. There were convulsive motions of the face and of the arms during the coma. The temperature reached 104.°

*General remarks.* — The child seemed to have some pain, particularly when moved; wanted to be rubbed all the time. The house is situated high and the family live on the second floor. The weather was extremely hot, and this case was regarded as one of heat prostration until the paralysis became notable. City water is used and the sewage is received in a cesspool in the yard. The child has since died of complications following pertussis.

*Examination.*[5] — Flaccid paralysis of trunk muscles, both arms and legs. Contraction of hamstrings and tendo Achillis. Subluxation of both tibiæ. Arms rotated inwards. Can use fingers. By resting elbows on table can get hand to head. Can flex but cannot extend the legs. Knee reflexes absent and no plantar reflex. Cerebration clear.

CASE II. D. H., boy, two and one-half years of age. Seen with Dr. Thomas Conant. The child was perfectly

[5] All examinations refer to those made in September, 1901.



well up to July 7, 1900. Was playing about out doors all the afternoon of that day. Went to bed as usual, and had a chill causing him to wake up screaming with pain, referred to his stomach. Next day the parents noticed that the child was "limp in his back" and that the right arm was useless. At the outset there was also a slight ptosis of the right eye, which quickly cleared up. Has had incontinence since. Legs were not paralyzed. In bed two months.

*Examination.* — A strong, healthy boy. Both legs and the spine now all right. The right arm partially paralyzed, especially the upper arm and shoulder muscles. The arm is flaccid; grip stronger in the left hand. By resting the elbow he can reach the hand to the head and feed himself. Marked atrophy of the arm and forearm. No scoliosis. Improvement has been slow but constant under the use of massage. At the onset there was considerable pain and numbness, referred to the arm.

The house is situated on a high street and on high ground. City water supply is used, and a cesspool in the back yard about twenty feet from the house affords the drainage.

Case III. M. C. K., girl, six and one-half years of age. Seen with Dr. Conant. Had always been a very nervous child, having had chorea the previous winter. Was perfectly well up to July 4, 1900, when she was taken ill during the night. On getting up in the morning she told her parents that she was "dizzy in the legs." The previous evening she had been in wading in the ocean. The "dizziness" increased so that by noon she was scarcely able to walk. During the night she had frequent severe attacks of pain and slight convulsions. Both legs were paralyzed. No involvement of the arms; sphincters not involved. Considerable fever; no vomiting. She was in bed three weeks.

*Examination.* — Pale, fairly developed child. Flaccid paralysis of both legs, particularly the anterior tibial group; plantar reflex nearly normal. The left foot has kept the most power. Reflexes absent at the knees. Can walk with the aid of mother's hand steadying her. Extensors of the thighs also partially paralyzed. Some contraction of both tendo Achilles. The spine not affected. Hygienic surroundings of the house good. City water; cesspool.

Case IV. R. P., girl, six years of age. Seen with Dr. Quimby. Perfectly well until July 6, 1900. Child came down stairs to be dressed, and could not stand after she was dressed. Both legs and spine completely paralyzed for about two weeks. In three months the left leg had entirely recovered. The right remains as at present. Vomiting and fever; considerable pain on motion, and delirium.

*Examination.* — Right leg flaccid and atrophied. Paralysis confined to the anterior groups of the leg and to the quadriceps extensor. Incontinence since the disease; never before. Used to be a phlegmatic child; is now very nervous. Double tenement house; poor and dirty surroundings on fairly high ground, with good air space about. City water and cesspool.

Case V. M. W., girl, five years of age. Seen with Dr. A. S. Garland. Child was taken sick Aug. 28, 1900. Had never been sick before. Was perfectly well in the morning on getting up. Complained of pain in the head without vomiting. Fever 103°. Paralysis of both legs, especially the right, and slightly of the right arm, this coming on the day following the onset of febrile symptoms. Arm cleared up entirely in a few days. Child was feverish and drowsy for a week. Left leg has almost entirely cleared up. Pain disappeared after the first day. No convulsions. Some paralysis of the right lower leg. No power either of flexion or extension of the foot. No power to extend the leg; atrophy; flaccid paralysis. The child has improved gradually so that she walks with a cane or crutch. Some incontinence since; none before. More nervous since the disease.

Case VI. E. B., girl, three years of age. Perfectly well until June 30, 1900, when she was suddenly taken while at play with a severe headache. Went to sleep and slept all the afternoon, and continued this way for three days. Very feverish and vomited. Head was very hot and child was stupid. On the fourth day complete paralysis of both arms, legs and back was noticed. Can use both hands, but cannot raise them above the head. The right leg has improved the most. Can now stand by holding on to the table, and hitch herself along. Poor hygienic surroundings; tenement house; low grounds. Water from well; no sewer connection. Four children in cramped quarters and poor circumstances.

Case VII. H. P., boy, one and a half years of age. Seen with Dr. Quimby. Perfectly well until June 30, 1900, when he was taken, while playing in the wet weeds in the hot sun, with pain in his head and vomiting. Was sleepy and stupid for three or four days; no convulsions; could not stand; feet and knees swollen; back was so weak he could not hold his head up; a great deal of pain on being handled. Very feverish and "red as a beet." No sphincteric involvement. Both legs involved, but not the arms. It was nearly two months before he could sit up. Walked in October, 1900. No improvement since then.

*Examination.* — Flexion of great toe is possible, but not of the others. Stands with the feet rolled outward and marked toe drop. No power in the quadriceps extensors. Knee jerks absent; marked valgus. Atrophy; flaccid paralysis. Basement tenement on a rocky hillside. City water and no sewer. Surroundings clean and general hygiene apparently good.

Case VIII. F. S., boy, three years of age. Seen with Dr. Quimby. Child was perfectly well until July 10, 1900. His mother took him down to play in the sand in the afternoon. Went to bed for a nap, and on waking he was very feverish; pain in the head, delirious for about a week without convulsions; vomited for several days. Sleepy and stupid for a considerable time. Could not sit up. Both legs also paralyzed; arms all right; some incontinence. Has improved gradually, and particularly in the last month, August, 1901.

*Examination.* — Left leg markedly flabby and atrophied; also thigh. Foot held in position of valgus. Anterior tibial muscles chiefly affected; common extensors pulling foot into position of valgus. Knee jerks on the left absent. Thigh muscles not involved. Family live in an upstairs tenement near ocean in good hygienic surroundings. City water; no sewer.

Case IX. J. J., boy, thirteen months of age. Perfectly well until July 12, 1900. Went to bed feeling all right. Woke up vomiting, with fever, but this was not paid much attention to, until a week later it was noticed that the left leg could not be used as well as formerly. Had some pain in the back at the outset.

Child's parents dead, and history obtained from neighbor.

*Examination.* — Both legs involved at the outset; the right has largely cleared up. Reflexes absent. Marked valgus in both feet, especially the left. Paralysis of the flaccid type. Cannot dorsally flex the foot; toe drop. Hygienic surroundings not very good. City water; cesspool.

Case X. C. W. N., boy, three and one-quarter years of age. Seen with Dr. Mooney. When the child's mother left home at noon, July 15, the child was perfectly well. Returned at two o'clock and found him asleep. He awakened, slightly feverish and complaining of headache. Took him for a car-ride, being gone two hours. On putting him on the car to return, his legs gave out from under him and he could not stand. Sick for two weeks, with considerable fever for the first three days. Sleepy and stupid for a whole week. Pain on being moved. No incontinence. Has improved very much and still continues to do so.

*Examination.* — Right leg shows flaccid paralysis; three quarters of an inch atrophy; absent knee jerks. Arms and left leg all right. Can dorsally flex the foot in the straight position and can extend it also, but both motions are much less strong than in the left leg. No deformity; walks with a slight limp. Ground floor; house on high ground. City water; cesspool. Poor hygienic surroundings.

Case XI. M. G. B., girl, two and one-half years of age. Seen with Dr. Mooney. On July 15, 1900, got up as well as usual. At breakfast vomited and went to bed with a headache. In bed for three days, with considerable fever. Broke out all over with an eruption, which, from the description, tallies with urticaria, which lasted one day. The weather was very hot, and the child had

been playing in the sun the previous day. The right arm and the right leg were involved in the paralysis. For five weeks she could not raise the arm or leg. Improved gradually.

*Examination.* — Right leg in the position of valgus. Flaccid paralysis. One inch atrophy of thigh; one-half of calf. Anterior tibial muscles weak, and the common extensor pulls the foot into a valgus position. Fair power in the posterior groups. Seven children; in good circumstances. Cesspool in the yard thirty feet from the house; city water.

CASE XII. R. R., boy, ten years of age. Seen with Dr. Proctor. Acute attack took place on Sept. 4, 1900. Child lives next door to Case V, which was taken sick on Aug. 28, 1900. Had been perfectly well until this time. Was a strong, well-developed boy. Complained of severe headache, vomiting and fever, which reached 101°. Was in bed two or three days before any paralysis was noticed, and then it involved all four extremities. After a few weeks the paralysis of the legs nearly all cleared up, but the arms only partially cleared. Had a great deal of pain all over during the acute stage, especially upon being moved. No sphincteric involvement.

*Examination.* — Marked pigeon breast; sinking in of the intercostal space; round shoulders; atrophy of the shoulder muscles, particularly the supra- and infraspinati, deltoid and trapezii. Grip in the hands good; no reflexes at the elbows; knee jerks absent; marked flaccid paralysis of the arms. Can stoop and take up things from the floor readily. Can get the left hand to the top of his head unassisted; the right he can put in this position with difficulty. Can get the arms behind him by swinging, but only in such a way that they rest in the lumbar curve. Marked rounded kyphosis in upper dorsal region correctible. General hygienic surroundings good.

CASE XIII. C. W. L., boy, three and one-half years of age. Seen with Dr. Rowley. This boy was perfectly well until the early part of July, 1900; the exact date not known. He was playing around out of doors and came in complaining of headache, vomiting, and his temperature reached 102° when first seen by the doctor. He was sick for four or five days, with fever and considerable pain in his back, aggravated by attempts to move. The left leg was early noticed to be useless. The arms were not affected.

*Examination.* — Foot held in position of valgus. One and one-half inch atrophy of thigh and calf. Flaccid paralysis, chiefly of the anterior group; thigh not involved. Reflexes absent in the left leg. Cannot dorsally flex the foot except in valgus position. Had been a very active child, and improvement has been steady. In good general hygienic surroundings, although the house is situated low and near the river. City water is used, and the drainage is into a cesspool twenty feet from the house.

CASE XIV. R. H. M., boy, two and one-half years of age. Seen with Dr. Rowley. Child was taken sick while at play, Aug. 11, 1900. Began with vomiting and headache. Sick with fever for ten days, during which time it hurt him to be moved in bed. Muscles in the neck were stiff and head was held retracted. He was very sensitive to slight pressure over the back and legs; sleepy and stupid most of the time; left leg paralyzed.

*Examination.* — Posterior muscles of the left leg partially paralyzed. Can dorsally flex the foot in the normal position, but has no power of plantar flexion. Uses the hand to stiffen his knee and to hold the leg extended. Can flex the thigh on the abdomen with the leg flexed, but cannot extend. Marked atrophy of thigh and calf. The right leg and both arms and spinal muscles not affected. Improvement has been gradual.

CASE XV. F. E., girl, seven and three-quarters years of age. Seen with Dr. Rowley. On about Aug. 15, 1900, this child was taken sick with headache. No vomiting; pain in the back and neck with retraction of the head. Temperature 102°. Movement in bed caused pain. Both legs paralyzed; arms not involved.

*Examination.* — Child walks very well, with both feet in position of valgus, particularly the left. Posterior muscles, except the peroneals, absent on the right. Anterior muscles weak, but sufficiently good to dorsally flex the foot into the valgus position. Thigh muscles not involved; knee jerks absent; arms and back all right. There has been considerable slow improvement. Family is a large one, in rather poor hygienic surroundings living on ground floor. Use well water and have surface drainage.

CASE XVI. J. F. D., boy, one year of age. Seen with Dr. Proctor. On July 10, 1900, this child was seized suddenly with pain and numbness in both arms and legs. The right leg is now the only member involved. At the onset there was considerable fever, headache and pain in the back and the neck, with retraction of the head.

*Examination.* — Valgus of the right foot. Atrophy of the right thigh and calf. No knee jerks on the right, though the child is too young to make a very satisfactory examination. Very poor hygienic surroundings, and in close proximity to several of the other cases.

CASE XVII. H. B., boy, three years of age. Case of Dr. Egan's. On June 30, 1900, the child, having been perfectly well previously, was seized with fever, which came suddenly and lasted several days. Both legs and the right arm were paralyzed. The arm is now nearly well; the right leg is better than the left. The onset was accompanied with vomiting; not much pain. Child was sleepy and stupid during the febrile period. Hygienic surroundings were fair.

This and the following two cases, Nos. XVIII and XIX, were patients of Dr. Egan's who kindly gave me the notes, but I was unable to see the cases.

CASE XVIII. Boy, two years of age. On July 10, 1900, was suddenly attacked with fever, accompanied by vomiting, which lasted several days, during which time it was noticed that the use of both legs was lost. At the present time there is a flaccid paralysis of both legs; arms not involved, and there has been practically no improvement. Poor family, living on low ground in a basement, in unhygienic surroundings.

CASE XIX. Boy, two years of age. On July 5, 1900, an acute febrile attack came on when the child was entirely well. The second day of the febrile attack there was noted a right facial paralysis and a paralysis of the right arm. The facial paralysis cleared in three or four months, and the arm even sooner than this. The case is said to be entirely well.

CASE XX. E. T. G., boy, one and three-quarters years of age. Seen with Dr. Proctor. On July 20, 1900, the child was seized with an attack of vomiting and fever, lasting for several days; retraction of the head with a good deal of pain referred to the back and head, this being aggravated by movements in bed. In two weeks, when he began to walk, it was noted that he dragged the left leg.

*Examination.* — Well-developed boy except for flaccid paralysis to a slight degree of the left thigh and calf; one quarter of an inch atrophy, and the left foot held in position of valgus. Walks with foot slightly everted and trifling limp.

CASE XXI. L. M. P., boy, two years and five months of age. Seen with Dr. Mooney. On June 8, 1900, the child was seized with vomiting, headache and considerable fever; the head was retracted; the child was very stupid and difficult to arouse. Complained of pain in the back aggravated by movement. Right leg the only one involved. At the end of five weeks he was able to walk.

*Examination.* — Valgus of the right foot. Too young to make a very satisfactory examination of the muscles. Apparently cannot draw the foot up because of very little power of dorsal flexion.

CASE XXII. E. R., female, five years of age. Taken suddenly while at play, early in July (exact date not known), with headache, fever and vomiting. On the fifth day from onset first noticed paralysis of the right lower leg; this has shown some improvement.

*Examination.* — Anterior tibial group of the right leg paralyzed; toe drop; contracture of tendo Achillis; flaccid atrophy; valgus position of foot. Absent knee jerk on the right.

CASE XXIII. G. P., boy, one year and seven months of age. Seen with Dr. Everett. Taken sick on the

4th of July, 1900, having been previously entirely well. He had played out of doors most of the time; went to bed the night of the 4th tired out, but perfectly well. Woke up on the 5th feeling sick and stupid. Temperature 102°, and very difficult to keep him awake. On the 6th, when he woke in the morning, he was not able to move, and did not for six or seven days. Fever ran very high; vomiting and twitching of arms, and both legs completely paralyzed. The arms did not seem to be paralyzed after he got over the twitching stage and out of his stupor. He dragged the left leg a good deal on walking at first, but this has improved to such a degree that he is nearly all well now, except for slight weakness of the anterior tibial group, with a tendency to pronation of the foot.

This case was not personally examined by the writer.

Case XXIV. E. K., boy, ten years of age. Seen with Dr. A. E. Garland. On Aug. 16, 1900, the family went to a picnic in East Gloucester. It was a very hot day, and during the afternoon a heavy shower came up, after which there was a sudden drop in temperature, as much as 30° or 35° within an hour. That evening he complained of headache and a great deal of pain in the back of the neck and spine, accompanied by fever. He was stupid, and the fever lasted for about ten days or two weeks. When it disappeared he was left with complete paralysis of both legs, both arms and the trunk. The arms have gradually improved so that now there is no apparent loss of power. Both legs are now flaccid to a considerable degree, particularly the thighs. Relatively the thighs are atrophied more than the calves. The plantar and dorsal flexions of the foot are possible to a certain degree, but with diminishing power. Quadriceps extensors almost completely paralyzed, and the sartorius does not seem to be much developed. The lower trunk muscles are also completely paralyzed, so that on attempting to sit up there is a marked kyphos at the junction of the low dorsal and lumbar regions, and it is this paralysis which causes him the greatest difficulty. The boy can walk when he gets into an upright position by holding on to some one's hands or pushing a chair. Improvement has been very considerable and quite continuous even during the past six months.

Case XXV. R. K., three years of age. Seen with Dr. Garland. This patient was a cousin of Case XXIV, lived on the floor below, and attended the same picnic.

Four days after the onset of Case XXIV, this case started in in exactly the same way, with headache and vomiting and considerable fever, with loss of use of the arms, and he was confined to bed for nearly three weeks. At the end of this time, however, the child could walk, and there was no evidence of any actual paralysis. There is some question as to whether this was an infantile or whether it might not have been merely a febrile attack. At any rate, at the present time the child is entirely well, and shows no evidence of loss of muscular power.

Case XXVI. E. B., three years of age. Seen with Dr. Evelyth. This case was taken ill on June 19, 1900, and for six days there was considerable fever, temperature being 103°; malaise and general constitutional symptoms. During this time it was noted that the right lower extremity was paralyzed; no other limbs affected. There was atrophy and loss of power in the anterior tibial group. Walks with slight limp, some toe drop and a tendency to valgus; three quarters of an inch atrophy of the calf. The child lives in good hygienic surroundings, the house being situated high, with good drainage and the city water.

Dr. Evelyth saw, in all, five cases beside the one just described. All the others were in poor families, where it is now impossible to trace the cases. They all, however, presented the typical symptoms of an acute infantile attack. They all did fairly well; that is, they gradually improved for a considerable period after the original paralysis. They were all young children. They started in with fever, malaise and vomiting, followed by paralysis, the paralysis being confined in all cases to one of the lower extremities, with a single exception. In this case one arm was the only extremity affected. There were no deaths, and there were no cases in which cerebrospinal complications were suggested. Improvement has been gradual, and up to a certain point only, in all cases observed.

Case XXVII. Girl, six months of age. Seen with Dr. Quimby. At birth the child had a congenital absence of the left femur and a contracture of the index and ring fingers of the left hand; otherwise was healthy and normal, except for an obstetrical paralysis of the right arm. Six months after birth, or about the middle of July, 1900 (the exact date could not be obtained), this child was affected with infantile paralysis, starting in with fever, vomiting, malaise, constant rolling of the head from side to side, followed in a day or two by complete paralysis, of the flaccid type, involving the right thigh and leg and the left arm. There had been practically no improvement in this case since the onset. The left arm and forearm seemed to be completely paralyzed; slight ability to flex and extend the fingers. The only power in the right leg is in the anterior tibial group, which enables her to draw up the foot.

Case XXVIII. C. C., two and one-quarter years of age. Seen with Dr. Hallett. On July 4, 1900, which was a very hot day, this child was taken while at play in the street. The first symptom noted was falling while in the street and inability to support himself afterwards. He went into the house and was very stupid all day, and the next day was so feverish that a physician was called. The child seemed very stupid and almost unconscious; rolled his eyes from side to side and complained when moved, but constantly wished to be taken up and held, though he as constantly wished to be put down. There has been a good deal of improvement, so that now the child is able to stand by holding on to the chairs, but he cannot walk.

*Examination* shows a flaccid paralysis of both legs, with considerable atrophy; inability to dorsally flex the feet or to extend the legs. The arms were not affected.

Case XXIX. E. F., girl, two and one-half years of age. On June 30, 1900, the child, who had been previously perfectly well, went to bed complaining of severe pain in the back and soreness of the muscles. Some fever, but the condition was regarded simply as a cold by the parents. The next day it was noted that the child could not move the right arm. She was delirious and rolled her head from side to side a great deal, with some tendency to retraction of the neck.

*Examination* shows a marked atrophy of the right arm, and paralysis of the shoulder muscles so that the child cannot raise the arm straight above the head. Marked atrophy and loss of power in the ability to grip with the hand as well as in the arm and forearm.

Case XXX. R. C. H., boy, two and one-half years of age. Seen with Dr. Hallett. Child was perfectly well until June 23, 1900, when he began to complain in the evening of dizziness and headache, followed by vomiting and accompanied by a high fever. Two days later the right leg gave out entirely; no other limbs involved. The child was very nervous and irritable during this time. Muscles of the back and leg seemed very stiff. Did not have much pain or soreness in the spine.

*Examination* shows that the boy walks with a slight eversion of the foot and a slight limp in the right foot. Atrophy of a quarter of an inch of the calf; all muscular action present, but slightly weakened as compared with the other foot. The atrophy is more apparent to touch than to sight.

Case XXXI. E. G., boy, one and three-quarters years of age. Seen with Dr. Hallett. This case began the first week in July, 1900, the exact date not known. The child started in with fever, vomiting, and was very stupid and feverish for three or four days; retraction of the head for about a week. Upon motion, especially when sitting up, liked to be rubbed. The paralysis was general, involving both legs and both arms. The left leg was the worst, although the right was considerably affected. Did not walk for five months, but has had to learn over again. The improvement has been gradual, and all that has been noted wrong with him this summer [1901] is that he has a tendency to trip and fall a great deal, but this is improving.

*Examination* shows a quarter-inch atrophy of the right leg with quite marked limp. Some pronation of the left foot, but all motions present were weaker than on the other side.

From the conversation with the physicians who had the care of these cases, I should judge that there were a number of others about whom definite data cannot now be given. Dr. Egan remembers six other cases, which he says occurred at this same time, but which he cannot give the data concerning. Dr. Rowley saw twelve cases in all, four of which are referred to in the report of cases, but the other eight I was unable to see or get any record of other than a matter of memory. He definitely recollects, however, that they were seen during July and August, and presented the same general symptoms with the resulting permanent paralysis which had generally considerably improved. One other case also occurred, which was attended by Dr. Mosher in Lanesville, which is not included in this list on account of lack of data. This case was mentioned to me by Dr. Rowley.

One other case seen by Dr. Rowley which presented certain complications is not included in this list on account of the uncertainty of diagnosis. This was a case which started in with the same general symptoms, at the same time as these other cases, in a young child, but accompanied by a severe infection, causing purpura and an acute nephritis with effusion in the chest.

In this epidemic there has been only one death, which was observed by Dr. Garland, and was regarded by all those who saw the case as undoubtedly one of infantile paralysis. It occurred in the midst of this epidemic, presenting characteristic infantile symptoms, with lower leg paralysis. Three days later definite cerebral symptoms came on, and the child died in thirty-six hours of what seemed to be cerebrospinal meningitis.

The local physicians had attributed the epidemic generally to the great changes in temperature which occurred at that period.

I desire to make acknowledgment of the courtesy shown me by the profession in Gloucester in enabling me to examine these cases, so far as they could be found, and for data supplied in cases where the patients could not be interviewed.

It will be difficult, I think, to draw any conclusion from this report as to the special etiological factor in the epidemic. All the local conditions which were investigated in this connection, I think, must be passed over as being in themselves of no consequence. They may in some way, which is not now clear, have acted as contributing causative factors; the great similarity in the symptom complex as seen through all the cases, and their resemblance to symptoms long recognized as indicative of infections seem to me to afford as good evidence of the infectiousness of anterior poliomyelitis as we have in the scarlet fever, for example, about which no one now entertains any doubt. The absence of an autopsy in the only case of death in this group is much to be regretted, but had it been obtained and an organism found, we might not be in a position to know what was its manner of entrance. It seems to me probable that there may be several organisms capable of producing this symptom complex, given the proper conditions present in the individual, and that of all the contributive factors which prepare the way for the entrance of a bacterium or a coccus to the anterior horns of the cord, perhaps the one most to be reckoned with is the exposure to temperature changes through the vasomotor system; it will be noted that the majority of cases occurred on, or more frequently twenty-four to thirty-six hours after, periods of extreme heat, and in some cases, as in Nos. XXIV and XXV, after a sudden or sharp drop from an abnormally high temperature; in other cases they followed bathing in the ocean.

In conclusion the following statistics from this epidemic may be of interest. There were twenty-three males and nine females. The youngest was thirteen months and the oldest ten years. Twenty-one cases were three years or younger; eight cases, two years or younger, and seven cases, four years or older. No cases observed got entirely well, and only one, as before stated, died, though this one was not included among the thirty-eight reported.

## CONGENITAL ANOMALIES OF THE PHALANGES, WITH REPORT OF CASES STUDIED BY SKIAGRAPHY.[1]

BY F. B. LUND, M.D.,

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ANOMALIES of the phalanges, on account of their rarity, and on account of the fact that their possessors apply for surgical treatment, are not without interest to the surgeon. The complicated structure of the hand, which fits it so admirably for the performance of the delicate and complicated, under the influence of the will, at the same time renders it a difficult field for surgical work. When so complicated a mechanism is deranged by accident or disease, and the surgeon is required to perform operations of more or less intricacy upon it, he must use his utmost skill to avoid adhesions, injuries to nerves, tendons, or joints which will prove more or less disabling. Asepsis has fortunately almost eliminated the danger from infection of the tendon sheaths, but the mechanical difficulties presented by this class of cases still remain sufficient to tax his ingenuity. These cases too frequently remind us of the shortcomings in minor matters of our art, which in larger directions has progressed so far, and gives us results of such brilliancy. In the following paper the writer has not attempted to give a complete discussion, or even enumeration, of all the congenital deformities of the hand, but merely to mention such reflections as to their hereditary nature, causation and treatment as have been suggested by the cases described below, all of which have presented themselves at the City Hospital Clinic for treatment.

As these anomalies are congenital in type, the writer was led to investigate as far as possible the development of the limbs, only to find that the morphological value of vertebrate limbs had long been the subject of discussion and speculation, and that at the present time the solution of the problem is theoretical rather than positive. (Minot: Human Embryology, p. 448.) The theory adopted by Minot as the only one having any standing is Balfour's opinion, that the limbs are specialized portions of a lateral fin-fold, similar to the dorsal and ventral median fin-folds of fishes. "From the manner of their development it is obvious that the limbs have a flattened form and a dorsal (or extensor) surface,

[1] Contributed to the thirteenth series of Medical and Surgical Reports of the Boston City Hospital.

and a ventral (or flexor) surface, and as soon as they project from the body, as they do at right angles, there is an anterior or cranial border, and a posterior or dorsal border." The ridge forming the rudiment of each fin-fold becomes broader, and its attachment to the side of the body becomes shortened from behind forward, so that what was originally the attached border becomes the posterior border. The primitive skeleton of the fins consists of a longitudinal bar running along the base of the fin, and giving off at right angles a series of rays which pass into the fin. Balfour's observations show that there was a primitive longitudinal skeletal piece at the base of the limb fold, and from this rays are developed which run out into the fold. In the higher fishes these rays come off on either side of the skeletal limb axis, instead of as in the lower fishes only on the cranial side, forming the archipterygium, which is regarded as the ancestral form of the pentadactyl limbs in amphibia and mammals.

The cheiropterygium is the arch type of the pentadactyl limb, and its essential characteristic is the division into four segments, as follows (Minot) : —

1. { Upper Arm. / Upper Leg. } 2. { Forearm. / Lower Leg. } 3. { Carpus. / Tarsus. } 4. { Hand / Foot.

The upper segment contains one long bone, the humerus or femur; the second two long bones, radius or tibia and ulna or fibula; the third segment nine small bones, carpals or tarsals, and the fourth consists of separate digits, five in number, each with its metacarpal bone. Into the homologies of the human carpus and phalanges with the typical vertebrate form it is not necessary to enter here. It is sufficient to say that there is one series of bones which represents the true axis of the limb, and the other bones represent a series of rays coming off from it. This supposed axis in the arm begins with the humerus and is carried through the ulna, and terminates with one of the digits, with which digit authorities are not agreed, nor is it necessary for the purposes of our study for the writer to attempt to decide.

"The skeleton of the arm in mammals, in its earliest mesenchymal stages, forms an uninterrupted anlage, with no indication of its future subdivision, and is, moreover, probably continuous with the anlage of the pectoral girdle." — *Minot.* As soon as classification begins, the individual skeletal pieces are indicated by separate centers of ossification, which begin near the center of each piece and spread toward the periphery. The separation of each digital series is shown in the primitive mesenchymal anlage, which also shows traces of a sixth digit in front of the thumb, which normally persists as a rudiment and only for a short time. It is undoubtedly the occasional persistence of this sixth digit which accounts for the most frequent digital deformity which is presented to the surgeon, namely, the double thumb. This condition is shown in the radiograph (Fig. 1). The extra thumb is commonly not completely separated from the thumb proper, and the bones are more or less fused with those of the normal member. The condensed mesenchyma between two adjacent cartilages becomes fibrillar, and thus the joints are produced.



Figure 1.

In the human embryo at six weeks nearly all the skeletal pieces are present, and by the eighth week ossification has begun in the humerus, radius and ulna. The carpus is entirely cartilaginous at birth. Ossification in the metacarpal bones and phalanges begins about the eighth week.

As the time of ossification of the various bones of the arm and hand can be found to give no aid in an attempt to elucidate the different deformities it is not here in place, and the interested reader is referred to Minot's Embryology and Quain's Anatomy.

The different deformities of the hands are classified under three heads. (*Nichols* in Reference Hand Book of Medical Sciences. Vol. IV. 1902.)

1. Those which depend on de-

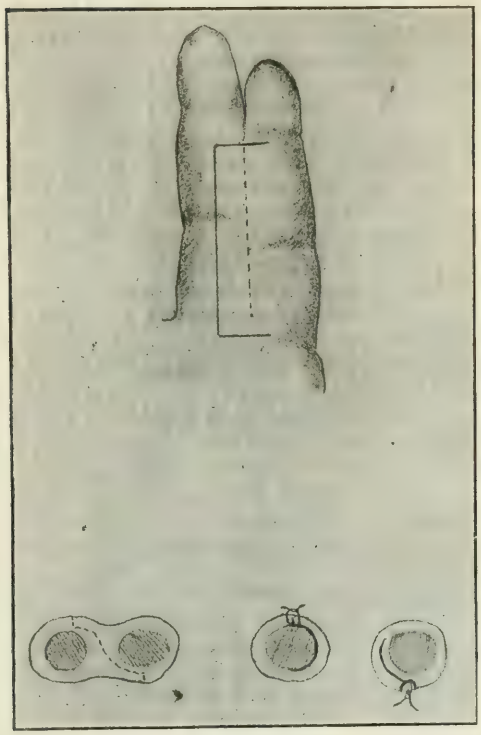


FIGURE 2.



FIGURE 3.



FIGURE 4.



FIGURE 5.



FIGURE 6.

ficient development. Acheiria (absence of the hand), ectrodactylism (absence of one or more digits), hypophalangism (absence of one or more phalanges).

2. Excessive development. Polycheiria, polydactylism, polyphalangism.

3. Perverted development. Syndactylism. Cleft hand, congenital constrictions, deflections, congenital dislocations, congenital neoplasms.

The coexistence of different types is common, such for instance as the combination of syndactylism with anomalies and deficiencies of the phalanges, which is the type illustrated by the first group of cases to be presented in this paper. The coexistence of anomalies and deficiencies of other parts of the body with deformities of the phalanges is common. Harelip and cleft palate are not infrequent in patients with deformed phalanges. In Case III, here reported, the coexistence of syndactylism with deformity of the phalanges, and syndactylism with supernumerary toes in the same patient is noted. Hereditary transmission is common, and a tendency to the reversion to the same or analogous deformities in families is exemplified in the two families which form the basis of this paper.



FIGURE 7.

The causes are obscure, and in cases such as those here reported can only be assigned to "deep-seated innate tendencies to aberrant development, often definite and fixed, and hereditary, the same deformity appearing in different generations."—*Nichols. Loc. cit.* Intra-uterine ulcerations and adhesions and other pathological processes may, for the purpose of such deformities as are here presented in this paper, be left out of account. Referring to the evolutionary and embryological outline of the development of the hand as given above, it becomes evident that the arm and hand are homologus with the pectoral fin of fishes, the wing of the bird and bat, and the fore limb of mammals. It is an interesting matter for speculation whether the webbing of the fingers may not be a reversion to some ancestral type in which the digits were united by a web. The fact that in all the cases which have come under the writer's observation syndactylism has been associated with anomalies of the phalanges and sometimes of the metacarpal bones, points to developmental origin of the deformity, and at the same time has a practical bearing as increasing the difficulty of treatment. In these cases the fingers are not only united by a web, but the soft parts of the adjacent fingers are practically one, forming a band of union as thick as the fingers themselves, and even the bones themselves are frequently united, so that even if the fingers are separated it becomes practically impossible to get skin flaps with which to cover the adjacent raw surfaces. Operations for discission and suture, with or without the preliminary formation of a fistula at the base of the fingers, are obviously applicable only to cases in which the digits are united by a comparatively thin flap. The only method applicable to fingers united by thick flaps, the majority of operable cases, is the method known as Didot's operation, in which a dorsal flap is taken from one finger and a palmar flap (Fig. 2) from the other. Certain difficulties connected with this operation will be mentioned in connection with Case III.



FIGURE 8.

(*Continued.*)

## LEUKOPLAKIA.

BY FREDERICK C. COBB, M.D., BOSTON.

So much has been written on this subject, and so thoroughly has the literature been reviewed in the transactions of this society in a paper by Ingalls in 1885, that I shall not weary members by a repetition of the history of this curious disease. In the earlier writers it is known as "ichthyosis," and indeed occurred in connection with ichthyosis of the skin, in the first case reported, that of Alibert in 1818.

An Englishman, Neligan, in 1862, was the first to suggest that leukoplakia did sometimes eventuate in carcinoma and to report a case in which this occurred. The apparent tendency of the patches to exfoliate led to the term "psoriasis," while the occasional induration of the patch suggested to some authors the name "tylosis."

"Leukoplakia," "leukokeratosis" and "leukoma" are later terms; "leukokeratosis," describing the appearance and anatomical character, is perhaps the most satisfactory. Since the date of Ingalls' paper, we have a large number of monographs written on this subject, some suggesting cure by various medicines, some by the galvanocautery, or by the knife.

By some writers, unfortunately not very numerous, the microscopical conditions have been carefully studied, while the part played by syphilis, tobacco, alcohol and various irritating substances forms a large proportion of the whole literature.

### ETIOLOGY.

Heredity is a probable cause in certain cases. Perrin describes two brothers about fourteen years old, both smokers, in whom white patches appeared on the cheeks, and in one of these patients epithelioma developed. In another instance, the son of a patient affected with this disease had, under the influence of tobacco and alcohol, an attack of acute leukoplakia of the mouth, which disappeared only on absolute cessation of tobacco and alcohol and by taking a mineral water cure.

Brocq, as regards rheumatic causes, has drawn attention to a number of glossites which almost always depend on stomach troubles in rheumatic persons. The patches occurring in these glossites resemble closely leukoplakia of smokers.

At frequent intervals small ulcerations are developed where the mucous membrane comes in contact with roughened teeth. These cases tend to recover without treatment.

That psoriasis and leukoplakia may go hand in hand seems to be pretty well proved, for even if the early case of Alibert be doubted, we have that of Lewin in 1894 and of Schutz in 1898.

There are, however, as Butlin points out, both a simple and a syphilitic psoriasis, and in both forms cases of leukoplakia occur.

As to other irritants, Niemayer, in 1896, saw a case which he attributed to drinking very hot coffee, and the lesion disappeared on treatment.

Butlin offers a curious observation, that red vulcanite, which is used for the manufacture of false tooth plates, may play a part in the etiology of some cases.

He has noticed a line of leucoma following along the edge of the vulcanite, and that the removal of the vulcanite is followed by the improvement of the disease and by cure, where cure is still possible. As he says, the argument that many people wear vulcanite plates and do not get leukoplakia is of the same value as is the same evidence in regard to syphilis, tobacco, and alcohol, and it requires a predisposition on the part of the patient to leukoplakia to admit this cause among the others.

In one of my cases, a woman without history of syphilis, tobacco or alcohol, such a toothplate was noted, and she made the statement that removal of the false teeth, which nowhere impinged on the tongue, the seat of the lesion, at once relieved much of the pain and prickling of which she complained.

Of all irritants tobacco is perhaps the most effective. Leukoplakia has been called "smokers' patches."

Fournier noted in 65 non-syphilitics' leukoplakia 64, or $98\frac{4}{10}\%$, were smokers.

Leloir's cases were equally positive, for out of 35 cases of leukoplakia, 34 were smokers.

Erb, out of 148 cases observed 37 leukoplakias due to smoking.

Butlin, in his last edition, gives no statistics, but evidently considers smoking as one of the most common causes. The great frequency of cases in men over women has been explained by this absence of smoking in females, but Zambacco Pasha of Constantinople gives us an interesting observation on this subject: Women in Turkey smoke until the fingers are stained and constitutional symptoms of dizziness and tobacco heart supervene, but this author has never seen a case in the female, although he has often seen them in the male.

It would seem natural that a constitutional disease like syphilis should produce effects in the mucous membranes which should lead to scar tissue and the formation of permanent white patches in the mucous membranes, but it is not generally realized, I think, how large the proportion really is.

Fournier states that in his 324 cases of leukoplakia, 259, or 80%, had had syphilis. In Leloir's cases 15 out of 35, or 42.8%, had been syphilitic, while Erb in his 148 cases got a syphilitic history in 80%. Legrand, in his smaller number of 29 cases, gives syphilis a percentage of 76. These figures are certainly rather surprising, but convincing.

In many of the cases reported by others, syphilis was excluded by the failure of syphilitic treatment to improve or cure the condition, but Fournier declares that such leukoplakias belong in the class of what he calls "para syphilitic lesions," namely, those which are undoubtedly syphilitic, but nevertheless do not respond to syphilitic treatment.

If to these large percentages produced by a constitutional affection we add those in which a local irritant, tobacco, is used, we get very interesting results.

Of Fournier's 259 syphilitic cases, 96% were smokers. Erb, with 37 cases of leukoplakia in smokers without syphilis and 36 where syphilis without tobacco occurred, got a total of 64 cases in syphilitics who used tobacco. It may, of course, be doubted that these syphilitic leukoplakias are of the same character pathologically as the non-syphilitic leukoplakia, but there seems to be no question that they may degenerate into carcinoma, for Brualt

in 1898 reported a case in which such degeneration took place.

PATHOLOGY.

The pathology of leukoplakia has been studied by Leloir, Sangster, Butlin and Nedopil, and the process is very similarly described by all. The superficial layers of the epidermis are thickened sometimes to a very marked degree. This is called hyperkeratosis. Under this strata is a granulation layer, very marked, consisting of four or five rows of cells filled with eleidin, and under this the not-much altered Malpighian layer, while the submucous tissue presents a great infiltration of small cells around the vessels.

In the second stage, if on the tongue, deep fissures form, going down into the Malpighian layer, which degenerates, showing granular colloid cells and numerous wandering cells — all evidence of degeneration. In such cases the granular layer filled with eleidin disappears. Sangster found not only vacuolation of the Malpighian layer, but wide lacunæ taking the place of the papillæ in the Malpighian layer.

The thickening of the submucous layer is evidence of a more or less chronic process, while its infiltration by round cells suggests acute conditions or exacerbation of chronic ones.

Butlin divides his pathology into smokers' patch, of which he gives a picture of the microscopical condition, and leucoma, which he considers a chronic inflammation. In the cases microscopically examined by me, the epidermis is thickened, the Malpighian layer has not been much changed, but is in places vacuolated, and the submucous tissue is thickened and often infiltrated. The first photograph shows a leukoplakia in process of degeneration into an epithelioma; the second shows a leukoplakia having an ulcerated portion, but not showing signs of epitheliomatous degeneration, while the third illustrates the vacuolation spoken of by Sangster.

In a case of smokers' patch examined, the epithelial layer was found to be thicker than in the cases shown. Clinically, also, the patch was thicker than in the cases of leucoma without smokers' history. The wide lacunæ of which Sangster speaks were not noted in any of the specimens.

TREATMENT.

As regards treatment, the evidence is most conflicting. Cases treated by papayotin, by excision, by cautery, alkaline washes and "let alone" — all are credited with successful results. On the other hand, many leukoplakias, in spite of all treatment, die of carcinoma.

Butlin, in his last edition, recommends soothing alkaline lotions and ointments, with avoidance of the cautery and all irritants, and decrease or abstention from smoking. If the patch, in spite of all these measures, remains stationary, and above all, if induration or warts or any appearance of cancer suggests itself, thorough excision of the patch is advised. He cites two cases by Ramsohoff in which no recurrence had occurred ten years after operation.

During the last five years we have had at the Massachusetts General Hospital twelve cases, ten of which have been followed up by Dr. D. Crosby Greene, for me. Of these, eight were in males and two in females; the average age was 50.4 years.

All the eight males were smokers. In four cases the lesion was on the tongue, on the cheeks in four, and on the lip in one, while in one case the location is not stated. Three cases only admitted syphilis, and none had any other skin disease. The duration of the disease as given by the patient varied from twenty-three years to five months.

Four cases out of the ten developed carcinoma, and one could not be traced. The patients developing carcinoma had had leukoplakia, one for twenty-three years, two for five years, and in one the duration of the lesion could not be ascertained. All the fatal cases denied syphilis and admitted being smokers.

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## A CASE OF SUTURE OF DIVIDED URETER. RECOVERY WITHOUT LEAKAGE.

BY HUGH CABOT, M.D., BOSTON,

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THE number of cases in which the ureter has been sutured where it has been divided either accidentally or intentionally is as yet so small that no excuse is required for reporting an additional one.

The history was as follows: Mrs. T. J. B., forty-one years old, an American, entered May 1, 1901, on my service at the Baptist Hospital. Had always been well until the previous summer, when she was overworked and felt more or less unwell for two or three months. Menstruation had always been regular until two years before, when it became irregular, and finally, after a year, stopped altogether.

Present illness: In January, 1901, a flow which she regarded as menstrual began, at first profuse and then irregular. At the same time she had considerable pain in the right iliac fossa, radiating down the right leg. Pain at times very severe, and nearly constant. Of late, has required a quarter of a grain of morphia at night to control pain. Bowels have been constipated, but has had at no time any real obstruction, and has passed no blood. Urine has



FIG. 1.— Leukoplakia in process of degeneration into carcinoma.



FIG 2. — Leukoplakia with ulceration.



FIG. 3. — Vacuolation.

been normal; no frequency. Thinks she has lost twenty to thirty pounds since last summer.

Physical examination: Patient fairly developed; poorly nourished; pale, rather flabby. Heart and lungs show nothing abnormal. Examination of abdomen showed increased muscular resistence over the lower half of right rectus. Liver in normal position. No visible intestinal peristalsis.

Examination by vagina showed the cervix very irregular in outline; deeply lacerated, and bleeding easily to the touch. The tenderness was so great that pelvic examination was unsatisfactory. A diagnosis of cancer of the cervix seemed beyond question. Operation was advised and accepted.

Operation: May 3. Ether. Examination under ether showed no involvement of the vaginal mucous membrane. Uterus was freely movable, and there was apparently but little extension into the broad ligaments. Median incision was made from umbilicus to just above the pubes. Abdomen contained no free fluid, and there were some adhesions of the sigmoid flexure to the left tube. The supra-vaginal portion of the cervix showed a hard, nodular growth more marked in front and on the right side, with some involvement of the base of the right broad ligament. The ovarian arteries on either side were tied with silk and the upper part of the broad ligament divided. Bladder was freed from the front of the uterus with some difficulty, but did not seem to be involved. The left uterine artery was tied with ease. On the right side the growth was found to extend out around the right uterine artery, which was tied with some difficulty about an inch from the cervix on account of the extension of the growth in this direction. Vaginal wall was freed for two inches below the attachment of the cervix, and divided at first on the left side, then in front, behind, and finally on the right side clear of the growth. Tumor was thus removed intact. After the bleeding was controlled, the left ureter was found uninjured, but the right ureter had been divided about three quarters of an inch from the bladder, and about one-half inch had been removed in the growth. Although the patient was in rather poor condition, it seemed wise to attempt a ureteral anastomosis at this time. This was done by the end-in-end method. The lower portion of the ureter was dilated somewhat with a pair of hemostatic forceps. A traction stitch of fine silk was then passed into the lumen of the lower portion from without inward, carried out through the open end up into the lumen of the upper portion from without inward, and then back into the lower portion and out at the same hole through which it was originally introduced. The upper portion was then pinched together, and traction on this suture readily invaginated the upper portion into the lower. The overlapping of the ureter thus obtained was about three eighths of an inch. The ends were held in position by three sutures of fine silk placed at the junction of the overlapping ends, but not entering the lumen of the ureter. The traction suture was then removed. The abdomen was drained both at the lower angle of the incision and by the vagina with large gauze wicks.

Though in considerable shock at the end of the operation, patient picked up rapidly, and no leakage occurred from the sutured ureter. There was some disturbance of the function of micturition, and a certain amount of incontinence of urine which persisted for several weeks. The gauze packing was removed slowly, but without difficulty, and the wound closed in four weeks.

Convalescence was complicated by a thrombosis of the left femoral vein, which came on suddenly one night in the third week after operation. Temperature and pulse rose rapidly and patient had severe pain in the upper part of the left thigh. Whole extremity became cyanotic and very much swollen, so that pulsation in the arteries of the foot could hardly be felt. This rather alarming condition continued for four days, when improvement in the circulation began and went on rapidly. The recovery from this complication was surprisingly complete, and when the patient left the hospital on June 26, 1901, she had no inconvenience from the leg and there was but little tendency to œdema.

Subsequent History: For a few months after operation she had some dragging pain in right side, possibly due to the rather short ureter, but the symptoms disappeared, and during next six months patient gained twenty pounds in weight.

Aug. 5, 1902, patient presented herself for examination in answer to a letter inquiring after her condition. She looked well, and said she has been able to do all of her work. Weight has been well maintained. No symptoms referable to the genito-urinary tract. She complained, however, of pain and tenderness on the left side of the symphysis, and at this point there is to be felt a tumor about the size of an egg, apparently attached to the upper border of the symphysis pubes. It felt quite superficial, and gave rise to considerable rigidity of the left rectus. Examination by vagina and rectum failed to show anything abnormal. There was no evidence of recurrence within the pelvis except as above noted. Operation advised, but refused on account of comparatively slight inconvenience.

Sept. 10, 1902, patient sent word that she wished to come to the hospital for further operation as advised in August. Examination showed conditions essentially unchanged.

On the 17th of September she was etherized, and under ether it was found very difficult to demonstrate the presence of any tumor. A vertical incision was, therefore, made through the fibers of the left rectus, opening the peritoneal cavity. The pelvis was carefully explored and nothing abnormal found. There was no evidence of recurrence, and the ureter at the site of suture felt normal. I was about to close the wound when an excess of fibrous tissue at the lower angle of the incision attracted my attention, and I prolonged my incision downward and opened a cavity in the horizontal ramus of the left pubic bone filled with cancerous tissue. This was removed as far as possible with the curette, and the wound packed. Recovery from this operation was uneventful.

The malignant disease discovered at this time I took to be a bone metastasis rather than an implantation cancer at the lower angle of the previous wound.

In looking back over this case, we can see the entire course of recovery from the injury done to the ureter at the first operation, and in view of the complete examination made possible by the second

operation, I think it may properly be claimed that complete restoration of function has taken place. The other elements of the case are so much in line with the common observation in regard to operations for cancer of the uterus as to be of no special interest, except for the rather unusual site of the recurrence.

The attempt to unite divided ends of the ureter came as a natural result of the dissatisfaction with methods formerly so general of doing nephrectomy where this accident occurred, and it may now be somewhat dogmatically stated that nephrectomy is unjustifiable, except in cases where such large portions of the ureter have been removed as to make uretero-ureteral anastomosis impossible. Even then, the possibility of dislocating the kidney sufficiently to make a uretero-vesical anastomosis possible has been suggested. Of the methods of uretero-ureteral anastomosis, there are four which have been used in actual practice upon patients. A variety of other methods have been tried in animal experimentation, but the results of these experiments upon animals have in this condition been notably misleading, and led certain French observers to dogmatically assert that an end-to-end anastomosis of ureter was impossible, while as a matter of fact it has been done in nine cases with but one death, and in no case has the peristaltic action of the ureter resulted in the separation of the ends as was predicted from the results of experiments. We are, therefore, at liberty to regard experiments as often misleading, and there are now enough cases in which these methods have been employed in actual practice to warrant our drawing quite definite conclusions. The four methods are briefly as follows: —

The transverse end-to-end, the transverse end-in-end with or without splitting of one or other portion, the end-in-side and the oblique end-to-end.

The transverse end-to-end method has been done twelve times, with two deaths. In many of these cases some artificial aid has been used, either a small piece of catheter or a ureteral catheter passed in from the bladder so that it could be later withdrawn. In some of the cases, however, the anastomosis has been effected without artificial aids, and it is on the whole surprising how well these cases have done.

The end-in-end method has been done ten times, including my own case, with one death; three times by McMonagle without splitting the lower end, but in all these cases the ureter was dilated, and once by the author on an undilated ureter; six times by splitting the lower portion so as to admit more readily the insertion of the upper portion into the lower. The general principle of this method is the employment of one or more traction sutures, by which the upper portion is drawn down into the lower. McMonagle in his original communication advises the employment of two such traction sutures, but in my case one suture proved amply sufficient. It is quite possible to dilate the lower portion so as to admit the invagination of the upper without great difficulty, and it would seem that this method where possible would consume less time and sacrifice less ureter than in the splitting method. Where it is thought wise to split the lower fragment, such an incision need not be more than one quarter or one third of an inch in length, and the application and use of traction sutures is then the same.

The end-in-side method has been advocated by Van Hook and Kelly. In this method the end of the lower portion is closed by a ligature, and a slit one centimeter long is then made in the lower fragment just below the ligature. Into this slit the lower end of the upper portion is drawn by means of a traction suture.

The fourth method is the oblique end-to-end method of Bouvé. The object in this method is to prevent stenosis from subsequent cicatricial contraction, but there seems to be comparatively little evidence to show that such stenosis actually occurs in practice. This oblique end-to-end method differs from the transverse end-to-end only in that the ends to be sutured are cut obliquely, thus giving a somewhat longer line of suture. This has been done twice without mortality.

In reviewing these four methods it will be seen that they are applicable to somewhat different cases.

The transverse end-to-end method, especially with the hammer recently introduced by Kelly, will necessitate the sacrifice of less ureter than any other method, and is, therefore, particularly applicable to cases where a considerable amount of ureter has been lost, and there is barely enough to permit the ends to be brought together. It is an operation of more technical difficulty and more likely to leak than the end-in-end or end-in-side methods, and may, therefore, wisely be reserved for those cases to which other methods seem inapplicable.

The oblique end-to-end has practically the same limitations, though it will necessitate the sacrifice of a small portion of the ureter in order to obtain the oblique ends necessary.

The end-in-side method is only applicable to cases in which plenty of slack is to be had, as it necessitates the sacrifice of one and one-half inches of the ureter, and might be entirely impossible in a considerable number of cases. It is probably as easy as any of the methods, and is a little less likely to leak.

The end-in-end method, with or without splitting, is a method applicable to cases where a moderate amount of ureter up to an inch can be utilized for the suture. It is quite as easy as the end-in-side method, and would seem to have a larger range of application, in that it requires the sacrifice of less tissue.

In looking back over the reported cases in which the ureter has been sutured, the surprising thing to be noted is the variety of methods and the very favorable results which have been obtained. The tissue of the ureter seems one very well adapted to the purposes of anastomosis, and even in some cases where faulty or hasty methods have been necessarily employed, the permanent closure of fistulæ has very generally taken place, and the tendency in this direction seems to be very marked. We may, I think, conclude that attempts to suture the divided ureter are extremely likely to be successful, and that such an attempt should always be made before the ureter is implanted in the vagina, rectum or skin, or the formerly popular operation of nephrectomy is resorted to.

# Reports of Societies.

## NEW YORK NEUROLOGICAL SOCIETY.

Stated Meeting, Nov. 4, 1902.

JOSEPH COLLINS, M.D., PRESIDENT.

### SUCCESSFUL LAMINECTOMY FOR SPINAL CORD TUMOR.

Dr. Pearce Bailey presented a man who had been referred to in a communication to this society made by Dr. McCosh. The operation had been done by Dr. McCosh in May, 1900. In December, 1898, when thirty-nine years of age, the illness began with sharp, shooting and intermittent pain in the leg. It extended from the sacral region down the posterior surface of the limb to the knee. He did not work from November, 1899, until he came under observation in May, 1900. At that time he was suffering intensely, and could only walk with difficulty even with the aid of a cane. The pain affected the left lumbar region, the back and the front of the thigh, although previously it had been confined to the sciatic distribution. Examination showed an atrophy of the left leg with weakness and diminution of the knee jerk on that side. There was very slight anesthesia over the area corresponding to the lower lumbar distribution, and also on the front of the thigh. There was some difficulty in passing urine. The anesthesia was considered very suggestive of tumor, involving as it did the anterior surface of the thigh. Laminectomy, involving the eleventh dorsal and down to the second lumbar vertebra, was done, and disclosed a bluish tumor, which was removed. The result of the microscopical examination left it uncertain whether the tumor was a small cell sarcoma or a mass of fibrous or granulation tissue, but the subsequent history pointed to the latter diagnosis as being correct. The man was able to continue at his usual occupation, which involved a good deal of muscular exertion, and experienced no trouble from the back, despite the laminectomy. Both knee jerks were present now, and the anesthesia had disappeared from the front of the thigh.

### OSTEOSARCOMA OF THE SPINAL COLUMN; TREATMENT WITH COLEY'S FLUID.

Dr. Joseph Fraenkel presented a young man who had been well up to three years and a half ago, when he was struck in the back. For the next six months he was able to continue at work, but then the pain in the back became severe. When seen by Abrahamson a diagnosis of Pott's disease was made, and this was confirmed by Dr. Gibney, and the patient was put in a plaster of Paris jacket. About a year later, there was total paraplegia. He was then admitted to the Montefiore Home. There was absolute motor paralysis of both lower extremities with absence of the tendon reflexes. There was an area of anesthesia about the size of a dollar in the anal region. There was no tenderness and no external evidence of disease of the spinal column. Three or four months later a projection developed, which was most marked at the tenth dorsal vertebra. Exploratory puncture revealed no pus. Two weeks later a large swelling appeared on either side of the vertebral column. An exploratory operation showed the tumor to be solid, and a portion was excised for examination. Dr. Harlow Brooks reported the growth to be a highly vascular sarcoma. Injections of Coley's fluid were begun on Feb. 18, 1902, though some improvement had been noted before this time. The treatment was continued up to May 15. At times the reactions were quite violent. After stopping the treatment the patient's general condition improved markedly, and the tumor diminished in size and became harder.

### A CASE FOR DIAGNOSIS.

Dr. W. B. Noyes presented a man of twenty-six who fell three days previously from a building while at work. When seen the day before he was walking on his tip-toes with the aid of crutches. Examination showed no sensory changes and no disturbance of bladder or rectum, and vision was normal. The reflexes were all increased. The case was presented for diagnosis. He looked upon it as hysteria, although he had thought of a slight hemorrhage in the upper part of the pons.

Dr. M. G. Schlapp said that the case suggested concussion of the spinal cord, because of the spastic condition of the muscles that had been observed experimentally after injury to the cord.

### SUBCORTICAL TUMOR; OPERATION.

Dr. M. G. Schlapp presented a man who had been successfully operated upon for brain tumor. He had come to the clinic at the Presbyterian Hospital in the middle of July with the fingers paralyzed in a claw position. There was paresis of the face; ankle clonus and increased knee jerk were present; there was no disturbance of the tactile sense. The condition began three years ago with a sudden convulsion, lasting about half an hour. After about one week the patient developed Jacksonian epilepsy, and the attacks recurred about every three months. There was no history of congenital syphilis. The only history of injury was of being struck on the head by a barrel ten years before. A diagnosis of subcortical tumor was made. Dr. George Woolsey found on operation a cyst, about three inches in diameter, within which, and adherent to its wall, was a tumor. The latter was peeled out easily, and, on examination, proved to be a fibroma. The patient's condition had improved considerably since that time.

Dr. B. Sachs said he had reported some years ago a case of large tumor developing from the wall of a cyst, an occurrence which he did not think was very uncommon. It was probable that the tumor had developed in the wall of an old congenital cyst.

### A TUMOR FORMATION IN THE REGION OF THE COCCYX.

Dr. I. Abrahamson presented a child of one month with a tumor in the region of the coccyx, which had been noticed immediately after birth. There was no wasting, and the reflexes of the lower extremities were normal. The tumor was situated at the extreme end of the coccyx, and the skin was freely movable over the tumor. There was no cleft in the vertebral column and no pulsation. The tumor appeared, on rectal palpation, to lie between the rectum and coccyx. Only on violent crying

did the tension of the tumor vary. It was certainly not a spina bifida.

DR. ROBERT ABBÉ said that it appeared to belong to the presacral tumors,— really fetal remains, innocent in nature, though sometimes reaching a great size. They were easily removed, but some of these tumors had been known to shrink and almost disappear spontaneously.

### A SPECIMEN OF MENINGOCELE.

DR. M. G. SCHLAPP presented the brain of a child who lived three days, and died from some unknown cause. The brain showed a meningocele with almost complete hyperplasia of the cerebellum. There was almost complete absence of the pons. It seemed as though the lesion had extended from the third primitive vesicle, from which the cerebellum is formed.

### DISCUSSION ON SPINAL CORD TUMORS.

DR. JOSEPH COLLINS opened the discussion with a paper dealing with the symptomatology and operability of these tumors. He had collected seventy cases as a basis for his statements. These tumors, he said, were far more susceptible of surgical treatment than tumors of the brain; nevertheless the majority of spinal tumors proved fatal. There were four reasons for this, namely: (1) the inability to diagnosticate and localize these tumors; (2) the nature and extent of these growths; (3) the great danger to life of the operations for their removal, and (4) the inability of securing the patient's consent to operation at a period when such treatment might prove successful. It must be admitted that the clinical picture presented by such cases was not that given in our books as indicative of spinal cord tumors. A fibroma would give rise to symptoms of as great severity as would a most extensive sarcoma. It was much more important to diagnosticate a tumor in the lower part of the dorsal region than to localize it at a single level — in other words, it was much more important to diagnose a tumor of the spinal cord than the structure from which it springs. If the location of the tumor were determined within from four to six inches, he thought it would be near enough for the purposes of the surgeon. The favorite location of these tumors was in the upper and lower ends of the dorsal region. In the seventy cases that he had gathered from the literature, thirty-five were from the dorsal region, fifteen from the cervical, thirteen from the lumbar and sacral, and seven were of widespread distribution — in other words, in fifty per cent of the cases they were in the dorsal region. In many cases reported the pain was by no means characteristic, and in some cases it was not even a prominent symptom, as had been formerly supposed. From his personal experience, and a review of the literature, priapism was an uncommon symptom.

The speaker then reported a case occurring in a man, first seen in September, 1901. Four months previously he had begun to complain of pain in the abdomen, apparently due to flatulent dyspepsia, and relieved when digestion was improved and the bowels regulated. About this time stiffness of the right leg began. Examination showed a Brown-Sequard paralysis on the left side, extending above Poupart's ligament. A diagnosis of spinal cord tumor was made, and an operation urged, but not agreed to until about nine months later. He was then in a pitiable condition, and was taken into hospital. The tumor was located by Dr. Abrahamson at the tenth dorsal vertebra, and at the operation, done by Dr. Samuel Lloyd, the growth was found at this point. The patient recovered from the operation, and had since then steadily improved, although the long delay in operating precluded the possibility of a cure. The second case was that of a young girl, who became ill with what was supposed to be pneumonia, in December, 1898. She remained in hospital over three months, and the following summer the diagnosis of Pott's disease was made at another hospital. The following autumn, on admission to the City Hospital, she was completely paraplegic, and had enormous bedsores. Subsequently she died in the Montefiore Home, and the autopsy revealed a sarcoma at the level of the seventh dorsal segment. In the seventy cases collected, surgical operation had been undertaken in thirty, with a successful result in twelve, partial success in eight, and unsuccessful in ten cases. Of the ten unsuccessful cases, death occurred in four cases from sepsis and septic meningitis, while in four others there were collapse, exhaustion, shock and hemorrhage. In twenty-one cases the nature of the tumor was stated. Among these twenty-one, four were fibromata, twelve were sarcomata, three were endotheliomata, and one was a myolipoma. According to the records, forty-four of the seventy cases might have been operated upon. Fourteen cases gave autopsy records which indicated that they could not have been operable.

### REPORT OF A CASE OF SPINAL CORD TUMOR OPERATED UPON.

DR. JOSEPH FRAENKEL reported this case. The patient was a woman of forty years. Three years and a half before coming under this observation she began to have slight pain in the right hypogastric region, and some time later in the buttock on the same side. Still later a painful area developed in the perineum. After all sorts of treatment she came under his care. At that time the right lower extremity was flexed, and on attempting to put her on her back it increased the pain in the areas referred to. There was retention of urine and obstinate constipation. The right knee jerk was absent, while the left jerk was normal. Both plantar reflexes were absent. There was a curious trophic œdema of the right buttock. The diagnosis of spinal cord tumor was made, situated in the cauda equina. The first nerve implicated must have been the iliohypogastric nerve, explaining the first area of pain. The patient was operated upon last April in the New York Hospital by Dr. Frank Hartley, and the patient reacted with difficulty. A tumor was found between the strands of the right half of the cauda. It was a reddish, pultaceous mass, which proved on microscopical examination to be a fibrosarcoma. Certain symptoms improved after the operation, but the patient died about two months later.

### REPORT OF A CASE OF SPINAL CORD TUMOR OPERATED UPON.

DR. I. ABRAHAMSON reported this case. The patient was a man of sixty, in whom the first symp-

toms had developed in February, 1900. The first symptom complained of was a coldness and numbness in the fourth and fifth toes of the left foot at night. Later, the right foot and leg were similarly affected. On March 15, 1902, he first came under the speaker's observation. On admission to the Montefiore Home, May 12, 1902, there was weakness and atrophy, most marked on the right side. The extremities were flaccid, with some tendency to contracture and a reaction of degeneration. The thighs were flexed, adducted and inwardly rotated. The knee jerks were lively. There was total loss of voluntary power in both lower extremities. There was a point of hyperæsthesia in the right superspinatus region. There was much diversity of opinion as to whether it was extramedullary or intramedullary. His own diagnosis was a tumor of the spinal cord at the level of about the sixth dorsal vertebra, and this was confirmed at the operation. Unfortunately, secondary infection occurred, and the patient died as a result of this, three weeks after the operation.

DR. M. ALLEN STARR said that, in his paper, read before this society in 1895, he had collected from autopsy records one hundred and twenty-three cases of spinal cord tumor. Out of this number there were one hundred with sufficiently accurate records to allow of the statement that in 75% of the cases surgical interference should prove successful. Since that time Bruns had published an excellent article, and Schlesinger still more recently had published a paper containing 400 cases of spinal cord tumor. Of this large number there were apparently about sixty per cent which were operable. Schlesinger's statistics showed that over one fourth of these cases were sarcomata, whereas in his own paper most of the cases seemed to be sarcoma or fibroma. Of Schlesinger's cases 64 were tuberculous, 44 were cysts, 33 were fibromata, 28 were gummata and 20 were gliomata. The speaker said he had seen 101 brain tumors and 10 spinal cord tumors. Of his ten cases of spinal cord tumor, only six had been operated upon. Two of the remainder were gummata with distinct Brown Sequard symptoms, and subsided gradually under antispecific treatment. The other two had not been operated upon because the diagnosis had not been made early enough and with sufficient accuracy, and the autopsies showed in both that the operation would have been unsuccessful. Of the six patients operated upon, all died; two of meningitis, two of bedsores and two of collapse. Dr. Pearce Bailey was, therefore, to be congratulated on the great success attained in the case he had presented to the society this evening. He would insist upon the absolute necessity of early diagnosis and early operation, a statement which had been fully borne out by the published experience of Dr. McCosh. Although Dr. Collins had called attention to the unreliability of pain as a symptom, it should be noted that in five out of the six cases reported here this evening, pain had been a rather prominent feature. Moreover in Schlesinger's cases pain was a prominent symptom. He did not see just how the differential diagnosis from meningomyelitis could be made unless pain were present. Schlesinger had also called attention to priapism as one of the common symptoms indicative of spinal cord irritation.

DR. B. SACHS said that a number of years ago he had expressed himself as being in favor of early interference in these cases of spinal cord tumors, and his further experience had only strengthened this opinion. Reference was made to two of his cases, one operated upon two years, and the other three years, ago, both of which were doing well. He would, therefore, insist that operative interference should be urged just as soon as the diagnosis had been made. He agreed with Dr. Collins that too much prominence had been given to the question of localization of spinal cord tumors. An important and significant fact in the history of these cases was that the affection remained unilateral for a very considerable time, and when it became bilateral the symptoms of affection of both sides quickly became apparent. In those cases in which the symptoms were either sensory or motor root symptoms, and in which all of the severer spinal cord symptoms remain in abeyance for a long time, it was probable that the neoplasm was extradural. A rather sudden development of general myelitic symptoms, following upon symptoms which had been unilateral for a considerable time, pointed very strongly to spinal cord tumor.

Dr. G. L. WALTON of Boston said that Dr. Collins' statistics and their discussion emphasized the large proportion of operable spinal tumors and the large percentage of benefit from operation upon such tumors. Such considerations should prevent us from erring on the conservative side when the diagnosis of tumor had been established. It was to be hoped that when we formed the habit of including this possibility in every case of eliminative diagnosis, tumors would be more frequently recognized at an early stage, when operation promised the most. That this habit was not established fifteen years ago was illustrated by a case at that time under his care, which was seen by so distinguished authorities as Charcot and Seguin, neither of whom suggested the possibility of tumor, both regarding the case as one of myelitis, and recommending such treatment as the cautery, ergot, and strychnine. In 1892, Dr. J. J. Putnam, under whose care the patient had come, recognized the lesion as a tumor, and the case had been twice operated upon, once by Dr. W. W. Keen and once by Dr. J. C. Warren, with beneficial results though not cure. That pain was by no means an essential symptom even when the posterior nerve roots had become involved in new growth, was illustrated by this specimen (specimen shown) of intradural carcinoma, which had completely destroyed the posterior nerve roots of one side in the cervical region. The case would shortly be published by Drs. E. W. Taylor and G. A. Waterman. There was no history of pain during the onset of this lesion. The clinical history closely resembled that of the case reported to-night by Dr. Abrahamson, that is, atrophic paralysis of the upper, with spastic condition of the lower extremity. Dr. Collins had alluded to the fact that fibromata might cause more pain than tumors of this class, a fact illustrated by the case Dr. Putnam had reported, in which Dr. Warren removed a fibroma lying free within the dura, a longitudinal section of which, from Dr. Taylor's laboratory, was shown. In this case violent pain, especially including abdominal pain, was the prominent feature. In the micro-

scopical specimens exhibited this evening was included a case of cysticercus in the substance of the cervical spinal cord in a case of tabes. He had happened upon this while working with Strümpell in 1880. There were no symptoms referable to the cysticercus.

DR. ROBERT ABBÉ said that he had seen that very day the patient reported to this society last year, and upon whom he had reported three years ago. The patient was steadily progressing, and there was nothing to indicate any active disease. The tumor was a large one, and at the time of operation involved the cord, so that it was necessary to curette some of the cord away. There had been no increase in any of the cord symptoms. The arms, which were formerly paralyzed, could now be raised to the head. In sarcomata of the spinal cord he thought the growth was slow as compared with sarcomata in other parts of the body. Sometimes a tumor of the spinal cord might grow for a long time, and yet give rise quite suddenly to symptoms. All of the cases of spinal cord tumors that he had had, had been among males. The pain that he had seen in these patients had been distinctly of a rheumatic rather than of a neuralgic type. He did not quite understand why so many of the reported cases had proved fatal from infection or from shock, because it seemed to him that the operation should be conducted rapidly and with considerable safety. The hemorrhage in these cases was apt to be almost wholly venous, and practically it could be only controlled by pressure. A little strip of gauze pressed into the hollows as the laminæ were opened would control the hemorrhage, and would generally prevent any great degree of shock. The dura should be opened at once if the tumor were not encountered, and should be split up for any distance necessary, and subsequently sutured with fine catgut. The escape of fluid did not seem to him of special importance; the leakage had always been slight, and had lasted only eight or ten days. The infection of these wounds in the past he thought had been largely due to the use of impure catgut.

DR. COLLINS explained that he had not meant to say that pain was not an important diagnostic symptom, but he wished to call attention to the fact that the pain was not by any means characteristic, as would appear from the descriptions given in the books.

## Recent Literature.

*Manual of Gynecology.* By HENRY T. BYFORD, M.D., Professor of Gynecology and Clinical Surgery, in the College of Physicians and Surgeons of Chicago, etc. Third Edition. Philadelphia: P. Blakiston's Son & Co. 1902.

This book of 598 pages is got up in attractive form by the publishers. The marginal notes as to the contents of each paragraph are, as a whole, of great value to the reader, although there are places where their meaning is not clear. If the references in the text to other parts of the work were to pages rather than to parts, chapters and paragraphs, the finding of the places alluded to would be facilitated.

The use of sitz baths, as noted on page 81 and elsewhere, commends itself as a valuable therapeutic measure which has been rather slighted of late. The same can hardly be said of pelvic massage and pelvic gymnastics, which have little in practice and less in theory to recommend them. Exploratory puncture (page 109) and the tapping of ovarian tumors (page 511) either by the vagina or through the abdominal wall is not safe advice to give to students. It is difficult to see what advantage in the way of better diagnosis is gained to the patient by tapping an ovarian cyst through the abdomen previous to an abdominal operation, which will counterbalance the great danger of infecting the peritoneum from the leaking collapsed cyst. In the light of our present knowledge such a procedure ought to be severely condemned. Laceration of the perineum is poorly treated, and Emmet's operation, is, as is usual in most textbooks, not accurately described. The description and figures of the Tait operation, on the other hand, are especially good. The description of the Alexander operation is defective, in that no mention is made of the different layers which are gone through before the search for the external abdominal ring is made — the only difficult part of the operation, and especially difficult unless the anatomical landmarks are constantly kept in sight.

It is a question whether vaginal fixation of the uterus has had a favorable enough past to justify its being included in a modern textbook on gynecology. In the chapters on cystitis the absence of the latest ideas as to the causation and pathology of cystitis and of the appearance of the bladder walls as seen through the cystoscope are to be noted. It is with pleasure we see the dull wire curette pronounced useless. This relic of a bygone time is put where it belongs at last. The uterine syringe might well have been relegated to the rubbish heap also, not as useless but as dangerous when employed in injecting fluids into the uterus.

The aseptic precautions to be observed as to instrumentation in minor gynecology are not all they should be; for instance, dipping a slippery elm tent in a five per cent solution of carbolic (page 116) to render it safe to introduce in the uterine canal.

Drainage of pelvic abscesses by the rectum is advocated, although the author frankly states that this is the result of his personal experience, and is not the course advocated by most authors. The use of the aspirating needle in pelvic abscess advocated in this book is, we think, to be condemned as tending to injure the uterus, bladder and rectum, and to infect the peritoneum. Posterior colpotomy fulfills every indication of exploration and drainage.

The chapters on gonorrhea are particularly well written and up with present ideas, while the chapter on tuberculosis of the bladder, like that on cystitis, is not full, and does not embody the latest views on the subject. The advice to dilate the urethra for drainage is reprehensible as subjecting the patient to the risk of permanent incontinence.

In the consideration of high amputation for cancer of the cervix, in advising the removal of the ovaries to diminish the size of a fibroid tumor,

or in giving repeated doses of ergot for the same purpose, the author exhibits a tendency, manifest also in other places, to retain much of the old and the obsolete in a modern book.

The concise and clear style is much to be praised, as is the arrangement of the different parts and chapters. The illustrations and typography are good.

*The Diseases of Infancy and Childhood.* Designed for the Use of Students and Practitioners of Medicine. By Henry Koplik, M.D., Attending Physician to the Mount Sinai Hospital; formerly Attending Physician to the Good Samaritan Dispensary, New York; Ex-President of the American Pediatric Society; Member of the Association of American Physicians, and of the New York Academy of Medicine. Illustrated with 169 engravings and 30 plates in color and monochrome. pp. xi–675. New York and Philadelphia: Lea Brothers & Co. 1902.

The author in his preface states that the time seems opportune for a work which gathers and unifies the world's best practice in the domain of Pediatrics. The work is, as he claims, in no sense a compilation, but is based on his individual experience and careful judgment regarding the work of other pediatrists. The citation of authorities and of literature to the extent done in this volume is something of an innovation in American textbooks, but is, we think, a valuable one.

The classification of diseases is peculiar and unsatisfactory and often illogical. The space allotted to various subjects is hardly in accordance with their relative importance. Infant feeding and the diseases of the newborn infant receive rather scant notice. The chapters on the exanthemata and diseases of the respiratory tract are among the best in the book.

The author does not commit himself on many moot points, especially on those connected with infant feeding. We note that he does not believe in the tuberculin reaction, that cytodiagnosis in meningitis is omitted, and that he does not state where he punctures in pericarditis. We cannot agree with him that the white of one egg is equal in nutritive value to three ounces of breast milk. It furnishes only about one sixth as many calories.

The work as a whole is, however, most satisfactory, and entitled to a place well toward the top of the list of American textbooks on Pediatrics.

*The Care of the Teeth.* By Samuel A. Hopkins, M.D., D.D.S., Professor of Theory and Practice of Dentistery in Tufts College Dental School. New York: D. Appleton & Co. 1902.

This duodecimo of 150 pages is especially designed to be of service to mothers with growing children, though it contains sensible advice and suggestions which would be useful to individuals of all ages. It is divided into twelve chapters. The author believes that the decay of teeth may in a great measure be prevented, and that conviction led to his writing his book. The "prevention" of trouble he rightly believes should be the highest aim of the best men in any profession.

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## MUNICIPAL LABORATORIES AS IMPORTANT AIDS TO SANITARY WORK.

In no department of medicine has the science of bacteriology proved of more practical value than in the administration of public hygiene, and especially of municipal sanitation. Within the past ten or fifteen years it has become the practice in all large cities to establish laboratories as an essential part of the sanitary equipment of boards of health, and in some instances facilities for chemical analysis have also been provided in such establishments.

Believing that prompt diagnosis of infectious diseases is essential to the work of notification, isolation and control of infectious diseases, the Massachusetts State Board of Health also established a laboratory of this character, the primary intention of the board being that of aiding the smaller municipalities in which such laboratories could not be maintained in consequence of the expense and the comparative rarity of occurrence of infectious diseases in the smaller rural towns.

In cities of more than twenty thousand inhabitants, however, the necessity of this class of sanitary work is much more apparent, since in cities of this size infectious diseases of some sort are rarely absent. In such cities the attending physician feels the need of such efficient aid as the local laboratory can give, either in confirming or refuting the diagnosis in doubtful cases of diphtheria, tuberculosis, typhoid fever, malaria, or other infectious diseases. In these larger municipalities, money expended in maintaining efficient local laboratories would unquestionably yield far more profitable returns in saving life and health than similar expenditures employed in conducting a system of garbage and ash collection, with all the necessary employees, horses, carts and other items of equipment, notwithstanding the fact that all these are quite essential to municipal cleanliness.

It may be said that the necessary material for examination can be sent to the State Board of Health

for examination, but this invariably involves greater delay, and in dealing with infectious diseases promptness is a matter of the highest importance. Epidemics are like conflagrations, — the sooner they are controlled the better for the community. No city would for a moment consider the question of abolishing its system of fire protection, nor should it allow its board of health to be hampered in its work for the want of a good municipal laboratory, or to discontinue its laboratory, after having established it, since the laboratory is, in some ways, of even greater importance than the fire department; the fire protection system existing mainly for the protection of property, while the laboratory exists for the protection of life and health.

At present, in Massachusetts, the cities of Boston, Worcester, Lowell, Cambridge, Springfield, Lynn, Fall River, Fitchburg, Newton, Brockton, Waltham, the town of Brookline and possibly a few others, maintain such laboratories and find them exceedingly useful adjuncts to the administrative work of the local boards of health. The city of Somerville was once included in this list, but has recently discontinued its laboratory, notwithstanding the protest of sixty-nine of its local physicians.

The subject is one of growing importance in the estimation of sanitary authorities, as shown by the annual addition of new cities to the list above mentioned. It has attracted the attention of medical societies and provoked vigorous discussion during the past year. At the meeting of the Massachusetts Association of Boards of Health in July, the subject was thoroughly discussed by the health officers of several cities, and at the monthly meeting of the Somerville Medical Society on Dec. 1, the society was addressed by Prof. M. T. Sedgwick upon "Some Modern Requirements in the Sanitation of Cities." In the course of his address he stated that "all large cities should be provided with a laboratory in which the indispensable bacteriological and chemical work of a modern board of health can be done, and any city or large town which neglects to supply itself with such a laboratory must hereafter be regarded as behind the times and disregardful of the lives and health of its citizens. . . . From the standpoint of civic welfare, and a proper solicitude for the public health, the discontinuance of a laboratory when once established (as was the case in Somerville), must be regarded as a municipal calamity."

After a free discussion of the subject, the society adopted a resolution appealing "to the mayor of Somerville to secure the speediest possible restoration of the bacteriological bureau in Somerville."

## RESEARCH PROFESSORSHIPS.

RESEARCH is apparently the watchword of recent tendencies in medicine. It is coming to be felt that a professor may make himself more useful to his university and the world at large by devoting all his time to research and none to the labor of teaching. Professors who do not practice medicine are no longer unique, but the dissociation of teaching from the work of the head of a department still carries with it a sensation of novelty. It will not for a moment be questioned by any who have attempted conscientiously to instruct students in the elements of medical knowledge, that the task is curiously absorbing and time-consuming. It is becoming more and more apparent that in many instances energy is thereby exhausted which might to far better advantage be applied in lines of more original and productive work. Especially is this true, as often happens, if good investigators are ruined to make poor teachers. The reaction from this has begun and is sure to grow, by the establishment of professorships which do not require their incumbents to teach, but demand of them original investigation. This is a movement in the right direction, so far as it acknowledges the fact that medicine and medical education, broadly interpreted, reach beyond the immediate needs of students, and that heads of departments should have a far broader function than mere instruction. It is, on the other hand, easy to see the possible drawbacks of such a system if widely introduced, in having a tendency to remove the professor too far from the aims and interests of elementary students, for whom, after all, the university exists and is bound to provide the best possible instruction. The stimulus which comes from a certain amount of teaching is also an element not to be wholly ignored. When all is said, however, it must be admitted that we are making a distinct step forward in advocating the establishment of certain professorships which shall have no other end than the upbuilding of knowledge through research.

## SMALLPOX IN BERLIN.

THE existence of a few cases of smallpox in Berlin, in 1901 (by no means an epidemic), would scarcely have attracted public attention had it not been for a brief article by Kleine, to which reference is made in a recent number of a German health journal.[1] That this disease could have gained access to the population of a very large city through the coming of certain immigrants from a comparatively unvaccinated country, without pro-

[1] Centralblatt f. Allgemeine Gesundheitspflege, 1902, p. 354.

ducing a serious epidemic, is one of the undoubted results of the thorough enforcement of wise and protective legislation.

The facts were as follows: This outbreak occurred near the end of April, 1901, and the cases, twelve in number, were immediately taken to the hospital for infectious diseases. The first case, a railway employee, aged forty-two years, had been vaccinated in early childhood. It appears quite probable that in consequence of his age he had escaped the revaccination which is required of all scholars in the schools at the age of twelve; since, when the German vaccination law was enacted in 1874, this man was fourteen or fifteen years old. He had come in contact with some Russian immigrants. He died six days after admission to hospital.

Ten days later, two men who had been exposed to this man were taken ill, and a few days later the eruption of smallpox appeared. The disease ran a mild course, these men having been revaccinated. The wife of one of these men was also taken ill, having become infected while visiting her husband before the diagnosis of smallpox had been made in his case.

Fourteen days later, in South Berlin, an unvaccinated infant six months old was taken ill with smallpox, and died in three days. In this case it appeared that the germs of the disease were probably carried to this child by a healthy woman, who had come in contact with another healthy woman who had visited the woman who was mildly sick with smallpox.

Here we can observe, as the reporter says, "the wanderings of the germs of smallpox in a well-vaccinated population, doing no harm until it meets an unvaccinated person."

Six days later, in North Berlin, two men, each fifty-nine years old, and two unvaccinated boys, each five years old, were taken ill and were brought to the hospital. One of these boys died and the other survived. The infection in each of these cases was traceable to the first case.

The deaths among these twelve cases were three. It is doubtful if a similar outbreak of smallpox, occurring in any other city of the world having a million inhabitants or more, would have run its course so quickly and have claimed so few victims.

## MEDICAL NOTES.

Smallpox in Chicago. — The *Bulletin* of the Chicago Health Department reports the following case: —

"One case of smallpox was discovered in the city during the week, but even this furnishes another object lesson in the value of vaccination. The case is that of a sixteen-year old boy who contracted the disease from a child visitor from Freeport, still 'scaling' from smallpox on its arrival. Two weeks later this case developed. The boy is one of a family of six persons that were equally exposed to the contagion. The father, mother and two sisters had been vaccinated; another member of the family had had smallpox in early life before vaccination; the boy alone was unprotected either by a previous attack of smallpox or by vaccination, and he alone contracted the disease. There were still eleven cases remaining in the Isolation Hospital at the close of the week, only one having been discharged recovered. The hospital figures for the year are three hundred and twenty-two received, three hundred and seven discharged recovered and four died."

A Research Professorship in Physiology. — A research professorship in physiology has been established at the University of California, which frees the incumbent from any obligation to teach. In addition a research laboratory, which is separated from the laboratory for students, is being put up and equipped for the needs of special as well as of general physiology. Among other things, a marine aquarium will be added to the research laboratory.

International Sanitary Conference. — The first International Sanitary Conference of the American Republics met in Washington, December 2. Mexico, Chili, Cuba, Costa Rica, Salvador, Honduras and the United States were represented. Dr. Walter Wyman, surgeon-general of the Marine Hospital Service, of the United States, presided.

### BOSTON AND NEW ENGLAND.

Acute Infectious Diseases in Boston. — For the week ending at noon, Dec. 10, 1902, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: Diphtheria 31, scarlatina 24, measles 10, typhoid fever 20, smallpox 22.

Vaccination in Chelsea, Mass. — The Board of Health of Chelsea has undertaken to make a canvass of the schools in order to see whether the children are properly vaccinated. It has come to light that the former system of physicians' certificates allows many possibilities of imperfect work, and, in view of the possibility of an epidemic of smallpox this winter, it has been deemed wise to make a thorough investigation of children going to the public schools. Free vaccination of all citizens, including children, will be granted.

Appointments at Boston City Hospital. — Frank A. Higgins, M.D., has been promoted to the position of First Assistant Visiting Physician for Diseases of Women, and Franklin S. Newell, M.D., has been promoted to the position of Second Assistant Visiting Physician for Diseases of Women, at the Boston City Hospital.

OVERCROWDING OF DANVERS INSANE HOSPITAL. — According to the recent report of the trustees of the Danvers Insane Hospital there is a very marked degree of overcrowding at the institution. It is said that the hospital contains more than double the number of patients originally intended. Extra appropriations are therefore asked to complete buildings for more patients. Four hundred and fifty-four were admitted during the year and four hundred and thirty-eight discharged. The average cost of each patient for the year was $163.08.

PROFESSOR LORENZ' BOSTON VISIT. — Applications are being received at the Children's Hospital for treatment by Dr. Lorenz at the time of his visit to this city. The cases are carefully selected from the large numbers applying, in order that this treatment may be confined to congenital dislocation of the hip. Applications have been made at the surgical out-patient department of the hospital at the regular time when out-patients are admitted; namely, from two to four o'clock on Monday, Tuesday, Wednesday and Saturday afternoons.

ADDRESS BEFORE MAINE DAIRYMAN'S ASSOCIATION. — Dr. Langdon Frothingham of Boston addressed the Maine Dairyman's Association, which met last week, on the subject of "foot-and-mouth disease."

NEW YORK.

CENTENARIAN. — Richard Van Buren, a negro born in Maryland and who claimed to have been a slave in President Van Buren's family, died at Coveville, Saratoga County, N. Y., on Nov. 30, at the reputed age of 106 years.

ANNIVERSARY MEETING OF NEW YORK CHARITY ORGANIZATION SOCIETY. — The twentieth anniversary meeting of the Charity Organization Society was held on Nov. 17. One of the addresses was made by Mayor Low, who spoke particularly of the work being done by the new Tenement House Department, of which Mr. De Forest, the president of the society, is the head. In speaking of the improvements being made in the Division of Contagious Diseases of his department, Health Commissioner Lederle said: "We are building a hospital at the foot of East Sixteenth Street which will hold two hundred and twenty-five patients. We are putting every building in the department in thorough repair, and we are establishing ambulance and disinfecting stations in the outlying boroughs; but this is a mere beginning. This city must spend at least two million dollars in the next three years upon its contagious disease hospital service, and even when this is spent, money must be laid aside each year to provide for the future growth of the city." He also spoke of the suppression of tuberculosis. When the Health Department first began its work for the prevention of the disease in 1886, he said the death-rate from it was 4.42 in the thousand. For the first nine months of 1902 the rate has been but 2.71. Meanwhile the population of Manhattan and the Bronx has risen about fifty per cent, but the whole number of deaths from tuberculosis is no greater.

LARGE DAMAGES FOR DEATH. — On Dec. 2, a jury in the New York Supreme Court awarded a verdict of $100,000 to the widow of William Leys, on account of the death of her husband in the Park Avenue tunnel disaster in January last. This sum, which carries interest from the date of the accident, and which is further supplemented by an allowance of $2,000 for counsel fees, is stated to be the largest ever awarded in any country in a suit for damages because of death. The whole amount claimed from the New York Central & Hudson River Railroad Company was $250,000. In making her complaint Mrs. Leys declared that her husband, who was fifty-one years of age and general manager and superintendent of a large New York dry goods house, had been making an income of nearly $30,000 a year.

SUPERINTENDENT OF BELLEVUE HOSPITAL. — It is announced that Dr. William Madon, now of Ogdensburgh, N. Y., has been appointed superintendent of Bellevue Hospital, and will assume charge on Jan. 1. Dr. Madon was graduated from Bellevue Hospital Medical College, in 1881, and in 1887 was appointed assistant physician at the State Hospital, for the Insane, at Utica. In 1895, when the Willard State Hospital was in need of reorganization, he was selected for medical superintendent of that institution, and in the following year was appointed medical superintendent of the St. Lawrence State Hospital at Ogdensburgh, where he succeeded Dr. Wise, who had been made president of the State Commission in Lunacy. In addition to his executive duties at Bellevue Hospital, Dr. Madon will act as consulting physician to the pavilion for the insane at the hospital, a position for which he is well qualified by his extensive experience as an alienist.

MORTALITY STATISTICS. — The death-rate for November was very much the same as for October, when it was exceptionally low. It amounted to 16.20, against 16 in October, and 16.98 in November of last year. Among the diseases which showed a decline in mortality were the following: The weekly average of deaths from diarrheal diseases decreased from 80.5 in October to 42 in November; of deaths from diarrheal diseases in children under five years, from 75.75 to 38, and from pulmonary tuber-

culosis, from 144.75 to 139. Among the diseases which showed an increased mortality were the following: The weekly average of deaths from diphtheria and croup increased from 28.5 to 42; from measles, from 1.5 to 3.5; from pneumonia, from bronchitis, from 29 to 35.5; from influenza, from 1.75 to 2.5; from cancer, from 42.75 to 50, and from diseases of the urinary system, from 100.75 to 102.5. During the month one death was reported from smallpox, one from Addison's disease, and two from Hodgkin's disease. The corrected death-rate (excluding non-residents and infants under one week old) was 15.32.

Bequest of a Patient to a Hospital. — Patrick Flanagan of Perth Amboy, who was recently a patient at St. Michael's Hospital in Newark, N. J., and died there, is stated to have left all the property he had, amounting to about $7,000, to that institution.

Donation for Lorenz Treatment. — Dr. N. M. Shaffer, professor of orthopedic surgery at Cornell University Medical College, has received a considerable gift of money from a private source, donated for the more satisfactory carrying out of charitable work among poor children in connection with the visit of Prof. Adolph Lorenz to New York.

## Miscellany.

### THE ANNUAL MEETING OF THE AMERICAN MEDICAL ASSOCIATION.

The next annual meeting of the American Medical Association will be held in New Orleans, May 5 to 8, 1903. The local Committee of Arrangements has held its first meeting, and issues an early and hospitable appeal to the profession to come to the meeting. A particularly winsome part of this appeal is appended.

"The blushing spring bears witness to the tranquil season, when the iris flecks the fallow fields in tones of gray and brown and blue, and where the dogwood beckons in the swampland and clovers whiten roadsides with their fragrant bloom.

"The magnolia blossoms to the tune of twittering birds, while roses and the jasmines, fresias, columbine and the mellow orange flowers make the May time sweetest of the year.

"The balmy nights are redolent with odors of nature's fruitful promise; too soon for broods of festive culex, or of gnat; while toothsome fish and fowl are plentiful.

"May is the month of New Orleans' months.

"When the sun shines with glory and with fended ray; when starlight seems brighter, because the nights are less marked by clouds; when the dew is early and the showers have grown less frequent in a cloudless sky.

"The days grow longer in the May time and twilight halts, slow to speed the passing day; from out the open windows float upon the willing air the sounds of home. This is the season. And while the time or day are not of our choosing, we, of the medical guild, are glad to say to the members of the American Medical Association, brothers in the art, come in May!"

### AMERICAN ASSOCIATION FOR THE STUDY OF INEBRIETY.

This Association will hold its thirty-second annual meeting at Boston, Mass., Dec. 18, 1902, in the hall of the Washingtonian Home, 41 Waltham Street. The first session, at 2 P.M., will take up the subject of the Treatment of Inebriety. Papers will be read by Dr. Edward Cowles, of the MacLean Hospital, Waverley, Mass.; Dr. H. D. Rodebraugh, of the Parkview Sanitarium, Columbus, Ohio; Dr. A. E. Stearne, Home for Nervous Invalids, Indianapolis, Ind.; Dr. C. A. Drew, of the Asylum for Insane Criminals, State Farm, Mass.; Dr. Osgood Mason, of the Retreat, New York City; Dr. V. A. Ellsworth, Washingtonian Home, Boston, Mass.; Dr. J. H. Kellogg, Battle Creek, Mich.; Dr. C. A. Shephard, of the Brooklyn Sanitarium, New York; Dr. S. B. Elliot, Willard Hospital, Bedford, Mass.; Dr. Agnes Sparks, Home for Female Inebrieties, Brooklyn, N. Y.; Dr. J. B. Mattison, of the Home for Narcotic Inebriates, Brooklyn, N. Y., and others.

In the evening session, beginning at 8 P.M., the president, Dr. L. D. Mason, of Brooklyn, N. Y., will deliver the annual address. After which Dr. T. D. Crother swill read a paper on "Inebriety in Ancient Egypt and Chaldea." This will be followed by addresses by Dr. H. O. Marcy, Boston, Mass.; Dr. H. D. Didama, Syracuse, N. Y.; Dr. John Madden, Milwaukee, Wis., and others. The profession are cordially invited to attend. T. D. Crothers, M. D., of Hartford, Conn., is the corresponding secretary.

### AN ANTI-ALCOHOL MANIAC.

This clipping from the *Medical Press* is interesting as a foreign view of one of our notorious characters and also as throwing a side light on the therapeutic value of alcohol.

The injury done by fanatics to the cause they espouse, as all the world knows, is often great, and sometimes deplorable. This is, perhaps, more true of temperance advocates than of any other class of social reformer. Alcohol is the red rag that goads them to fury, and they push the principle of total abstinence from alcohol to the most far-reaching and illogical lengths. For instance, they forbid all medicines that contain alcohol, a step that at once excludes many valuable remedies, such as the tinctures, which in most cases represent the only form in which the active medicinal virtues of the drugs concerned could be rendered available as physic. The most serious of all these prohibitions, however, is probably that which prevents the use of alcohol as a medicine. While the average medical man must agree cordially as to the immense evil wrought by excessive indulgence in alcohol, he will almost invariably, even when a total abstainer himself, endorse the value and necessity of alcohol as a stimulant drug. Certainly the medical practitioner who forswore the use of alcohol would in that way permit many a patient to slip through his fingers. In case of shock, alcohol is by far the readiest and most powerful weapon in the hands of the medical attendant, who would stamp himself as either a fool or a fanatic, or both, should he refuse to avail himself of the stimulant action of alcohol when brought

face to face with the kindred conditions of shock, faintness, and syncope. Bearing these facts in mind, it is with mixed feelings of amusement and pity that we find a notorious American temperance advocate, Mrs. Carrie Nation by name, pushing her extreme views to a practical issue in the midst of the havoc and confusion of a railway collision. We are told that recently an express train was wrecked by running into an engine just outside Jersey City, and that a number of passengers were seriously injured, one being transfixed by an iron bar. As soon as she recovered herself sufficiently from the shock, Mrs. Nation's first thought was to prevent the sufferers from drinking the brandy brought to them by the doctors. We are told that this deluded woman actually "broke several bottles containing the hated liquor." The force of fanatic folly could hardly further go. The incident is typical of the shallow intellectual equipment of the extreme temperance agitator. All reasonable men and women would doubtless regard Mrs. Carrie Nation as a most undesirable fellow-passenger in a railway smash. It is clear enough that by stopping the administration of brandy under such circumstances any number of unfortunate sufferers might lose their only chance of surviving the first shock of the accident.

## A MEMOIR OF PROF. J. M. DACOSTA.

AN admirable and appreciative memoir of this wise and good practitioner and teacher of medicine was presented by Dr. J. C. Wilson, his successor in the Jefferson College Medical School, at the meeting of the Philadelphia College of Physicians, held Nov. 5 last, and was published in the *Philadelphia Medical Journal*, Nov. 8. The memoir should be read as a whole, but we reproduce the following extracts: —

"His breadth of view as a student is apparent in such lectures as 'The Physicians of the Last Century'; 'Harvey and His Discovery,' and 'Tendencies in Modern Medicine.'

"His writings show throughout literary ability of so high an order that we experience a deep regret that they were not given to us in larger measure — a regret that is tempered by the reflection that they are nowhere marred by the faults of haste, carelessness or overproduction. May we not hope to see his more important papers and addresses collected in one or more volumes for re-reading and reference!

"DaCosta's learning and intellectual gifts and his distinguished professional attainments were everywhere recognized. The degree LL.D. was conferred upon him by the Jefferson College, the University of Pennsylvania and Harvard University, and he was made honorary and corresponding member of many learned and scientific organizations. But among those who came within the sphere of his direct personal influence there was a feeling for him much deeper than the admiration inspired by the recognition of his intellectual superiority and splendid professional gifts. The man was greater than the physician or the teacher. I have said that character is far-reaching. It is more than this. It makes itself deeply felt. It arouses sentiments more lofty and enduring than the admiration which is excited by mere ability even of the highest order. In his punctilious regard for duty, directness of purpose, the integrity and refinement of his daily life, a delicacy of feeling that sometimes seemed carried to an extreme, and the modesty with which he bore unusual honors, were traits that won for him upon every side, and in a high degree, respect, confidence and affection. The great classes of the Jefferson College as students and afterward as practitioners held him in the highest honor. As a consultant his position in Philadelphia and the parts within reach was supreme. He has been well spoken of as the physician's physician — a title that means much. To his patients he was the ideal doctor. He brought to them the finest personal qualities and the highest professional skill, and they repaid him with love. . . .

"Death came to him quickly on the 11th of September, 1900, at his country seat, Ashwood, near Villa Nova, and at the close of the day — quickly, but not without pain. The attack was the last of a series that had extended over several months. In the supreme agony the voice of the clinician: 'Just as I expected.'

"The fine and gentle presence has passed a ay, but the keen intellect and noble heart remain to us w So our great ones come and go. Hail and farewell!".

## Correspondence.

### MIDSHIPMAN AIKEN AND VIVISECTION.

THE following letter, written by Dr. W. W. Keen to Hon. Jacob H. Gallinger, chairman of the Senate Committee of the District of Columbia, is worthy of a wide reading: —

DEC. 5, 1902.

*My Dear Sir*, — As you have repeatedly introduced bills into the Senate for the purpose nominally of regulating experiments upon animals in the District of Columbia, which bills, however, if they had become laws, would in fact have prohibited many, if not all of them, I deem it my duty to call your attention to the case of Midshipman Aiken of the United States Naval Academy, who was recently injured in a football game. My reason for doing so is to show you by a single concrete example that knowledge gained by animal experimentation is an immense boon to humanity, and that, therefore, such experiments should be heartily encouraged.

The facts of Mr. Aiken's case are as follows: When I first saw him three days after the accident, I found that he had been unconscious for a half hour after the accident and ever since then had bitterly complained of headache, which he located always in the forehead. Mentally he was very dull, though not comatose. His pulse was slowed down to 52 instead of being 72, the normal. Soon after the accident he began to develop convulsions, first in the right leg, afterward in the right arm also, the right arm being finally the chief seat of the convulsions. When they were very severe they involved the left side also. The face was never involved. In six hours and a half after I first saw him he had twenty-four of these attacks, all limited to the right arm. They were not attended by any loss of consciousness. They exhausted him very greatly, especially when they were excessively severe. Several times it was necessary to give him chloroform.

There was no fracture of the skull. The only physical evidence of any injury was a very slight bruise at the outer end of the left eyebrow.

Had I seen this case before 1885, I would have been unable to explain why the spasms were chiefly manifested in the right arm, and from the evidence of the slow pulse, the headache, the stupor, the bruise in the left temple, etc., I would have been justified in inferring that probably the front part of the brain was injured at the site of the bruise. Had I opened his skull at that point, I would have found a perfectly normal brain and have missed the clot. The young man, therefore, would have died, whether his skull had been opened or not.

In 1902 observe the difference. As a result of the knowledge derived from experiments upon animals which have located precisely the center for motion of the right arm on the left side of the brain near the top and a little in front of a vertical line drawn through the ear, and disregarding entirely the site of the headache and the bruise, I reached the conclusion that there had been a rupture of a blood vessel within the head, which had poured out a

quantity of blood, and that the situation of the clot should correspond to the "arm center." The location of this arm center was far away (about three inches) from the location of the bruise, and its position was fixed absolutely as a result of experiments upon animals, confirmed later by many operations on human beings and also by post-mortem examinations.

As soon as the skull was opened at this point the clot was found, its thickest point being exactly over the arm center, and nine tablespoonfuls of blood were removed, with the result that the patient's life has been saved. The blood had first been poured out over the "leg center," which is located a little higher up than that for the arm. This explained the early spasms in the right leg. The clot did not extend, however, further down than the arm center. This explained why the face was never convulsed, for the "face center" lies just below that for the arm.

I think if you were to ask the parents of this young man how many animals they would be willing to have sacrificed in order that their son might have his life saved, there would be no doubt of the answer. Indeed, had it been your own son, I cannot doubt the answer. But this is only one of hundreds of cases in which a similar exact localization has been made by many surgeons, both in Europe and America. Yet, by a curious coincidence, in the very same issue of a Baltimore newspaper containing a reporter's account of the successful operation on Midshipman Aiken, there is a letter signed by an active antivivisectionist agitator, which, among other misstatements and misrepresentations usually found in such publications, asserts that "brain surgery is disregarded!"

If the laws which you and your friends advocate were in force, the conditions for scientific investigation in medicine in this country would be quite as deplorable as those in England. For example, when Lord Lister, who has revolutionized modern surgery, largely as a result of such experiments, wished to discover possibly some still better way of operating by further experiments, he was obliged to go to Toulouse to carry them out, as the vexatious restrictions of the law in England practically made it impossible for him to continue there these preëminently humane experiments.

Again, when Sir T. Lauder Brunton in London started a series of experiments on animals to discover an antidote for the cobra and other snake poisons of India, where every year twenty thousand human lives are sacrificed by snake bites, these beneficent researches were stopped by the stringent British laws to protect animals. Meanwhile half a million of human beings have hopelessly perished.

Who, I may ask, is the more humane, he who, doubtless with the best and sincerest motives of love for dumb beasts, would prohibit experiments upon animals and thereby prevent the acquisition of such knowledge, and so compel surgeons to stand with folded arms and see innumerable lives thus needlessly sacrificed; or he who by properly instituted experiments would discover such new truths and apply them to the service of humanity?

The antivivisectionists have frequently denied that surgeons have learned anything from such experiments. I presume that I may be considered a competent witness as to the source, at least, of my own knowledge, and I state with the greatest positiveness that without the knowledge derived from experiments upon animals, which have demonstrated the facts of cerebral localization, I should never have been able to locate the clot in Mr. Aiken's head and to remove it, nor would I have been able in the last fifteen years to locate numerous tumors and other brain troubles, and relieve many of them. What is true of myself is equally true of other surgeons.

In view, therefore, of the evident and positive benefit of such experiments, I trust that you will be willing to desist from further efforts at such repressive and, as I regard it, most inhumane and cruel legislation.

As this matter is of vital importance to the well-being of the entire community, I shall take the liberty of giving this letter to the press as soon as you have received it.

Yours very respectfully,

W. W. KEEN,

*Professor of Surgery, Jefferson Medical College.*

## RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, NOV. 29, 1902.

| CITIES. | Population Estimated, 1902. | Reported deaths in each. | Deaths under five years. | Percentage of deaths from | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | Infectious diseases. | Acute lung diseases. | Diphtheria and croup. | Typhoid fever. | Diarrheal diseases. |
| New York . . | 3,665,352 | 1,117 | 315 | 21.02 | 8.59 | 3.40 | 1.70 | 2.86 |
| Chicago . . . | 1,852,828 | 448 | 122 | 29.01 | 11.83 | 4.68 | 4.23 | 7.59 |
| Philadelphia. | 1,349,624 | 454 | 112 | 19.37 | 15.40 | 1.76 | 2.64 | .44 |
| St. Louis . . | 603,717 | — | — | — | — | — | — | — |
| Baltimore . . | 525,330 | 171 | 49 | 26.31 | 7.60 | 5.26 | 4.68 | 2.92 |
| Cleveland . . | 411,826 | — | — | — | — | — | — | — |
| Buffalo . . . | 375,742 | — | — | — | — | — | — | — |
| Pittsburg . . | 341,401 | 139 | 36 | 30.93 | 20.14 | 4.31 | 6.47 | 2.88 |
| Cincinnati . . | 332,032 | — | — | — | — | — | — | — |
| Milwaukee . | 304,975 | — | — | — | — | — | — | — |
| Washington . | 289,537 | — | — | — | — | — | — | — |
| Providence . | 185,870 | 77 | 25 | 24.70 | 13.00 | 3.90 | 1.30 | 3.90 |
| Boston . . . | 588,730 | 210 | 62 | 25.24 | 16 67 | 2.38 | .95 | 2.75 |
| Worcester . . | 127,337 | 26 | 11 | 19.25 | 30.80 | — | — | — |
| Fall River . . | 111,872 | 41 | 25 | 36.58 | 4.88 | 2.43 | — | 14 63 |
| Lowell . . . | 99,574 | 38 | 12 | 7.89 | 21.05 | — | — | — |
| Cambridge . | 96,334 | 19 | 6 | 10.53 | 31.58 | — | 5.26 | — |
| Lynn . . . . | 71,144 | 26 | 6 | 3.85 | — | — | 3.85 | — |
| Lawrence . . | 67,275 | 21 | 13 | 19 05 | 28.57 | — | — | 4.76 |
| Springfield . | 66,854 | 16 | 4 | 18.75 | 12.50 | — | 12.50 | — |
| Somerville . | 65,882 | 16 | 1 | 12.50 | 12.50 | 6.25 | — | — |
| New Bedford | 65,574 | 34 | 18 | 14.70 | 23.53 | 2.94 | 5.88 | 2.94 |
| Holyoke . . . | 48,065 | 20 | 9 | 20.00 | 10.00 | — | — | 5.00 |
| Brockton . . | 43,208 | 10 | 3 | 10.00 | — | — | — | — |
| Haverhill . . | 40,392 | 12 | 1 | 8.33 | 8.33 | — | — | — |
| Salem . . . . | 36,567 | 12 | 3 | — | — | — | — | — |
| Newton . . . | 36,336 | 6 | — | — | — | — | — | — |
| Malden . . . | 35,390 | 11 | 1 | 9.09 | 18.18 | — | 9.09 | — |
| Chelsea . . . | 35,264 | 10 | 1 | 20.00 | — | — | 10.00 | — |
| Fitchburg . . | 33,848 | 9 | 5 | 22 22 | 44.45 | — | — | — |
| Taunton . . . | 32,759 | 15 | 4 | 6.67 | 6.67 | — | — | 6.67 |
| Everett . . . | 27,114 | 9 | 6 | 33.33 | — | — | — | — |
| North Adams | 26,583 | 5 | 2 | 20.00 | — | — | 20.00 | — |
| Gloucester . | 26,121 | — | — | — | — | — | — | — |
| Quincy . . . | 25,307 | 11 | — | 27.27 | 18.18 | 18.18 | — | — |
| Waltham . . | 24,612 | 7 | 2 | 28.60 | — | — | 14.30 | — |
| Pittsfield . . | 22,311 | 8 | 1 | 50.00 | — | 12.50 | — | — |
| Brookline . . | 21,679 | — | — | — | — | — | — | — |
| Chicopee . . | 20,390 | 9 | 4 | 11.11 | 11.11 | — | — | — |
| Medford . . | 20,014 | 2 | 1 | 50.00 | — | — | 50.00 | — |
| Northampton | 19,460 | 7 | 0 | — | — | — | — | — |
| Beverly . . . | 14,814 | 4 | 1 | 25.00 | — | — | — | — |
| Clinton . . . | 14,645 | 5 | 2 | — | — | — | — | — |
| Newburyport | 14,478 | 5 | 1 | — | — | — | — | — |
| Woburn . . . | 14,285 | — | — | — | — | — | — | — |
| Leominster . | 13,953 | — | — | — | — | — | — | — |
| Hyde Park . | 13,858 | — | — | — | — | — | — | — |
| Marlboro . . | 13,609 | 3 | 0 | — | — | — | — | — |
| Melrose . . . | 13,384 | 3 | — | 33.33 | — | — | — | — |
| Westfield . . | 13,038 | 5 | 3 | — | — | — | — | — |
| Attleboro . . | 12,846 | — | — | — | — | — | — | — |
| Adams . . . | 12,813 | — | — | — | — | — | — | — |
| Milford . . . | 12,516 | — | — | — | — | — | — | — |
| Framingham | 12,109 | 2 | — | 50 00 | — | — | — | — |
| Peabody . . | 11,957 | — | — | — | — | — | — | — |
| Revere . . . | 11,894 | 2 | 1 | — | 50.00 | — | — | — |
| Gardner . . . | 11,544 | 3 | 1 | 33.33 | — | — | — | — |
| Weymouth . | 11,337 | — | — | — | — | — | — | — |
| Southbridge . | 10,838 | 1 | 1 | — | 100.00 | — | — | — |
| Watertown . | 10,600 | 6 | — | — | 16.67 | — | — | — |
| Plymouth . . | 10,336 | — | — | — | — | — | — | — |

Deaths reported, 3,055; under five years of age, 870; principal infectious diseases (smallpox, measles, scarlet fever, cerebrospinal meningitis, diphtheria and croup, diarrheal diseases, whooping cough, erysipelas, fevers and consumption) 695, acute lung diseases 364, consumption 324, scarlet fever 19, whooping cough 24, cerebrospinal meningitis 6, smallpox 21, erysipelas 5, measles 14, typhoid fever 80, diarrheal diseases 97, diphtheria and croup 96.

From whooping cough, New York 6, Chicago 3, Philadelphia 2, Baltimore 1, Pittsburg 1, Providence 3, Boston 4, Lawrence, Brockton, Chelsea and Everett 1 each. From measles, New York 3, Chicago 3, Philadelphia 2, Baltimore 1, Pittsburg 2, Providence 1, Fitchburg 1, Gardner 1. From erysipelas, New York, Chicago, Philadelphia, Pittsburg and Boston, 1 each. From smallpox, Philadelphia 1, Pittsburg 10, Providence 1, Boston 9.

In the seventy-six great towns of England and Wales, with an estimated population of 14,862,151, for the week ending Nov. 15, the death-rate was 17.4. Deaths reported 4,970; acute diseases of the respiratory organs (London) 347, whooping cough 51, diphtheria 76, measles 166, smallpox 4, scarlet fever 52.

The death-rate ranged from 8.0 in Coventry to 35.1 in Hanley; London 17.7, West Ham 18.2, Brighton 14.2, Portsmouth 17.7, Southampton 12.6, Plymouth 13.3, Bristol 17.1, Birmingham 16.0, Leicester 14.0, Nottingham 23.2, Bolton 18.6, Liverpool 23.4, Manchester 17.6, Salford 17.2, Bradford 15.5, Leeds 18.9, Hull 20.2, Newcastle-on-Tyne 21.9, Cardiff 25.6, Rhondda 12.9, Hornsey 13.1, Bootle 19.2.

## METEOROLOGICAL RECORD

For the week ending Nov. 29, in Boston, according to observations furnished by Sergeant J. W. Smith of the United States Signal Corps:

| DATE | Barometer. | Thermometer. | | | Relative humidity. | | | Direction of wind. | | Velocity of wind. | | We'th'r * | | Rainfall in inches. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Daily mean. | Daily mean. | Maximum. | Minimum. | 8.00 A.M. | 8.00 P.M. | Daily mean. | 8.00 A.M. | 8.00 P.M. | 8.00 A.M. | 8.00 P.M. | 8.00 A.M. | 8.00 P.M. | |
| S. . 23 | 29.72 | 41 | 49 | 33 | 59 | 38 | 48 | W | S W | 14 | 15 | C. | C. | T. |
| M . 24 | 29.63 | 44 | 56 | 33 | 57 | 36 | 46 | S W | S W | 26 | 12 | O. | O. | O. |
| T. . 25 | 29.82 | 47 | 50 | 44 | 72 | 51 | 62 | N W | N | 6 | 9 | O. | O. | T. |
| W . 26 | 29.71 | 39 | 46 | 32 | 92 | 100 | 96 | N E | N | 32 | 14 | R. | O. | .96 |
| T. . 27 | 29.56 | 36 | 40 | 32 | 95 | 100 | 98 | N | W | 8 | 12 | R. | G. | .02 |
| F. . 28 | 29.79 | 34 | 39 | 30 | 69 | 78 | 74 | W | N W | 18 | 20 | C. | C. | O. |
| S. . 29 | 30.41 | 36 | 44 | 28 | 83 | 58 | 70 | W | S | 7 | 10 | C. | C. | O. |
| ☞ | 29.81 | | 46 | 33 | | | 71 | | | | | | | .98 |

*O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow. †Indicates trace of rainfall. ☞ Mean for week.

## CHANGES IN THE MEDICAL CORPS OF THE NAVY FOR THE WEEK ENDING DEC. 6, 1902.

R. C. DEAN, medical director, retired. Ordered to Washington, D.C., for duty as president of the Naval Examining Board.

S. H. DICKSON, medical inspector. Detached from the Marine Barracks, Washington, D.C., and ordered to the "Iowa," as fleet surgeon of the South Atlantic Station.

M. H. SIMONS, medical inspector. Detached from the "Iowa," and ordered home to wait orders.

M. H. CRAWFORD, surgeon. Resignation accepted to take effect Nov. 28, 1902.

M. S. ELLIOTT, passed assistant surgeon. Detached from the "New York," and ordered to temporary duty with recruiting party at Pueblo, Colo., and from thence to the "New York."

J. C. ROSENBLEUTH, passed assistant surgeon. Detached from the "Wilmington," and ordered home.

F. A. ASSERSON, assistant surgeon. Detached from the "Kentucky," and ordered to the "Wilmington."

H. A. DUNN, assistant surgeon. Detached from Naval Station, Cavite, and ordered to the "Vicksburg."

## RECENT DEATH.

HENRY JOSEPH CUSHING, M.D., M.M.S.S., died in Merrimac, Nov. 18, 1902, aged sixty-five years.

## THE EDWARD N. GIBBS MEMORIAL PRIZE, ONE THOUSAND DOLLARS.

The New York Academy of Medicine announces that the sum of one thousand dollars will be awarded to the author of the best essay in competition for the above-mentioned prize.

The subject of the essay shall be "The Etiology, Pathology, and Treatment of the Diseases of the Kidney."

Essays must be presented on or before Oct. 1, 1904. Each essay must be in English, typewritten, designated by a motto, or device, and accompanied by a sealed envelope, bearing the same motto, or device, which shall contain the name and address of the author. No envelope will be opened except that which accompanied the successful essay. The Academy reserves the right, according to the direction of the donors, not to award the prize if no essay shall be deemed worthy of it. The Academy will return the unsuccessful essays, if claimed by their respective authors, or by authorized agents, within six months. An essay must show *originality* in order to obtain the prize. The competition is open to the members of the regular medical profession of the United States. The original of the successful essay shall be the property of the Academy, and, according to the deed of gift, will be published in its Transactions.

The essays shall be transmitted to the Committee of the Trustees of the New York Academy of Medicine on the Edward N. Gibbs Memorial Prize.

R. F. WEIR, M.D., *President.*
J. H. HUDDLESTON, M.D., *Rec. Sec.*

A. JACOBI, M.D., *Chairman,*
ARTHUR M. JACOBUS, M.D., *Sec.,*
*The Trustees.*

NEW YORK, Dec. 1, 1902.

## SOCIETY NOTICES.

NEW ENGLAND HOSPITAL MEDICAL SOCIETY. — A regular meeting of the society will be held at 3 Park Street, Boston, Mass., on Thursday, Dec. 18, 1902, at 7.30 P.M.

Paper, Dr. Agnes C. Vietor, "A Visit to Some of the European Surgical Clinics in 1902"; Dr. Mary F. Hobart, "A Case of Renal Calculus Complicating the Puerperium."

AGNES C. VIETOR, M.D., *Secretary,*
Trinity Court, Boston.

BOSTON MEDICAL LIBRARY. — The regular meeting will be held at Ware Hall, Medical Library Building, The Fenway, on Monday, Dec. 15, at 8.15 P.M. sharp.

Program: "Consideration of Typhoid Fever." Statement by the President; Dr. George G. Sears, "Typhoid Fever at the Boston City Hospital in 1902"; Dr. H. F. Vickery, "Points of Special Interest Observed in Typhoid Patients during the Summer of 1902"; Dr. J. T. G. Nichols, "Typhoid Fever in Private Practice"; Dr. J. H. Pratt, "Observations on Paratyphoid"; Dr. J. C. Munro, "Clinical Diagnosis of Perforation in Typhoid Fever"; Dr. H. C. Ernst, "Typhoid Immunity"; Dr. M. W. Richardson, "On the Presence of the Typhoid Bacillus in the Urine and Sputum"; Dr. F. C. Shattuck, "The Dietetic Management of Typhoid Fever."

Demonstration: Both before and after the meeting there will be a demonstration of the lesions of typhoid fever; of the histological appearances; of the bacteriology of the typhoid and the colon bacillus; of the Agglutination reaction, and of clinical charts. This demonstration will be arranged under the direction of Drs. Ernst, Fitz, Hewes, Mallory and Whitney.

A. K. STONE, M.D., *Secretary,*
543 Boylston Street.

## BOOKS RECEIVED.

Transactions of the New Hampshire Medical Society at the One Hundred and Eleventh Anniversary, held at Concord, May 15 and 16, 1902. The Rumford Press, Concord, N. H. 1902.

Presidential Address. American Surgical Association. By DeForest Willard, M.D. Philadelphia. Reprinted from Transactions. 1902.

The Ear from a Medico-Legal Standpoint. By W. Scheppegrell, A.M., M.D. Reprint. 1902.

Ueber rationelle Zusammensetzung und therapeutische Verwendung der Mineralheilwässer an der Heilbäder für Sommercuren. By W. Jaworski, M.D. Berlin. 1902.

Resolutions in Reference to the Conduct of the Health Authorities of California in Dealing with the Plague Situation. Adopted by the Conference of State and Provincial Boards of Health of North America, at New Haven. 1902.

Presence of Titanus in Commercial Gelatin. By John F. Anderson. Hygienic Laboratory. Bulletin No. 9. Washington. 1902.

Laboratory Technique. King Test for Indol. Collodium Sacs. Microphotography with Simple Apparatus. Hygienic Laboratory. Bulletin No. 7. Washington. 1902.

Eine Methode zur Sterilisirung und zur sterilen Aufhebung von Catgut. By M. Claudius. Reprint. 1902.

Transactions of the Massachusetts Medico-Legal Society. Vol. III, No. 4. Boston. 1902.

Clinical Report upon Ureteral Surgery. By Charles P. Noble, M.D., Surgeon-in-Chief, Kensington Hospital for Women, Philadelphia. Reprint. 1902.

Transactions of the Chicago Pathological Society. Chicago. 1902.

A Plan for the Study of Man. By Arthur MacDonald. Senate Document, No. 400. Washington. 1902.

Report of Three Rare Operations upon the Urinary Organs. By Charles P. Noble, M.D. With Pathological Notes by W. Wayne Babcock, M.D. Colored plates. Philadelphia. Reprint. 1902.

Annual Report of the Health of the Imperial Navy for the Year 1902. Tokyo. 1902.

Ueber Impftuberkulose. By Von O. Lassar. Berlin. 1902. Reprint.

Excision of the Lumbar Lymphatic Nodes and Spermatic Vein in Malignant Disease of the Testicle. By John B. Roberts, M.D. Philadelphia. Reprint. 1902.

Le Remède Typhique dans la Fièvre Typhoids. By Dr. Julio Mendez, Buenos Ayres. Reprint. 1902.

Ankylostomiasis, the Most Common of the Serious Diseases of the Southern Part of the United States. By H. F. Harris, M.D., of Atlanta, Ga. Reprint. 1902.

Blindness from Congenital Malformation of the Skull. By Charles A. Oliver, A.M., M.D. Philadelphia. Reprint. 1902.

The Morning Drop; Its Treatment. By Ferd. C. Valentine, M.D., New York. Reprint. 1902.

# Original Articles.

## A METHOD OF STAINING SPUTUM FOR BACTERIOLOGICAL EXAMINATION.[1]

BY WILLIAM H. SMITH, M.D., BOSTON.

THE following method of staining sputum has grown out of a study of sputa extending over a period of three years. During this time most of the cases of pneumonia, and many of the cases of bronchitis, entering the Massachusetts General Hospital, have been studied with especial regard to the bacteria present in the sputum of such cases.

Solutions needed: Aniline oil gentian violet. IKI solution, iodine 1, potassium iodide 2, water 300. Saturated aqueous solution of eosine. Loeffler's alkaline methylene blue. Alcohol, 95%, 4 parts, ether 6 parts. 95% alcohol, absolute alchol, xylol.

The best results are obtained when the stains are fresh. The specimen should be examined as soon after it has been raised as possible, as standing favors the growth of bacteria. No carbolic acid or corrosive sublimate solution should have been added to the specimen.

As thin a cover glass preparation as possible should be made from the sputum, by means of a sterile platinum loop. This is more essential if it is at all bloody, as is so frequently the case in pneumococcus pneumonia. Fix the preparation in the ordinary way, by passing two or three times through the flame. Cover the specimen, thus fixed, with aniline oil gentian violet, holding it well above the flame, and allow it to steam. Avoid burning.

Wash off the excess of aniline oil gentian violet with IKI solution; cover with IKI solution, and allow to steam as before. Decolorize as much as possible with 95% alcohol. Wash a few seconds in alcohol ether solution. Wash in water. Stain a few seconds in saturated aqueous solution of eosine. Wash off excess of eosine with Loeffler's blue; cover with Loeffler's blue, steaming as before.

Decolorize slightly with 95% alcohol; wash in absolute alcohol; follow with xylol; mount in Canada balsam, and examine with an oil immersion lens.

### APPEARANCE OF STAINED SPECIMEN.

The appearance of a specimen stained by this method is as follows: the protoplasm of the leucocytes, lymphocytes and other cells takes the eosine stain, as do the red blood corpuscles; the nuclei of the cells stain with the Loeffler's blue. Eosinophiles appear as in stained blood preparations. Gram staining organisms appear black or deep violet, while Gram decolorizing bacteria take the Loeffler's blue stain. Capsules about organisms, when present, are stained by the eosine, as are ciliæ.

### ROUTINE METHOD OF EXAMINATION.

First stain the specimen for tubercle bacilli by one of the usual methods; while looking for these, examine the leucocytes and note whether they contain numerous minute bacilli. If such are present, they may be influenza bacilli. If no tubercle bacilli are found after several cover glasses have been examined, stain another specimen as above described; the following points may be noted: —

1. The number and staining reaction of organisms present.

Small numbers of the ordinary bacteria are found in the saliva and sputum in health. It is only when they are present in large numbers in comparatively fresh sputum, in some respiratory disease, that they become of importance. The organisms most frequently found under such conditions (excluding the tubercle bacillus) are the pneumococcus, influenza bacillus, streptococcus, staphylococcus, bacillus mucosus capsulatus and pseudo-pneumococcus. Opportunity for the study of the diphtheria bacillus in the sputum has not been offered, but in two cases, once by Dr. Lord and once by the writer, bacilli similar to diphtheria bacilli have been seen; upon isolation, however, they proved to be pseudo-diphtheria bacilli. The recognition of Gram staining and Gram decolorizing organisms in these stained specimens is usually easy.

2. Note whether leucocytes are abundant or few, and whether they are phagocytic.

Leucocytes are found in varying amount in all sputa. While they are present in small numbers in ordinary saliva, large numbers are found in the sputum of chronic influenzal bronchitis, or empyema discharging through a bronchus.

3. The frequent or rare occurrence of blood globules should be noted, as should the presence of pigment cells, ciliated epithelial cells and eosinophiles.

Blood corpuscles are present in most specimens, microscopically. They may be found in large numbers in the early stage of acute lobar pneumonia, as well as in infarction of the lung and hemoptysis. They are present to a less marked degree in acute bronchitis, acute pulmonary œdema and chronic passive congestion of the lungs. Pigment cells are commonly found in most sputa; they are frequently seen in large numbers where occupation has necessitated dust inhalation. Cells containing blood pigment are present in pneumonic sputum, and in chronic passive congestion of the lungs they are often abundant. Ciliated epithelial cells may be found in pneumonia, acute and chronic bronchitis and in asthma. An occasional ciliated cell is seen in the sputum in health.

It is not unusual to see a few eosinophilic cells in any sputum, and they can readily be found in cases of pneumonia and bronchitis; the prevailing cell, after an acute attack of bronchial asthma, may be the mono-nuclear eosinophile (Plate I). I have not been able to see that the cases of phthisis with eosinophiles in the sputum did any better than others.

### SPUTUM IN PNEUMOCOCCUS INFECTION OF THE RESPIRATORY TRACT.

Pneumococci may be found in small numbers in the saliva of healthy persons. The organism usually occurs as a paired oval or lancet-shaped coccus, and in ordinary saliva its capsule stains with difficulty. When present in the sputum in a case of pneumococcus pneumonia or bronchitis, the organ-

[1] From the Clinico-Pathological Laboratory of the Massachusetts General Hospital.

isms are usually found in large numbers, frequently in short chains; their capsules are usually easily demonstrated (Plate II, III).

The sputum in a case of acute lobar pneumonia shows, when stained by this method, the following characteristics: In the early stage many blood globules taking the eosine stain, large numbers of leucocytes with eosine staining protoplasm and blue nuclei; moderate numbers of small mono-nuclear cells staining similarly to the leucocyte, a rare eosinophilic cell and ciliated cell; many paired lancet-shaped cocci, frequently in short chains, stained black or deep violet; many of the diplococci or chains of cocci have a distinct eosine staining capsule. The false capsule, probably due to shrinkage by fixation, appears as a white rim outside the true capsule (Plate IV). As the disease progresses the leucocytes increase in number, the blood corpuscles diminish; the pneumococci are very abundant and are found not only outside of but also within the leucocytes. Later in the disease, as recovery begins, the number of leucocytes and pneumococci diminishes.

If a secondary infection occurs, the sputum again becomes purulent and other organisms appear in large numbers; the streptococcus, staphylococcus and influenza bacilli have frequently been found in these cases.

If the acute pneumococcus infection has developed secondary to a chronic influenzal bronchitis, the sputum may be purulent from the beginning, and, in addition to the pneumococci, many influenza bacilli will be found in the sputum. Under such conditions convalescence is slow.

No marked differences have been observed in stained specimens of sputa in cases of lobar or broncho-pneumonia, or bronchitis of pneumococcus origin. It is impossible to state from the sputum examination what form the pneumococcus infection has taken. In nearly every instance it is possible to say whether there is a pneumococcus infection or not.

### INFLUENZA BACILLI.

The influenza bacillus may be found in the sputum in acute or chronic bronchitis, or broncho-pneumonia. It may appear as a secondary invader in cases of pneumococcus pneumonia or in early or late phthisis. It may be present in large numbers in the sputum in chronic bronchitis and persist for a period of years. It has been constantly found in the sputum of a patient with chronic bronchitis for nearly two years, and it has been repeatedly isolated in pure culture from this sputum (Plate V).

The organisms appear in the stained specimen as minute bacilli, taking the Loeffler's blue stain (therefore Gram decolorizing), frequently crowding the protoplasm of the leucocytes, or lying outside the cells in large numbers. The influenza bacilli vary greatly in number from day to day in any given specimen, and a single negative examination is not sufficient. As a rule, they are present in such large numbers as to make the diagnosis easy. Should, however, the bronchus leading to the small influenzal focus be occluded, or the sputum examined come from another portion of the lung, few influenza bacilli may be found in a single examination, while examination of another specimen, the next day, may show them present in large numbers.

### STREPTOCOCCI.

Streptococci may be found in small numbers in the saliva in health. They appear in the stained specimen as black or deep violet cocci in chains. They may appear in large numbers in the sputum in cases of broncho-pneumonia or abscess of the lung. They are frequently found in the sputum as secondary invaders, either during the progress of a pneumococcus pneumonia, or in chronic bronchitis, associated with the influenza bacillus. This organism is also frequently found in large numbers in the sputum of patients with advanced phthisis. In two cases of acute bronchitis the streptococcus was practically the only organism present in the sputum.

### STAPHYLOCOCCI.

These can usually be seen in small numbers in almost any sputum, and, like the streptococcus, they may appear as secondary invaders. They are seen frequently in cases of abscess of the lung; occasionally in broncho-pneumonia, usually secondary to suppuration elsewhere. They appear as black or deep violet-stained cocci.

### BACILLUS MUCOSUS CAPSULATUS.

It is rare to find this organism in the sputum. When present, the appearance of the stained specimen is striking, especially in case of a pneumonia. The bacilli vary greatly in size, and take the Loeffler's blue stain; they are surrounded by a capsule, stained by the eosine. They may be found in large numbers in the leucocytes as the disease progresses, and on one occasion twenty of these bacilli were counted in one leucocyte. The number of cases in which it has been found is still too small to permit definite statements to be made with regard to it. I have seen it in one case of chronic bronchitis, and, having isolated it, injected fifteen minims of a bouillon suspension into the peritoneum of a guinea pig; this caused the death of the pig in twenty-four hours. This organism has been recognized in the sputum in a few cases of pneumonia at the Massachusetts General Hospital; all of these patients have died of their pneumonia. Further observations are needed to establish the prognosis in these cases of pneumonia due to this organism.

### PSEUDO-PNEUMOCOCCUS (PLATE VII).

The pseudo-pneumococcus has been found in the sputum in a few cases of pneumonia during the past three years. It was present in two cases of acute bronchitis which seem worthy of record. Muco-purulent sputum from a patient of Dr. F. C. Shattuck was sent for examination. The pseudo-pneumococcus was found in large numbers and isolated in pure culture. Four weeks later a second specimen, from another patient with acute bronchitis, was received; this also contained large numbers of this organism, and they were isolated. The second sputum came from the physician who was in regular charge of the first case, who had himself developed bronchitis. The organism appears as single capsulated coccus or in pairs or chains; it stains black or deep violet and has an eosine stain-

ing capsule. The cocci resemble so closely the streptococcus, and at times the pneumococcus, that it may be necessary to isolate the organism to determine with accuracy which of the three is present. At other times its morphology is so clear that it can be stated with certainty to be the pseudo-pneumococcus. A detailed account of this organism can be found in an article by Dr. Oscar Richardson, published in the Journal of the Boston Society of Medical Science, Vol. V, p. 499.

METHOD OF CULTIVATION OF BACTERIA FROM SPUTUM.

It is frequently necessary, in order properly to identify organisms in sputum, to isolate them. My experience has been limited to isolation of the ordinary pus cocci, the pneumococcus, pseudo-pneumococcus, streptococcus, pseudo-diphtheria bacillus, bacillus mucosus capsulatus, influenza bacillus and sarcinæ. The method employed is as follows: A small portion of the fresh sputum is suspended with a sterile platinum loop in sterile bouillon, and one or two loops full of the bouillon suspension spread over the surface of a blood serum tube. A second dilution, or even a third, may be made upon succeeding blood serum tubes, if desired. The colonies appear after the tube has been left in the thermostat at a temperature of 37.5° C. for twenty-four hours. If it is desired to test the virulence of the organism, fifteen minims of a bouillon suspension may be made from the pure culture and inoculated into the peritoneal cavity of a guinea pig. If the influenza bacillus is present, in order to isolate it, a dilution is made as above and a drop of this is worked evenly over the surface of an old agar slant, upon which a few drops of sterile blood have been smeared. Tubes of melted agar, allowed to slant after the addition of human blood, have proved valuable for the isolation of this organism. The minute colorless colonies appear after twenty-four to thirty-six hours in a thermostat, frequently requiring the aid of a hand lens for recognition. If colonies of cocci, like the streptococcus or pneumococcus, are also present in the culture, the colonies of the influenza bacillus may attain a somewhat larger size, as noted by Grassberger. The influenza bacillus is isolated in pure culture and tested by the ordinary methods employed in its recognition.

CLINICAL VALUE OF SPUTUM EXAMINATION.

It has seemed worth while to record a few of the cases in which examination of the sputum has been of clinical value.

(*a*) The sputum from a patient in whom, from the severe abdominal pain, appendicitis was being considered, was sent for examination. The sputum was purulent, suggesting a chronic rather than an acute process; the presence of large numbers of pneumococci suggested the possibility of a central pneumonia, with referred pain, and later the consolidation appeared. Owing to the purulent character of the sputum, it was thought that the acute pneumococcus process had occurred secondary to a chronic influenza. In addition to the large numbers of pneumococci, there were also present numerous influenza bacilli in this sputum, and from the course of similar cases a slow convalesence was suggested as possible, due to the flaring up of the old influenzal process; this occurred.

(*b*) A woman, whose history suggested a beginning typhoid, had a severe bronchitis. Her sputum, however, was loaded with pneumococci, and upon this evidence alone I did not hesitate to say that she did not have typhoid, but some pneumococcus infection, a pneumonia, or pneumococcus bronchitis. The white count did not help in this case, as there was no leucocytosis. Two days the signs of consolidation appeared. The value of this can be more easily recognized when the difficulty which is encountered in getting a typhoid patient into a private hospital in this particular community has been experienced.

(*c*) Another patient with bloody sputum, pain in right chest, temperature of 102° to 103°, was thought to have pneumonia. The sputum showed no evidence of any bacterial infection, in fact no pneumococci or influenza bacilli were present. The condition proved not to be a pneumonia, but a small infarction of the lung.

(*d*) A patient was referred to the Channing Home for Consumptives, suffering from cough, loss of flesh and strength. The note which she brought from the physician stated that she was, in his belief, suffering from phthisis, and was a fit subject for the home. The physical signs in the lungs were those of a diffuse bronchitis at both apices; there was also some emphysema. Her sputum was abundant and purulent. Repeated examinations failed to show tubercle bacilli. She did not react to tuberculin. Influenza bacilli were present in large numbers at the first examination and have never been absent, although she has been under observation for two years; they have been repeatedly isolated from her sputum in pure culture. She has gained in weight and strength, and there has been a marked improvement in her chronic bronchitis. The amount of sputum has steadily diminished, and at present there is but slight cough. Three other cases have been seen in which the diagnosis of phthisis had been made. In none of these patients have tubercle bacilli been found, while influenza bacilli have been constantly present. In only one of these has the tuberculin reaction been tried, but in this one there was no reaction. I believe there are not a few patients supposed to be suffering from phthisis, in whom tubercle bacilli have never been found, and in light of these cases which have come under my personal observation, further investigation will be attempted, to see how many of these are suffering from chronic influenza.

(*e*) A medical student, whose history suggested influenza, examined his own sputum and found tubercle bacilli. There had been loss of weight, persistent cough and some sweating. When seen, his temperature was 102° to 103°, pulse 120, and there was marked dullness at left apex to second rib with signs of consolidation. The history of the case, and the purulent character of the sputum, suggested an influenzal complication. The sputum contained a few tubercle bacilli, but large numbers of influenza bacilli. With the possibility that the consolidation at the left apex might be due, in part, to an unresolved patch of influenzal-broncho pneumonia, he was watched and sent to the mountains. After eight weeks, when again examined, his tem-

perature was 99°, pulse 72, there was practically no cough and no sweating, and he had gained several pounds in weight. Tubercle bacilli were still present in his sputum, but the influenza bacilli had disappeared. The signs at the left apex were very slight dullness and a few fine moist râles. A few weeks later he was sent to Colorado, and after eight months has again returned to his work.

Other cases might be reported showing the value of sputum examination in central pneumonia, in acute phthisis following an influenzal pneumonia, in bronchial asthma occurring in influenza, in myocarditis with bronchitis, the latter condition due to a chronic influenza. It is not the object of this paper to report cases in detail, but rather to call attention to the fact that further examination of the sputum is necessary than is usually made; that it is not sufficient simply to examine for tubercle bacilli, but that the influenza bacillus should be looked for in every case of chronic disease of the lung.

Before closing I wish to express my obligation to Dr. James H. Wright, for his advice given at many times in the progress of this work, and also to Mr. Louis S. Brown for his care in the production of the plates accompanying the article.

[Copyright applied for.]

## ELEVEN ACUTE AND EIGHTEEN CHRONIC CASES OF INFLUENZA.

### PROVED BY BACTERIOLOGICAL EXAMINATION.[1]

BY FREDERICK T. LORD, M.D., BOSTON.

An investigation was begun during the summer of 1902 to determine by the examination of the sputum the cause of the cough and expectoration in cases in which examinations for tubercle bacilli had proved negative.

The source of the material was, for the most part, from the Male Out-Patient Department of the Massachusetts General Hospital. A few cases are from outside sources. No discrimination was used in the selection of the cases, and the series comprised acute and chronic coughs, both mild and severe.

I am indebted to Dr. R. C. Cabot for his courtesy in allowing me the use of his material, and to Dr. J. H. Wright for many valuable suggestions during the work. The micro-photographs were made by Mr. Louis S. Brown.

The specimens of sputa were received fresh from the Out-Patient Department, with the number of the case. The gross and microscopical findings were recorded. Cultures were made in all cases in which a great prevalence of one or more organisms was found. As opportunity offered, the clinical record was appended, and the patients were followed by visits to their homes or their return to the hospital.

In one hundred cases thus examined, influenza bacilli were present in sixty. The number of these in the different specimens varied from a few, intermixed with others, to almost a pure culture in some sputa.

The present paper concerns only those cases with influenza bacilli in overwhelming numbers, of which there were twenty-nine.

[1] From the Clinico-Pathological Laboratory of the Massachusetts General Hospital.

#### THE SPUTUM — ITS CHARACTERISTICS IN GROSS.

The character of the sputum in influenza resembles that of any other bacterial infection of the respiratory tract. It is usually scanty at first, and becomes more abundant after a few days. Its amount depends on the severity of the attack. In severe cases it is not infrequent for patients to expectorate several ounces in twenty-four hours, and in one chronic case a pint in twenty-four hours is recorded (Number 17, chronic cases).

Some variation in the consistency of the specimens was noted. In twenty-one cases the sputum was more or less tenacious. In eight it was not at all tenacious.

All the cases had a purulent sputum at some time during the course of the attack. In some of the specimens from two chronic and two acute cases, but few leucocytes were observed, while the intervening spaces were crowded with influenza bacilli, but in later specimens from these four cases purulent sputa were found. In such specimens small greenish masses or streaks were seen, usually intermixed with more or less tenacious fluid. In these small masses the influenza bacilli were in greatest number. The surrounding fluid often contained many contaminating organisms and abundant squamous epithelium.

In color the sputum of all the cases was greenish, for the most part pale.

Different specimens obtained from the same case from time to time differed little in amount, consistency and color.

As the acute attack subsided, the sputum became less abundant, less purulent, with a coincident change from greenish to whitish masses or streaks, usually coughed up in the early morning only.

#### COVER SLIP EXAMINATION OF THE SPUTA.

(*a*) *Acute Influenza.* The specimens were placed in transparent (Petri) dishes on a black surface, the parts selected for study spread in a thin layer on cover glasses with a sterile platinum wire and stained with Smith's stain.[2] No trouble was experienced in demonstrating the influenza bacilli in the abundant, purulent sputa, containing small or large discrete masses. More difficulty was found in the rare specimens with isolated greenish masses or streaks in a colorless tenacious fluid. The separation of these small masses from the surrounding fluid was difficult, but could be accomplished by careful manipulation of the platinum wire. In the more purulent masses the sample for staining or culture was best obtained from the center, to avoid contamination as far as possible.

Influenza bacilli are the smallest organisms commonly found in the sputum. They are minute bi-polar rods, with rounded ends, not staining by Gram's method. At times isolated organisms have the appearance of very small diplococci. Sometimes the rods are elongated and slender, without the polar staining. Rarely one sees somewhat thicker bacilli with polar staining and clear intervening spaces, more like influenza bacilli in culture. As Pfeiffer[3] noted, in the early stage of the disease,

[2] A Method of Staining Sputum for Bacteriological Examination. W. H. Smith, preceding article, in this publication.

[3] Pfeiffer. Die Aetiologie der Influenza, Zeitschrift f. Hygiene, 13, 1893.

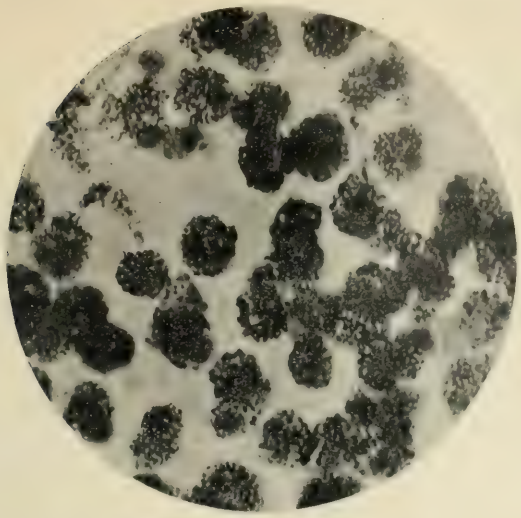


PLATE I. — Sputum. Bronchial Asthma. Eosinophilic cells.



PLATE II. — Sputum. Pneumococcus Pneumonia. Leucocytes. Pneumococci.

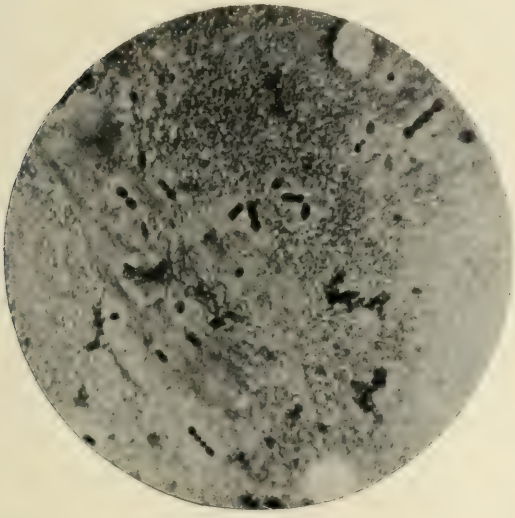


PLATE III. — Sputum. Pneumococcus Pneumonia. Pneumococci in chains.

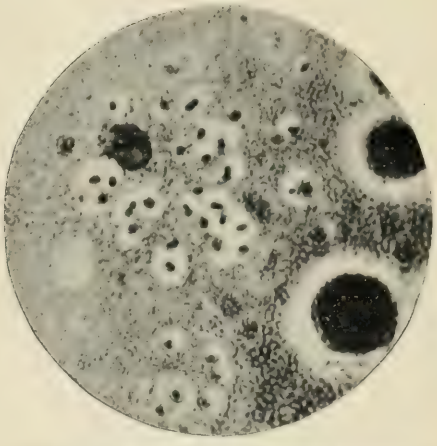


PLATE IV. — Sputum. Pneumococcus Pneumonia. Pneumococci showing capsules and clear spaces surrounding them.

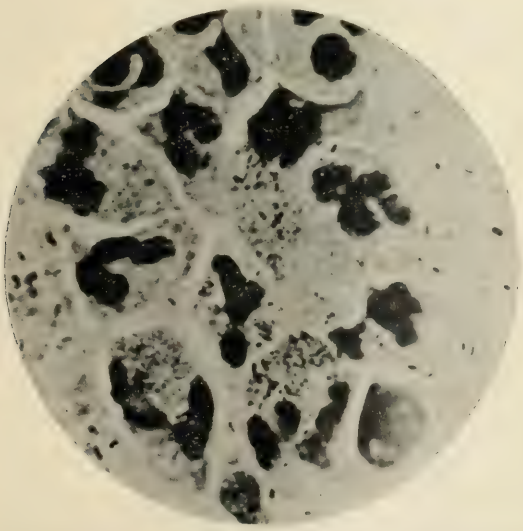


PLATE V. — Sputum. Influenzal Bronchitis. Leucocytes filled with influenza bacilli. Pneumococci extracellular.

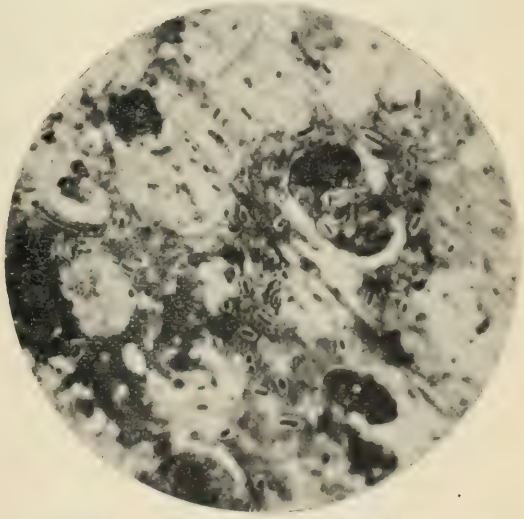


PLATE VI. — Bacillus Mucosus Capsulatus in Sputum. Fatal case of Pneumonia.

See next page for Plate VII.

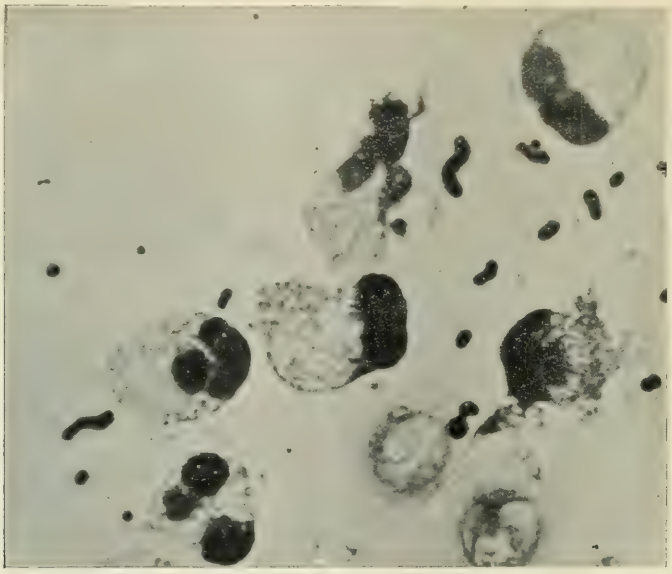


PLATE V.I. — Pseudo-pneumococcus in Sputum. Acute Bronchitis.



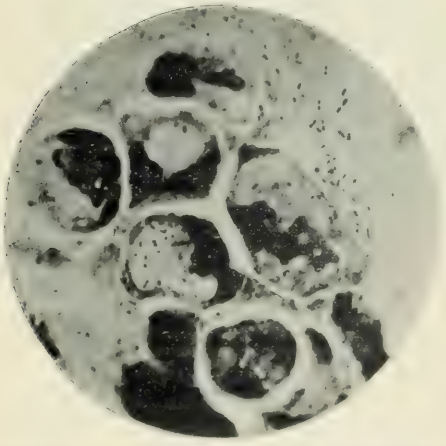


PLATE I. — Sputum from a case of Chronic Influenza. (Number 2, chronic cases.) Bacilli intra- and extra-cellular. x 1000.

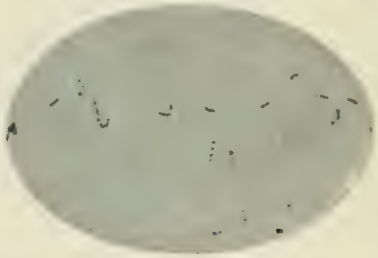


PLATE III. — Influenza bacilli from culture on blood agar smear 24 hours old. (Number 12, chronic cases.) x 1000.

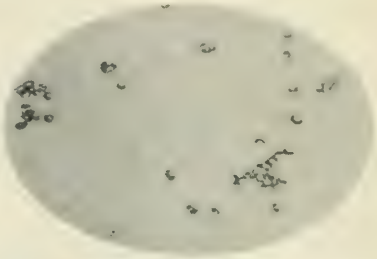


PLATE IV. — Influenza bacilli from culture on blood agar smear 24 hours old. (Number 11, acute cases.) x 1000.

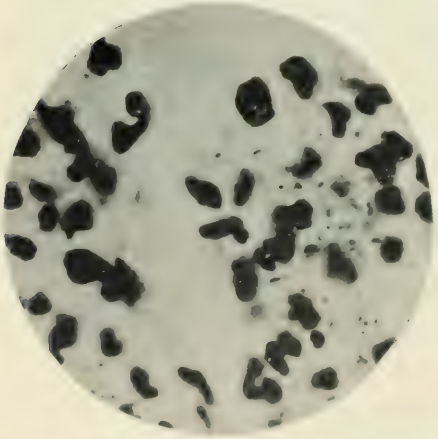


PLATE II. — Autopsy. (Number 11, acute cases.) Influenza bacilli in alveolar exudate. x 1000.

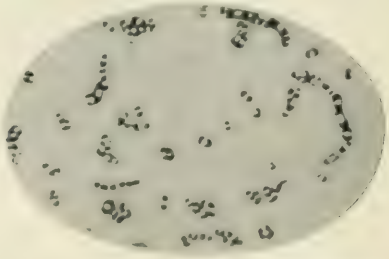


PLATE V. — Influenza bacilli from culture on blood agar mixture 24 hours old. (Number 4, acute cases.) x 1000.

while the patients are still feverish, the bacilli are usually free in the spaces between the pus cells, while in the latter they are scanty. During the progress of the disease, the number of the free bacilli diminishes and the leucocytes become crammed with them. After the acute stage is past and the patient is convalescent, the majority of the bacilli are intra-cellular. Though this is the typical picture of the different stages of the disease, it is not uncommon, in my experience, in examining many specimens from the same case, to find frequent examples in which the greater number of the bacilli are extra-cellular even in convalescence. The source of such specimens may be the site of a small fresh infection.

It was also noted that in a few of many specimens from the same case, the influenza bacilli were only sparse in and among the pus cells; in others that they were present in great numbers. It may thus happen that the careful examination of one specimen of sputum does not warrant the diagnosis.

It was also occasionally observed that at the onset of the disease there was a mixed infection in the sputum with influenza bacilli, pneumococci and pyogenic cocci. After a few hours or days, there was a gradual disappearance of the pneumococci or pyogenic cocci, and the sputum became almost a pure culture of influenza bacilli (Numbers 1 and 9, acute cases). In other specimens the association of influenza bacilli and other organisms was so striking and constant that the case could not be regarded as one of pure influenzal infection of the respiratory tract. No such case is here recorded as influenza.

(*b*) *Chronic Influenza.* The sputum in chronic influenza does not materially differ from that in the acute attack. The bacilli are more often intra-cellular, frequently both intra- and extra-cellular. Successive examinations of the same chronic case will at times present all these pictures in the different specimens. The sudden aggravation of cough in chronic influenza seems to be due to the auto-re-infection of the respiratory tract with influenza bacilli, but one case (Number 11, chronic cases) is here recorded in which the accession of cough could be ascribed to the imposition of pneumococcus infection on chronic influenza. In this case, the pneumococci gradually disappeared from the sputum, while the influenza bacilli persisted.

(*c*) In *both acute* and *chronic cases* it was not unusual to find a few pneumococci, occasional streptococci and staphylococci. In some their adherence to buccal epithelium suggested the mouth as a source. In others in which they were sparsely mixed with influenza bacilli in the fresh specimens and in cultures, they were regarded as too few to eliminate the case from those classed as influenza.

Varying numbers of mono- and poly-nuclear eosinophilic leucocytes are found in all specimens of influenza sputum, but they never reach the abundance they do in the sputum of asthma.

Macroscopical blood in influenza sputum is rare. If present, it is usually in streaks and unmixed with the specimen.[4, 5] Microscopically, more than an occasional red blood corpuscle is exceptional. The absence of fibrin is also striking.

[4] Ortner. Die Influenza seit der letzten Pandemie. Die Deutsche Klinik, 1902, p. 430. He describes one case of influenza pneumonia, with a typical rusty sputum, containing influenza bacilli in large numbers, with rare streptococci and staphylococci.

[5] Fränkel (quoted from Ortner). Ueber einige Complicationen und Ausgänge der Influenza. Berliner klin. Wochenschrift. 15 und 16, 1897. Fränkel had rarely noted such sputa in influenza.

### STAINING OF SPUTUM.

Dr. W. H. Smith's stain has proved the most useful for the demonstration of influenza bacilli, as well as for all routine work in sputum examination. It furnishes clear pictures and brings out the Gram staining and Gram decolorizing organisms in sharp contrast. Experiments have been made with many other stains, but all found inferior to this. As stated by Pfeiffer,[6] influenza bacilli can be stained with dilute carbol-fuchsin or Lœffler's alkaline methylene blue. They take the stain with difficulty, however, and the solutions should be steamed on the cover glass or allowed to stand for a considerable time. If one has some experience, practically any of the ordinary bacterial stains used in the laboratory serve for the recognition of influenza bacilli, when they are present in large numbers.

### EXAMINATION OF THE SPUTA BY CULTURES.

Cultures were made in the following manner from the sputa containing the influenza bacilli: A small mass was separated from the rest of the sputum and broken up in sterile bouillon. A loopful of this bouillon emulsion was transferred to a plain agar slant. A smear from this plain agar was then made on blood agar.

As influenza bacilli will not grow on a culture medium which does not contain Hæmoglobin, the use of the intermediate plain agar acted as a control, showing a few colonies of contaminating organisms. The sparseness of these colonies was in striking contrast to the abundant growth of the influenza colonies on the blood agar, to which less material had been transferred.

The blood agar, used in the cultivation of the influenza bacilli in most of the cases, was made of 2½% agar, to which was added one third of its bulk of human blood, obtained from a case bled for uræmia. The blood, from the patient's arm, was received in a flask containing melted agar, kept fluid by immersion in hot water. Slants in glass tubes were made at once from the mixed agar and blood. After these had hardened they were placed in the incubator for twenty-four hours to test for contaminations.

This culture medium had the advantage over plain agar smeared with blood, that, in the contact of the platinum wire with its surface in removing colonies, there was little danger of transferring Hæmoglobin from one tube to another. The growth of the influenza bacilli was more luxuriant than on plain agar smeared with blood, and manipulation of the tubes for transplantation of colonies was easier.

After this blood agar mixture was used up, the bacilli were cultivated on plain agar smeared with blood, as described by Pfeiffer.[7]

The bouillon, plain and blood agar thus inoculated were placed in the incubator at 37.5° C. for twenty-four hours, when examination usually showed a few contaminating colonies. Very rarely small colonies of influenza bacilli were present in the plain agar tubes, due to the transfer to their surface

[6] Pfeiffer, Loc. cit.

[7] Pfeiffer. Loc. cit.

of small amounts of Hæmoglobin from the sputum. Transplantation from these colonies to other similar tubes without Hæmoglobin always failed to produce a growth.

The blood agar, on the contrary, usually showed to the naked eye a granular clouding of the surface at the site of the inoculation. Examination with the hand lens or watchmaker's glass disclosed the presence of very fine colorless colonies as a cause of the granular cloudiness. If contaminating colonies were found on the surface of the blood agar, fresh tubes were inoculated till a pure culture of influenza bacilli was obtained. A smear was then made from the pure culture to plain agar, on which no growth was ever observed, even after days and weeks in the incubator.

In fresh sputa rich in influenza bacilli, the attempt at isolation in pure culture never failed. In most cases the inoculation of a second from the original blood agar tube furnished a pure culture of influenza bacilli in forty-eight hours. The colonies seldom reached sufficient size to show their morphology in less than twenty-four hours. On the other hand, the development was in some cases delayed for forty-eight hours. In tubes contaminated with pyogenic cocci and the pneumococcus, a particularly luxuriant growth was at times observed about the colonies composed of such organisms.[8]

Cover glass preparations from the fine colorless colonies stained with carbol-fuchsin showed very small bacilli, with marked bi-polar staining, and, in well-washed specimens, unstained median portions. Marked irregularity in shape was sometimes observed. The polar staining was always, however, a striking feature of the specimen. In old cultures, the development of short chains made up of characteristic bacilli was occasionally noted. At times the bacilli in old cultures, stained with carbol-fuchsin, showed an exaggeration of the median unstained spaces, and a broadening of the transverse central diameter, with the production of oval forms, and dark staining at the extremities of the oval. In specimens overstained with carbol-fuchsin, the bacilli sometimes appeared as fine rods with darker poles.

In cover glass preparations, stained with Gram's stain and counter-stained with Bismarck brown, the bacilli were homogeneously stained brown, with the polar staining barely evident. Further experiments with these influenza bacilli have shown that they will not grow without oxygen (Wright's method).[9]

At room temperature, 21° to 27° C., and in the incubator above 42 degrees, no growth was observed. They were not killed by cold, as was demonstrated by their cultivation from a lung stiffened in cold storage for twenty-four hours (Temp. 28° to 30° F.). They were non-resistant to drying. Animal inoculations gave negative results.

As regards their morphology, staining and cultural peculiarities and non-pathogenesis, they conform in all respects to the influenza bacilli described by Pfeiffer.[10, 11]

[8] For other observations on the growth of influenza bacilli in mixed cultures, see: Grassberger, Beiträge zur Bakteriologie der Influenza, Zeitschrift f. Hygiene, 1897, Bode 25, S. 453.

[9] Pathological Technique, Mallory and Wright, 1901, p. 123.

[10] Pfeiffer. Loc. cit.

[11] Thus far no organisms have been seen in any respect justifying the term pseudo-influenza bacilli. It seems probable that the organisms described as such by Pfeiffer, because found after the epidemic had terminated, were not pseudo- but true influenza bacilli, occurring as a mixed infection in three cases of diphtheria. They were not to be differentiated from true influenza bacilli in the fresh specimens, and grew only on blood agar; their colonies, even in the smallest detail, were like those of influenza bacilli. The only difference between them and the true influenza bacilli was that they appeared somewhat greater in all dimensions and showed an evident tendency to the formation of longer thread-like forms. True influenza bacilli have been found apart from an epidemic of influenza. Moreover, much variation in the size of influenza bacilli is apparent on different media, depending on the amount of Hæmoglobin, as is shown in the accompanying photographs (Plates III, IV, and V).

## THE OCCURRENCE OF INFLUENZA APART FROM EPIDEMICS.

The results obtained in the analysis of one hundred cases have shown that there is a greater prevalence of influenza in the so-called "influenza-free" period than is generally believed. Influenza bacilli were found in varying numbers in 60% of the cases examined. They seemed to be the cause of the cough in twenty-nine. In the remaining cases in which the bacilli were not present in overwhelming numbers, it is not unlikely that they were secondary invaders.

If subsequent observers prove that influenza is as prevalent elsewhere as it has been about Boston during the past few years, it will do much to explain epidemic and pandemic influenza. It is probable that the "epidemic influenza nostras" of Leichtenstern's classification[12] is not a special disease of unknown etiology, but "influenza vera."

A few observations are found in the literature of the discovery of influenza bacilli in cases outside of an epidemic of the disease. Among them, Lindenthal[13] records, between Dec. 5, 1896, and the end of February, 1897, post-mortem examination of eight cases of influenza pneumonia, with proof of the presence of Pfeiffer's bacilli.

Grassberger,[14] working in an "influenza-free" period, found influenza bacilli in the sputum and bronchial pus of thirty cases; in six they were in practically pure culture.

A comparison of the number of new cases of bronchitis entering the Male Out-Patient Department of the Massachusetts General Hospital, during the months of July, August and September, 1902, with the number of similar cases in the corresponding months in 1901, 1900, 1899 and 1898, shows that there have been but few more entries for bronchitis this year than before. The number during these three months in 1902 is 131, about one eleventh of the total number of new cases in this period; 118 in 1901, or one fifteenth of the total; 64 in 1900, or one twenty-fourth; 83 in 1899, or one nineteenth; and 104 in 1898, or one seventh. These figures show that we are not now in an epidemic of influenza.[15] The slight proportional rise this year is too small to indicate more than the normal fluctuation of the clinic, and is exceeded by the figures for 1898, when the cases of bronchitis numbered one seventh of the new entries.

If the sputa of all cases had been searched for influenza bacilli in previous years, it seems reasonable that as many cases of influenza would have been recorded then as now. Infection with influ-

[12] Leichtenstern. Influenza. Spec. Path. u. Therap. Nothnagel Wien. 1896. Iv Band, 1. 1 Theil p. 9.

[13] Lindenthal. Ueber die Sporadische Influenza. Wien. klinische Wochenschrift, 1897, vol. x, pp. 353-359.

[14] Grassberger. Loc. cit.

[15] The diagnosis of influenza is rarely made in the Out-Patient Department. The cases are entered as bronchitis.

enza bacilli must be very much more prevalent than the present series shows, since many cases are too slight to bring the patient to a physician.

ACUTE INFLUENZA — CLINICAL MANIFESTATIONS.

Any part of the respiratory tract may be the site of the infection. The baccilli have been found in preponderant numbers in the nasal secretion during life [16] and in the nasal, frontal and sphenoidal sinuses and the antrum of Highmore post-mortem.[17] The infection of the rest of the respiratory tract may begin here, and, lingering in these places after the acute disease has passed, may start more or less frequent recurrences. The disease spreads by continuity from above downward, and in most cases presents the picture of a diffuse bronchitis. The onset, whether in an individual with a small chronic focus or in fresh infections, is with fever, chilliness or actual chills, headache, general pains, anorexia, nausea or even vomiting, and a varying degree of prostration, but the extreme prostration ascribed to epidemic influenza has not been a striking symptom in these cases. It is difficult, however, to separate the cases of fresh infection from the acute exacerbation of a chronic process, and the less severe onset may be due to partial tolerance to the bacilli, acquired from preceding chronic influenza.[18, 19] During the first two to three days the patient may complain at first of rawness in the throat, followed by a dry, hacking cough. The fever remains elevated for several days, falling to normal by lysis.

Meantime the sputum increases in amount, and from insignificant masses becomes profuse and extremely purulent. Dyspnœa and cyanosis are in proportion to the extent and character of the bronchial or lung involvement. This represents the moderately severe and often ambulatory case, the type of influenza seen in the Out-Patient Department.

In addition to the eleven cases of acute influenza investigated in the Out-Patient Department, eighteen acute cases occurring between January, 1897, and August, 1901, have been analyzed from the hospital records by permission of the house staff. The sputum examination in almost all the house cases was done by the house officers under the supervision of Dr. W. H. Smith. Cases in which the diagnosis of influenza was made without the confirmation of the sputum examination have been omitted.

*Fever.* All the house cases showed fever at onset. In thirteen the first temperature was between 101° and 103°. In all the cases, the fall was by lysis within a week. In general, the cases with a simple bronchitis ran a less severe temperature of shorter duration and a lower respiration rate than those in which solidification was found.

The *leucocyte count* is recorded in 18 of the 29 acute cases. In all, the count was made at the acute stage of the disease. In one it reached 39,600; in a second 20,000; in 5 it was between 6,000 and 8,000; in the remaining 11 between 12,000 and 17,000. In this small number there is no confirmation of Gerber's assertion [20] that counts of 20,000 indicate with tolerable certainty a complication in the lung tissue, for only 5 in the series of 11, with counts from 12,000 to 17,000, together with the 2 with counts of 20,000 and 39,600 had a recognized pneumonia. It is not unlikely that others had small unrecognized patches of consolidation. It may be that the presence of other organisms as a mixed infection influences the leucocyte count.

The *physical signs* in these 29 acute cases are recorded as negative in 5; localized bronchitis in 6 (right apex in 2, right lower lobe and left axilla in 1, right lower lobe in 1, both lower lobes with dry pleurisy left axilla in 1, left lung in 1); diffuse bronchitis of both lungs in 10; recognized consolidation in 8 cases (right lung in 1, left lower lobe in 1, right lower lobe in 6). All the pneumonias were associated with more or less diffuse bronchitis. Among the 10 cases of diffuse bronchitis of both lungs, a few had anomalous signs suggestive of small patches of central pneumonia.

It is noteworthy in the physical examination of a few of the acute cases that the signs of localized bronchitis or suspected broncho-pneumonia varied from day to day. In other cases the continued presence of râles in one location, even without signs of solidification, suggested the involvement of the lung tissue in broncho-pneumonia.

*Course and Termination.* Nine of the house cases have been followed since they left the hospital. From these cases, with the eleven acute cases from the Out-Patient Department, the course and result of acute influenza can be sketched.

Of these 20 cases, 15 had localized or diffuse bronchitis. All but two recovered after an interval not exceeding six weeks. In one (Number 1, acute cases) of these two cases, it is now ten weeks since the onset of the disease. The patient still coughs and has a small patch of localized bronchitis at the right base, but has no influenza bacilli in his sputum. In the second case, (Number 3, acute cases), it is three months since the onset of the process, and the patient still coughs. Influenza bacilli are present in large numbers in his sputum. In this case a protracted convalescence was interrupted a few days ago by an acute exacerbation due to the imposition of pneumococcus infection on influenza.

The remaining five of the acute cases had broncho-pneumonia. Two recovered after relapses and an illness of three and nine months. In a third the lungs were clear of consolidation only after six to seven months, and influenza bacilli still persist in the sputum one year and nine months from the outset of the disease.

The two remaining cases of the five with broncho-pneumonia are dead. The first (Number 9, acute cases) had a cough for a week, without serious symptoms. Sudden dyspnœa, cyanosis and very rapid pulse indicated extensive bronchial and probably also lung involvement. The patient died after eleven days of illness. The second fatal case (Number 11, acute cases), a child of two, with signs of broncho-pneumonia in the right lung, died nineteen days after the onset of the disease.

At the autopsy, the right lung was found to be

[16] Pfeiffer. Loc. cit.

[17] Lindenthal. Loc. cit. He found influenza bacilli in one or more of these regions in all but one of seven cases in which he sought for them.

[18] Pfeiffer observed that monkeys reacted less to the second inoculation than to the first.

[19] Delius and Kolle: Untersuchungen über Influenzaimmunität, Zeitschrift f. Hygiene, 1897, B. 24, S. 327.

[20] Gerber. Einige Beobachtungen aus der jüngsten Influenzaepidemie mit besonderer Beruchsichtigung des Blutbefundes. Wiener med. Wochenschrift, 1900, No. 25-27.

the seat of an extensive broncho-pneumonia, with consolidation and cavity formation in the apical portion. The cavities were two or three in number, and the largest about one centimeter in diameter. Microscopical examination of the lung showed that the process in the apical portions had the histological character of tuberculous pneumonia, and was regarded as such by Dr. J. H. Wright, although a careful search failed to show the presence of tubercle bacilli. Sections from the lung elsewhere showed the usual histological appearance of broncho-pneumonia and no evidence of tuberculosis.

Cultures from the lung on blood serum and blood agar showed a few colonies of pneumococci and great numbers of influenza bacilli, which were isolated in pure culture.

Sections from different parts of the lung demonstrated great numbers of influenza bacilli in the bronchial exudate, the consolidated portions and in the largest of the tubercular cavities. A microphotograph (Plate II) of an alveolar exudate shows influenza bacilli. Pneumococci were sparsely found in the consolidated areas in the stained preparations.

In this series of acute cases, the seriousness of influenza pneumonia is apparent.

CHRONIC INFLUENZA — CLINICAL MANIFESTATIONS.

Pfeiffer was the first to recognize that influenza bacilli could exist for long periods in the sputum. He observed that besides the ordinary acute forms of the disease, there exist chronic forms, which may last weeks and months. He states that, for the most part, such infections occur in patients with pulmonary tuberculosis at an advanced stage of the disease.[21]

The persistence of influenza bacilli for long periods after an acute attack has been noted in rare instances by a few observers [22, 23, 24] in cases of protracted convalescence without associated tuberculosis.

No series of cases of chronic bronchitis with influenza bacilli as a cause has been found in the literature, with the exception of six cases described by Ortner.[25]

Ortner reports six cases of chronic cough — duration of six weeks to nine years before he saw them. They were under his observation from seven weeks to six months, and examinations of their sputa at varying periods showed influenza bacilli, often in practically pure culture and occasionally mixed in cultures with streptococci, diplococci, bacilli of the Friedländer group, micrococcus catarrhalis and staphylococci. Two of the cases had a history of an acute onset, six weeks and two months respectively, before entrance to the hospital. The character of the onset was not determined in the remaining four cases of three, four, five and nine years' duration, and they seem to have begun insidiously. A diffuse or localized bronchitis, frequently changing in site and extent, was a prominent feature on examination. Two had attacks clinically like asthma, but without the characteristic sputum. In one case, broncho-pneumonia developed while the patient was under observation. With the exception of this case, all were practically fever free.

Among the twenty-nine cases of influenza here recorded there are eighteen who have had a cough for months or years, in whom repeated examination of the sputa has failed to reveal tubercle bacilli. Specimens obtained at varying periods have contained influenza bacilli in almost pure culture. Many of them have been under observation for months, one (Number 17, chronic cases) for a year, another (Number 2, chronic cases) for a year and eight months.

Notwithstanding the short period of observation, in a few of the chronic cases, questioning has brought out the fact that during the long course of their disease its type has remained the same, and their sputum has varied little in amount, consistency or color. As this is merely the patient's report it is subject to error, but is confirmed by our observations of other patients. In cases which have been watched for long periods, the gross appearance of the expectoration and the enormous number of influenza bacilli present in it has varied but slightly. In view of these facts, it seems probable that sputa which have shown the influenza bacilli in practically pure culture over a period of weeks and months have contained them in like proportions throughout the disease.

As yet the pathology of the process is unestablished. From what we know of the anatomical condition in the acute cases which have come to autopsy, it seems reasonable that there are produced in the acute attack of influenza small patches of broncho-pneumonia which break down and form small abscesses, the constant discharge from which induces a chronic bronchitis. If slight, such processes may partially or wholly heal, with coincident relief of the symptoms. The reopening of such a focus reinfects the bronchial tree with an exacerbation which may resemble a fresh infection.

Not only in the pulmonary tissue but also in the nose and its neighboring sinuses the bacilli may persist after an acute attack, causing a chronic inflammation of these parts with danger of auto-reinfection. The nose has been examined in ten of the chronic cases. In these no constant nasal disease has been established. Dr. A. Coolidge, Jr., found atrophic rhinitis in one (Number 1, chronic cases), and in another (Number 10, chronic cases), slight œdema of one middle turbinate with muco-purulent secretion. Cultures in these two cases showed very numerous colonies of influenza bacilli mixed with pneumococci and the pyogenic cocci. Cultures from the remaining eight cases were negative for influenza bacilli.

The *duration* of the chronic cases has been 2 to 5 months in six, 8 months in one, 1 to 3 years in four, 3 to 10 years in four, "always" (11 and 13 years old) in two, and 44 years in one.

*Fever.* In the out-patient cases it has been difficult to obtain reliable data concerning the temperature in chronic influenza. In these, the course has apparently been afebrile, unless interrupted by an

[21] Pfeiffer. Loc. cit.

[22] Finkler. Twentieth Century Practice, New York, 1898, vol. xv, pp. 1–249. He calls attention to the persistence of influenza bacilli in the sputum of a few cases with protracted convalescence.

[23] Kretz. Influenza Beobachtungen im Jahre 1897. Wiener klin. Wochenschrift, 1897, Nr. 40, S. 877. He states that the finding of influenza bacilli in the sputum can far outlast the symptoms of the disease.

[24] Wassermann. Ueber differentielle diagnostik von entzündlichen Lungenaffectionen, Deut. med. Wochenschr. 1893, Nr. 47, S. 1201. He found influenza bacilli in the sputum of a few cases in the influenza free period, with persisting influenza-pneumonia or purulent otitis media.

[25] Ortner. Loc. cit. By a curious coincidence Ortner's article was first seen just after the present writing was completed.

acute exacerbation or mixed infection as is shown by the table, where the highest temperature observed is recorded. Three (Numbers 2, 16 and 17, chronic cases) have been under observation at the Channing Home. One of them (Number 2, chronic cases) when first seen had an occasional evening rise to about 100°. With this exception, they have been afebrile. In Ortner's cases, which were under observation in hospital, the disease was practically without fever, except the case which developed broncho-pneumonia.

*Dyspnœa and cyanosis* are in proportion to the extent of the process.

The *sputum* has been described. It is like that in acute influenza, but is oftentimes more abundant, and more likely to be purulent. It is usually slightly tenacious, and frequently in masses, large and small, light to darker green in color. The influenza bacilli are generally intracellular; occasionally large numbers are extracellular.

*Exacerbations* in the chronic cough are recorded in four of the chronic cases. In two of these (Numbers 11 and 13, chronic cases) physicial examination showed a diffuse bronchitis. In the first case it was probably due to a mixed infection with influenza bacilli and pneumococci. The latter disappeared from the sputum in sixteen days, with coincident relief of the acute symptoms, while influenza bacilli persisted in practically pure culture. In the second, the exaggeration of the chronic disease was probably an extension of already existing influenza, as the sputum showed influenza bacilli in practically pure culture throughout.

Broncho-pneumonia was the cause of the acute exacerbation in the remaining two cases. In one (Number 14, chronic cases) it lasted for twenty-six days. In the last case (Number 15, chronic cases) the diffuse broncho-pneumonia, with existing cardiac and renal disease, caused death after eleven days of illness. No autopsy was obtained.

The *physical examination* at entrance in the fourteen remaining cases of chronic influenza showed a diffuse bronchitis in ten, bronchitis localized at both apices in one, and nothing abnormal in two. In one (Number 3, chronic cases) doubtful signs of solidification have been recorded at repeated examinations during the past three months. In the left lower back there is dullness, broncho-vesicular respiration and râles. Vocal and tactile fremitus are normal. The patient, eleven years old, has had a cough, with abundant green sputum since an attack of pneumonia when two years old. The sputum, examined five different times, has always been practically a pure culture of influenza bacilli.

The chronic as well as the acute cases have shown considerable variation in the location and extent of the bronchitis in successive examinations.

### ASTHMATIC PAROXYSMS IN CHRONIC INFLUENZA.

In four cases (Numbers 7, 10, 11 and 18, chronic cases) the diagnosis of *bronchial asthma* had been made. These patients have been subject to paroxysmal attacks of dyspnœa, usually nocturnal. The difficult breathing has been both inspiratory and expiratory, and without apparent climatic or atmospheric irritation. The nose has been examined in three. Two showed nothing abnormal. In one (Number 11, chronic cases) Dr. Coolidge considered that chronic ethmoiditis and a small polypus of the right middle turbinate might have a bearing on the paroxysms. The ordinary asthmatic remedies have failed to relieve any of the cases. All have diffuse bronchitis and slight emphysema. The sputum of the first three cases has not differed from that of the other chronic cases, being greenish, purulent, constantly crowded with influenza bacilli and without excess of mono-nuclear eosinophiles. Neither Curschmann spirals nor Charcot-Leyden crystals have been found. A differential count of the white cells in the blood has shown no increase of eosinophiles above the normal. In the fourth case (Number 18, chronic case) the blood contained 5% to 10% eosinophiles. The sputum was tenacious fluid with a few greenish, purulent masses, containing influenza bacilli. Curschman spirals and mono-nuclear eosinophiles have been found. This patient has both asthma and influenza.

Emphysema and probably bronchiectasis are not infrequently the result of the long continued cough in chronic influenza.

The persistence of influenza bacilli in the respiratory tract does not often lead to marked loss of weight and emaciation. The subjects of such infection, continually harassed by a troublesome cough, more or less abundant sputum, dyspnœa, occasional rises of temperature for brief periods, localized bronchitis, and doubtful or certain signs of consolidation, are frequently thought to have phthisis. This is particularly true of the protracted acute or the chronic cases. Four of the present series (Number 1, acute cases, and Number 2, 16, and 17, chronic cases) at some time in the course of their illness have been sent to consumptives' homes. A fifth case (Number 18, chronic cases) has been refused admission as too advanced. In such cases the diagnosis may be made by the repeated negative examination of the sputum for tubercle bacilli, failure to react to tuberculine and the continued presence of influenza bacilli in large numbers.

It is manifestly important to exclude cases of influenza from statistics of institutions for the cure of tuberculosis.

### CONCLUSIONS.

1. Infection with influenza bacilli is prevalent apart from an epidemic of influenza. Influenza bacilli have been found in the sputa of sixty of one hundred unselected cases with cough. In about one half of these sixty cases the influenza bacilli were in practically pure culture.

2. There is nothing distinctive in the clinical manifestations of influenza apart from epidemics, and the diagnosis can with certainty be made only by the examination of the sputum for influenza bacilli.

3. The duration of the cough and expectoration after an attack of acute influenza does not usually exceed six weeks, but in some cases the duration is for months or years.

4. Many of the cases formerly classed as chronic bronchitis are chronic influenza.

5. Cases of chronic influenza with paroxysmal dyspnœa may closely resemble asthma.

6. Chronic influenza is not infrequently mistaken for pulmonary tuberculosis.

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| Number | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Date — 1902 | Aug. 21. | Aug. 28. | Sept. 8. | Sept. 13. | Sept. 13. | Sept. 19. | Sept. 22. | Oct. 2. | Oct. 6. | Oct. 8. | Sept. 21. |
| Age | 39 | 18 | 16 | 16 | 17 | 24 | 20 | 18 | 24 f. | 15 | 2 |
| Occupation | Hod-carrier. | School. | Tobacco fact'y. | Clerk. | Tailor. | Banker. | Laborer. | Law Student. | Nurse. | Street music'n. | |
| Duration of cough | 10 days. | 1 week. Grip last winter. | 3 weeks. | 2–3 weeks. | 2 weeks. | 3 weeks. | 3 weeks. | 4–5 weeks. | 8 days. | 3 weeks. | 19 days. |
| Physical Examination — Emphysema | ..... | ..... | ..... | ..... | Examination negative. | Examination negative. | ..... | ..... | ..... | ..... | ..... |
| Bronchiectasis | Probable. | ..... | ..... | ..... | | | ..... | ..... | ..... | ..... | Cavity formation. |
| Bronchitis | Diffuse. | Right apex in front and above clavicles. | Left lung. | Both apices and through left back. | | | Diffuse. | R. base. | Diffuse. | Diffuse. | ..... |
| Pneumonia | ..... | ..... | ..... | ..... | | | ..... | ..... | ..... | ..... | Broncho-pneumonia right lung. |
| Temperature | 102 | ..... | ..... | ..... | ..... | ..... | 101.6 | 102 | 102–104 | 102.2 | ..... |
| Blood whites | 20,000 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 8,000 | ..... | ..... |
| Tuberculine | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Sputum — Abundance | Much. | Considerable. | Considerable. | Small. | Considerable. | Small. | Small. | Considerable. | Considerable. | Considerable. | ..... |
| Color | Greenish. | Green. | Greenish masses. | Greenish to yellowish masses. | Greenish streaks in colorless fluid. | Greenish masses in colorless fluid. | Greenish. | Greenish masses. | Greenish yellow. | Greenish. | ..... |
| Consistence | Slightly tenacious. | Tenacious. | Slightly tenacious. | Very tenacious | Not tenacious. | Slightly tenacious. | Slightly tenacious. | Very tenacious | Slightly tenacious. | Not tenacious. | ..... |
| Blood | At times after long coughing. | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | ..... |
| Leucocytes | Very abund'nt. | Very abund'nt. | Very abund'nt. | Few. | Few. | Many. | Very abund'nt. | Many. | Many. | Many. | ..... |
| Influenza bacilli | + + | + + | + + | + + | + + | + + | + + | + + | + + | + + | + + |
| Pneumococci | Numerous. | ..... | Rare. | ..... | Numerous. | ..... | Rare. | ..... | Many pneumococci and pyogenic cocci. | ..... | ..... |
| Cultures influenza bacilli obtained in pure culture[1] | Aug. 23. | Sept. 1, from spec. of Aug. 30. | Sept. 12. | Sept. 14. | Sept. 15. | Sept. 24. | Sept. 26. | Oct. 26, from spec. of Oct. 24. | Oct. 8. | Oct. 10. | Sept. 24, from right lung. |
| Subsequent course[2] | Pneumococci gradually disappeared from sputum; few Aug. 24; rare Aug. 27. Influenza bacilli in practically pure culture Sept. 1. Gradual improvement in chest signs, and diminution in amount of sputum. On Oct. 18, only few râles in right base. No influenza bacilli in sputum. | Gradual improvement. No cough since Oct. 4. | Gradual diminution of cough. Rarely coughs. No sputum Oct. 23. Diminishing symptoms till Nov. 14, when acute exacerbation began. Sputum Nov. 18 contains large numbers of influenza bacilli and great numbers of pneumococci. Examination negative. | Influenza bacilli in sputum in practically pure culture. Sept. 24, sputum very small amount. No cough after Oct. 1. Signs of bronchitis at one time localized; at another general. | Rarely coughs, with very scanty yellow sputum, Oct. 18. No cough since Nov. 6. | Cough lasted 6 weeks. | No cough after Oct. 4. | Condition unchanged. Scattered râles in lungs Oct. 24. No cough and lungs clear after Nov. 17. | Fewer contaminating organisms in specimen of Oct. 6, evening. Influenza bacilli in practically pure culture in sputum, Oct. 8. Great dyspnœa and cyanosis. Died Oct. 9. No autopsy. Bronchitis diffuse throughout. | Gradual improvement. Coughs only very little, Oct. 13. No cough after Nov. 6. | Autopsy. |

[1] From each pure culture a tube of plain agar was inoculated. No growth was ever observed on these tubes, even after days and weeks in the incubator. Each pure culture was also tested by Gram's method of staining. The bacilli always decolorized by this method.

[2] In most cases, influenza bacilli were only once isolated in pure culture, proved not to grow on other media than blood agar, and to decolorize by Gram's method. In the subsequent sputum examinations of these same cases, the microscopical appearance of the organisms in the fresh specimens was deemed sufficient for their identification.

| Number | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Date — 1902 | Aug. 9. | Aug. 13. | Aug. 23. | Aug. 23. | Aug. 28. | Sept. 5. | Sept. 10. | Sept. 10. | Sept. 11. | Sept. 11. | Sept. 11. | Sept. 29. | Oct. 2. | Oct. 2. | Oct. 21. | Oct. 22. | Oct. 30. | Oct. 30. |
| Age | 25 | 43 f. | 11 | 37 | 18 | 13 | 32 | 31 | 38 | 43 | 24 | 11 | 38 | 28 f. | 54 f. | 68 f. | 62 f. | 44 |
| Occupation | Laborer. | Seamstress. | School. | Stonecutter. | Machinist. | School. | Storekeeper. | Cigar maker. | Farmer. | Shoemaker. | Clerk. | School. | Laborer. | Home. | Home. | Home. | Housework. | Foreman. |
| Duration of cough | 3½ mos. | 3 yrs. Grip 10 yrs. ago. | 9 yrs. Since pneumonia. | 9 yrs. Since grip. | 2 yrs. | 5–6 yrs. | 15 yrs. | 3 mos. + | 2 mos. | 10 yrs. | 8 mos. Worse 1 week. | "Alw'ys" since 3 mos. old. | 5 mos. Worse 1 month. | 2 mos. Worse 5 days. | 4 mos. Worse 10 days. | 2 yrs. | 44 yrs. | 19 mos. |
| Physical Examination | | | | | | | | | | | | | | | | | | |
| Emphysema | 0 | Slight. | Slight. | . . . . . | | . . . . . | Slight. | | Present. | Present. | Present. | Slight. | 0 | 0 | 0 | Present. | Present. | Present. |
| Bronchiectasis | . . . . . | Probable | Probable | . . . . . | | . . . . . | Probable | | . . . . . | . . . . . | Probable | Probable | . . . . . | . . . . . | . . . . . | Probable | Probable | . . . . . |
| Bronchitis | Diffuse. | Both apices. | Diffuse. | Diffuse. | Examination negative. | Diffuse. | Diffuse. | Examination negative. | Diffuse. | Diffuse. | Diffuse. | Diffuse. | Diffuse. | Diffuse. | Diffuse. | Diffuse. | Diffuse. | Diffuse. |
| Pneumonia | . . . . . | . . . . . | Broncho-pneumonia? left base. | . . . . . | | . . . . . | . . . . . | | . . . . . | . . . . . | . . . . . | . . . . . | . . . . . | Broncho-pneumonia left base. | Diffuse broncho-pneumonia. | . . . . . | . . . . . | . . . . . |
| Temperature | 100.5 | 100+ occasi'n'ly. | 100.2 | . . . . . | 99 | 99.2 | . . . . | . . . . . | Normal. | Normal. Eosinophiles 3% in blood. | Normal. No increase of eosin. | 97 | 99.6–101 | 103 | 99.2 | Normal. | Normal. | 100.3 |
| Blood whites | . . . . . | . . . . . | . . . . . | . . . . . | . . . . . | . . . . . | Eosinophiles 3% in blood. | . . . . . | . . . . . | | | . . . . . | 13,800 | 16,400 | 36,000 | . . . . . | . . . . . | 13,600 Eos'n 5%. |
| Tuberculine | . . . . . | No reaction. | . . . . . | . . . . . | . . . . . | . . . . . | . . . . . | . . . . . | . . . . . | . . . . . | . . . . . | . . . . . | . . . . . | . . . . . | . . . . . | No reaction. | No reaction. | . . . . . |
| Sputum—Abundance | Much. | Much. | Considerable. | Considerable. | Much. | Considerable. | Considerable. | Considerable. | Small. | Considerable. | Much. | Much. | Much. | 6–8 oz. in 24°. | Considerable. | Considerable. | Oz. in 24° sometimes. | Considerable. |
| Color | Greenish | Greenish yellow. | Greenish | Greenish masses in colorless fluid. | Greenish masses in colorless fluid. | Greenish masses in colorless fluid. | Greenish masses in colorless fluid. | Greenish masses. | Greenish masses. | Greenish masses. | Greenish | Greenish | Greenish | Greenish | Greenish | Greenish | Greenish | Greenish masses in colorless fluid. |
| Consistence | Not tenacious. | Not tenacious. | Slightly tenacious | Very tenacious | Very tenacious | Very tenacious | Slightly tenacious | Slightly tenacious | Slightly tenacious | Tenac'us | Not tenacious. | Not tenacious. | Tenaci'us | Slightly tenacious | Not tenacious. | Slightly tenacious | Slightly tenacious | Very tenacious |
| Blood | 0 | 0 | Occasi'nally blood streaked. | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Occasi'nal blood streaks. | 0 | Occasional blood streaks. | 0 | 0 | 0 |
| Leucocytes | Very abundant | Very abundant | Very abundant | Few. | Many. | Many. | Many. | Many. | Many. | Few. | Very abund'nt | Very abund'nt | Very abund'nt | Very abundant | Very abund'nt | Very abund'nt. | Very abund'nt. | Many. |
| Influenza bacilli | + + | + + | + + | + + | + + | + + | + + | + + | + + | + + | + + | + + | + + | + + | + + | + + | + + | + + |
| Pneumococci | Rare. | Rare. | . . . . . | Few; mostly about buccal cells. | . . . . . | Few. | Few. | Rare. | Rare. | . . . . . | Many; pure culture Sept. 19, from spec. of Sept. 18. | Rare. | . . . . . | . . . . . | . . . . . | Few. | Few. | . . . . . |
| Cultures influenza bacilli obtained in pure culture[1] | Aug. 11. | Aug. 15. | Aug. 28. | Sept. 15, from spec. of Sept. 13. | Sept. 14, from spec. of Sept. 10. | Sept. 7. | Sept. 13. | Sept. 14. | Sept. 13. | Sept. 13. | Sept. 26, from spec. of Sept. 18. | Oct. 1. | Oct. 5. | Oct. 4. | Oct. 22. | Nov. 7, from spec. of Nov. 5. | Jan. 9, 1902, from spec. of Jan. 7, 1902. | Nov. 2. |
| Subsequent course[2] | Influenza bacilli in practically pure culture in sputum, Sept. 16, Oct. 18, Nov. 14, Nov. 18. Lungs clear. Dry pleurisy R. back. | Under observation since March 4, 1901. Many sputum examinations. Influenza in practically pure culture constantly present. Slow improvement. Rales heard occasionally in all parts of chest throughout. | Influenza in practically pure culture in sputum, Sept. 3, Sept. 21, Oct. 22, Nov. 17. Chest signs variable; rales inconstantly present. Signs of doubtful consolidat'n in l. base persist. | Influenza bacilli in practically pure culture in sputum, Sept. 13, Sept. 24, Oct. 22. Signs of diffuse br'nchitis constantly present. | No improvement. Patient lost track of after Sept. 10. | Influenza bacilli in practically pure culture in sputum Oct 23. Diffuse br'nchitis persists. Nov. 20, numer'us influenza bacilli mixed with pneumococci. Lungs clear. | Influenza bacilli in practically pure culture in sputum, Nov. 9. Very rare eosinophiles. No Curschmann's spirals or Charcot-Leyden Xtals. Asthma-like attacks for 15 yrs. Diffuse br'nchitis persists. | No improvement. Patient lost track of Sept. 19. Patient in Providence, R. I. | No improvement. Letter of Nov. 7 says cough same. Patient in Pittsburg, Pa. | Influenza bacilli in practically pure culture in sputum, Oct. 23, Nov. 19. Very rare eosinophiles. No Curschmann's spirals or Charcot-Leyden Xtals. Asthma-like attacks. Diffuse br'nchitis persists. | Pneumococci gradu'lly disappeared from sputum till it was practically a pure culture of influenza bacilli, Sept. 27, Nov. 4, Dec. 1. Very rare eosinophiles. No Curschmann's spirals or Charcot-Leyden Xtals. Diffuse br'nchitis persists. Asthma-like attacks | Influenza bacilli in practically pure culture in sputum, Oct. 24, Nov. 17. Diffuse br'nchitis persists. | Influenza bacilli in practically pure culture in sputum, Nov. 4. Diffuse br'nchitis persists. Patient sailed for Italy Nov. 8. | Influenza bacilli in practically pure culture in sputum continually, Oct. 4, Oct. 7, Oct. 25. At entrance, signs of consolidation in both bases below angles of scapulæ. Gradual resolution. Lungs clear, Oct. 28. | Heart disease. Nephritis Broncho-pneumonia. Patient died Oct. 22. No autopsy. | Influenza bacilli in practically pure culture in sputum, Nov. 14, Nov. 25. Diffuse br'nchitis persists with occasional signs of localized br'nchitis | Under observation since Oct. 16, 1901. Many sputum examinations. Influenza bacilli in practically pure culture constantly present. No improvement. Diffuse br'nchitis persists, with occasional signs of localized br'nchitis | Influenza bacilli in practically pure culture in sputum, Nov. 25. Few cosinophiles. Curschmann's spirals found. Many mononuclear cusinophiles. Asthma-like attacks. Diffuse br'nchitis persists. |

## CONGENITAL ANOMALIES OF THE PHALANGES, WITH REPORT OF CASES STUDIED BY SKIAGRAPHY.[1]

BY F. B. LUND, M.D.,

*Assistant Visiting Surgeon, Boston City Hospital.*

(Concluded from No. 24, p. 642.)

### CASES OF SYNDACTYLISM WITH BONY DEFORMITIES OF THE PHALANGES.

A CASE of web fingers associated with anomalies of the phalanges which the writer considered inoperable was reported in the Boston Medical and Surgical Journal of Feb. 18, 1897, and the skiagram is here reproduced (Fig. 3). The patient was a girl of eighteen years of age in whom the fingers were so closely united that the hand resembled the flipper of a seal. As will be seen by reference to the cut, the bones of the last three fingers were so close together that it would have been impossible to separate them and get skin flap enough to cover the sides of the phalanges. The anomalies presented, as will be seen by reference to the figure, are the absence of the second phalanx of the forefinger and reduplication of the last phalanx, which is united by a bony bridge to the terminal phalanx of the middle finger. The middle finger shows a rudimentary metacarpal bone, in the ring finger the second phalanx is absent, and in the little finger it is rudimentary. The single nail extending across the whole width of the hand represents the union of the four nails.

The four cases about to be reported consist of that of an Italian, forty-five years of age, and three of his children.

CASE I. The hands of Case I are shown in Fig. 4, in a skiagram of his right hand in Fig. 5, and his left hand in Fig. 6. An attempt had been made when he was a child at a hospital in Italy to separate the middle and ring fingers of his left hand. As will be seen by refer-

[1] Contributed to the thirteenth series of Medical and Surgical Reports of the Boston City Hospital.

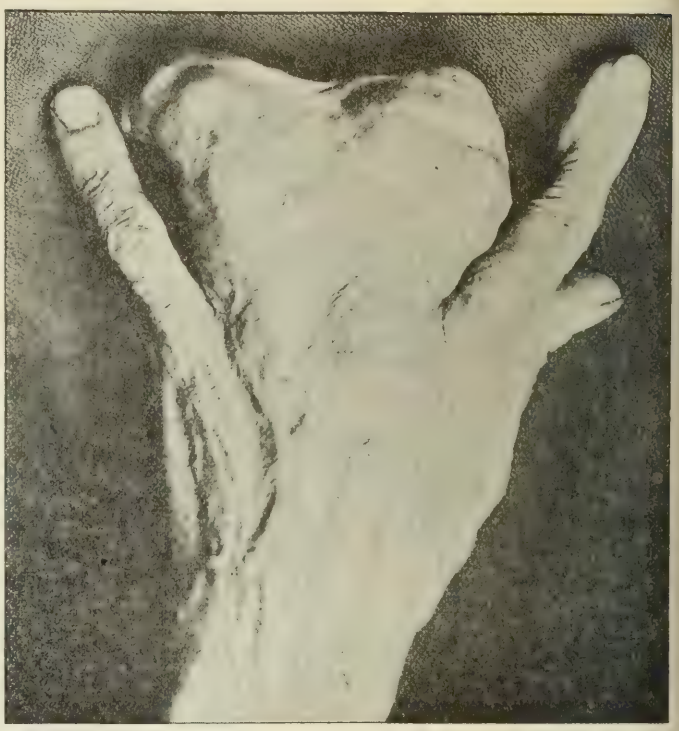


FIGURE 10.



FIGURE 9.



FIGURE 11.

ence to the figure this was only partially successful, and the reason for the lack of success may be seen in the bony deformities shown in these skiagrams. At present the fingers of both hands are more or less permanently flexed, the second and third phalanges being incapable of extension much beyond a right angle with the plane of the hand. His business, which is that of driving a fruit wagon, is considerably interfered with by the stiffness of his deformed fingers and the clumsiness of the motions of his hands.

Case II is that of the daughter of Case I. Her hands are represented in Fig. 7, a skiagram of her right hand is shown in Fig. 8, and of her left hand in Fig. 9. When she was an infant an attempt was made to separate the middle and ring fingers of the right hand at the Boston City Hospital.

As will be seen by reference to the skiagram, the first phalanx of the ring finger of the right hand is shortened and very much deformed, so that its articular surface faces outward instead of directly upward. The web between the two fingers, which was complete, has been separated, as a result of the operation, down to the level of the second joint of the ring finger, but the ring finger cannot be extended beyond about forty-five degrees, and is held in a position crossing the ventral surface of the middle finger.

The ring and middle fingers of the left hand, as will be seen by reference to the photograph, are firmly united, while there is an attempt at reduplication of the two terminal phalanges of the ring finger. Between the heads of the metacarpals are several irregular bones which may represent additional rudimentary metacarpals or phalanges, but the homologies of which it is impossible to make out accurately. Operative relief in this case is clearly out of the question.

Case III is a female child, sister of Case II, aged three years, who presented a union of the ring and middle

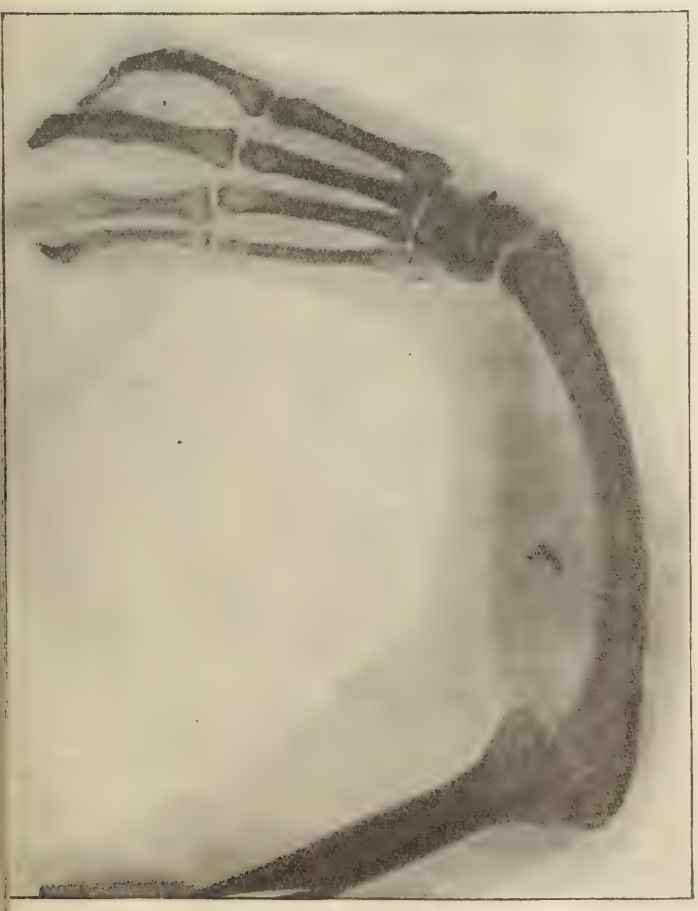


Figure 13.



Figure 12.

fingers of both hands by a thick web, together with an outward deviation of the terminal phalanges of both ring fingers similar to that presented in the right hand of Case II. This child also had two supernumerary digits on each foot, which were united to the fifth toes by a web and to each other also. Didot's operation for the separation of the phalanges was performed upon the right hand by the writer and upon the left by Dr. Munro. Inasmuch as the middle finger of both hands was the larger, stronger and more normal in appearance of the two which were united, the palmar flap was taken from the ring finger and the dorsal flap from the middle finger, so that when the operation was completed the longitudinal scar was upon the dorsal surface of the middle finger and the palmar surface of the ring finger. The result six months later showed that by the operation separation was accomplished down nearly to the normal position of the web of the fingers, but upon both hands, especially upon the one operated on by the writer, contraction of the scar had caused more or less permanent flexion of the ring fingers. This contraction may perhaps be ordinarily avoided in favorable cases by bringing the scar to the side of the fingers, but in this case the fingers were so closely united that it was impossible to obtain sufficient flap to do this, and the result illustrates another of the difficulties presented by cases

of this class. The child could not be induced to keep her hands still long enough to have a skiagram or photograph taken.

CASE IV was that of an infant brother of the two preceding children, aged nine months. He also had a union of the middle and ring fingers of both hands. This child also could not be induced to sit for his photograph.

The mother of these children was healthy, and had normal fingers and toes. No further family history could be obtained from the patients, who spoke no English.

CASE V is that of a laborer seventy years old, a native of Ireland. He could give no information as to his family history. His right hand was normal. His left hand is shown in Fig. 10, and a skiagram is seen in Fig. 11. He had been a sailor the greater part of his life, and when he was about thirty-five years of age an attempt was made by a surgeon in Ireland to separate his ring and middle fingers, which were united by a web. The attempt was not successful, the fingers remaining about as before. Within the last four or five years both fingers had begun to enlarge until they had assumed the irregular shape shown in the photograph and skiagram. Palpation showed that they presented hard, irregular masses, suggestive of osteochondroma, and this diagnosis is confirmed by the skiagram, which shows the irregular enlargement of the bones, which were undoubtedly deformed before the abnormal growth took place. They are interesting as showing that deformed phalanges may become the seat of osteochondroma.

### CASES OF HEREDITARY DEFORMITIES OF MIXED TYPE.

CASE VI. A case of absence of the radius and thumb associated with lack of development of the corresponding humerus, clavicle and scapula. This patient's photograph is shown in Fig. 12, the skiagram of the forearm in Fig. 13 and the shoulder in Fig. 14. The patient was a young woman seventeen years old, whose family history was kindly furnished by my colleague, Dr. Horace Arnold. Four brothers living in Nova Scotia were all



FIGURE 14.

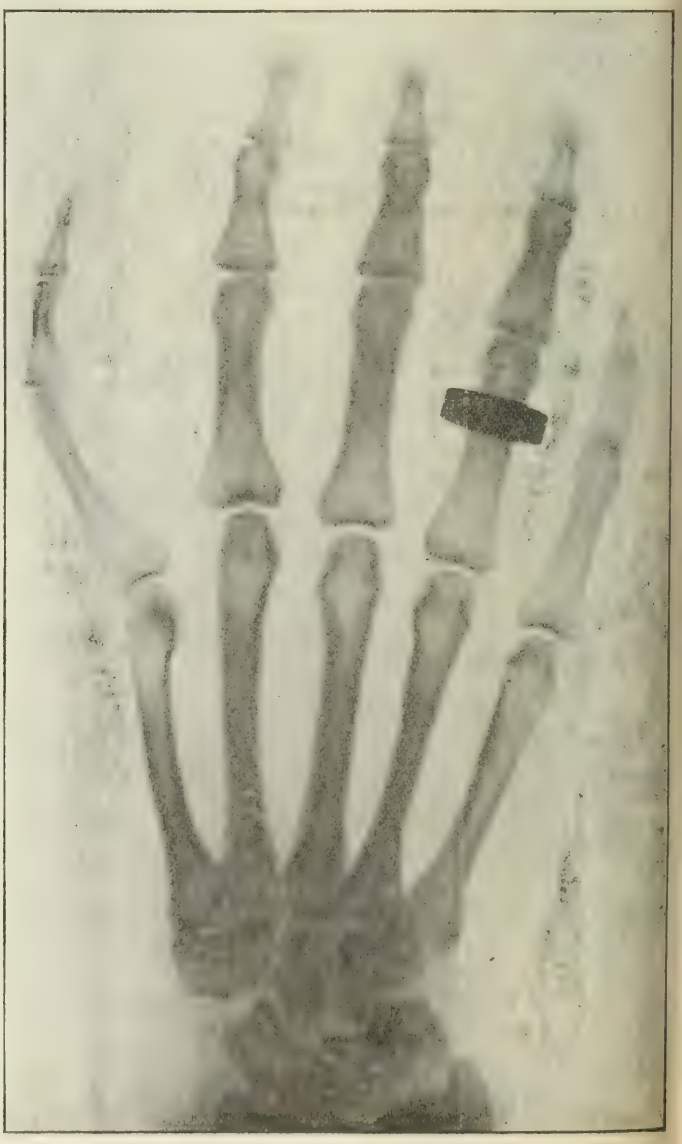


FIGURE 15.

married and had children, more or less of whom were deformed.

Jonathan H. had eight children, one of whom, Celia S., the mother of Case VI, had a supenumerary phalanx in her thumb. Her hand is shown in Fig. 15.

The second brother, Henry H., had several children, two of whom, one son and one daughter, were deformed.

The third brother, Nathan H., had several children, one of whom, a son, was deformed.

The fourth brother, Thomas H., had several children, three of his daughters and two of his sons being deformed. Of this family one of the daughters had no arms, merely short appendages to which four fingers each were attached.

Case VI was the granddaughter of Jonathan H. The only deformity presented by her mother (Case VII) was a supernumerary phalanx in the thumb of the right hand. The deformities in Case VI, as will be seen by reference to the skiagram, consist of absence of the radius and thumb and probably of two of the carpal bones, although the condition of the latter cannot be accurately determined by the skiagram, as they lie so closely together that their boundaries cannot be made out. Associated with this is a curious lack of development of the entire upper portion of the body, the ulna being curved and shortened, and the humerus, scapula and clavicle being under developed, as will be seen by reference to Fig. 12. The head of the humerus, in particular, appears under developed, and fills out the glenoid cavity to such a slight extent as to suggest a congenital dislocation. The acromion process is curiously curved downward over the undeveloped head of the humerus, and it, as well as the clavicle, is very much smaller than those of the opposite side, which are normal in every particular. The skiagram of the entire thorax shows this particularly well, but there is no space to present it in this paper. The radial displacement of the hand resulting from the absence of the radius gives it the position known as the "club" hand. The patient is able to do almost all kinds of work, and does fine sewing and fancy work well. All the motions of the fingers are apparently normal.

Case VII. Mother of Case VI, as mentioned above and illustrated in skiagram Fig. 15, presents a supernumerary phalanx in the thumb.

Case VIII. E. H., nineteen months old, grandson of Jonathan H., nephew of Case VII, and first cousin of Case VI presents the same deformity as Case VI. He could not be induced to keep quiet long enough for a photograph or skiagram to be taken. He uses his hand to pick up things, has a firm grasp, and uses his hand to assist the other when eating or drinking.

These last three cases are interesting, from the point of view of family history, as examples of a tendency to deformity transmitted in a single family, and apparently both through the male and female line.

With regard to the treatment of such cases as Case VI, apparently nothing can be done to straighten the hand except the doubtful expedient of grafting the bone of an animal to supply the place of the absent radius, and pushing the hand around into position, which newspaper reports state has been done by an eminent surgeon in New York in a similar case in a child. In the cases observed in this paper the hands were so useful, in spite of the deformity, as to render any such procedure uncalled for.

For the radiographs which so well illustrate these cases, the writer is indebted to Dr. F. H. Williams and Mr. Fewkes, the hospital photographer.

In conclusion, although no important results of a practical character have been secured by the radiographic study of web fingers, it has certainly been demonstrated that the deformity, unlike beauty, is more than skin deep, and presents problems of a most formidable character to the surgeon.

## EPENDYMAL EPITHELIUM AS A CONSTITUENT OF A TERATOMA.[1]

BY HENRY A. CHRISTIAN, A.M., M.D.

[*From the Pathological Laboratory of the Boston City Hospital.*]

Prior to 1895 our knowledge of neuroglia tissue was very incomplete. Almost simultaneously in this year appeared the publications of Weigert[2] and Mallory.[3] In these, very similar staining methods are given for the demonstration of neuroglia fibers, and both observers note that the minute dots or rods, previously described by Weigert[4] as occurring in the border of the epithelial cells of the ependyma, have the same microchemical reactions as the neuroglia fibers. Subsequent to these, numerous studies of neuroglia, both in normal and pathological conditions of the central nervous system, and in gliomata, have appeared, and other staining methods of distinct value have been added, notably Mallory's phosphotungstic acid hæmatoxylin stain.[5] Apparently these methods, however, have not been applied to tumors occurring elsewhere than in direct connection with the central nervous system, with the exception of the case of subcutaneous glioma over the coccyx reported by Mallory before the American Association of Pathologists and Bacteriologists, March 28 of this year; nor have the dots described by Weigert in the ependymal epithelium been noted in tumors except by Mallory[6] in gliomata.

The presence in teratomata of elements of the central nervous system, in a more or less completely developed state, has frequently been reported, and often especial attention has been directed to their occurrence as throwing some light on the still much disputed question of the origin of such complex tumors.

In this connection descriptions are given of neuroglia and ependymal epithelium. These are often incomplete, and frequently the author indicates his doubt as to their true nature in some such way as glia (?), neuroglia (?), glia-like network, ependymal-like epithelium, or structures suggesting choroid plexus. Even since the publication of microchemical reactions for neuroglia these conditions have continued, and in a review of the literature of teratomata, from 1895 to date, no case was found in which these methods have been applied to the study of neuroglia and ependymal constituents of such tumors.

To a teratoma of the ovary, received through the kindness of Drs. Brown of Newburyport and Munro of Boston, the modified fibrin and the phos-

[1] Contributed to vol. xiii of the Medical and Surgical Reports of the Boston City Hospital.

[2] Weigert. Beiträge zur Kenntniss der normalen menschlichen Neuroglia, Frankfurt a. M., 1895.

[3] Mallory. Centralbl. f. allg. Path. u. path. Anat., 1895, vol. vi, p. 753.

[4] Weigert. Anat. Anzeiger, 1890.

[5] Mallory. Journal of Experimental Medicine, 1900, vol. v., p. 19.

[6] Mallory. Journal of Medical Research, 1902, vol. vii., p. 1.

photungstic acid hæmatoxylin stains of Mallory were, among others, applied.[7]

The teratoma had developed in the ovary, as shown by the presence in sections of ovarian stroma containing ova in direct continuity with tumor tissue. Of the total bulk of the tumor, about half is made up of a large cyst; the remainder is solid. Its structure is complex, and all three germ layers are represented. The solid part contains innumerable cysts, ranging from very minute ones to those measuring one centimeter in diameter. Of the tissue between the cysts almost half consists of a meshwork of fibers giving specific micro-chemical reactions of neuroglia. The remainder is made up of fibrous connective tissue containing a small amount of elastic tissue, smooth muscle, bone, cartilage and small islands of epidermis. In a few areas of neuroglia tissue, nerve cells with Nissl's granules are found.

The structure of the cysts is varied. A few are lined by epidermis showing the usual keratin transformation, with here and there a hair follicle and sebaceous gland; other cysts show a stratified transitional epithelium, and many have a lining of ciliated cylindrical epithelium, in which goblet cells are frequent. Less frequent than the latter are cysts lined by similar epithelium, but devoid of cilia. Some cysts show a low columnar or cuboidal epithelium, with cytoplasm thickly studded with rod-shaped granules of brownish pigment very similar to those found in the retina. Similar pigment also occurs in some groups of connective tissue cells.

Besides the above types of cysts, two others occur. One is lined by rather low cuboidal epithelium and has a sharp line of demarcation from the surrounding stroma; the other is lined by high cylindrical epithelium, whose basal border is often irregular, and between which are sometimes found neuroglia fibers. These two types of cyst have this in common: the nuclei of their epithelium are situated toward the outer end of the cell, and in the cytoplasm of many near the inner border are seen very minute dots or rods which give the same microchemical reactions as do the neuroglia fibers. Sometimes there is but a single dot, at other times two or three, and often six or eight, or even more, always near the inner border. These are seen perhaps most distinctly where the section is cut so as to give a view of the top of the cell. Here the dots are seen to occupy the central portion of the end of the cell and not infrequently to have a concentric grouping. None of these cells are ciliated, and the picture is very different from that produced by cilia. These dots are occasionally found in the cytoplasm of a cell embedded in neuroglia fibers.

The relation of these cysts to the neuroglia tissue varies. As already mentioned, the high cylindrical type of cells frequently stands in very intimate relation to neuroglia fibers. The cysts lined by the low cuboidal type may be entirely or in part surrounded by neuroglia, or none may be in its immediate vicinity. The latter cannot be considered as against the ependymal character of this epithelium, since the same conditions hold in the choroid plexus, where ependymal epithelium is present and yet no neuroglia is adjacent.

Weigert, who first described these dots staining in the same way as neuroglia fibers, considered that they occurred only in ependymal cells. Other observers since then have concurred in this opinion. Their presence then in some of the cysts of this teratoma would give evidence of the ependymal character of part of the epithelium, a proof we believe never before adduced in this class of tumors. Granting this, and with the large number of areas consisting of a meshwork of neuroglia fibers giving their specific staining reactions, a large proportion of the tumor undoubtedly is referable to the anlage of the central nervous system.

In conclusion I wish to express my thanks to Dr. F. B. Mallory for very many useful suggestions.

[7] The clinical history of the case and gross description of the tumor are appended at the end.

CLINICAL HISTORY.

B. W., female, age seventeen, single. The patient has had the ordinary children's diseases, and at ten scarlet fever. She has, however, never been very strong, and has complained often of being tired. Bowels have been very constipated. For more than a year she has noticed an enlargement of her abdomen, more marked on the left side. This has steadily increased since first noticed, and has been accompanied by pain, worse on the left side. Two years ago there was a slight menstrual flow, but none before this time or since.

Physical examination on admission to Anna Jaques Hospital, Newburyport, Mass., shows patient to be well developed and nourished. Abdomen considerably distended, slightly more markedly just to the left of the umbilicus. Outlines of an irregular mass, extending about three finger breadths above the umbilicus, can be made out. Mass is firm, smooth and tense. It is movable and flat on percussion.

Vaginal examination showed in anterior cul-de-sac, a large, hard mass, apparently part of and growing from the cervix uteri. This moves with the larger tumor. Tubes and ovaries could not be made out. A uterine sound could be passed only one and one-fourth inches, where the canal seemed to bend to the left.

Operation by Dr. Munro assisted by Dr. A. B. Brown. Median incision. A large cyst of the left ovary, with a long pedicle is found. The cyst lies on the right side, and the uterus is pushed toward the left. There are many large varicose veins in the broad ligament, and the tube is stretched to double its normal length. Flat, broad pedicle of tumor, including broad ligament, tube and round ligament tied off with interlocking chromic gut ligatures. Raw edges sutured over with catgut. Abdominal wound closed in layers with catgut, chromic gut and horsehair.

Patient stood operation well, and made an uneventful recovery.

Gross description of tumor. B. C. H., S 02.162.—Specimen is roughly oval in form, 20 × 12 × 15 cm. It is covered by a grayish white connective tissue capsule, forming a smooth surface. Firmly attached to one portion of the tumor a Fallopian tube, with its fimbriated extremity, can be made out. The tube is patent.

The tumor consists of two parts, — a solid, irregular, smooth mass and a cyst wall. The cyst has been incised, but when distended readily admits both fists. In the cyst cavity there is a small amount of yellowish, gelatinous fluid, and communicating with it are other smaller cysts. At one point in the cyst wall there is a small mass of curled-up hair, surrounded by small bits of grayish white, grumous material, which resembles the contents of a sebaceous cyst.

Section through the solid portion of the tumor shows irregular masses of tissue of varying size, form and consistence, separated by connective tissue trabeculæ. Everywhere there are small, smooth-walled cysts from three to seven millimeters in diameter. Widely distributed through the tissue are dots and streaks of dark blue-black or intensely black pigment, which, against a grayish background, give a marbled appearance to the mass. In many places there are spicules of bone. In others, cartilage and adipose tissue appear. The entire cut surface has a somewhat gelatinous appearance, and from it can be scraped a sticky, gelatinous material. No large pieces of bone occur, and nowhere is there any symmetry of arrangement.

## Clinical Department.

### OBSERVATIONS ON THREE CASES OF HYDATIDIFORM MOLE.[1]

FRANK A. HIGGINS, M.D., BOSTON,

*Instructor in Obstetrics, Harvard Medical School; First Assistant Visiting Physician for Diseases of Women, Boston City Hospital; Senior Physician to Out-Patients, Boston Lying-in Hospital.*

It has been my fortune to have seen within a few months three cases of hydatidiform mole. Two of these cases I delivered myself, while the third patient was on my service in the gynecological wards at the City Hospital, where I examined her several times, although the patient was under the direct charge of Dr. Young, who was on duty as my assistant at the time. No one of these three cases exhibited any new or unusual symptoms at any time, and neither in the history nor in the progress of the cases up to the time of delivery was there any indication that we had anything more to deal with than a case of abortion at a corresponding period. In fact, none of the typical symptoms of the disease, as so regarded, were present in either of the cases. There was no serious, or at least what would be considered dangerous, hemorrhage, no rapid or unusual increase in the size of the uterus, and no discharge of the small cysts or vesicles, by which alone a positive diagnosis can be made. Therefore since seeing within a comparatively short time these three cases, of a rather rare disease of pregnancy, and as a result my ideas being somewhat modified with respect to the condition, I have believed that a short description of the cases would be of interest to the Obstetrical Society.

The first case was seen in the latter part of June in consultation with Dr. Boland. The patient, a young married woman of rather frail physique, with one living child, had been having repeated moderate hemorrhages for a number of days. She believed herself to be about three months pregnant, and the uterus corresponded in size approximately to this period. The cervix was slightly softened as of normal pregnancy and the external os tightly closed. A probable diagnosis of placenta previa was made both by Dr. Boland and myself, although it seemed to us at the time that the cervix was not so soft, and the external os was more tightly closed than it is customary to find in placenta previa. In view of the repeated hemorrhages, the general condition of the patient, the early stage of pregnancy, the danger of repeated and increased hemorrhage, and the small chance of prolonging pregnancy for a sufficient length of time to enable the fetus to be born alive, it was decided that it was safest to empty the uterus. The patient however, declined immediate operation, and also refusing to be removed to a hospital where more careful supervision of her case could be obtained than in her own home, the vagina was packed to prevent further loss of blood. At the end of twenty-four hours, the hemorrhage still continuing and prolongation of pregnancy being considered impossible, the patient was etherized and manual dilatation and removal of the uterine contents was performed. Sufficient dilatation to admit two fingers into the uterus was easily accomplished, after which the diagnosis of Hydatidiform mole became apparent and the whole mass was easily removed by separating it with the finger at its attachments on the upper anterior surface of the uterus. A curette was afterwards passed lightly over the inner surface of the uterus to remove any foreign material which might remain, as the gloved finger is not a perfectly satisfactory curette and the mole is very friable. The uterus was then washed out with weak corrosive solution, the uterus contracted down well, and there was no more hemorrhage than would occur in emptying a uterus for an abortion at this period. The convalescence was uneventful.

The second case was about three months pregnant and was sent into the City Hospital for hemorrhage and threatened abortion. Soon after the patient's entrance, because of persisting hemorrhage, it was decided to empty the uterus, and while she was being put on the table and made ready for operation, there was expelled spontaneously from the uterus a mass containing nearly a pint of hydatidiform material. This mass comprised about two thirds of the whole contents of the uterus, the remainder being easily separated with the gloved finger and with a curette, and the uterus was then washed out. No ether was given. The convalescence was perfectly normal. The contents of the uterus was roughly measured in these two cases, the amount being about a pint and a half in each.

The third case was also seen at the City Hospital, to which place she was sent for pain, hemorrhage, and threatened abortion. She was about four and a half months pregnant, and the uterus was correspondingly enlarged. There had been several hemorrhages of moderate amount before the patient came to the hospital. The patient was kept in bed,

[1] Read before the Obstetrical Society of Boston, Oct. 21, 1902.

having occasional slight hemorrhage and pain, and she was repeatedly examined without the presence of hydatidiform mole in the uterus being disclosed. Finally, after nearly four weeks in the hospital, a hemorrhage of considerable size occurred, and the uterus was emptied with the curette with the patient under ether. Her convalescence also was normal.

The nature and appearance of the hydatidiform growth in all these cases was essentially the same: a large number of vesicles of various size and shape, the largest seen being about three quarters of an inch in diameter. Most of the cysts were of a light, opalescent tint, and contained a thin, light-colored fluid. Many of the cysts, however, contained blood, and consequently were dark colored, and there was also some blood on the outside, as may be seen now in the specimen. The cysts are all attached to an irregular membranous structure, the chorion, either directly or by narrow pedicles, the membrane itself being attached to the uterine surface at the placental site, and this attachment was no larger in area than that of a normal placenta of the same period. There was no evidence of fetus or of placenta in either case.

The blood supply of the growths seemed particularly small, and the hemorrhage during delivery was slight in all the cases. It seems probable that the bleeding which occurred before delivery came from the uterus at the site of the attachment and not from the breaking off of portions of the growth.

The question arises in connection with these cases, Should a positive diagnosis of cystic chorion be made? I do not believe it is possible to do so at three or four months unless some of the cysts are thrown off and are seen. Even if discharged from the uterus they may readily become occluded in clotted blood. The most prominent symptom, then, is hemorrhage, and with continued hemorrhages in the early part of pregnancy, the possibility of the presence of hydatidiform mole should be kept in mind.

In the later months of pregnancy the absence of fetal parts on careful palpation and the unusual size of the uterus, said to be present, would tend to make the diagnosis much more certain.

There is little that need be said with respect to treatment. The uterus should be emptied as soon as the diagnosis is established. Manual or instrumental dilatation to admit one or two fingers, and removal of the uterine contents with the finger, followed by the curette, is safe and efficient.

## CASES OF TYPHOID FEVER SIMULATING PUERPERAL SEPSIS.

BY H. T. SWAIN, M.D.

HAVING seen a few cases of typhoid fever following immediately after delivery, which bore a most striking resemblance to cases of puerperal sepsis, it seemed worth while to speak of them, as they are not of frequent occurrence, judging from the literature. I do not mean to say that cases of typhoid developing during the puerperium are rare, but that cases coming on at once, so that a virulent sepsis is similated, are not frequently reported.

Three cases I have in mind which were so closely alike that to report one is to report all, and for that reason I will detail only one.

Mrs. N. H. entered the Boston Lying-in Hospital July 10, 1899, in labor. It was her third pregnancy, and she had been feeling, previous to the onset of labor, the same as during her former pregnancies.

She had an easy labor in the early morning of the 10th. That evening her temperature went up to 101.5°, pulse not elevated. The next morning the temperature was 102.5°, pulse 100. That evening the temperature was 104.2° and the pulse 130 of poor quality. During the day a marked diarrhea appeared, stools yellow, of pea-soup consistency, typhoidal odor. There was slight delirium. Tongue was thickly coated in the center, with red edges. There was some distension and general tenderness. Lochia and milk scanty. Inspection of the vagina and cervix negative. It was hard to tell the character of the lochia because of the continual discharges from the bowels and the fecal odor about the patient. There was present a macular eruption, which appeared and disappeared without apparent reason.

The third day there was no change in the patient's general condition except that the temperature was reduced by alcohol sponge baths and the pulse by stimulation. The diarrhea persisted and the delirium at night was present. White count 3400. No Widal. No diazo.

The fourth day rose spots appeared in abundance, the spleen was to be felt. Lochia normal in quantity and character. The diarrhea had disappeared.

The fifth day whites 3000. No Widal. Diazo present. The seventh day whites 3000. No Widal. The case was now a typical mild typhoid, from a clinical point of view. On the tenth day the Widal reaction was negative, and was not again tried for. The mother was discharged well at the end of a month. The babe was discharged well at the same time, not having been put to breast.

It will at once be seen that it was difficult to eliminate sepsis as the cause of this woman's serious condition. The temperature, taking such a sudden rise without any prodromata, is much unlike typhoid but is very like sepsis. The sudden rise of pulse and its rapid loss of character is extremely uncommon in early cases of typhoid, and is just what you would expect in a virulent sepsis. The scanty milk secretion throws no light at all on the diagnosis, because in any febrile condition the flow is diminished, especially when the baby is not put to breast. The lochia is not of help, since they may be unchanged in character and quantity in a virulent sepsis. The general abdominal tenderness with slight distension might be expected in either condition. Absence of pelvic tenderness may or may not exist in sepsis. The spleen is usually enlarged in typhoid and may be in sepsis, but is late in appearing.

Now as to diagnostic points of typhoid. First and by all odds the most important is the low white count, that is, a count way below the normal. It appears early and is certainly not an accompaniment of sepsis. The Widal reaction which appeared late in one of the cases was of no help, as it was a clear case of typhoid before that was found. Diazo reaction is of doubtful value, but may be

confirmatory. Rose spots appeared in all while there was still doubt, so that they were of help.

The prodromata may be obscured by what the patient considers the depression and discomfort of the last few days before labor, or their absence may be due to the ravages of the latent disease in a system that suddenly loses its normal resistance by the exhaustion of labor, fatigue and loss of blood.

I delivered none of the cases myself.

## A CASE OF TYPHOID FEVER COMPLICATING CONVALESCENCE FROM CHILDBIRTH.

BY EDWIN P. STICKNEY, M.D., ARLINGTON, MASS.

Mrs. W., a primipara, was confined at full term Sept. 7, by Dr. Alfred Worcester, in my absence. Convalescence was uneventful until Sept. 22. Previous to beginning of labor Mrs. W. had been in perfect health. At the beginning of labor her temperature was 98.8°. From this date until Sept. 22 the minimum morning temperature was 97.8° and the maximum afternoon temperature, 99.4°.

From the time of birth until the morning of Sept. 22, the patient had been unable to pass urine in the recumbent position, necessitating catheterization. The morning temperature of Sept. 22 was 99°, and the patient feeling well was permitted to sit up, and, in fact, walk to the bath-room, twenty-five feet distant. About two o'clock, after an unusually hearty dinner, the patient complained of dull pain in the region of the cecum and right uterine appendages. Temperature at 4 P.M. was 101°, with slight dull frontal headache.

Patient said she did not feel well, but aside from pain in region above mentioned could not say how, nor where she felt ill. Bowels were somewhat constipated, having moved once during the day by enema; tongue slightly coated; throat, lungs and heart negative; abdomen negative, with the exception of tenderness to pressure over the cecum, right tube and ovary, with a feeling of resistance elicited only by deep pressure; no distention of abdomen or rigidity of abdominal muscles; no vomiting or chill, and no tendency to flex the thighs on the abdomen.

On the morning of Sept. 23, after a fairly comfortable night, patient's temperature was found to be 101.7° with practically no change in condition of abdomen. The pulse was of good quality and about 90. Uterus was of normal size at the end of three weeks' convalescence, and practically no vaginal discharge. In the afternoon temperature rose to 103.6°; pulse to 104; bowels had moved fairly well, and except that patient felt more feverish there was no change in her condition. Flaxseed meal poultices to the right iliac region relieved the patient's distress without resort to drugs. Bathing with cool water and alcohol kept the patient comfortable. On the morning of Sept. 25, after a restless night, during which there had been a chill, the temperature rose to 104.9°; the headache was severe; cheeks flushed; tongue slightly coated; patient thirsty; increase of pain, tenderness and resistance on deep pressure in right iliac region; no apparent enlargement of uterus or tenderness of that organ to pressure; spleen could not be felt, but upper line of dullness was at eighth rib. Dr. Worcester saw the patient in consultation about ten o'clock in the forenoon of Sept. 25. Between eight and ten o'clock the bowels had moved freely; the pain, tenderness and resistance on deep pressure in the right iliac region had decidedly lessened, and the temperature had fallen to 101.5°.

About the slight enlargement of the spleen we were not quite certain.

An examination of the blood was deemed wise, as a further means of diagnosis, and a specimen was submitted to Dr. H. F. Hewes, of Boston, for examination.

In the afternoon of same day temperature rose to 104°, with pulse varying from 120 to 110, respiration about 20 per minute, and severe headache, which was greatly relieved by ice cap constantly to the head. Sept. 26. — The morning temperature was 100°, afternoon, 103.5°; patient felt decidedly more comfortable than on preceding day, and there were five loose, brownish-yellow movements, of foul odor, not produced by laxatives.

Report was received from Dr. Hewes stating that the blood examination was negative except for an unquestionable Widal reaction, and pronounced the case typhoid.

Sept. 27. — Highest temperature for the day 101.5°, patient feeling generally much better; bowels loose; very slight pain or tenderness in right iliac region; splenic dullness above the eighth rib, but organ could not be felt; breath decidedly bad; tongue more coated. Second examination of the blood by Dr. Hewes confirmed first report, and unquestionably established the diagnosis of typhoid fever.

Sept. 28. — Patient generally feeling better, highest temperature 99.5°, few rose spots on the abdomen.

Sept. 29. — Temperature up to 101° in the afternoon; headache returned; rose spots more numerous, and spleen unquestionably enlarged.

Oct. 1. —Yesterday afternoon temperature rose to 103.5°; this morning temperature 98.4, in the afternoon 99.5.

Patient says she feels very much better; few new rose spots on back or lower abdomen; no abdominal pain or tenderness whatever, and passes urine freely. Until present time, Oct. 21, temperature has been normal.

Oct. 21. — The patient's bowels from Oct. 1 have moved daily by enema; the convalescence has been uninterrupted, the flow of breast milk was kept up by the use of the breast pump until Oct. 10, when the baby was again put to the breast; the milk is rapidly increasing in quantity, and furnishes at present time two thirds of the quantity needed by the baby. The baby gains in weight from one to two ounces a day.

# Medical Progress.

## REPORT ON PEDIATRICS.

BY THOMAS MORGAN ROTCH, M.D., AND JOHN LOVETT MORSE, M.D.

### TYPHOID FEVER.[1]

Fifty-nine and one-tenth per cent of the cases were in boys; 40.9% were in girls. There was

[1] An Analysis of Seventy-one Cases of Typhoid Fever Treated in the Children's Hospital of Philadelphia during 1901. Hand & Walker.

no case under two years of age. The prodromal symptoms in order of frequency were as follows: —

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|---|---|
| Fever | 100% |
| Headache | 70% |
| Diarrhea | 50% |
| Abdominal Pain | 32% |
| Constipation | 30% |
| Vomiting | 26% |
| Nose Bleed | 18% |
| Delirium | 7% |
| Chill | 2.8% |
| Convulsions | 1.4% |
| Bloody Diarrhea | 1.4% |

The shortest duration of the fever was 9 days; the longest, 44 days. The average duration was 24⅓ days. The Widal reaction was positive in 87.5% of the cases in which it was tried. Enlargement of the spleen was present in 83%. Fifty-two of the 65 white children, or 80%, showed typical rose spots. Constipation was present in 42% and diarrhea in 38%. Delirium was sufficiently marked to be noteworthy in 11 cases. Intestinal hemorrhage occurred in 4 cases, in 3 being very slight, in 1, moderate, but not causing any shock or interruption in the favorable course. Nose bleed occurred in 3 cases. Relapses occurred in 6, or 8.5%. There were 3 deaths, giving a mortality of 4.2%. One died of noma, one of diphtheria and one of toxæmia, — the mortality of uncomplicated typhoid fever thus being less than one per cent.

They conclude that while typhoid fever may sometimes run a very mild, or even abortive, form in children, its clinical picture does not differ from that in adults in any essential feature save in the somewhat lower mortality.

### THE BACTERIOLOGY OF ACUTE ANTERIOR POLIOMYELITIS IN CHILDREN.[2]

They describe first the cases already reported of acute anterior poliomyelitis, in which bacteria have been found in the fluid obtained by lumbar puncture. They examined the spinal fluid obtained by lumbar puncture in two typical cases of acute anterior poliomyelitis. Lumbar puncture was performed in one case on the eighth day of the disease in a two-year-old girl, in the other, on the seventh day, in a boy of eight months. The cocci found in the first case were identical with the meningococcus (type Heubner). The cultures were not completely carried out in the second case, but as the cocci in this case agreed in general with those in the first case, the authors think that they were identical.

### ETIOLOGY OF ECZEMA.[3]

Two children in one family became affected with extensive eczema. They were fed almost exclusively on milk from a single cow. On suspension of this milk the eczema rapidly healed. On resumption of the milk later it did not return. Investigation showed that at the time of the skin affection a large quantity of salt had been given the cow. When salt was again fed to the cow the eczema returned again, vanishing once more as the salt was discontinued. The eczema recurred later, on one of the children, when milk from a neighbor was purchased, and again it was traced to an unusual amount of salt given the cows, and vanished on its suspension. No treatment was instituted at either time.

### THE VENOUS DYSTROPHIES OF HEREDITARY SYPHILIS.[4]

Hereditary syphilis is the cause of congenital venous dystrophy. Dilatation and varicosity may be present in any of the superficial veins. In childhood these occur only in very young subjects, and they have been seen only on the head. The superficial branches of the external jugular vein may be involved in three regions: those of the parietal and superficial temporal veins, those of the frontal branches of the facial vein and of its branches at the inner angle. In all his cases there were other stigmata of hereditary syphilis, or the parents were syphilitic. No similar lesions were present on the rest of the body. In adults, varicosities often develop on the trunk and extremities, and have the appearance of having begun at an early age. Congenital syphilis is the most probable cause of the dilatation of the veins on the head of the newly born. These dilatations disappear with time and growth.

### PARROT'S PSEUDOPARALYSIS IN CONGENITAL SYPHILIS.[5]

Scherer of Prague (Jahr. f. Kinderheil., May, 1902) discusses the paralyses which not infrequently occur in the limbs of syphilitic infants, usually in the arms. Parrot first noticed this complication in 1871, and attributed the loss of power to painful swellings in the epiphyses; he thought there was no affection of the nervous system. He therefore named it pseudoparalysis. Recently, however, this hypothesis has been much assailed, and it is doubtful if any of these cases of paralysis are to be attributed to bone disease and not rather to nervous changes. Scherer shows that necropsies frequently reveal a perfectly normal condition of the bones and joints of the paralyzed limbs; further, he cites eight cases in which there was typical (Wegner's) epiphysitis without any paralysis. His (Scherer's) hypothesis is that these paralyses are due to toxic action on the cells of the spinal cord, either from the syphilitic virus or from streptococci, which frequently gain access to the system in severe cases of congenital syphilis, and are the immediate cause of death. Though epiphysial swellings are frequent concomitants, they are not to be taken for the cause of the paralysis, according to his views. Cases of paralysis in infants have been described in which the cause proved to be a hemorrhage or a metastatic abscess in the corresponding region of the spinal canal. In cases of Parrot's disease there is never any gross lesion, and the necropsies of two of Scherer's fatal cases showed no degeneration of any of the nerve elements, but the singular discovery of masses of streptococci filling the fine vessels of the cord. The rest of the body showed general invasion by the same germs. It is not an infrequent complication, for among fifty cases of congenital syphilis, eleven showed paralysis. It is an early symptom; often the first to indicate the constitutional disorder, and appears usually in the first month, and not, in the above cases, later than the

[2] Looft & Dethloff, Medicinsk Revu, 1902, p. 321.
Heubel. Meuncheuer Med. Woch., July 20, 1902. Abstract in Journal of the American Association, 1902, vol. xxxix, p. 663.

[4] Fournier. Rev. d'Hyg. et de Méd. Inf., vol. 1, No. 1, p. 26.

[5] Jahr. f. Kinderheilkunde, 1902, p. 556. Abstract in British Medical Journal, Aug. 16, 1902.

third. Its onset is insidious, and the first evidence of it may be that, on stripping the child, the cold air fails to excite the usual involuntary starting in one particular limb. While the other limbs are excited to movement by exposure of the surface of the body to the air, that one remains still. It requires a stronger stimulus to make it move, and then but feebly and slowly. When paralysis is more complete, the limb is limp and motionless. With regard to the combination of sepsis and syphilis, Scherer remarks that mucous membrane affections predispose to the former. The cocci either enter by the ulcers in the mouth, or are swallowed and absorbed through the intestine. The presence of fissures and ulcers interferes with sucking, and lowers the resisting powers of the tissues to the syphilitic virus. Hence in such cases the skin lesions may rapidly extend and end in large losses of substance, allowing abundant opportunties for the entrance of septic organisms. Syphilitic children, indeed, frequently die from boils, sloughing ulcers, gangrene, or erysipelas.

### SERUM TREATMENT OF SCARLET FEVER.[6]

Previous experiments with normal horse serum and with Marmorek's anti-streptococcic serum had been completely negative. He used a serum derived from horses immunized with streptococci taken from the heart's blood of children dying of scarlet fever. The horses were injected with progressively increasing doses of living cultures of these streptococci which were not passed through animals but were cultivated only from bouillon to bouillon. The immunization was continued through months.

This serum was used in 81 of 699 consecutive cases at the St. Anna Hospital for children at Vienna. The type of cases received at this hospital is usually very severe. The mortality at this hospital was reduced to 8.99%, while the average mortality at the other six scarlet fever hospitals in Vienna was 13.09%. None of these stations had half as many patients. The mortality was *nil* when the serum was injected on the first or second day; 14.29% when first injected on the third day; rising from 23.8% on the fourth day to 50% on the ninth day.

The most striking change was the rapid improvement in the general condition. The exanthem did not come to full development, or disappeared with exceptional rapidity. The disturbances in the central nervous system also disappeared in a short time. The temperature, pulse and respiration usually declined during the early stages of the eruption, The gastro-intestinal symptoms usually disappeared in twenty-four hours. The tendency to weak heart action was favorably influenced. There was less swelling in the naso-pharyngeal cavity and less of the usual coryza. There were no extensive destructive processes in the throat, but superficial necroses did occur. Nephritis was apparently less common than formerly, but it was difficult to decide this question positively. Chronic septic intoxication was not noted, but pyæmic conditions were observed occasionally. The course of the disease was abbreviated by the serum treatment.

The by-effects of the serum were like those noted in the early days of the antitoxic serum in diphtheria. There were slight eruptions and pains in the joints in a few cases, with now and then an abscess at the point of injection. With these exceptions the serum, even in the large doses used, proved perfectly harmless.

*(Continued.)*

[6] Moser. Wiener Klin. Wochenschr., 1902. No. 48.

## Reports of Societies.

### THE OBSTETRICAL SOCIETY OF BOSTON.

BY MALCOLM STORER, M.D., SECRETARY.

MEETING of Oct. 21, 1902, the president, DR. G. J. ENGELMANN, in the chair.

DR. F. A. HIGGINS reported

### THREE CASES OF HYDATIDIFORM MOLE.[1]

DR. M. STORER. When a student I remember being asked to examine a case about to be operated upon for ovarian tumor. On laying my hand upon the abdomen I was struck by the fact that a strong uterine contraction took place, and that therefore the tumor must be an enlarged uterus. On calling the operator's attention to this, he promptly changed his diagnosis and instead of opening the abdomen he emptied the uterus of a pailful of hydatidiform material. I should like to call attention to the presence of such uterine contractions as being of aid in making a differential diagnosis from ovarian tumors.

DR. H. T. SWAIN. I once saw a case in which the diagnosis of hydatidiform mole was made from the abnormal size of the uterus and the history of a slight bleeding. On emptying the uterus three embryos of the age of two and a half months were found, but no mole.

DR. J. G. BLAKE. To show the rarity of the condition, I may say that I have seen only one case in some two thousand labors. In that case the uterus, which was not abnormally large, contained a very small fetus at term, to which was attached some half gallon of mole formation.

DR. H. E. MARION. I have seen one case at full term. The woman was enormously large, and had a normal labor.

DR. J. L. HILDRETH. I remember a case that thought herself five months pregnant although her abdomen was the size of full term. Before I arrived she had expelled some cysts. I had no difficulty in removing half a pailful more with my hand.

DR. F. A. HIGGINS. My reason for reporting these cases is because so many cases of a rare condition happened to come to me in so short a time — barely three months — and to emphasize the fact that increased size, so insisted upon in the books, was not present. I was also happily disappointed in the ease in which they were treated.

DR. H. T. SWAIN reported

### TWO CASES OF TYPHOID FEVER SIMULATING PUERPERAL SEPSIS.[2]

[1] See page 675 of the Journal.
[2] See page 676 of the Journal.

DR. E. P. STICKNEY, by invitation, reported

A CASE OF TYPHOID FEVER OCCURRING IN THE PUERPERIUM.[3]

DR. A. WORCESTER. If the Widal reaction is sufficient proof of typhoid fever, both these cases show a very unusual chart of typhoid, beginning with such severity and diminishing so soon. It would seem as if the typhoid were of a different type from that occurring in the non-puerperal state. In Dr. Stickney's case, the labor and puerperium were perfectly normal. The attack was very sharp and severe. There was no evidence of infection, and the blood examination was made only as a last resort to see if we could get any light on the case. This chart brings to my mind an epidemic of supposed puerperal septicæmia occurring in my service as house officer at the Boston Lying-in Hospital. I, as well as most of the nurses, had what was to all intents and purposes the same disease, *i. e.*, acute fever and acute diarrhea. I cannot but question whether this may not have been a mild typhoid. Two questions arise to my mind: Is it possible to get a Widal reaction in puerperal sepsis, and, secondly, are not many of the cases of so-called puerperal septicæmia in reality typhoid? If so, it may be that the statistics of lying-in hospitals need revision.

DR. STICKNEY. As partial answer to Dr. Worcester I understand that the Widal reaction may be present in the blood for years after a case of typhoid. A Widal reaction without leucocytosis excludes a septicæmia.

DR. J. L. HILDRETH. I remember at the time Dr. Worcester speaks of I was called to attend a primipara, who had been feeling rather poorly for a few days. After delivery she had tympanites, diarrhea and a large spleen. I took the ground at first that it was typhoid, but an older physician whom I called in consultation insisted that it was puerperal septicæmia. She died after two weeks, the course of the disease being much like most cases of septicæmia, yet an autopsy proved that it was typhoid. As to the value of the Widal reaction, I can only say that in the large number of typhoids I have in my autumn service at the Cambridge Hospital, I can hardly remember a mistake in diagnosis when the Widal was present without leucocytosis. Alone it is open to suspicion. In such cases I have supposed the patient had had typhoid previously without knowing it.

DR. MARION. I have seen many typical typhoids without the Widal. When it is obtained and there is no leucocytosis, we can be sure that typhoid is present.

DR. WORCESTER. What has the presence or absence of leucocytosis to do with a positive Widal?

DR. STICKNEY. If septicæmia is present we get a leucocytosis. If in addition the Widal reaction is present, it means that the patient has or has had typhoid.

DR. SWAIN. The striking thing about the cases I have reported is the low blood count. They all had between three and four thousand whites. Such a count excludes septicæmia.

DR. C. H. HUGHES. As a neurologist I cannot but be interested in this discussion, as typhoid is so emphatically a nerve disease in all its symptomatic phenomena, such as delirium, or subsultus, which is clearly a neural phenomenon, depending on impressions reacting on nerve centers through the blood. Sudamina result the same way, as does apepsia, which is due to the condition of the peptogenic glands, being dependent on inadequate innervation. Tympanites is the product of altered tonicity of bowel innervation. The whole symptom grouping is one of neurotic expression due to the presence of the typhoid germ. The fever itself is a nerve phenomenon, the heat center being morbidly affected. The most characteristic thing in typhoid is the moderate rise in temperature in the morning and the exalted rise in the afternoon. These conditions, which are nerve center reactions, depend for their degree upon the individual, on what other influences beside the typhoid bacillus have existed to deprave the nerve centers.

[3] See page 677 of the Journal.

## Recent Literature.

*Diseases of the Nose, Throat and Ear.* By CHARLES PREVOST GRAYSON, A.M., M.D., Lecturer on Laryngology and Rhinology in the Medical Department of the University of Pennsylvania, etc. Philadelphia and New York: Lea Brothers & Co. 1902.

There are already so many manuals covering this ground that a new one should present marked especial features, or improvements over what we already have. This book, although in many respects praiseworthy, hardly meets these requirements. It covers the ground fairly well, but it is superficial without being very small in bulk. In some subjects it reminds us more of ten years ago than of to-day; for instance, "enchondroses and exostoses" of the septum, cauterizing the base of a "myxoma," to prevent recurrence, cystic middle turbinate, rheumatic peritonsillar abscess, the relatively insignificant mention of the accessory sinuses, Bosworth's theory of purulent rhinitis as a cause of atrophic rhinitis. Treatment is often described in detail, and especial emphasis is laid upon general, as distinguished from local, therapeutics. The author is an enthusiast in the belief that many ailments of the upper respiratory tract are due to over indulgence in eating, with consequent uric acid, or to the improper use of wine, woman and song. The book has the merit of simplicity, and would be of decided value if the field were not already so full. The illustrations in the text are good, though few, while the plates are for the most part reproductions from other works and have little connection with the text.

*Gynecology, Obstetrics, Menopause.* By A. H. P. LEUF, M.D. Philadelphia: The Medical Council. 1902.

This is a book of 326 pages made up of a reissue of three series of papers on the subjects of gynecology, obstetrics and the menopause. The author writes of the results of his twenty years of experience in a lucid and entertaining style. His chief

object is to instruct general practitioners how to treat and operate on gynecological cases. He says: "To call in a specialist is to admit your own incompetence and his superiority, while you lose your influence with the patient. Besides this, the larger fee of the specialist deprives your patient by just that much of ability to pay you, for he works for spot cash." Operating is described as easy to do, and the physician is constantly urged to undertake it.

A perusal of the book shows Dr. Leuf to be a practitioner of good common sense, who arranges his thoughts logically and has ability to express them far beyond the average. His observations on the hygiene of menstruation, on abortion and on the difficult sexual problems so often presented to the practitioner are excellent. What he has to say about the menopause is good, but hardly seems to justify a separate division of the work, and the treatise on nervous diseases included in this section adds little to its value. The burden of the teaching is to do your work well enough, keep the allegiance of your patient and her money. The author speaks of antisepsis in a perfunctory way, as follows: "It is advisable to use antiseptic precautions in all work, but this should not be carried to extremes; not that it hurts the patient necessarily, but because it consumes valuable time to no useful end." He proceeds to advise forcible replacement of the backward displaced uterus, the only precaution to be observed being, to first dip the repositor in a "ten to fifteen per cent carbolic solution." Then he goes on to discuss how often such replacements should be made. The general practitioner is further advised to use pessaries in backward displacements with adhesions. Intra-uterine irrigations and applications are advocated, and *pari passu* uterine colic receives attention.

It is plain that Dr. Leuf has not had the opportunity of following the work of a specialist in gynecology or he would appreciate the disastrous results which so often follow the procedures he advocates, for it is the specialist who sees these cases after they are through with the general practitioner. Possibly cleanliness and asepsis are taken for granted, just as diagnostic ability seems to be. Certainly the author himself must be personally neat in the care of his hands or he could not say as he does in Chapter I of the part on obstetrics, that in twenty and one-half years' experience he has lost but one woman in confinement. There can be no question that cleanliness and asepsis are of first importance to the general practitioner who practices gynecology and obstetrics, because from the varied character of his work the danger of his carrying infection from one patient to another is especially great. A treatise which does not lay stress on these points and on careful training in diagnosis can hardly be a safe guide to follow, although it may contain, as this book does, many valuable hints on treatment.

*Anleitung zur Diagnose und Therapie der Kehlkopf-Nasen- und Ohrenkrankheiten.* Vorlesungen gehalten in Fortbildungscursen für practische Aerzte, von Dr. Richard Kayser, in Breslau. Zweite vermehrte und verbesserte Auflage: Verlag Von S. Karger, Karlstrasse 15. Berlin, 1903.

This manual of 175 pages is, as its title suggests, a collection of lecture notes for a graduate course. How such a course could omit the pharynx cannot be imagined. There is no anatomy and very little etiology. A few subjects receive surprisingly little attention, such as the correction of septal deformities and laryngeal papilloma. With these limitations the book would serve its purpose well for a student who reads German easily. This second edition differs only in a few details from the first, which we reviewed two years ago.

*A Textbook of Practical Therapeutics.* With Especial Reference to the Application of Remedial Measures to Disease and Their Employment upon a Rational Basis. By Hobart Amory Hare, M.D., Professor of Therapeutics and Materia Medica in the Jefferson Medical College of Philadelphia. With special chapters by Drs. G. E. deSchweinitz, Edward Martin and Barton C. Hirst. New (9th) edition. In one octavo volume of 851 pages, with 105 engravings and 4 colored plates. Philadelphia and New York: Lea Brothers & Co.

The ninth edition of this work is sure to retain the popularity which the earlier editions enjoyed. The revision has been extremely thorough, far more than was the last, and makes the book fresh and modern. We are glad of the opportunity to express our appreciation of the labor which the author has expended upon it. We know of no book of its size, published in America, which is its equal in *Practical Therapeutics.*

*Diseases of the Intestines.* Their Special Pathology, Diagnosis and Treatment. By John C. Hemmeter, M.D., Ph.D., Professor in the Medical Department of the University of Maryland; Consultant to the University Hospital and Director of the Clinical Laboratory. In two volumes. Vol. II: Appendicitis, Tuberculosis, Syphilis, Actinomycosis of Intestine, the Occlusions, Contusions, Rupture, Enterorrhagia, Intestinal Surgery, Atrophy, Abnormalities of Form and Position, Thrombosis, Embolism, Amyloidosis, Neuroses of the Intestines, Intestinal Parasites, Diseases of Rectum. With plates and many other illustrations. Octavo, 675 pages. Philadelphia: P. Blakiston's Son & Co. 1902.

The first volume of Hemmeter's Diseases of the Intestines was preëminently medical, but the second will be of quite as much interest to the surgeon as to the physician. It is admirably written, and portrays in the best way "*die Grenzgebieten der Medicin und der Chirurgie,*" to which might well be added *und der Physiologie.* The chapters on intestinal obstruction and the clinical aspect of intestinal surgery are perhaps the most deserving of mention. Appendicitis is thoroughly discussed and summaries given of the prevalent ideas on its treatment in Germany, France, England and America. So comprehensive is the review of the literature on this subject that the reader feels he has been furnished with all that is known of value. The chapter on Diseases of the Rectum is written by Dr. Thomas C. Martin, and in our opinion lays far too little stress on medical treatment.

Brief book reviews can hardly fail of being trite; we would therefore advise our readers to inspect these two volumes, when their worth will become apparent.—*E. P. J.*

THE BOSTON
# Medical and Surgical Journal

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## RECIPROCITY, OR INTER-STATE LICENSURE OF PHYSICIANS.

THE impression is more or less general among medical men that a person registered as a physician in one state should, on removing to another, be recognized by the authorities therein as a qualified practitioner and licensed to practice, without being required to take another state examination, or even to pay another state registration fee. For several years this matter has received considerable attention both in the medical press and in the discussions of medical men in many of the states.

A few years ago a national organization was effected by the examining and licensing boards of the country in an endeavor to bring about as nearly as possible a uniformity not only of methods of procedure but of qualifications required for licensure. It was thought by the promoters of this organization that under a uniformity of requirements by the various boards, a system of reciprocity might ultimately result, whereby a physician licensed by any recognized state board might secure a license to practice within the jurisdiction of any other board, without incurring the expense and trouble of a new examination. But in this respect, thus far, the work of this organization has proved a disappointment. In the path of reciprocity, so to speak, many obstacles appear which perhaps at first sight do not present themselves as hindrances at all.

The examining boards in the different states are differently organized. They act under different laws, making different requirements. In a number of states, Michigan, for instance, and Colorado, Kentucky, Nebraska, Vermont and several others, a diploma from a recognized medical school is the only qualification required for licensure. In Massachusetts, New York, Pennsylvania and various other states, the laws require that every applicant shall be examined as to his qualifications to practice. And even in states requiring an examination of all, it is easy to see that standards of qualification may differ widely. Each state is naturally jealous of its own work and standards, especially its educational standards. The several states, so far as their internal affairs are concerned, are quite independent of each other. Each makes its own laws and cares for its own people in its own peculiar way, and exercises no more authority over or in the affairs of other states of the Union than does France in the affairs of Great Britain. Hence arise difficulties nearly, if not quite, insuperable in the way of medical reciprocity.

The contention sometimes heard as to the desirability of a national law governing practice is utterly futile from the fact that the national government cannot legislate at all on such matters. The Constitution, the organic law of the union of the states, does not permit such interference in state affairs.

In a few states, notably New Jersey and Maine, the examining boards have provided for a limited interchange of registration certificates issued by certain states. But the "red tape" guarding this process of registration, taken with the fact that the fee for registration through such interchange of certificates is double that required for registration by the examination process, is quite enough to render such a system of registration undesirable, if not altogether impracticable.

It is clearly within the authority of examining boards, as usually constituted, in testing the qualifications of applicants for registration, to give weight to the credentials a practitioner may bring from another state board or from his former peers in practice. This is the kind of reciprocity one would naturally expect and which unquestionably is regarded by all state boards. Under existing circumstances this is about as far as reciprocity is likely to go in the near future.

## ADVANTAGES OF MEDICAL PRACTICE IN SMALLER CITIES AND TOWNS.

IT is evident to the most casual observer that the largest cities are overstocked with practitioners of medicine. The tendency for young men to collect in the great centers of population is as apparent in medicine as in other professions and callings. So far as medicine is concerned, this must be regarded as a distinct detriment to the best development and spread of medical knowledge. It is a lamentable fact that the possibilities of practice in the smaller cities and towns are so little appreciated by the rank and file of young medical men about to start in practice. It is almost proverbial that where men

are most needed they are least apt to be found. Young medical men of good intellect are needed in all of our small cities and towns, just as they are needed everywhere, but most of them are blind to their opportunities, and remain through a lifetime of struggle and obscurity lost in the competition of a great city.

There is no doubt in our mind that there never has been a time when the possibilities for young men of more than average ability was so great as now; but it does not lie in the largest cities. Towns and even the smaller cities are continually in need of men fresh from the training of a thoroughly progressive medical school, and it is to these our best graduates, in numbers, should be urged to go. There are laboratories to be established, hospitals to be organized, recent bacteriological methods of diagnosis to be introduced, modern surgery to be practiced. All these may be done by older practitioners, but they need assistance, and few of them will deny that they need the recent knowledge which the young graduate brings. Dr. Osler, in a recent address at Montreal on "Chauvinism in Medicine," insisted on the desirability of generous contact between older and younger men, and the advantages which each might gain from the other. The appreciation of young men is apparently growing with the growth of minute technical knowledge, and no town is so small or narrow in its horizon that it does not require the influence which this recent knowledge, embodied in our young practitioners, brings. Objection to their entrance into the smaller cities and towns, we imagine, does not come from the older established practitioners, but rather from their own impulse to remain in the largest cities. The result is apparent. Men of ability are spending their lives in the struggle to obtain a competence, working against competition and difficulties which are often never overcome, under dwarfing conditions of incessant discomfort and anxiety. This applies to the average man of moderate ability; the exceptional man will, of course, succeed under any circumstances. In contrast to such a life stand the possibilities of a medical career in smaller places, where specialism is developing and where a competence with professional prominence is relatively easily attained. It is a source of increasing wonder why men of special attainments cannot realize these facts earlier in their career, before their enthusiasm has been sapped by the often hopeless struggle of a city practice.

## AN OLD DIETETIC TREATMENT OF ACUTE CORYZA.

Few minor ailments are as annoying as an acute coryza, and in few diseases is the treatment as unsatisfactory.

Sternberg has recently called attention to a simple procedure, which was recommended by Williams in the middle of the last century. His plan was to "dry it up." Williams found, and Sternberg echoes his opinion, after an experience of years, that if liquids are totally excluded from the diet for twenty-four hours the congestion in the head, nose and conjunctivæ, and the irritating discharge from the nose are greatly lessened. If the treatment is continued for the second day, the coryza will usually be brought to an end except for an occasional discharge of gelatinous, opaque mucus, which is apt to appear toward the close of such a catarrh. Of still more importance is the fact that the coryza is not followed by a cough, and that the treatment is a prophylactic against otitis media, or the extension of the inflammation into the adjacent nasal cavities.

To be successful, the treatment must be started at once. Fever is not a contraindication, but chronic nephritis is. The total abstinence from liquids is not absolutely necessary, but one should indulge in but a few teaspoonfuls at a meal.

## MEASURES FOR THE PROTECTION OF OUR TREES.

We call attention in another column to the very admirable work about to be undertaken by the trustees of the Massachusetts Society for Promoting Agriculture, in relation to the preservation of shade and fruit trees. An appeal to the eye is always effective, particularly if enforced by explanation, and we therefore have no doubt that popular interest and popular action will be vigorously aroused by the method of stereopticon lectures. The public certainly needs definite information on this matter of so great public and, indirectly, hygienic importance. Many years ago a far-sighted Boston medical philanthropist set aside in his will a sum of money to be devoted to forest and tree culture. The facts have justified his foresight, for since that time our forests have and are being recklessly destroyed. Various leaf-eating insects have invaded our trees, over large areas, to such a degree that their beauty has been destroyed, and, in many instances, their vitality sapped. It is unpleasant to contemplate the ultimate damage to trees throughout this state if the warnings go much longer unheeded. The crusade should be carried everywhere, into small towns as well as larger cities, if the ravages of the pests are to be checked. Because the menace is not apparent during the winter months, we trust the offer made by the Society for Promoting Agriculture will not pass unheeded until too late to effect radical and intelligent extermination.

## MEDICAL NOTES.

### BOSTON AND NEW ENGLAND.

CROWDING OF NORTHAMPTON INSANE HOSPITAL. — The annual report of the Northampton Insane Hospital shows a decided overcrowding of the wards. A new infirmary is needed for one hundred male patients, and other minor improvements are desirable. The year closed with six hundred and fifty-nine patients, the largest number ever in the hospital in any one day. It is urged that provision to relieve overcrowding should be made with the idea that a decided increase in the number of admissions may be expected in 1904, if the state assumes the burden of expense of all the insane now supported by the cities and towns where they have their legal settlement. It is expected that measures will be taken to forestall the transfer in large numbers from almshouses to hospitals; but there will probably be a considerable increase in the number of commitments, and eventually the state must care for them all.

ACUTE INFECTIOUS DISEASES IN BOSTON. — For the week ending at noon, Dec. 17, 1902, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: Diphtheria 27, scarlatina 34, measles 10, typhoid fever 20, smallpox 17.

LONG ISLAND HOSPITAL. — Dr. George C. Wilkins has resigned the position of first assistant physician at the Long Island Hospital, Boston Harbor.

BEQUESTS TO HOSPITALS. — By the will of the late Mrs. Nancy E. Rust, various public bequests are made, most of them to take effect on the death of her husband. The Addison Gilbert Hospital of Gloucester, Mass., receives at once $10,000. Other bequests are: Children's Hospital, Boston, $5,000; Massachusetts Eye and Ear Infirmary, $2,000; Perkins Institute and Massachusetts Asylum for the Blind, $2,000; New England Hospital, $2,000; Industrial School for Crippled and Deformed Children, $2,000; West End Nursery and Infants' Hospital, $2,000; Home for Crippled Children, Weston, Mass., $2,000. In addition, $5,000 is given to the Perkins Institute and Massachusetts Asylum for the Blind, to be used in the kindergarten work. From the residue of the estate $15,000 is to be given to the Addison Gilbert Hospital, the income to be used for the general purposes of the hospital.

CENTENARY OF NEW HAVEN MEDICAL ASSOCIATION. — The New Haven Medical Association of New Haven, Conn., will celebrate the one hundredth anniversary of its organization on Monday and Tuesday, Jan. 5 and 6, 1903. Dr. William Osler of Baltimore and Dr. Francis Bacon of New Haven will deliver commemorative addresses on Tuesday afternoon, in the auditorium of the New Haven Colony Historical Society. On Monday evening a reception will be given in honor of Dr. Osler and Dr. Bacon at the Yale School of the Fine Arts. On Tuesday evening the annual dinner of the association will be given. The members of the committee in charge of the arrangements are Dr. Gustavus Eliot, Dr. Henry Lawrence Swain and Dr. Ralph Schuyler Goodwin, Jr.

TUBERCULOSIS AMONG THE INSANE. — It is generally admitted that tuberculosis is apt to be unusually prevalent among the insane, and especially among those confined in hospitals for the insane. The Consulting Board of Physicians of the Danvers Insane Hospital in their report to the trustees this year call attention to this fact and to the necessity for arrangements to meet it, and not for the first time. We take the following statement from their report: "There is the same need as ever for the segregation of tuberculous patients. It is well understood that the insane are peculiarly prone to tuberculosis, perhaps because they are, in general, less resistant to disease. Out of the large proportionate number who have the taint in one form or another there are thirty or forty who have pulmonary phthisis, and who are therefore actively contagious. There ought to be provision for preventing those who are likely to infect others with disease from doing so. There ought to be larger opportunity for the so-called outdoor treatment of suitable cases, in substituting for the tents which of late years have been found so useful somewhat more permanent buildings, — wooden, inexpensive, with detachable sides."

The medical director and pathologist of the Vermont State Hospital for the Insane discusses the same subject in the last report of the trustees of that institution. Dr. Berry states that: "In computing the amount of tuberculosis from our autopsies, the percentage has been reckoned as fairly as possible. The common adhesions of the apices of the lungs, and pleurisy with or without effusion, have not been considered as of tuberculous origin. Those cases which have shown substantial evidence of the existence of the disease have alone been counted. With these ideas in view, the percentage computation figures 31.2 per cent of tuberculosis found in ninety-three autopsies in this institution." In response to active appeals, the legislature of Vermont has made an appropriation for a separate pavilion, in connection with the state hospital, for the insane suffering with tuberculosis. Massachusetts might well do the same.

NEW YORK.

Presidency of the Academy of Medicine.— Dr. Andrew H. Smith is to succeed Dr. Robert F. Weir as president of the New York Academy of Medicine. Dr. Smith has been nominated for the position, and as there is no other candidate, his election in January is, of course, assured.

Prevention of Tuberculosis. — The committee of the Charity Organization on Prevention of Tuberculosis at its last meeting determined to take measures for the establishment of a sanitarium for consumptives, to be placed in some healthful location near the city. There are at present between 60 and 70 indigent patients of this class under the care of the committee at their own homes.

Daniel Pearson Pease, M.D., of New York, died of typhoid fever in Paris on Dec. 7, at the age of forty-five. He was a native of Chicopee, Mass., and was graduated from Bellevue Hospital Medical College in 1882. He served, as an outcome, at the City Hospital on Blackwell's Island, and afterwards in the division of contagious diseases of the New York Health Department. For a considerable period he was in charge of the hospital on North Brother Island. At the time of his death he was the house physician at the Hoffman House and the Fifth Avenue and Albermarle Hotels.

Pathological Institute of State Hospitals Lectures.— A course of lectures and conferences for the benefit of the superintendents and the assistant physicians of the various state hospitals for the insane has been inaugurated under the auspices of the Pathological Institute of State Hospitals, and at the first of these, which was recently held at the Manhattan State Hospital on Ward's Island, Dr. Adolph Meyer gave a lecture before the hospital superintendents, in which he outlined the aims and plans of the Pathological Institute. The reorganization of the latter was begun last winter, and a three-story building formerly used as a dining-room annex at the Manhattan Hospital has now been reconstructed for its purposes and fitted up with lecture-rooms, offices and laboratories. Among the topics it is proposed to discuss at these conferences will be, improvements in the training schools for nurses; better facilities for the admission of urgency cases of insanity and for voluntary patients; improved arrangements for the treatment of acute curable cases; the establishment of small psychopathic hospitals in the larger cities; the construction of pavilions for isolating tuberculous patients; improvements in the classification of forms of insanity, with reference to etiology, etc.

Manhattan Eye and Ear Hospital. — At a meeting of the directors of the Manhattan Eye and Ear Hospital, held Dec. 10, it was decided to begin as soon as practicable the construction of a new hospital building. The present hospital, which has only sixty beds, has proved quite inadequate for the increasing demands upon it, and the proposed new building will contain from 125 to 150 beds, as well as be more perfectly equipped for the work of the institution. At this meeting it was announced that an offer of $50,000 had been received from a gentleman, on condition that $150,000 in addition is raised by the 1st of January, 1904. The gift is conditional, also, on the hospital being removed from its present site (Park Avenue, 40th and 41st streets) and the establishment of a special ward for children, which shall perpetuate the name of the donor.

Columbia College Exhibit at St. Louis. — The trustees of Columbia have decided to prepare an exhibit of the university for the St. Louis Exposition, as was done for the expositions in Paris, Buffalo and Charleston. A committee has accordingly been appointed to take charge of the matter, and on this Prof. T. Mitchell Prudden represents the medical department, the College of Physicians and Surgeons.

Dr. Lorenz. — Dr. Adolph Lorenz is in New York this week, and holding clinics at Cornell University Medical College, the Post-Graduate, the Polyclinic, the Hospital for Ruptured and Crippled, Bellevue Hospital, and the College of Physicians and Surgeons.

## Miscellany.

### BACTERIOLOGY AS AN AID TO DIAGNOSIS.

In the course of an editorial on "The Place of Bacteriological Diagnosis in Medicine," the *Lancet* comments as follows: —

"Too much must not be expected from bacteriology, which is only an aid to diagnosis, though an invaluable aid. There are, as we have allowed, still a few practitioners, rapidly diminishing in numbers, who minimize the information to be obtained from exact scientific procedure, regarding it as likely to be misleading or fanciful. They are wrong in their attitude, which is opposed to all progress, but, on the other hand, many enthusiastic workers are inclined to place too high a value on the knowledge to be obtained by the use of bacteriological methods. These ardent bacteriologists are prone to forget that there are essential differences between a man and a test tube; they do not allow sufficiently for the gaps in our knowledge of vital processes. Too great stress can hardly be laid upon the fact that in order to secure the greatest amount of value from bacteriology as an assistant to clinical medicine the clinician and the bacteriologist must work together. By this plan only can the errors in diagnosis be lessened. Separation of labor can only lead to misunder-

standing, but joint endeavors will produce results which will tend still further to increase the practical bond of union between the laboratory and the sick bed."

## VIRCHOW AS A POLITICIAN.

To the *North American Review* of Nov. 15 some personal recollections of Virchow are contributed by Karl Blind. He says that probably few outside of Germany know, and even in Germany the younger generation may be little aware of, the part which Virchow played in the revolution of 1848–49. In that year of universal upheaval Karl Blind and those who with him were striving to establish a German Commonwealth issued, in the name of a provisional government, proclamations at the top of which were the words *Deutsche Republik: Wohlstand, Bildung, Freiheit fur Alle* (Material Welfare, Culture, and Freedom for All). Notwithstanding the defeat of the revolutionaries, Virchow boldly took these very words as his political device in his speeches and writings. He declared these demands to be "the only true guarantees for the lasting health of nations." It was a daring thing for him to do at Berlin while in the South men of his political complexion had, after narrowly escaping the axe of the headsman, suffered imprisonment for many months. Virchow, however, had seen with his own eyes the sufferings of the poor in Silesia and in the Spessart Forest, and for many years afterwards he dwelt on the urgent necessity of "social medicine." After his return to Berlin from his temporary banishment to Bavaria, he, as leader of the Parliamentary Progressist party in Prussia, framed the program which aimed at German unity. Whilst aiming at this with Prussia as the central power, he fought strenuously for the establishment of parliamentary control and truly representative government, with ministerial responsibility, in Prussian home affairs. Out of this arose the great "constitutional conflict," in which Virchow came into direct collision with Bismarck. Blind gives a curious detail of the famous challenge sent by Bismarck to Virchow in 1865. The chancellor informed the professor by letter that the minister of war would be one of his seconds, and the minister actually called at Virchow's house when he was out, causing not a little fluttering in the domestic dovecot. Virchow, as we all know, declined the challenge, saying that his life was too valuable to mankind to be put to the chance of a duel with a politician. He did not hesitate to expose it five years later in a worthy cause when in the war with France. With his sons he fetched the wounded on the battlefield out of range under a heavy fire. In the "Kulturkampf," a word coined by Virchow, the great pathologist took a leading part, and Bismarck's retirement from the field made Virchow a more determined opponent than before.

Blind has something to say about his correspondence with Virchow, which ranged over a great variety of subjects, — the ethnology of the German race as evidenced by the color of the eyes, the hair and the skin, the statistics of which, by investigations made in schools, Virchow had first classified in a systematic manner; the apparently Aryan, even Germanic, kinship of the Ossetes in the Caucasus, where he went to make inquiries; "Old Trojan tombs and skulls," the result of his co-operation with Schliemann; the Skythic remnants, found in the South Russian barrows; the Weddahs of Ceylon; prehistoric Egyptian anthropology, and kindred matters.

On Egyptian race questions Virchow made a remarkable discovery, which Professor Sayce declared to be one of the most important for the earliest history of Egypt. Yet in England scarcely any notice was taken of what Virchow had written in his "Royal Mummies." He had shown the strong contrast between the short-headedness of the Egyptians of the old kingdom and the long-headedness of those of the later kingdom and of the present time.

Blind tried hard to convince Virchow that Harvey was not the real discoverer of the circulation of the blood, and Virchow tried equally hard to convince Blind that he was mistaken. After a long argument Virchow clinched the matter by saying: "It might as well be contended that the cellular doctrine was not my own." — *British Medical Journal.*

## MASSACHUSETTS SOCIETY FOR PROMOTING AGRICULTURE.

THE following circular has been sent out by the Massachusetts Society for Promoting Agriculture in an effort to combat the increasing menace to our trees from various pests. We trust the lectures proposed may be widely advertised and gain a large hearing: —

"The increasing damage to shade and fruit trees in this state by leaf-eating insects, such as the elm-tree beetle, the brown-tail moth, the gypsy moth, and the tussock moth, has become a serious matter. In nearly all parts of the state shade trees, often the growth of many years, are being seriously injured, and sometimes killed by these pests. If our trees are to be preserved, intelligent and persistent work is necessary. The time to prepare for this work is now, while the insects are dormant, and not in the spring after they have begun to feed.

"That the people of the state may fully understand the danger which threatens their trees, and may be prepared to meet it effectively, the Trustees of the Massachusetts Society for Promoting Agriculture have arranged for fifty public lectures, illustrated by the stereopticon. Under this arrangement, during the months of January, February and March, 1903, the services of a lecturer and lantern operator will be furnished free to any town or city which will agree to pay their traveling and hotel expenses during the time actually devoted to the city or town. The lectures will be of a popular nature, and slides will be shown of the common shade and fruit tree insects, spraying outfits, nozzles, etc., and in each town particular attention will be given to the insects particularly injurious in that town. Applications for lectures will have attention in the order in which they are received.

"That these lectures may obtain the attention the importance of the subject demands, it is suggested that you confer concerning them with the tree warden of your town, with members of village improvement and other societies, and with other public-spirited men and women, that general attention may be drawn to these lectures, and the necessity for

prompt and energetic measures for the destruction of injurious insects.

"All communications should be addressed to FRANCIS H. APPLETON, Secretary, 70 State Street, Boston."

## THE TEMPLE OF ÆSCULAPIUS.

SEVERAL archæologists have undertaken excavations at various times to discover the Temple of Æsculapius, but without success. Dr. Rudolf Herzog has, however, quite recently been lucky enough to find the right place under an ancient Byzantine church, dedicated to the Blessed Virgin of "Tarsus," *ἡ Παναγία Τάρσος* on the island of Cos in the Ægean Sea, off the south-west of Asia Minor. The island appears to be variously called Cos, Ko, Kos, Stanko, Stanchio and Istankoï. The word *Τάρσος* is a corruption of *νοῦ ἄλσους*, the grove; that is, of Æsculapius. The columns of the temple have been found. They are lying whole or in pieces in the place called Condjé Baktchessi, or the garden of the flower buds. The temple is seventeen meters wide and thirty-seven meters long. An inscription has been found on the entrance hall (*Πρόδομος*) of the temple, which may be translated as follows: —

Sundry elders from different states have decided by vote to carry on this holy asylum of Æsculapius.

At the same time a statue of Hygeia has been found, as well as a portion of the image of a serpent, the symbol of Æsculapius. Some votive offerings have also been discovered. The excavations are being continued, and perhaps will result in further discoveries which may help to decide the question whether there were or were not lying-in and other hospitals before the birth of Christ. —*Lancet, Nov. 15.*

# Correspondence.

## ON GIVING CERTIFICATES OF VACCINATION.

BOSTON, Dec. 11, 1902.

*Mr. Editor,* — In these days when nearly all employers are requiring that only vaccinated persons shall work for them, the securing of a proper certificate of vaccination is of great importance to every employee. Most firms require that the vaccination must have been successfully performed within three years or that the operation must have been repeated recently if previously unsuccessful.

Certificates to be of any value at all must clearly state (*a*) that the operation was *successful*, and (*b*) the *date*, as nearly as possible, of the vaccination. The year of vaccination is usually sufficient. If the operation was unsuccessful the certificate should so state, and also give the year of the last successful vaccination.

Printed forms for certificates are often used, but of some half dozen varieties examined by me none was found to certify to both the success and the date of the vaccination.

It is a common and misleading custom to give a certificate of vaccination on the day of the operation. If required by an employer, a certificate that the operation has been performed may be given at once, and the statement should be added that the result would be reported later. The following simple form of certificate covers all that is required.

This certifies that . . . . . was successfully vaccinated on . . . . . .

Signed . . . . . M. D.

Address . . . . . .

Dated . . . . . .

The necessity for calling attention to this subject has been impressed upon me by my experience as inspector of schools and recently as official vaccinator for employees of the Boston Public Library. In the latter capacity, I have examined a large number of certificates which were written by nearly one hundred physicians of Boston and vicinity. It was a surprise to find that only one half of the certificates were properly made out. More than one quarter failed to state when the vaccination was performed. A little less than one quarter failed to state that the result was successful. One physician forgot to sign his name. Some put in the age, address, etc., of patient, leaving out the essentials.

As these certificates are all referred back to the physician for correction, his carelessness causes loss of time and considerable inconvenience to both his patient and himself, besides confirming the layman's suspicion that a doctor is usually not a good business man.

Truly yours,

EDWARD M. GREENE, M.D.

## RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, DEC. 6, 1902.

| CITIES. | Population Estimated, 1902. | Reported deaths in each. | Deaths under five years. | Percentage of deaths from | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | Infectious diseases. | Acute lung diseases. | Diphtheria and croup. | Typhoid fever. | Diarrheal diseases. |
| New York . . | 3,665,352 | 1,196 | 306 | 23.66 | 12.29 | 4.10 | 1.34 | 2.09 |
| Chicago . . . | 1,852,828 | 528 | 146 | 25.38 | 12.31 | 2.65 | 3.79 | 7.00 |
| Philadelphia. | 1,349,624 | 450 | 128 | 17.77 | 15.77 | .88 | 1.77 | .44 |
| St. Louis . . | 603,717 | — | — | — | — | — | — | — |
| Baltimore . . | 525,330 | 186 | 58 | 16.13 | 17.73 | 1.07 | 1.61 | 2.69 |
| Cleveland . . | 411,826 | — | — | — | — | — | — | — |
| Buffalo . . . | 375,742 | — | — | — | — | — | — | — |
| Pittsburg . . | 341,401 | 122 | 44 | 24 59 | 16.39 | 3.27 | 4.91 | .82 |
| Cincinnati . . | 332,032 | — | — | — | — | — | — | — |
| Milwaukee . | 304,975 | — | — | — | — | — | — | — |
| Washington . | 289,537 | — | — | — | — | — | — | — |
| Providence . | 185,870 | 70 | 16 | 25.74 | 15.73 | 1.43 | 2.86 | 1.43 |
| Boston . . . | 588,730 | 224 | 66 | 23.21 | 16 51 | 3.12 | 1.78 | 1.40 |
| Worcester . . | 127,337 | 26 | 9 | 15 40 | 11.55 | — | 3.85 | — |
| Fall River . . | 111,872 | 33 | 10 | 36.36 | 18.18 | 9.09 | — | 9.09 |
| Lowell . . . | 99,574 | 37 | 16 | 13.51 | 21.61 | 2.70 | — | — |
| Cambridge . | 96,334 | 26 | 3 | 15.40 | 11.55 | — | 3.85 | — |
| Lynn . . . . | 71,144 | 17 | 4 | 5.88 | — | — | — | — |
| Lawrence . . | 67,275 | 28 | 16 | 14.28 | 28.56 | — | — | 3.57 |
| Springfield . | 66,854 | — | — | — | — | — | — | — |
| Somerville . | 65,882 | 21 | 7 | 28.57 | 19.05 | 14.28 | — | — |
| New Bedford | 65,574 | 25 | 6 | 36.00 | 8.00 | 4 00 | — | — |
| Holyoke . . . | 48.065 | 11 | 3 | 18.18 | 9.09 | — | — | 9.09 |
| Brockton . . | 43,208 | 7 | — | — | — | — | — | — |
| Haverhill . . | 40,392 | 13 | 2 | 30.80 | 15.40 | — | 7.70 | — |
| Salem . . . . | 36,567 | 14 | 6 | 21.42 | — | — | — | — |
| Newton . . . | 36,336 | 5 | — | — | — | — | — | — |
| Malden . . . | 35,390 | 13 | 2 | 23.10 | — | — | — | — |
| Chelsea . . . | 35 264 | 11 | 2 | 9.09 | 9.09 | — | — | — |
| Fitchburg . . | 33,848 | 20 | 10 | 10.00 | 35.00 | — | — | — |
| Taunton . . . | 32,759 | 6 | 0 | — | 16.67 | — | — | — |
| Everett . . . | 27,114 | 13 | 2 | 7.70 | — | — | — | — |
| North Adams | 26,583 | 13 | 2 | 23.10 | 7.70 | 7.70 | 7.70 | — |
| Gloucester . | 26,121 | 2 | 2 | — | — | — | — | — |
| Quincy . . . | 25,307 | — | — | — | — | — | — | — |
| Waltham . . | 24,612 | 9 | 2 | 44.44 | 11.11 | 22.22 | 11.11 | — |
| Pittsfield . . | 22,311 | 3 | — | — | — | — | — | — |
| Brookline . . | 21,679 | — | — | — | — | — | — | — |
| Chicopee . . | 20,390 | 5 | 2 | — | 40.00 | — | — | — |
| Medford . . | 20,014 | 4 | 1 | — | 50.00 | — | — | — |
| Northampton | 19,460 | 4 | 3 | — | — | — | — | — |
| Beverly . . . | 14,814 | 1 | — | 100.00 | — | — | — | — |
| Clinton . . . | 14,645 | 2 | 1 | — | — | — | — | — |
| Newburyport | 14,478 | 7 | 2 | 42.90 | — | 14.30 | — | — |
| Woburn . . . | 14,285 | — | — | — | — | — | — | — |
| Leominster . | 13,953 | — | — | — | — | — | — | — |
| Hyde Park . | 13,858 | 11 | 1 | 36 36 | — | — | — | 9.09 |
| Marlboro . . | 13,609 | 4 | 1 | 25.00 | — | — | — | 25.00 |
| Melrose . . . | 13,384 | 5 | 1 | 80.00 | — | — | — | — |
| Westfield . . | 13,038 | 5 | 2 | 20.00 | 60.00 | — | — | — |
| Attleboro . . | 12,846 | — | — | — | — | — | — | — |
| Adams . . . | 12,813 | — | — | — | — | — | — | — |
| Milford . . . | 12,516 | — | — | — | — | — | — | — |
| Framingham | 12,109 | 5 | — | — | — | — | — | — |
| Peabody . . | 11,957 | — | — | — | — | — | — | — |
| Revere . . . | 11,894 | — | — | — | — | — | — | — |
| Gardner . . . | 11,544 | 5 | — | 20.00 | — | — | 20.00 | — |
| Weymouth . | 11,337 | — | — | — | — | — | — | — |
| Southbridge . | 10,838 | 3 | — | 33.33 | — | — | 33.33 | — |
| Watertown . | 10,600 | 4 | — | 25.00 | 25.00 | — | — | 25.00 |
| Plymouth . . | 10,336 | — | — | — | — | — | — | — |

Deaths reported, 3,194; under five years of age, 882; principal infectious diseases (smallpox, measles, scarlet fever, cerebrospinal meningitis, diphtheria and croup, diarrheal diseases, whooping cough, erysipelas, fevers and consumption) 734, acute lung diseases 441, consumption 371, scarlet fever 26, whooping cough 28, cerebrospinal meningitis 7, smallpox 14, erysipelas 9, measles 13, typhoid fever 66, diarrheal diseases 81, diphtheria and croup 93.

From whooping cough, New York 4, Chicago 9, Philadelphia 5, Pittsburg 2, Boston 3, Lowell 2, Lawrence 1, Haverhill 1, Salem 1. From measles, New York 6, Chicago 2, Baltimore 2, Pittsburg 1, Boston 1, Fitchburg 1. From erysipelas, New York 5, Chicago 1, Pittsburg 2, Providence 1. From smallpox, Philadelphia 1, Pittsburg 6, Boston 7.

In the seventy-six great towns of England and Wales, with an estimated population of 14,862,151, for the week ending Nov. 22, the death-rate was 16.9. Deaths reported 4,819; acute diseases of the respiratory organs (London) 381, whooping cough 71, diphtheria 88, measles 167, smallpox 3, scarlet fever 42.

The death-rate ranged from 6.1 in Ipswich to 34.2 in Hanley; London 17.4, West Ham 18.2, Brighton 12.6, Portsmouth 16.0, Southampton 12.1, Plymouth 12.3, Bristol 19.2, Birmingham 15.6, Leicester 16.6, Nottingham 16.3, Bolton 13.4, Liverpool 21.5, Manchester 19.8, Salford 19.1, Bradford 13.0, Leeds 16.0, Hull 17.6, Newcastle-on-Tyne 16.7, Cardiff 17.0, Rhondda 19.2, Sheffield 16.7, Coventry 13.1.

## METEOROLOGICAL RECORD

For the week ending Dec. 6, in Boston, according to observations furnished by Sergeant J. W. Smith of the United States Signal Corps:

| DATE | Barometer. | Thermometer. | | | Relative humidity. | | | Direction of wind. | | Velocity of wind. | | We'th'r * | | Rainfall in inches. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Daily mean. | Daily mean. | Maximum. | Minimum. | 8.00 A.M. | 8.00 P.M. | Daily mean. | 8.00 A.M. | 8.00 P.M. | 8.00 A.M. | 8.00 P.M. | 8.00 A.M. | 8.00 P.M. | |
| S. 30 | 30.14 | 42 | 51 | 34 | 71 | 54 | 62 | S W | W | 12 | 9 | O. | R. | T. |
| M. 1 | 29.90 | 38 | 43 | 32 | 74 | 70 | 72 | N W | W | 12 | 12 | C. | C. | .22 |
| T. 2 | 29.92 | 42 | 50 | 33 | 65 | 61 | 63 | S W | W | 10 | 3 | O. | C. | O. |
| W. 3 | 29.60 | 44 | 48 | 40 | 96 | 93 | 94 | E | W | 20 | 7 | R. | O. | .32 |
| T. 4 | 29.88 | 38 | 44 | 31 | 80 | 95 | 88 | W | N | 5 | 10 | C. | F. | O. |
| F. 5 | 29.62 | 25 | 37 | 13 | 100 | 92 | 96 | N E | N W | 32 | 24 | N. | C. | .55 |
| S. 6 | 30.28 | 18 | 24 | 12 | 76 | 66 | 71 | W | W | 12 | 10 | C. | C. | O. |
| Mean | 29.91 | | 42 | 28 | | | 78 | | | | | | | 1.09 |

*O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow. | Indicates trace of rainfall. Mean for week.

## CHANGES IN THE MEDICAL CORPS OF THE NAVY FOR THE WEEK ENDING DEC. 13, 1902.

F. M. GUNNELL, medical director, retired. Ordered to the Bureau of Medicine and Surgery, Navy Department.

E. O. HUNTINGTON, passed assistant surgeon. Detached from treatment at the Naval Hospital, New York, and ordered to duty at the Navy Yard, New York.

W. H. BUCHER, passed assistant surgeon. Ordered to duty at the Naval Hospital, Norfolk, Va.

## RECENT DEATHS.

DR. JOHN J. DOOLEY of New York died on Dec. 10, at the age of thirty-five. He was born in New York, and was a graduate of the College of Physicians and Surgeons in that city. For some time he was connected with St. Vincent's Hospital.

LUCIUS WILLARD BAKER, M.D., M.M.S.S., died in Baldwinsville, Dec. 7, aged fifty years.

## BOOKS AND PAMPHLETS RECEIVED.

Quarterly Publications of the American Statistical Association. A Statistical Study of the Fatality of Typhoid Fever at Different Seasons. By C.- E. A. Winslow, S.M. September, 1902.

How to Succeed in the Practice of Medicine. By Joseph McDowell Mathews, M.D., LL.D. Illustrated. Louisville: John P. Morton & Co. 1902.

Pubblicazioni inviate dal R. Istituto di Studi Superio ri, Pratici e di Perfezionamento in Firenze. Sullo Sviluppo del IV Ventricolo. Del Dott. Rutilio Staderini. Ricerche sul Midollo delle ossa nella Difterite. Per A. Trambusti. Studio dei nervi encefalici. Pe. IV. Del Dott. Giulio Chiarugi. Vaccinazione contro la Peste Bubbonica. Del Prof. Dr. Alessandro Lustig. Sviluppo embrionale della Funzione Motoria. Del Dr. Filippo Bottazzi, Fisiologia del tessuto di cellule muscolari. Del Dr. Filippo Bottazzi.

An Infectious Form of an Eczematoid Dermatitis. By Martin F. Engman, M.D., of St. Louis, Mo. Reprint. 1902.

Cancer of the Uterus: A Clinical Monograph on its Diagnosis and Treatment, with the after-results in seventy-three cases treated by radical operation. By Arthur H. N. Lewers, M.D., London, F.R.C.P., London. Illustrated. Philadelphia: P. Blakiston's Son & Co. 1902.

Heath's Practical Anatomy: A Manual of Dissections. Ninth edition. Edited by J. Ernest Lane, F.R.C.S. Illustrated. Philadelphia: P. Blakiston's Son & Co. 1902.

Transactions of the Association of American Physicians. Seventeenth Session, held at Washington, D. C., April 29 and 30, 1902. Vol. XVII. Philadelphia. 1902.

Index-Catalogue of the Library of the Surgeon-General's Office, United States Army. Authors and Subjects. Second series. Vol. VII. Washington, D.C.: Government Printing Office. 1902.

The Mattison Method in Morphinism: A Modern and Humane Treatment of the Morphine Disease. By J. B. Mattison, M.D. New York: E. B. Treat & Co. 1902.

Advice to Gonorrheal Patients. By Ferd. C. Valentine, M.D., of New York. Reprint. Philadelphia. 1902.

A Manual of Dissection and Practical Anatomy. Founded on Gray and Gerrish. By William T. Eckley, M.D., and Corinne B. Eckley. Illustrated. Philadelphia and New York: Lea Brothers & Co. 1903.

Examination of a Genito-Urinary Patient by the General Practitioner. By Ferd. C. Valentine, M.D., New York. Reprint. 1902.

The Urine from Each Kidney. By Ferd. C. Valentine, M.D., New York. Reprint. 1902.

The Earth in Relation to the Preservation and Destruction of Contagia, being the Milroy Lectures, delivered at the Royal College of Physicians in 1899, together with Other Papers on Sanitation. By George Vivian Poore, M.D. (Lond.), F.R.C.P. Illustrated. London, New York and Bombay: Longmans, Green & Co. 1902.

Malarial Fever, its Cause, Prevention and Treatment, containing Full Details for the Use of Travellers, Sportsmen, Soldiers and Residents in Malarious Places. By Ronald Ross, F.R.C.S., D.P.H., F.R.S. Ninth edition, revised and enlarged. Illustrated. London, New York and Bombay: Longmans, Green & Co. 1902.

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# Original Articles.

## ON THE TEACHING OF PHYSICAL DIAGNOSIS.[1]

BY WILLIAM SYDNEY THAYER, BALTIMORE,

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THE educated physician who interests himself in medical conditions in the United States can scarcely fail to be impressed with the fact that those points in which the profession as a body is most deficient depend upon the need of a more thorough early training in the fundamental methods of physical diagnosis and of a more extensive bedside experience in the observation of disease during the instruction in the medical schools. The association of medical schools has lengthened the course of study required for a degree of doctor of medicine to four years, and most of the states have adopted examinations requiring evidence of proficiency on the part of the applicant for a license to practice which in some instances are excellent. Yet none of these laws and but few of our schools insist upon an amount of training in clinical observation equal to that which is demanded, for instance, in England. There is no uniformity in our state laws, and as far as the four-years' work goes, little is required beyond the fact that those years shall have been spent in study or in attending courses of lectures. The student may to-day, as he could forty years ago, graduate and enter into the practice of medicine with a minimum of actual clinical experience.

In the last two decades, however, great changes have come about in our methods of medical instruction. The didactic lecture, the demonstration — forms of instruction designed to bring out facts with as much economy of time as possible before large classes — are rapidly disappearing, giving way to more practical methods of teaching with smaller bodies of men. We seek to-day not so much to lay facts clearly before a class as to teach the student methods by which he can himself control the statements of his instructors and his books, by which he may become independently competent to investigate and to clear up the nature of any anatomical or physiological abnormality with which he may meet. These changes have occurred not only in methods of clinical instruction but in the laboratories themselves. He has a poor knowledge of anatomy who is familiar only with the gross forms, but it is not merely to recognize minute histological changes that the student now demands; he must have a practical familiarity with those methods of preparation and staining without which he is helpless.

And not in medical teaching alone have these changes come about. We seek to teach the child at school, as well as the student of medicine, how to think, how to work, how to investigate, how to help himself; to guide him rather than to push him in the way that he should go. We are but following a method urged by Montaigne about three hundred and fifty years ago.

"*On ne cesse*," says he, "*de criailler à nos aureilles, comme qui verseroit dans un entonnoir; et nostre charge, ce n'est que redire ce qu'on nous a dict: Ie vouldrois qu'il corrigeast cette partie; et que de belle arrivée, selon la portée de l'âme qu'il a en main, il commenceast à la mettre sur la montre, luy faisant gouster les choses, les choisir et discerner d'elle mesme; quelquefois luy ouvrant chemin, quelquefois le luy laissant ouvrir. Ie ne veulx pas qu'il invente et parle seule; ie veulx qu'il escoute son disciple parler à son tour. Socrates et depuis Arcesilaus, faisoient premierement parler leurs disciples et puis il parloient à eux. . . . Qu'il luy face tout passer par l'estamime, et ne loge rien en sa teste par simple auctorité et à credit . . . s'il embrasse les opinions de Xenophon et de Platon par son propre discours, ce ne seront plus les leurs, ce seront les siennes: qui suyt un aultre, il ne suyt rien, il ne treuve rien, voire il ne cherche rien.*"[2]

These methods of instruction are bringing to us a different class of men, men trained to independent thought, who are no longer contented with bare statements of fact, but demand proofs and explanations and ask embarrassing questions.

At the end of the second year in most of our medical schools, these men have been occupied for nearly a year in studying the manifestations of disease in the pathological laboratory. They are now confronted by a new question, namely, the recognition of these same pathological changes in the living subject.

### (1) THE NECESSITY OF A GOOD KNOWLEDGE OF REGIONAL ANATOMY AND OF PRACTICE IN THE PHYSICAL EXAMINATION OF THE NORMAL SUBJECT.

For the proper study and comprehension of normal and pathological anatomy a certain amount of technical skill must be acquired, — the technique of dissection and necropsies and the more elaborate technique of preparation of tissues for microscopical examination, as well as that of bacteriology. For the examination of the living subject, a new technique, which may be fully as complicated, is also required. The first step toward acquiring this technique consists in the study of the fundamental methods of physical investigation, — inspection, palpation, percussion, and auscultation.

These methods will, however, be of little or no value in helping the student to determine anatomical or physiological changes in internal organs without an accurate knowledge of their normal position and outline, and of the evidences which they give to the eye, the hand and the ear of their normal function. The middle or end of the second year is, in most medical schools, just the period at which the student should, theoretically, be most familiar with topographical anatomy. Nevertheless, an essential part of the course in physical diagnosis should, I believe, consist in practical demonstrations of regional anatomy. Why is this

[1] Read before the Suffolk District Section of the Massachusetts Medical Society in Boston on Oct. 25, 1902.

[2] "They [teachers] are eternally dinning in our ears as if they were pouring into a funnel; and our part is but to repeat what they say to us. I would have the teacher amend this procedure; and from the beginning, according to the character of the mind with which he is treating, he should endeavor to stimulate its action, making it taste, choose and judge of things of its own impulse, sometimes opening the path himself, sometimes allowing the pupil to make his own way. I would not have him alone suggest and speak; he should allow his disciple to speak in his turn. Socrates, and later Arcesilaus, insisted that their pupils speak first and then took up the subject themselves. . . .

"Let him [the teacher] make him [the pupil] investigate everything and lodge nothing in his head through simple authority and on trust . . . if he embrace the opinions of Xenophon and of Plato through his own powers of reason, these opinions will be no longer theirs; they will be his own. He who follows another follows nothing, finds nothing, nay, he seeks nothing." (Montaigne: Essais. Edition variorum, 8°, Paris, 1854, Charpentier, T. i: De l'institution des enfants, pp. 202, 203, 204, 205).

necessary? Let me answer by asking a question. How much of the regional anatomy, which is absolutely necessary for the diagnostician, does the average student at the end of the second year know? Let any one who has not tried it ask a member of his class to mark out, upon the living subject, the outlines of the heart; to draw upon this figure the limits of the different chambers visible when the sternum is removed; the points on the front of the chest opposite which the different valves lie; the outlines of the pleuræ; the lower limits of the lungs; the average extent of the complementary space in the axillary line. Ask another student the position of the left auricle; the direction of the axis of the mitral valve; of the aortic valve, and many other questions the accurate knowledge of every one of which is necessary for the proper interpretation of the information which these new methods of research are to bring, and what surprising answers one obtains! Again, how many students are familiar with the sounds produced during the normal function of the heart and lungs, at the time when they enter upon a course intended to teach them to recognize pathological changes? Few, if any. Why is this? The answer seems to me to be simple. Few minds retain long facts the relations and practical applicability of which are obscure. All these things the student may have been told; all have been before his eyes and ears, but he will tell you, and quite naturally, "he has never thought about them." Once teach him practical methods of determining these outlines on the living subject and testing these physiological functions, — in other words, give him the power of controlling and verifying the statements made by his teachers and his books, — and with little experience he will never forget them. I have often thought it would be an ideal plan to give instruction in the palpation of such internal organs as might be reached, and in topographical percussion at the time the student is occupied with his course in regional anatomy, and in auscultation as he studies the physiology of the heart and lungs.

But, whether this instruction be begun earlier or later, it is, at all events, important for the student to thoroughly familiarize himself with the facts which may be determined by inspection, palpation, percussion and auscultation of normal subjects before attempting to recognize pathological changes. Familiarity with regional anatomy, the normal percussion outlines and the normal cardiac and pulmonary sounds stands in the same relation to physical diagnosis as does a knowledge of normal anatomy and histology to pathological anatomy. If some of us were, for instance, more familiar with the palpation of the normal abdomen, there would, perhaps, be fewer unnecessary nephrorrhaphies.

The first step, then, in the teaching of physical diagnosis, the earliest instruction in the simpler methods of physical research upon the normal subject, should be associated with thorough and practical demonstrations of regional anatomy in the fresh subject, in dissections, in frozen sections and in models.

(2) THE IMPORTANCE OF UNDERSTANDING THE PHYSICAL BASIS OF AUSCULTATION AND PERCUSSION.

The signs elicited by auscultation and percussion are purely physical signs. They give to us information only as to the physical condition of the underlying tissues. There is little or nothing specific in any sound brought out by percussion or heard on auscultation. No book or no lecturer can teach the student how to apply the information these methods of research bring unless he has studied and learned, as far as possible by personal observation, the physical basis upon which these phenomena depend. A student who attempts to learn by heart, from a book, the conditions under which dullness may occur in the chest, has accomplished little if he be unfamiliar with the conditions in and outside of the chest under which such sounds may be produced — the nature of tympanitic and non-tympanitic resonance, as illustrated by open vessels, bladders and lungs outside of the body.

No mere statement of these facts is sufficient. The student must control them himself. Indeed, his whole previous instruction, if it has been what it should be, will have taught him to demand an opportunity so to do. The student should have a good practical training in topographical percussion of normal organs; he should be thoroughly familiar with the normal cardiac and respiratory sounds and the theories as to their physical causes before he begins to study the deviations from the normal.

(3) THE NECESSITY OF A GOOD TRAINING IN PATHOLOGICAL ANATOMY.

With a good training in anatomy and physiology, and in the theory and practice of the fundamental methods of physical examination, the intelligent student needs only careful guidance and experience to build up his diagnostic powers — provided he has had a good training in pathological anatomy, and that he has, along with his studies in physical diagnosis, constant opportunities for the observation of disease in the cadaver. Without this, methods and experience are of little value. The most important part of physical diagnosis is learned in the pathological laboratory. No one can hope to learn to intelligently recognize in the living that with which he is unfamiliar post-mortem. It is especially important that the student should see necropsies performed on cases which he has studied clinically; should see the necropsies, if possible, not only the organs after removal. Nothing is so instructive and enlightening as the control of one's clinical diagnoses by the revelations of the necropsy, not communicated by word of mouth, but observed and studied in person. This is the only method by which one can safely count upon improving his diagnostic abilities.

(4) THE IMPORTANCE OF APPROACHING THE SUBJECT OF PHYSICAL DIAGNOSIS WITHOUT PRECONCEIVED IDEAS.

The student now approaches for the first time a patient whose thoracic or abdominal organs show signs of pathological change which may be recognized by physical examination. He begins the study of physical diagnosis proper. The method by which he is introduced to this work may have an important influence on his career, so important that I am by no means sure that many men would not progress better if left to themselves than injudiciously led. "*Obest plerumque iis qui discere*

*volunt, auctoritas eorum, qui docent.*" [3] What I sincerely believe to be the most important point for the teacher to remember at this stage was first impressed upon me as a student by one of the wisest clinical instructors I have known. On entering upon the subject his first request to the class was that they avoid all books on the question until the course was over — a piece of advice for which I have always been grateful.

The student may approach his work in two ways. He who is properly led meets the case which he is to study without preconceived ideas. By applying those methods of physical examination which he has already practised on the normal subject, he will discover abnormalities one by one independently of his instructor, or under his judicious guidance; he is compelled to apply his own reason to their explanation — and it is more and more encouraging to me every year to see how quickly and accurately the majority of students reason. And when the observation is over, and the diagnosis made, the observer has in his mind the picture of an actual case. That sound which he has heard replacing the normal second aortic sound would naturally suggest that something had interfered with the proper performance of the physiological act which is the cause of the normal sound — namely, the closure of the aortic valves. But the examination has revealed changes in the size and functions of the heart, all of which might be explained by assuming the existence of an aortic incompetency. How such a sound might well be produced by the reflux of blood through a small opening in the aortic valves is brought out or demonstrated by the instructor. In reaching this conclusion the student will probably enter into considerable speculation as to why this murmur is heard in just the region in which it is audible; why it is transmitted as it is; why it is of greatest intensity below rather than at the aortic orifice. He must pass through many questions of differential diagnosis, and the exercise, the course of reasoning and the clinical picture will long remain in his mind.

Let us suppose, however, that the other course has been pursued. The student has "read up" the subject. He is familiar with the descriptions in books of the character of the signs occurring in aortic insufficiency, and their causes. The case is carefully demonstrated and explained by the instructor. But the mind of this student is already occupied by a picture based upon what he has read and heard a picture which, however near it may approach that which he is to find, can never be identical with it. His task is not one of pure objective reasoning as to the meaning of what he discovers; unconsciously he finds himself comparing two pictures, — that of the reality and that acquired from his books. And then he has a new duty, one which it may be very hard to accomplish, — to forget the erroneously preconceived ideas. But suppose even that he can accomplish this; the exercise has been but the demonstration of a single case. The only real demands which have been made upon his energies have been upon his eyes and ears and hands — little or no appeal has been made to his reason, and he has missed that which is almost the most important part of the exercise, — the training in differential diagnosis. He has seen a picture; his fellow has made a discovery.

But, alas! it is not easy to forget one's preconceived ideas, and many physicians spend their lives mentally comparing their individual cases with a type founded, not on their own experience or observation, but on some preconceived notion acquired, perhaps, from a lecture or a book before they had ever actually met with the disease clinically. That man who is fortunate enough to have a large hospital service shortly after graduation may acquire the experience which will displace all artificial pictures, but memory through the course of years plays strange pranks. That which we have heard and learned as a fact takes on the form of experience. What was once theory is now doctrine. Statements made to us in our early years, which have remained uncontradicted, become in later life convictions — and then experience comes too late. Typhoid fever and pneumonia have become sharply defined pictures in our minds. That which does not conform to these pictures is strange and new. These epidemics of continued fever "show none of the symptoms of typhoid fever," and must be a "third fever." Pneumonia is wholly different now from what it used to be. It is a melancholy fact that the results of this old way of teaching are to be seen throughout the country to-day. Early training in objective methods is invaluable. The man who can say with the vicaire Savoyard: "*Je sais seulement que la vérité est dans les choses et non pas dans mon ésprit qui les juge, et que moins je mets du mien dans les jugemens que j'en porte, plus je suis sur d'approcher de la vérité*" [4] — that man has taken a great step forward.

The student, having learned to detect deviations from the normal, should be encouraged to work out his own diagnoses and to rely on himself. In this manner he should be brought face to face with the important thoracic and abdominal abnormalities, and it is desirable that as many instances as possible of each disease be seen in order that he may appreciate the infinite variety of the clinical manifestations of any one pathological process.

### (5) The Advantages of Subdivision of Classes into Small Sections.

To accomplish this the class must be divided into small sections among a considerable number of instructors. This is unavoidable. In order that each student in the section may study every feature of the case, I have found that it is necessary to limit the sections to six or seven students for an exercise lasting two hours. Each student should control every statement or observation made by another. For the auscultation of the heart I have found of considerable use the combined stethoscope with multiple ear pieces, which can be used at the same time by student and instructor. Each student thus hears the same sound at the same time, and the comparison of their statements as to what they hear is often of interest and value.

[3] "The authority of those who teach is often injurious to those who wish to learn." (Cicero: De Natura Deorum. Quoted by Montaigne, *Op. cit.*, p. 203.)

[4] "I know only that the truth is in the things themselves, and not in my mind which is considering them, and the less of myself that enters into my conclusions, the surer I am of nearing the truth." (Rousseau: Œuvres, 8vo, Paris, Garnery, 1823, T. vii, p. 145 [Emile, livre iv, Profession de foi du vicaire Savoyarde].)

(6) THE IMPORTANCE OF PRACTICE IN AN OUT-PATIENT DEPARTMENT AS A PART OF THE COURSE IN PHYSICAL DIAGNOSIS.

With the systematic, didactic, or demonstrative exercises the course in physical diagnosis proper often ends — unwisely, it seems to me. Training in an out-patient department in the observation not of selected subjects but of patients as they come along, should form a part of the course in physical diagnosis. Such a training is of particular value in that the student has an opportunity to practice methods of physical diagnosis directly under the eye of his instructor, for this work needs careful supervision. It is in this part of the student's work that he has his main opportunity to practise methods of examination of the abdomen and topographical percussion. It is in dispensary practice, also, that the student first begins to appreciate the relative frequency of the various abnormalities which he has been studying, the relative infrequency of the graver forms of disease which have been selected and placed before him in the set clinics of his school course.

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Such a plan we are attempting to carry out with our classes. The second-year class has, during three months, two exercises a week upon the simpler methods of physical diagnosis applied to the normal subject. These exercises are informal and are carried on partly as recitations and partly as demonstrations. A number of students are, for instance, asked to put their hands upon the trachea of the patient while he is talking and to describe the sensation. They are then asked for the physical explanation of what they have found. From a discussion of the opinions expressed the true explanation is finally elicited. The pectoral fremitus is then studied in a similar manner. The entire class, in a number of sections, compares the vocal fremitus on the two sides of the chest in the infraclavicular region. The individual opinions as to whether the vocal fremitus on the two sides is equal, and if not so, what variations have been found, are then recorded on the blackboard. A comparison of the conclusions brought out in this manner usually emphasizes the truth.

The causes of the difference between the fremitus on the two sides are then considered and illustrated by the demonstration of models and anatomical specimens. At the end of the exercise I always elicit from the class, by questioning, a list of the physical conditions under which the vocal fremitus might be expected to be increased or diminished.

The theories as to the physical causes of percussion sounds are illustrated by bladders, fresh lungs and receptacles of various sizes.

The practice of topographical percussion on the cadaver is of special importance. I always endeavor to have several exercises in which the outlines of the heart are percussed out on the fresh subject in the necropsy room; these are fixed by the introduction of pins, the positions of which are later revealed by dissection. Such an exercise teaches more than the demonstration of many models.

Auscultation is taught in a similar manner. I have been in the habit of asking the student to listen to the respiration over the trachea and in the second interspace in the mid-clavicular line and to note (1) the general character of the sounds; (2) the difference between inspiration and expiration (*a*) as to general character, (*b*) as to length, (*c*) as to pitch, (*d*) as to accent. The matter is then discussed and the opinions recorded in tabular form on the blackboard. Points about which there is a difference of opinion are settled by reference to selected normal cases. The theories as to the physical causes of vesicular and tubular respiration are then considered, and, as in connection with palpation and percussion, the class is questioned as to the physical conditions which might cause deviations from the normal type of respiration.

At the end of the course the class is given several hours' work in sections under a number of instructors in the topographical percussion of the normal subject and in careful comparison of vesicular and tubular breathing.

In connection with the subject of auscultation of the heart, especial attention is paid to the anatomical arrangement of the valves and cavities and their relation to the character of the heart sounds. Of great value in this connection are preparations of the heart made by injecting the cavities with a formaline solution and hardening while the heart is yet unopened. Windows cut into the cavities at various points show in a very satisfactory manner the relation of the different valvular orifices one to another.

At the beginning of the third year the question of physical diagnosis proper is taken up. The class is divided into small sections, each containing about six men. These sections have one two-hour exercise a week — fifteen to sixteen exercises in the first half year. These small sections study, in the dispensary and in the wards, typical cases of the more important diseases of the heart and lungs, while once a week the entire class meets for a recitation in which the whole subject is systematically taken up, beginning with a recapitulation of the studies which they have previously made upon the examination of the normal subject.

In addition to this, there are, throughout the year, two one-hour dispensary clinics a week before the whole class, in which attention is paid mainly to diagnosis.

During the second half-year the students do a regular out-patient department practice. The instruction is divided among seven men in such a manner that no instructor shall have more than three men at an exercise. Each student receives a schedule of the instructors to whom he is to report on each given date. This arrangement is made in such a manner that the student meets every instructor as far as possible an equal number of times. The students are given cases just as they come to the out-patient department, and are expected to take the regular history and to make a thorough physical examination, percussing out the heart, lungs, liver and spleen. When this is done they report to the instructor, who goes over their work and superintends the final record which is made upon the dispensary history and signed by the student. There are sixteen such exercises.

A class book is kept in which there are recorded: (1) the work done by each section during the first half-year, with the names, hospital numbers and

diagnoses of every case shown; (2) the record of each student during the second half-year, each case which he has seen being recorded in the same manner.

At the end of the year, we have thus a full record of the character of the work done by the student, as well as of every case which he has seen.

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(7) THE NECESSITY OF BEDSIDE EXPERIENCE AS A PART OF THE SCHOOL TRAINING OF THE STUDENT OF MEDICINE.

With the course in physical diagnosis proper the training in diagnosis usually ends, except in so far as it is kept up by dispensary experience, by clinics and, perhaps, by ward visits; but this is not enough. Clinics once or twice a week with occasional ward visits cannot fit a man for practice. Some supply this want by spending a year or more after graduation in a hospital, but this opportunity is not open to all, and many enter practice every year who have never followed a case of pneumonia or typhoid fever from beginnning to end. These men are not fitted to begin the practice of medicine. They are acquiring experience at the expense of the public, which has, it seems to me, a right to demand more. There is much that actual clinical experience alone can teach, and a reasonable amount of this can and should be compulsory during the course in the medical school. An instance occurring under my observation not many years ago impressed me with the real harm which must often be done by men compelled to enter practice immediately upon graduation from the ordinary medical school. The physician was a graduate of one of the best schools in this country, a man of average ability and intelligence. Shortly after the beginning of his hospital service a case of pneumonia of extreme gravity was admitted to his ward. The patient, a man of forty or fifty, was in a state of profound prostration, dull and apathetic, while on one side there was a small area of dullness with increased fremitus, bronchophony and tubular respiration. The student recognized the consolidation, but not the general picture. Struck by the fact that the scanty urine contained a large trace of albumen and very numerous granular casts, he was led to the conclusion that the man was uræmic and that the pneumonia was the lesser element in the case. The patient was given a hot-air bath and pilocarpine — hardly orthodox treatment for pneumonia. The necropsy on the following day revealed an extensive pneumonia, the kidneys showing no changes other than those which might be expected under such circumstances.

The house physician was not a fool; he had seen but a very few cases of pneumonia on occasional ward visits; he had never followed a case throughout its course, and he knew nothing of the stupor of the profound intoxication in some severe cases. A few months' experience as clinical clerk in the wards of a large hospital, and daily or frequent ward visits with the instructor through at least the same period of time, would have been worth more than several years' instruction by clinics given to large classes.

Objection has been made in this country to the adoption of the English system of clinical clerks. There is a feeling that students in the wards are annoying to the patients, and interfere with their proper treatment. No fancy can be more unjustified. Four or five students under proper restrictions, in a ward of twenty patients, are of invaluable assistance. Such students are so many more trained assistants. I have never known them to injure a patient, while their assistance in carefully and accurately studying the manifestations of disease is very great. More than one life has, I am sure, been saved in the past several years in Professor Osler's wards, owing to the increased means of investigation afforded by their presence.

The student who has pursued a four years' course in one of the better schools of this country, the entrance requirements of which amount practically to the "*Physicum*" of the German course, should thus accumulate a fair experience in the observation of the more important diseases with which he is to meet, and while further hospital experience is desirable, yet he should be in a condition to safely begin practice, and to profit by the experience which he may acquire. Without practical objective training in physical diagnosis such a physician is more than likely to make many unnecessary and, perhaps, costly errors, and to lose a large part of the benefit which he might gain from just this experience.

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But I have already spoken at sufficient length. And I have, perhaps, said little or nothing that is new. The problem in teaching physical diagnosis is exactly the same as that involved in the teaching of any branch of learning, namely, to find that method which will best excite the interest of the student and stimulate him to work, to study and to investigate. Such methods cannot be set or fixed, and my desire here is only to emphasize certain general points which I believe to be important.

(1) An essential part of the teaching of physical diagnosis consists in the demonstration of those points in regional anatomy, an accurate knowledge of which is necessary to the diagnostician. Such demonstration should be accompanied by exercises in the application of the fundamental methods of physical examination to the normal individual.

(2) It is desirable that the student should learn, as far as is possible, by actual observation and practice, the physical causes for the signs to be noted on inspection and palpation and elicited by auscultation and percussion of the normal subject; without this a proper interpretation of pathological deviations from these signs is impossible.

(3) A thorough training in pathological anatomy is an absolute necessity for the student of diagnostic methods, and frequent demonstrations in the necropsy room of the lesions with which the student is meeting in the living individual form an important part of the course in physical diagnosis.

(4) The study of physical diagnosis should be approached without preconceived ideas, beyond those acquired from the study of the normal individual. The student should not be allowed to consult books upon the subject until he has already learned to detect upon the living individual the more important physical manifestations of disease. He who begins the study of diagnosis in the textbook is in grave danger of acquiring habits of mind which may seriously affect his diagnostic abilities in later life.

(5) To properly train the student in this manner necessitates the subdivision of a class into small sections, in order that each man may personally control every observation which is made during the exercise.

(6) As a part of the course in physical diagnosis the student should have a fair experience in the examination of patients as they come, in the ordinary course of events, to an out-patient clinic, in order that he may acquire skill in the taking of histories, in the practice of topographical percussion and in the habit of forming his diagnosis without help or assistance. This work should, if possible, be under the direct supervision of instructors.

(7) No man is properly fitted to begin the practice of medicine who has not had a reasonable amount of actual bedside experience in the observation of the more important diseases which he is to meet in his practice. This can be easily accomplished (1) by insisting, according to the English system, that the student shall have several months' experience as a clinical clerk in the wards of a hospital; (2) by providing for daily or frequently repeated ward visits with an instructor for at least an equal length of time. The presence of medical students as clinical clerks in the wards of a general hospital is in no way detrimental to the interests of the patients or of the institution. On the contrary such an arrangement is perfectly feasible and of great assistance to patients, physicians and hospital.

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But, after all, the exact method of teaching is perhaps the smaller part. Much, indeed, the greater part depends upon the instructor. We are not trying to inculcate knowledge in the minds of passive listeners. Medicine can neither be studied nor practised in a perfunctory manner. The men to whom we address ourselves must be interested and enthusiastic students of an absorbing subject, and the same interest, the same methods of thought and action they must carry into their later practice, for there is no essential dividing line between the study and practice of medicine. The teacher's main task is to excite and stimulate such a spirit in his pupils, and to accomplish this he must himself possess it in at least an equally high degree.

The words of Rostand's [5] priest are as applicable here as to any other aspect of life: —

*Frère Trophime.*
"Ah! l'inertie est le seul vice, maître Erasme!
Et la seule vertu, c'est . . .
*Erasme.*
Quoi?
*Frère Trophime.*
L'enthousiasme!"

## TWO CASES OF SO-CALLED LANDRY'S PARALYSIS: AUTOPSIES.

BY E. W. TAYLOR, M.D., AND G. A. WATERMAN, M.D., BOSTON,
*From the Department of Neurology, Long Island Hospital.*

THE patient which forms the basis of this communication was carefully observed at the Long Island Hospital over a period of several days preceding her death. The case is of interest because of the difficulty in diagnosis, the positive though relatively slight postmortem findings, and also as a further contribution to the increasingly vague symptom-complex known as Landry's paralysis. Through the courtesy of Dr. J. J. Minot and Dr. W. R. Brinckerhoff, a somewhat similar case observed for a brief period at the Carney Hospital is added, in which, after a rapidly fatal clinical course, no noteworthy alterations in the spinal cord were found.

E. M. H., unmarried, twenty-seven years of age, was admitted to Long Island Hospital May 6, 1902. She was a Nova Scotian by birth and a factory girl by occupation. Her family history contained nothing bearing on her illness. She had always been well until three months before, when awakening in the night she found herself unable to move. It was said that just previous to this, for a period of about two weeks, she had not been well. On one occasion she had eaten oysters, which was followed by vague intestinal disturbances. Others in the family had also eaten oysters, but without effect. Following this sudden paralysis of motion, she was confined in bed for five weeks with a gradual amelioration of symptoms, and was at the end of that time able to return to work. The exact nature of this paralysis was not forthcoming. She denied alcohol and venereal disease.

The *history* of the present illness was essentially as follows: After working for five weeks previous to the present attack, she had requested to get away from her work because of feeling ill, but permission was not granted. Following this, the patient, on getting out of bed in the night, became weak and dizzy, and fell to the floor. She was assisted to bed and found she could move neither arms nor legs. The extremities felt numb and prickling. She is said to have vomited persistently for the first few days, but this passed off, leaving her in a very weakened condition. Up to her admission to the hospital she had been confined in bed and is said to have been mildly delirious at times.

*Physical examination* on entrance to the hospital seventeen days after the onset of the present attack showed the following conditions: Her general physical condition was good. There was some slight tremor of the tongue, which was protruded slightly to the right. Otherwise there was no involvement of the cranial nerves. The pupils were equal and of normal reaction. The lungs and heart showed nothing of importance. The abdomen was also negative. The knee jerks were absent. There was no ankle clonus nor Babinski. There was slight plantar reflex, somewhat more marked on the right than on the left. Reflexes of the upper extremities were absent. Sensation at the time of this examination is reported to have been diminished both on arms and legs. There was no difference in surface temperature of the skin. There was absolute loss of motion in both arms, though the fingers of both hands could be slightly flexed and the fingers of the left hand partially extended. Both knees could be flexed a few degrees, and in both feet there was motion in all directions, though muscular action was very weak. Both legs and arms were flaccid. The chest moved normally on respiration. The abdominal reflexes were absent. Sensation was diminished in the same proportion as in the extremities. During her stay in the hospital she had incontinence of urine, and a specimen could not be obtained for examination. No tubercle bacilli were found in the sputum. At no time was the temperature above 99°.

Examination two days later showed essentially the same conditions, with the exception of a phenomenon which resembled an ankle clonus, excepting that the movements of the feet were lateral. It was observed on this occasion that there was embarrassment of respiration, but no cranial nerve or brain involvement was discovered. There was much general weakness, but the mind was clear.

The following day the patient failed rapidly and, in spite of taking nourishment fairly well, grew worse throughout the day, and died quietly in the evening. She was apparently conscious up to ten minutes before death.

*Autopsy* (lxvi-02.48) by Dr. G. B. Magrath, May 10, 1902, twenty-nine hours after death.

[5] Rostand: La princesse lointaine, 8vo, Paris, 1898, Charpentier et Fasquelle, p. 11.

Body was that of a well-nourished woman, showing no emaciation. The heart was normal. The lungs showed slight hypostatic congestion. Stomach and intestines were normal. Spleen, weight 130 grams, and normal in appearance. There was no cloudy swelling either in heart or kidneys. The liver showed a slight amount of fatty infiltration. The uterus contained an embryo 12 millimeters in length. The brain 1,350 grams in weight, showed a moderate œdema with slight congestion of the blood vessels; no hemorrhages. The spinal cord was microscopically normal, excepting for slight suspicious congestion in the region of the ventral horns. Cultures for bacteria from the heart's blood were negative. Portions of the brain, spinal cord, and peripheral nerves were preserved for later microscopic study.

*Microscopic Examination.* — Sections were taken from various levels of the cord, from the oblongata at the level of the hypoglossal nucleus, and from the peripheral nerves of the legs, sciatic and anterior crural, and ulnar of the arm. Weigert-hematoxylin, Nissl, hematein, and Van Gieson methods of staining were used. The material stained unusually well by each of these methods.

*Spinal Cord.* — Throughout the spinal cord there was absolutely no evidence of inflammatory change; the vessel walls were everywhere normal; there was no undue filling of the vessels, and nowhere in the sections studied was there indication of extravascular congestion or of inflammatory exudate. The ventral horns, where alterations in the nature of inflammation might be most definitely expected from the clinical history, showed no departure from normal vascular conditions. The meninges were likewise in all respects normal. The nerve cells of the ventral horns, on the other hand, by all the methods employed showed alterations, to which we must attach significance. In the lumbar and cervical enlargements many cell bodies were normal, as best shown by the Nissl method. A considerable proportion, however, showed changes characterized by chromatolysis, usually central, displacement of nuclei toward the periphery, marked distortion of the nucleus in many instances, and in others loss of the nuclear membrane. There was no hyperpigmentation, and no vacuolation of the cell bodies. The ventral nerve-roots were not degenerated.

*Peripheral nerves* studied did not show the ordinary signs of inflammation or myeline degeneration. In one nerve (anterior crural) there was a large hemorrhage, of recent origin, which at one point occupied almost the entire cross section of the nerve trunk, and about one centimeter in longitudinal direction, infiltrating the various nerve bundles, and apparently destroying them at this point. The exact source of the hemorrhage was not to be determined. Such extravasations of blood were not found elsewhere, either in peripheral nerves or in the cord. In the *oblongata*, however, at the level of the hypoglossal and glossopharyngeal nuclei the blood vessels were highly congested and numerous hemorrhages from the smaller vessels were evident. The oblongata in other respects was essentially normal. The markings of the nerve cells were more distinct than in the cord, although occasional cells of pathological appearance were found.

In this case congestion of blood vessels, in some places associated with hemorrhage and alterations of relatively slight degree of ventral horn cells are the essential lesions.

On the clinical side this case offers several points of particular interest. In the first place as to the nature of the primary attack, from which recovery is said to have taken place. Admitting the possibility that the patient's story of her condition was not correct, it still remains difficult to understand how so marked a paralysis as existed at that time could have so quickly recovered under any other diagnosis than hysteria. It is almost equally difficult to conceive that in a person previously well, an attack of hysteria should have manifested itself in this way.

Whatever the nature of this primary attack may have been, and whatever its association with her later fatal illness, it is apparent that after an illness extended over several weeks she was able to return to her work and to continue in it more or less satisfactorily for five weeks. Hence, it is fair to assume that her recovery had been essentially complete, certainly so far as disturbances of motion were concerned.

The second attack apparently came on similarly to the first, the essential point of interest being its suddenness. There was paralysis of both arms and legs with a certain amount of sensory disturbance, associated with persistent vomiting for several days. In this condition she died at the end of seventeen days, without any marked change in the symptoms. The relation of the first to the second attack remains obscure, and in view of the difficulty in obtaining a perfectly satisfactory account of this first illness it is desirable to give more attention to the final disease. The diagnosis of an acute anterior poliomyelitis was made during life as the most probable explanation of the extensive motor paralysis of sudden onset. The physical examination made a short time before death seemed to bear out this supposition. The autopsy, as described above, showed no evidence of the lesions of poliomyelitis. On its clinical side the case certainly could not be regarded as typical of so-called Landry's paralysis; it was sudden in onset and apparently non-progressive in course as far as the paralysis was concerned. The microscopic examination gave lesions of a relatively slight but still of a definite character, which should, strictly speaking, also remove the condition from the category of Landry's paralysis. It is, however, a type of case which has ordinarily been included under that heading, and we may therefore provisionally so classify it, until some order is finally introduced, through further study, into the confused nomenclature.

As in many recorded instances, the pathological changes in this case do not adequately account for the symptoms observed during life and the fatal outcome. The general congestion points toward an infection, and the nerve cell changes toward a toxemia, but such alterations in themselves in no way account for the violence of the clinical manifestations, and particularly in this instance for the sudden onset. It is, however, fair to assume that the cell changes are not a mere coincidence.

H. McN., twenty-seven years old, a shipper by occupation, was admitted to the Carney Hospital, March 21, 1902. He died in about three hours. His *history*, in outline, was as follows: He had had gonorrhea eight years before, had used alcohol in moderation, and in general had considered himself well. Five days previous to entrance, while working, he noticed a feeling of numbness in fingers and toes, which continued through the day and night and the next day. On the third day this feeling had become more or less general throughout the body. He did not resume work, but was up and about the house. The following day he tried to get up but found that his legs would not support him. He remained in bed all day and had a feeling of "pins and needles" over his body. He was barely able to move his arms and legs; at noon he was not able to swallow easily; there was regurgitation of food; he also had great difficulty in articulation. This condition persisted up to the time of entrance to the hospital. He had considerable back pain, especially in the lumbar region; he had no incontinance of urine or feces, and no vomiting.

*Physical Examination.*—He was a well-built man, weighing about two hundred pounds. His mind was clear; his breathing was irregular and tracheal râles could be heard at a considerable distance. The pupils were equal and reacted rather sluggishly to light; the external eye muscles were normal. The mucous membrane of the mouth was congested; the tongue clean and red; the lips cyanotic. The throat was congested and filled with secretion, some of which was adherent to the fauces and pharyngeal wall, resembling membrane. The heart area was normal; the sounds regular and clear; the pulse was of good volume and tension. The lungs were not consolidated at any part, but were filled with moist râles. The abdomen, liver and spleen were normal. The blood gave a white count of 27,000. The examination of the urine showed, specific gravity 1,040; acid; trace of albumen; no sugar; no bile; many hyaline and granular casts; numerous leucocytes and small round cells; occasional blood globules.

*Nervous System.* — Knee jerks were absent; there was no clonus, Babinski or normal plantar reflex; cremaster reflex present. The legs could be slightly flexed, but the feet could not be moved nor raised from the bed. The arms could be raised a few inches; the hand grasp was weak. Complete anesthesia of arms, legs and body was reported (ante-mortem phenomenon?). The spine was not tender at any point and showed no abnormality. In this condition the patient died, after an illness of six days.

*Autopsy*, March 22, 1902, by Dr. W. R. Brinckerhoff, at the Carney Hospital, South Boston. Peritoneal cavity, surface smooth and of normal color. Appendix and mesenteric nodes normal. Diaphragm fourth space on right, fourth rib on left. Pleural cavity normal. Pericardial cavity contained fifty cubic centimeters of clear, straw colored fluid; surface smooth and of normal color. Heart somewhat enlarged; valves and cavities normal; myocardium beefy red in color and of firm consistency; coronary arteries normal. Pulmonary artery, opened *in situ*, contained small postmortem clot. Cavities of the heart contained dark fluid blood.

Lungs crepitant throughout. On section, color normal anteriorly, shading into purple posteriorly. On gentle pressure blood-stained fluid containing bubbles of air exuded. Bronchi and bronchial lymph nodes normal. Spleen, weight two hundred and fifty grams; somewhat enlarged; capsule smooth. On section the spleen substance appeared of a chocolate to black color. On gentle scraping a small amount of substance clung to the knife. Malpighian bodies were not enlarged; trabeculæ not prominent.

Gastro-intestinal tract normal throughout. Pancreas normal. Liver of normal size; color, consistency and markings normal. Gall-bladder normal.

Kidneys, weight three hundred grams (?), somewhat enlarged. Capsule stripped readily from a smooth red-brown surface. On section markings distinct. Cortex and pyramids deep red in color. Glomeruli visible as red points. Adrenals normal. Bladder and seminal vesicles normal. Tubules of testes did not thread out; consistency somewhat increased. No cicatrices about external genitalia. Aorta normal. Organs of the neck normal. Dura normal. Sinuses contained much fluid blood. Pia normal. Brain substance everywhere of normal appearance. Spinal cord microscopically normal.

*Anatomical Diagnosis.*—Edema of lungs; doubtful acute nephritis; chronic interstitial orchitis.

*Microscopic Examination.* — In this case the cord and peripheral nerves were examined, after staining by similar methods to those used in the preceding case, with the addition of the Marchi method for peripheral nerves.

*Spinal Cord.* — At the levels examined (the lumbar enlargement was not preserved) no alterations in central nerve cell bodies were to be made out; in stains designed to bring out cellular structure, the Nissl bodies were clearly defined, and the nuclei retained their central position; there was no evidence of vacuolation or conditions which might be attributed to post-mortem changes. Neither gray nor white matter showed evidences of degeneration; the nerve roots were normal. The vessel walls were normal, but the vessels, particularly the smaller ones in the cord, and very markedly in the dorsal horns, were filled with blood to a degree not usually seen in routine examinations. There was, however; no free hemorrhage. This vascular congestion was also very apparent in the dorsal nerve roots and even in the blood vessels of the dura, but nowhere did it present the appearance of a true inflammatory condition.

*Peripheral nerves* showed nothing pathological; no degeneration or vascular disorder. Marchi sections gave occasional evidence of myeline disintegration, but not to a degree which renders this finding of significance. In general, beyond a moderate amount of vascular congestion, the sections examined showed no departure from the normal.

In this, as in the preceding case, the actual explanation of the fatal outcome goes completely beyond the pathological findings. It is of interest as demonstrating this point, if for no other reason. This case also is difficult of classification. It corresponds very imperfectly to Landry's original description of the condition which bears his name. Sensory symptoms predominated at first; the motor paralysis was very rapid in onset and showed no typical ascending course. The affection, however, is certainly one of the vague group which has been generally included under the clinical designation of Landry's paralysis.

The pathological examination gives no positive assistance in the diagnosis, since nothing was found beyond a certain degree of vascular congestion. The suggestion of infection which this implies is of small value. The renal condition, whatever possible relation it may have had to the death of the patient, cannot explain the symptoms on the part of the nervous system. It is probable that the nephritis was an effect of the violence of the general illness rather than related to it in any way as cause.

In view of the large number of articles[1] which have been written on the general subject of Landry's paralysis and allied conditions within the past few years, any detailed reference to the pathological anatomy is unnecessary. Nothing definite is added by the report of these two cases, beyond a further demonstration of the general fact that a fatal disease of the nervous system is not uncommon, which is not explainable by the postmortem findings. Speculation regarding the probable cause of death in such cases appears to be somewhat unavailing in the present state of our knowledge of the question of toxemia. A large amount of preliminary work unquestionably remains to be done before an adequate scientific explanation may be expected to be forthcoming. In the meanwhile, as accurate reports of clinical and anatomical findings as possible are highly desirable in this undefined class of cases. More than this, by the ordinary clinical and pathological technique, we cannot at present hope to accomplish.

It is, however, a matter of practical importance to reach some sort of a common understanding of what is to be meant by the term Landry's paralysis, if, as seems to be the consensus of opinion, it is necessary or desirable to retain the term. In 1900, one of us, in conjunction with J. E. Clark, published a paper[2] on "Landry's Paralysis," in which the

[1] The following are some of the more important recent papers, many of them containing full bibliographical references: Diller and Meyer, American Journal of Medical Sciences, April, 1896; Bailey and Ewing, New York Medical Journal, July 4, 11, 1896; Mills and Spiller, Journal of Nervous and Mental Disease, June, 1898; Thomas, American Journal of Medical Science, Aug., 1898; Knapp and Thomas, Journal of Nervous and Mental Disease, Feb., 1900; Schwab, Journal of Nervous and Mental Disease, Dec., 1900; Diller, Journal of Nervous and Mental Disease, Oct., 1902.

[2] Jour. Nerv. and Ment. Dis., April, 1900.

position was taken "that, inasmuch as there is no essential constancy in the clinical symptoms nor in the pathological findings of so-called Landry's paralysis, and, inasmuch as the etiology is wholly vague, it is probable that the affection does not represent in itself a process to which the term 'disease' may properly be applied, and that, therefore, it is desirable to drop the term as unnecessary and misleading." This point of view has met with doubtful acceptance. Spiller, writing in Progressive Medicine, finds fault with an attitude which attempts to abolish what we have, without an effort to substitute a more fitting term. Schwab [3] has, in general, taken the view advocated by us. Dejerine and Thomas are inclined to regard Landry's paralysis as a somewhat undetermined series of symptoms of varied pathology, in which the peripheral motor neurone plays a predominant rôle. In a recent article [4] Diller takes up the matter again in detail and finds much reason for retaining the term Landry's paralysis, although his somewhat involved definition of the affection leaves one in great doubt as to the clearness of the disease-picture. Diller urges that Landry's paralysis be employed as most neurologists use the term apoplexy, in other words, as a purely clinical designation. To this there can certainly be no objection, but a name so limited is of small scientific value. Terms of which apoplexy is an example are certainly being used less and less, and the pathological basis upon which such symptoms as apoplexy depend are being brought more and more into the foreground. We have no doubt that apoplexy will soon be a term used only by the laity, and not by persons whose knowledge permits them to go behind appearances to facts. It is, however, quite profitless to argue regarding a name, provided only we have a clear idea of what the name signifies; but so far as we can learn from the various papers which have appeared within the last ten or more years, there is absolutely no unanimity of opinion on this point in relation to Landry's paralysis. The attempts at definition have not helped to clear away the obscurity. One point of view will at least receive general assent, and that is that a pathological basis of classification is always more satisfactory than a clinical one, and that an etiological classification is preferable to either. In the consideration of so-called Landry's paralysis we are far from an etiological basis, and we have gone decidedly beyond a mere clinical basis. Our present duty, therefore, is to classify these diversified cases on pathological findings, provisionally reserving the clinical designation Landry's paralysis for the increasingly small number of instances in which, after adequate study, no anatomical changes are found postmortem.

## OBSTETRICAL ANTISEPSIS.[1]

BY WARREN R. GILMAN, M.D., WORCESTER, MASS.

It is practically impossible to find out exactly how many women die of puerperal infection in any city. There were but four deaths from this cause reported in Worcester, Mass., during the past year. I had personal knowledge of two fatal cases, and I have no doubt whatever that the total number of fatal cases was much larger than actually recorded at the office of the Board of Health. I believe it is true that typhoid fever, pneumonia and malaria are not infrequently given as causes of death when the real cause is puerperal septicæmia.

In modern lying-in hospitals the death-rate from this cause has been reduced to a fraction of one per cent, but it remains much higher in the practice of the profession at large.

For every case of puerperal infection which terminates fatally, there are many which recover; but by the term "recovery" we must understand simply that the patients have escaped death. In very many such cases, the damage done to the uterus, ovaries, tubes and pelvic peritoneum is beyond repair, and is a cause of suffering, disability and invalidism for years or perhaps life.

It is a fact that puerperal infection is, in the general practice of the profession, the cause of many deaths, and much more frequently the cause of protracted convalescence, critical illness and permanent serious injury of the pelvic organs.

To bear out the truth of my statement that infection of obstetric cases is very common, I will quote from a recent textbook on obstetrics. The writer of the chapter on this subject says: "On the other hand, in private practice it is questionable whether the results of to-day are materially better than before the introduction of antiseptic methods. . . . It would appear to us that puerperal infection is almost as frequent in practice now as fifteen years ago, for the reason that the doctrines of asepsis have not yet permeated the rank and file of medical men, much less those of the midwives, in whose hands a very large proportion of all obstetrical cases occur."

The cause of puerperal fever is no longer unknown, for it has been proved by bacteriological work that the disease is a wound infection by one or more of the well recognized micro-organisms.

The streptococcus is most commonly the cause of the severe infections, but it has been demonstrated that nearly all the other pus-producing organisms may be and frequently are the cause of the less severe forms.

The bacillus coli communis is very frequently the infecting organism, and, as it is found normally in great abundance in the fecal contents of the rectum, it is evident that the opportunity for infection during and after labor is ready at hand. It is reasonable to ask if the infecting organism, whether it be streptococcus, stephylococcus or colon bacillus, may not be present in the vagina or uterus before labor begins and so give rise to what is called an anti-infection. A good deal of careful work has been done by competent men in the effort to answer this question, and after due consideration of the results of this work one is justified in saying that, while anti-infection is theoretically possible, it practically does not occur, and that the organisms which are the cause of infection are introduced from without during labor or soon afterward.

It is not, then, chance, luck or fate which decides whether a given patient has puerperal septicæmia; the disease is caused by definite, recognized organisms which are introduced into the genital tract by

[3] Loc. cit.
[4] Loc. cit.
[1] Read before the Worcester District Medical Society, March 12, 1902.

the physician or the nurse during labor or in the days immediately following labor.

In theory, the competent and conscientious physician should have no cases of infection in his obstetric practice, but as a matter of fact they do occasionally occur in the practice of the most painstaking practitioner. There is no other one principle of so much importance in obstetrical work as that of asepsis, and I ask your attention to the consideration of what can be done during the progress of a labor case to preserve it.

Every patient should be told to take a warm bath at the beginning of labor, and to wash the external genitals carefully with soap and water. When a good nurse is in attendance and no strong objection is offered by the patient, the hair about the genitals should be cut short; in many cases, when this has not been done, the doctor can do it at a later stage without any trouble. A vaginal douche is of no use, and does some harm. Except in rare cases, the vagina is free from harmful organisms, and if such organisms were present an antiseptic douche would not destroy them; it would take long and thorough scrubbing to do it. A douche washes out the secretions of the vagina, and removes the lubricant which nature provides to assist in the passage of the head over the floor of the pelvis. When there is no such lubricant present, there is much more likelihood of tearing the perineum.

The rectum should be emptied by an enema given early in labor. A rectum distended by fecal masses retards the progress of the presenting part over the perineum. When it has not been emptied, the descending head forces out the fecal contents, and the doctor may have considerable difficulty in disposing of several small dejections without contaminating his own fingers and the bed linen.

That the sheets on the bed should be clean, and there be a good supply of aseptic or at least clean towels, goes without saying. I know very well that thousands of women have been delivered between soiled and filthy sheets and have had a normal convalescence, but there is a chance for infection under such conditions, and it should be eliminated.

If it were not necessary to make a vaginal examination of a woman in labor, the number of infected cases would be small. It sometimes happens that the doctor does not reach the patient's bedside until the head is stretching the perineum. In such a case, a vaginal examination may not be needed, but in the majority of cases, those seen at an earlier stage of labor, it is necessary to make a vaginal examination. It is important to learn the condition of the cervix or to what extent the os has dilated, and it is absolutely necessary to know that there is not a prolapse of the cord or an extremity and that the placenta is not presenting.

In the ordinary case one gets the information he wishes by a very brief vaginal examination, which needs to be repeated but a few times if labor progresses normally. The examination should never be made by passing the finger under the bed-clothes over the surface of a thigh and into the vagina by sense of touch: the external genitals should be fully exposed to view, the labia separated by the fingers of the left hand and the examining finger introduced into the vagina without touching any other part.

Prolonged and repeated examinations for the purpose of determining the position of the head by locating the sutures and fontanels is not necessary as a rule.

External examination or abdominal palpation will, in the great majority of cases, show the position of the baby in the uterus, and it is the duty of every one who practises obstetrics to perfect himself in this matter. By routine practice of the method one may acquire the ability to find out several of the most important conditions before making a vaginal examination. I find the making a diagnosis by external examination one of the most interesting features of a labor case. One makes his diagnosis of position in this way, and later, by noting the progress of labor, the position of the head when it is born and finally the external rotation of the head, confirms or corrects his diagnosis.

While I believe that infection occurs most often in the cases which are subjected to frequent vaginal examination, one should not hesitate to examine at short intervals if it is necessary. There are cases, of course, when it is necessary to do so in order to determine the rate of progress or the degree of flexion or extension of the head.

Inasmuch as one is called upon to make at least one vaginal examination of nearly every case, and sometimes has to make repeated examinations, the most important point in aseptic work is the cleaning of the hands. It is impossible to make the hands absolutely aseptic by any method, but experience shows that it is possible to make them so nearly aseptic that the examining finger does not infect the patient. Soap and water followed by corrosive sublimate solution is quite satisfactory; the hands must be scrubbed vigorously with soap and hot water and a clean brush for several minutes, and the scrubbing repeated in a 1–2000 solution of corrosive sublimate.

The cleaning of the hands in this way must be done carefully as a routine practice in every case, and must not be done hurriedly or perfunctorily. The use of the solutions of permanganate of potash and oxalic acid, although more satisfactory theoretically, is not to be urged as a necessity in practice.

Corrosive sublimate tablets should be kept in every obstetric bag, and a 1–2000 solution should be at hand during the progress of every labor case. One cannot insist too strongly or too often upon the absolute necessity of properly cleaning the hands, and any doctor who deliberately makes a vaginal examination with unclean fingers is criminally negligent. The laity are learning that it is necessary for the doctor to use antiseptic methods in obstetric practice, and I believe the time is not far distant when the man who does not use them will be liable to suit for malpractice if infection occurs. It is not difficult to clean the hands properly when only a few examinations are needed; but when one has to examine often or when the head is rapidly stretching the perineum and forcing out the fecal contents of the rectum, it is not easy to preserve a perfect antiseptic technique. It is impossible under such conditions to keep up to the standard set by a good surgical operation, but one should do his best, and never, even in the excitement which often attends the last part of the second stage, neglect his anti-

sepsis. An anesthetic at this time may not only save the perineum, but also help in maintaining cleanliness. The anus should be cleansed with a pledget of cotton or a gauze sponge wrung out of the solution of corrosive sublimate and kept covered with a towel or piece of gauze. I believe it is entirely unnecessary to put a finger or thumb into the patient's rectum for the purpose of exerting traction on the chin of the baby; the thumb placed behind the anus, between it and the coccyx, is perfectly efficient in urging the head over the perineum.

In the last part of the second stage, when one is holding back the head during pains, and finally is assisting the birth of the head during an interval between pains, it is important not to touch anything with the hands except the immediate field of operation — if I may use that term; this field of operation must be clean and the surrounding parts, buttocks and thighs, kept covered with clean towels. Towels which have been sterilized are to be preferred, but freshly laundered towels which have been kept wrapped up and undisturbed are safe enough.

Neither vaseline nor any other lubricant for the fingers is needed at any time.

The use of rubber gloves in surgical work has solved the problem of sterilization of the hands, and their employment in obstetrics is worth consideration and trial. A prolonged or even a normal labor case differs very much from a surgical operation in point of time and detail, and one cannot sit by the bedside for hours with glove-covered hands held at arms length or kept immersed in an antiseptic solution. It takes but a few minutes, however, to put on and take off the gloves, and if frequent examinations are made, they may be kept on the hands. They are particularly useful in the last part of the second stage, when one often cannot help touching unsterilized objects and cannot leave the patient to wash the hands thoroughly. The gloved hand is smooth, and much more readily cleansed than the bare hand by simple immersion for a minute in the solution of corrosive sublimate.

I have been using gloves more and more frequently during the past year, and am well satisfied with them. There are times when I still need the bare finger to distinguish accurately certain features of the head or birth canal, but I have no doubt that practice will enable me to recognize the landmarks perfectly with the gloved finger.

A napkin or pad covering the vulva should be worn during labor. Every patient should be directed to have a good supply of freshly laundered napkins on hand; still better to have several dozen sterilized obstetric pads. These pads or serviettes are for sale in dry-goods stores and can be sterilized by the patient. Common lard pails are found in nearly every house, and are convenient for this purpose; a pail is tightly packed with pads and then placed in a large tin pail containing water enough to boil for two hours. After the pads have been steamed for two hours, the lard pail may be taken out, covered and put away. Sterilized pads put up in sealed packages are sold by firms dealing in surgical supplies and dressings; they are not expensive, and save the patient or her nurse the trouble of sterilization.

It is a good rule to keep the fingers out of the vagina during and after the third stage. The placenta is very rarely adherent, and nearly always comes away within twenty or thirty minutes. It may be necessary to assist the expulsion by Crede's method, and gentle traction on the cord after the placenta has been forced into the vagina will complete the labor. Obstetric forceps and all other instruments should be boiled just before they are used, and then kept in a clean towel or a large dish of boiled water at the bedside, within reach of the doctor. It is not enough that instruments have been boiled and made aseptic; they must be kept clean while in use and must not be thrown upon the floor or any convenient chair. An obstetric operation with the patient under the influence of an anesthetic ought to be conducted in accordance with the rules which govern every surgical procedure. Undue haste and excitement do a great deal of harm, and it is especially necessary, if the operator's assistants are not trained assistants, that he, at least, remain cool and collected.

A post-partum antiseptic douche is not called for if the delivery has been conducted aseptically, but I sometimes give a douche of hot water to stimulate a relaxed uterus which does not contract promptly. The post-partum douche given by a careless assistant using an unclean syringe may easily defeat its own purpose and infect the patient. The doctor should give the douche, and see to it that the hard rubber nozzle of the syringe has been boiled before being used. A new syringe is much to be preferred, and a long glass tube is the best nozzle; this glass nozzle may be boiled, and its length enables one to give the douche without touching the vulva.

For the first seven or ten days following delivery, the external genitals should be treated as one would treat an open wound whose dressings have to be changed frequently. The obstetric pads are surgical dressings, and should be handled with proper care. The parts to be dressed should be cleansed with a spray of antiseptic solution or wiped with antiseptic gauze or cotton wrung out of an antiseptic solution. Vaginal douches are not needed and are not to be given.

If the attendant is a trained nurse, this care of the patient may be left to her.

Unfortunately, in many cases, the attendant is not a trained nurse, but is a most dangerous and obnoxious person. I have had my share of painful experiences with such women, and I believe that many cases of puerperal infection are the result of the unclean methods practised by them. The woman of this kind, so-called nurse, is a fixture among poor people and cannot be eliminated; but much can be done to restrict her duties and to render her less dangerous. The doctor is held responsible for the recovery of his patient, and he has the right to insist, when he is first engaged, upon having as good a nurse as possible. If the need of cleanliness and the dangers of unclean methods are explained to the patient, she is interested in doing what is best for herself. I have often directed a patient to engage her untrained nurse for the eighth day following confinement and to have a trained nurse for the confinement and the first week. I have never had any difficulty in getting a trained nurse to accept such an engagement; indeed, she is usually glad of the opportunity to demonstrate to a poor woman the benefits of good nursing.

In every case in which the doctor is obliged to bear with an untrained nurse, it is his duty to give instructions as to what is to be done and what is not to be done — the latter being as important as the former. In the care of the external genitals, make her duties as few and simple as possible. She should be told to keep the napkins or pads done up in a clean towel and to use them freely. Give her tablets to make a corrosive sublimate solution, and insist that when she washes the vulva she must first wash her hands in soap and water and then in the sublimate solution. The vulva is to be washed with this solution, and a douche is not to be given.

If every doctor would take every opportunity to give these women a few, simple, concise orders as to the antiseptic treatment of a patient, some progress might be made in educating them. No doctor, however, can blame his nurse for being unclean if he does not set her a good example in his own work; if he omits important antiseptic precautions, he surely cannot preach asepsis to her with much hope of success.

The man in general practice, who sees a large number and variety of cases, both medical and surgical, should cultivate the habit of cleanliness and pay special attention to his hands. He may be called to a labor case at any hour, and the cleaner his hands are to begin with, the surer is he to make them aseptic by the proper scrubbing at the bedside of his obstetric case.

Fifty years ago, Dr. Oliver Wendell Holmes, in his essay on "Puerperal Fever as a Private Pestilence," called the attention of the profession to the fact that the fever was carried from one patient to another by doctors and nurses. He reached his conclusion by his keen power of observation. To-day we know why and how the fever is carried.

The doctor who is taking care of a case of puerperal fever should use every precaution to avoid contamination of himself and his belongings. Instruments for use in such a case should be carried to the house and left there until the case is ended; the obstetric bag should not be carried to the house.

While actually engaged in any local treatment of the patient, he should be careful not to touch any article or object not in use at the time; the hands should be washed and scrubbed carefully in soap and hot water and in bichloride solution as soon as he finishes his work with the patient. In short, he should take care to contaminate nothing beside his own hands and should clean his hands properly before leaving the house. Rubber gloves are to be especially recommended for this work; they protect the hands and can be boiled in the house, ready for the following day's use.

If a doctor is called to another confinement case while he is taking care of an infected case, he has a serious problem to face.

The entire contents of the obstetric bag should be boiled, and if there is any question as to the condition of the bag itself, a new one should be purchased.

The treatment of the hands should be very thorough, and rubber gloves should be used. By taking proper care, I believe it is possible to avoid carrying the infection.

To what I have said in regard to asepsis in obstetrical practice, almost every one must assent. But the application of the principle to every case will be said by many to be impracticable.

As a final word on this subject, I wish to say that every physician is bound to exercise at least a proper and ordinary degree of care in the practice of medicine, and if he neglects or ignores asepsis in obstetrics, he does not meet his obligations to his profession or to the community.

If the importance of providing clean sheets, towels and napkins were impressed upon women about to be confined, the requirements would be met in the majority of cases.

I believe it to be good judgment on the part of a physician, even if he be a young practitioner, to decline to attend a woman who refuses to make proper preparation for her confinement. She asks him to assume unnecessary risks, and if disaster follows, the blame is placed upon his shoulders. It would be much better for all concerned if women who are really unable to meet the modest requirements of cleanliness were advised and urged to go to a hospital for the confinement. The assurance of the best care and the comforts which a good lying-in hospital offers to such women ought to outweigh the sentiment which urges them to stay at home.

## ERRORS IN THE ESTIMATION OF UREA BY THE HYPOBROMITE METHOD.[1]

BY ELLIOTT P. JOSLIN, M.D., BOSTON.

THE estimation of urea for clinical purposes is usually performed by the hypobromite method. This method is based on the decomposition of urea into water, carbonic acid and nitrogen by means of an alkaline solution of hypobromite of soda. The results obtained are satisfactory as a rule, but I recently observed that under certain conditions errors of nearly one hundred per cent. occurred.

These errors were brought to my notice by noting the great disparity which existed between the amounts of nitrogen and urea excreted by a patient during two days of diabetic coma.[2] Urea is composed of nearly one-half ($\frac{28}{60}$) nitrogen, and consequently the urea in twenty-four hours can never much exceed twice the quantity of nitrogen present in the urine during the same time. Bearing this in mind, a study of the accompanying table is interesting.

| | | | *Urea.* | |
|---|---|---|---|---|
| *Date.* | *N.* | $NH_3$. | *Braunstein's.* | *Squibb's.* |
| Oct. 18 | 23.8 | 3.07 | 43.6 | 80 |
| " 19 | 18.7 | 4.39 | 29.6 | 48 |

On Oct. 18, the nitrogen was 23.8 grams. The greatest possible amount of urea which could be formed from this amount of nitrogen is 51 grams. The hypobromite method with Squibb's apparatus showed, however, 80 grams urea for this same period. On Oct. 19, the urea estimated in the same way is far more than twice the amount of nitrogen for the same day. To control these results the urea was then estimated by Braunstein's process.[3] This method gave results commensurate with our expec-

[1] Read at Boston Medical Library Meeting, Nov. 17, 1902.
[2] Joslin. For full report of case, see Journal of Medical Research, vol. vi, No. 2, Nov., 1901, p. 306.
[3] Braunstein. Hoppe-Layler's Zeitsch f. phys. Chemie. Bd. xxxi., H. 3 + 4. Dec., 1900.

tations. On Oct. 18 the urea was 43.6 grams and on Oct. 19, 29.6 grams.

Causes of the errors above described readily suggested themselves because the patient from whom the urine was obtained was in diabetic coma and secreting many substances either totally foreign to the urine or abnormal quantities of normal constituents. Of the latter, ammonia was the most striking. On Oct. 18, this amounted to 3.07 grams and on the next day to 4.39 grams in contrast to the normal daily excretions of 1 gram. This led me to employ a solution of ammonia instead of urine in the apparatus for the urea test. The result was not unexpected. Water was displaced in quite the same way as if urine had been added. Eijkmann [4] several years ago showed that this reaction took place.

The quantity of acetone excreted by this same patient was the largest I have found recorded, — Oct. 18, 32.3 grams, Oct. 19, 26.7 grams. The test was, therefore, repeated, using a solution of acetone instead of urine. Water was freely displaced. B-oxybutyric acid was also similarly tested, and with like result. On Oct. 18 this acid reached 96.3 grams and on the following day 69.8 grams.

It is evident from the above that the hypobromite method is not safe clinically when ammonia, acetone and b-oxybutyric acid are in the urine. Other bodies like creatinine, uric acid and urates also interfere with the test, but to a less extent. Since acetone, b-oxybutyric acid and ammonia are chiefly found in diabetic patients, it is a good rule to scrutinize carefully reports of large quantities of urea in this disease. If these bodies are present, and this is readily determined, such reports are untrustworthy if they are based on the hypobromite method. The simplest procedure to enable us to judge of the presence of these substances is the ferric chloride test for diacetic acid. When this is positive, acetone and b-oxybutyric acid are always present and an excess of ammonia is probable.

## Clinical Department.

### REPORT OF EPITHELIOMA OF FACE CURED BY X-RAY.

BY E. H. TROWBRIDGE, A.B., M.D.,

*Visiting Surgeon to Worcester City Hospital, Worcester, Mass.*

The reason for reporting this case is the fact that such a long period has elapsed since the x-ray treatment and cure.

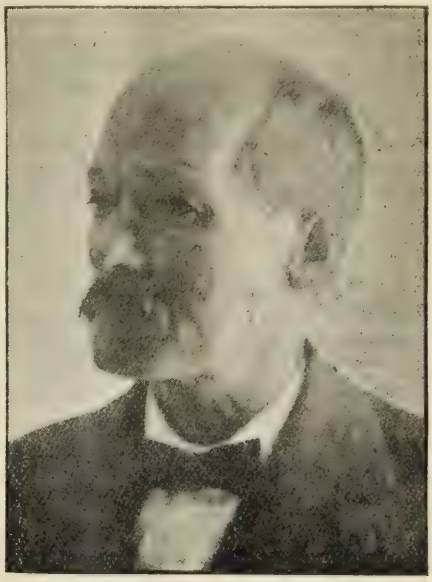
*History.* — Mr. E. E. A., aged fifty-two. Was seen Nov. 20, 1900. At that time he presented on the left cheek over the region of upper molar teeth an ulcerated surface the size of a fifty-cent piece.

This ulcer began twenty months previous, and since that time has gradually enlarged, presenting an unhealthy appearance.

Five days before entering the hospital the ulcerated surface was curetted and treated by his physician; as the condition became more aggravated he entered the Worcester City Hospital for treatment.

[4] Eijkmann. Cited in Neubauer and Vogel. 10 Aufl. § 304, where an excellent summary of the literature on the subject is given.

Under use of antiseptics the ulcer began to granulate, and apparently was progressing so favorably



No. 1.

as to warrant his leaving the hospital the last of the month.

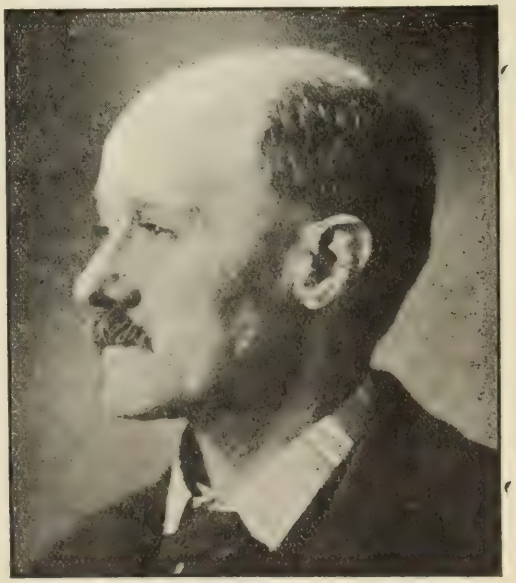
On the sixteenth day of January, 1901, patient again returned to hospital with the ulcerated area the size of half dollar, and having irregular and undermined edges.

On the day following a piece of the undermined edge was removed and submitted to pathologist for examination with a diagnosis of epithelioma.

The patient was then referred to the writer's office for x-ray treatment.

The number of sittings were sixteen, as follows: Jan. 21, 24, 26 and 29; Feb. 1, 5, 9, 14, 19, 21, 23 and 28; March 4, 7, 11 and 18, 1901.

On March 25 he was discharged. The cicatricial



No. 2.

surface was clean and smooth, and varied in appearance very little from the surrounding skin.

The time of exposure, at each sitting, was seven minutes; the surface of face was six and seven-eighths inches from center of anode; the face was protected by lead mask, and the tube was a Monnell; the static machine was a ten-plate, from Otis Clapp & Son.

Picture No. 1 shows the condition at first visit, Jan. 21, 1901, and before treatment.

Picture No. 2 shows condition on date of Oct. 3, 1902.

## Medical Progress.

### REPORT ON PEDIATRICS.

BY THOMAS MORGAN ROTCH, M.D., AND JOHN LOVETT MORSE, M.D.

(Concluded from No. 25, p. 679.)

#### THE LEUCOCYTOSIS OF SCARLET FEVER AND ITS COMPLICATIONS.[7]

Bowie, as a result of the study of the leucocytes of one hundred and sixty-seven cases of scarlet fever, draws the following conclusions: —

(1) Practically all cases of scarlatina show leucocytosis.

(2) The leucocytosis begins in the incubation period, very shortly after infection, reaches its maximum at or shortly after the height of severity of the disease, and then gradually sinks to normal.

(3) In simple, uncomplicated cases, the maximum is reached during the first week, and the normal generally some time during the first three weeks.

(4) The more severe the case, the higher the leucocytosis and the longer it lasts; the slighter the case, the slighter the leucocytosis and the shorter time it lasts.

(5) A favorable case in any one variety of the disease, for example, simple, anginose, etc., has a higher leucocytosis than an unfavorable one of the same variety.

(6) The fever — that is, temperature — has no direct effect on the leucocytosis.

(7) The polymorphonuclear leucocytes are increased relatively and absolutely at first, and then fall to the normal, the lymphocytes acting inversely to this; this cycle of events occurs in simple cases within three weeks.

(8) Eosinophiles are diminished at the onset of fever. They increase rapidly in simple favorable cases until the height of the disease is past, then diminish, and finally reach the normal some time after the sum total leucocytosis has disappeared; in short, when the poison has all been eliminated.

(9) The more severe the case, the longer are the eosinophiles subnormal before they rise again, as described above (*vide* 8); in fatal cases they never rise, but sink rapidly toward zero and remain there.

(10) The leucocytes, in complications, go through a cycle of events similar in all respects to that of the primary fever, as regards sum total and differential leucocytosis, and the same laws govern the behavior of the leucocytes in both cases.

Bowie thinks that the eosinophilia and its persistence for a considerable time is of value in diagnosing the disease from tonsilitis and septic conditions, with both of which the disease is likely to be mistaken. He also believes that the course of the eosinophiles is of value from a prognostic standpoint. If they are normal or subnormal after the first day or two, then the case will in all probability be a severe one. As long as a relative increase of eosinophiles is present, we cannot be sure that some complication will not ensue; while, if the eosinophiles have come down to normal in the usual way, we should be free from anxiety in this respect.

#### A STUDY OF HYPERPLASIA OF THE PHARYNGEAL LYMPHOID TISSUE (ADENOIDS), WITH ESPECIAL REFERENCE TO PRIMARY TUBERCULOSIS OF THE PHARYNGEAL TONSIL.[8]

They tested seventy-five consecutive specimens of adenoids for tuberculosis. Inoculation experiments and histological examinations were made in each case. The animal experiments were very carefully performed. Tubercle bacilli were looked for only in those specimens which induced tuberculosis in the guinea pigs, as the authors assumed that the inoculation test was far more delicate than the search for tubercle bacilli. Of the seventy-five specimens tested, twelve induced tuberculosis in the inoculated animals. Tubercle bacilli and lesions characteristic of tuberculosis were found in the tissues of eight. The remaining four contained tubercle bacilli, but showed no histological lesions of tuberculosis. In all cases the bacilli were more or less close to the surface and few in number. In seven cases the lesions were situated peripherally. In only one was there a lesion in the middle of the adenoid tissue. They are inclined to include the cases presenting bacilli, but find no characteristic lesions among the tubercular cases. Their work is the most complete which has yet been done. They point out that most careful work is necessary to determine the frequency of tuberculosis of adenoid tissue.

#### CYTO-DIAGNOSIS IN MENINGITIS AND PSEUDO-MENINGITIS.[9]

From the study of cases and of the literature he arrives at the following conclusions: —

(1) In tubercular meningitis there is almost always lymphocytosis, exceptionally polynucleosis.

(2) In cerebrospinal meningitis there is almost always polynucleosis, exceptionally lymphocytosis.

(3) Sometimes the cyto-diagnosis is misleading. It may be negative in cases of meningitis or it may be positive in cases in which there is no meningitis.

The leucocytic reaction shows quantitative variations which follow the intensity and course of the disease. It diminishes and disappears with recovery.

The leucocytic reaction is variable in the meningeal complications of typhoid fever. The presence of a lymphocytosis in this disease does not necessarily mean a complicating tubercular meningitis.

There are no definite data as to the cyto-diagnosis of pseudomeningitis.

[7] Bowie (The Journal of Pathology and Bacteriology, March, 1902, vol. viii, No. 1, p. 82). Abstract in American Journal of the Medical Sciences, 1902, vol. cxxiv, p. 158.

[8] American Journal of the Medical Sciences, June, 1902, Dr. A. J. Lartigau and Dr. Matthias Nicoll, Jr.

[9] Demange: These de Paris, 1902. Review in Revue Mensuelle des Maladies de l'Enfance, vol. xx, p. 421.

THE RELATION OF THE THYMUS GLAND TO MARASMUS.[10]

They consider that marasmus, or infantile atrophy, is not due to the amount of food ingested nor to the amount absorbed from the intestinal tract, but to malassimilation of the food material in the body. Trustworthy observations show that the size and condition of the thymus gland is an index to the state of the nutrition of the body. The normal weight of the thymus in infancy is about eighteen grams.

They studied the pathological changes in the thymus gland in eighteen cases of infantile atrophy. The lowest weight of the thymus was 1.2 grams (three cases) and the highest 7.5 grams. The average weight in sixteen cases was only 2.2 grams. In all these cases the other organs were carefully studied. No abnormal changes were found except occasional acute congestions from inflammation of the lungs, due to terminal infections.

The microscopical examination of the atrophied glands showed conditions differing widely from normal and also from those found in normal involution. The fibrous capsule was thicker than normal, the trabeculæ were greatly thickened, and the lobules were frequently cut up into irregular masses by the increased interlobular tissue. The increase of connective tissue was often very apparent about the blood vessels, even surrounding the dilated capillaries. In some cases the fibrous tissue was more abundant than the lymphoid structure. The reticular tissue was increased and the endothelial cells lining the reticular spaces were more numerous. Consequently, leucocytes and other similar elements present in these spaces were decreased in number and the lymphoid structure of the gland often greatly altered.

They also studied the pathological changes in the thymus gland in two cases of tuberculosis of the lungs with general acute miliary tuberculosis, and in one case of tuberculous meningitis. These glands showed increased fibrosis and hyaline degeneration and swelling of the Hassall bodies. They found that the differences between the changes in the gland of infantile atrophy and those of secondary atrophy were only in degree.

They consider that the state of nutrition of infants may be estimated by a microscopical examination of the thymus, and that the weight of the thymus gland is the best index of the nutrition of the body.

They gave twelve infants who were under only fair hygienic and dietetic conditions from two to three grains of the dried gland three times daily for a month. As the children were not weighed, the results can only be estimated. Two of the infants died; the others showed no appreciable change. Four other cases had admirable surroundings, food and nursing. They did not gain under the best of conditions. The first case died in three days, the second, in two and a half weeks and the third in two months. The fourth gained steadily and was discharged cured.

[10] Stokes, Ruhrah and Rohrer. American Journal of the Medical Sciences, 1902, vol. cxxiv, p. 847.

# Reports of Societies.

## SUFFOLK DISTRICT MEDICAL SOCIETY.

FREDERIC J. COTTON, M.D., SECRETARY.

STATED meeting Saturday, Oct. 25, 1902, DR. THOMAS MORGAN ROTCH presiding. DR. WILLIAM S. THAYER of Baltimore read a paper entitled

REMARKS ON THE TEACHING OF PHYSICAL DIAGNOSIS.[1]

THE PRESIDENT: We are very much indebted to Professor Thayer for his exceedingly valuable exposition of this subject, which is of so much interest to you all. I will ask Dr. Henry Jackson to open the discussion.

DR. HENRY JACKSON: We have listened with great pleasure to Dr. Thayer's remarks on his long experience in teaching physical diagnosis. I recognize with a certain degree of local pride that certain of the principles which he has elucidated and elaborated had their origin in our common school. I was much interested to see that he opened his remarks with an earnest appeal for instruction in anatomy in the normal individual, a study of the organs in normal conditions, for as we see students in the hospital we are much surprised and often chagrined to find that their knowledge of the normal conditions of the body is often deficient. If they examined with more care the normal individual we would find fewer diagnoses of abdominal aneurism, to mention a single instance. Also, it is of much interest to hear what he said of dispensary cases. It is a great temptation to show students rare and interesting cases which come into our wards, cases that have taxed our knowledge, cases we have studied with great care, in which, by some new method of physical diagnosis, we have been able to arrive at a correct diagnosis, or think we have. Those cases they will rarely see. An important matter in the instruction is to show simple average cases they will meet constantly in their practice. In the last few years it has been a cause of a good deal of chagrin on my part to find that the men when they arrive at the upper classes are more thoroughly versed in the modern and recondite methods of investigation of disease than in the more simple methods which have been studied for years. One point in physical diagnosis is, I think, of great importance, and one I feel that the student grasps at the very last. Every one knows whether a personal friend looks ill or well, but it seems to me that that is the last point which strikes the student in the examination of the patient. They do not realize whether the patient is an extremely ill individual or in fairly good condition.

I can add another story to Dr. Thayer's description of the student who did not recognize pneumonia. One of my confrères was called to a ward by a nurse to see a very sick patient; he examined the patient with great care, and said he had not the wildest idea what was the matter. Just as he was going out, she said, "Doctor, what treatment shall I give the pneumonia?"

DR. H. D. ARNOLD: I might emphasize one or two of the points that have impressed me in the work of teaching medical students. One thing

[1] See page 689 of the Journal.

seems to me of great importance in considering this matter of physical diagnosis, and that is that we need a better knowledge of the subject that we teach. As physicians, we are so familiar with the common signs of disease that we take it for granted that this familiarity means knowledge, and in many cases that is not so. Our interpretation of physical signs is based altogether too much on theories about how the signs originate and too little on scientific demonstration of the principles that underlie them. Take, for instance, a very common case, — a cardiac murmur. Take the commonest of all, the mitral murmur. How many of us are able to explain exactly how that murmur reaches the surface from the point where it originates to the point where it is ordinarily best heard? We have all been taught, I think, that murmurs are carried by the blood current, and yet in this particular instance the murmur is heard best at a point which is directly opposite to the direction of the current of the blood. We forget that the speed with which the current of the blood moves is hundreds of times less than the speed with which the vibrations are carried through fluid. I bring that simply as a matter of illustration. Take, for instance, the ordinary normal vesicular murmur of respiration, and we have two theories; one that it is produced in the lung itself and the other that it is produced in the trachea and the sound modified by its passage through the lung tissue. We need more careful investigation on the passage of vibrations through the different tissues of the chest, — carried by columns of fluid, by the heart muscle, by the pulmonary tissue, and finally modified as they pass through the bone, muscle and fat of the chest wall. In the meantime we must teach our students about these physical signs. In that teaching we ought to be careful to base what we say as far as possible on known physical facts.

In regard to the students learning physical signs. That may be divided practically into two parts; one is learning to recognize the signs, and the second is the interpretation of these signs when recognized. I do not think we impress on the students enough how much the recognition of physical signs is a matter of *training* of their senses. It is a matter of training just as much as learning to play the piano, and it is learned only by doing the same thing over and over and over again until the student finally acquires reasonable skill. The student is allowed to think by too many instructors that after he has heard once or twice all the abnormal physical signs he is prepared to make a diagnosis. He is not impressed enough with the fact that he must be drilled over and over until it becomes monotonous.

We do not, it seems to me, lay enough stress on the correct interpretation of these signs. Dr. Thayer dwelt upon this topic at some length, but I find instructors are too apt to allow the student, after recognizing the signs of disease, to compare the picture with what they have been taught or have learned from the book, and to make the diagnosis in that way. They are not obliged to explain what the physical sign means pathologically or physiologically in that individual case.

One other point. I do not think we give the teaching of physical signs its due weight in the medical curriculum. That brings in the question of the teacher. One of the things that struck me at Johns Hopkins was the fact that Professor Osler and Professor Thayer, with all the material of that large and excellent institution at their disposal, found it worth while to go down into the out-patient department and give personal instruction there. It seems to me that many of our schools are at fault, that they allow this fundamental and very important matter to be done entirely by the subordinates of the department, and that it receives little if any individual attention from instructors of advanced rank in the school.

DR. R. C. CABOT: The size of the class which Professor Thayer insisted upon seems to me one of the most important points in this whole matter, and not merely in physical diagnosis, but in the whole teaching of medicine. I believe what Professor Thayer said, that a class of six or seven is as large as we can deal with in physical diagnosis, is quite true of the whole study of medicine. In this matter Boston and New York are far behind Baltimore and Philadelphia. In Baltimore and Philadelphia the number of large clinics in which one student may be fifty feet from the patient, and in which the same patient can be used to demonstrate all kinds of diseases, as was told the other day by an old house officer of Dr. Pepper's, is being reduced to a minimum, while in New York and Boston we still have altogether too many of them, in my opinion.

The similarities between teaching of physical diagnosis at Baltimore and Harvard Medical School are very striking, I think, even in minutiæ. The advantages are entirely in favor of Baltimore. In the first place they have an examination in physical diagnosis which counts. In the second place they have rotation of students from teacher to teacher. That, undoubtedly, is difficult to manage, and I admire very much the system which makes it possible at Baltimore for them to give systematic teaching when passed from man to man, but it brings the strength of all the different instructors to bear more equally upon the student.

I would like to put one question to Professor Thayer, and that is this — it refers also to a matter touched on by Professor Arnold: In teaching physical diagnosis we teach the signs and try to teach the theory or the reason for them. Now we are very much surer of the signs than of the reason, and yet any one who has tried to teach knows that a student will remember better what he has a reason for, even a poor reason.

Professor Arnold mentioned the theory of bronchial breathing. The recent work of Hoover of Cleveland has made untenable the ordinary explanations of this type of sound. I have no doubt all of us will have to go on for awhile teaching the old theory of bronchial breathing. Is that right? Should we teach a doubtful theory (and how many are beyond doubt?) for the sake of its value on the memory of the student? I am not prepared to advocate the affirmative or negative. On the whole I have generally adopted the principle of teaching no theory merely as an aid to memory. I should like to ask Dr. Thayer to tell us a little about that.

DR. E. P. JOSLIN: One point especially in which I think Baltimore excels us is the fact that men there are put into the hospital as assistants. It seems to me that is the step we should strike for here. The size of the sections has cleared itself up

very much in the last two years. We have been obliged to work with nine men in a section and have found this number decidedly too large, but have found that we could handle six men easily.

Dr. Thayer: With regard to Dr. Cabot's remarks about examinations. In the brief outline which I have given of our methods of teaching I neglected to mention that in the third year the standing of the men, as far as their medical course is concerned, is dependent upon three things:

(1) On the record which is kept of the individual work that each man does during the second half of the year. There are sixteen exercises in which each man takes the history and makes a complete physical examination of a dispensary patient, reporting to the instructor, who keeps a record of the work at each exercise. To these marks are added those given at the weekly recitations.

(2) On a practical examination of from twenty minutes to three quarters of an hour in duration, which I give personally to each member of the class during the month of May.

(3) On a two-hours' written examination, which is given at the end of the course.

The standing for the year is based upon the average of the records for these three divisions of the year.

I heartily agree with Dr. Jackson as to the extreme importance of careful observation of the patient; that there is a great tendency to neglect the simple inspection as compared with other more elaborate methods of investigation is, I think, true. There is no doubt that the improvement of diagnostic methods brought about by refinements in auscultation of the heart drew attention from the important study of the pulse.

In connection with these remarks on methods of examination I am reminded of a little point in history-taking which I remember having heard emphasized by Leyden some years ago, and which has always seemed to me of value. After the first inquiries as to the complaint, he used to insist that the student ask: "Are you getting better or worse?" This did not strike me at first as a point of great importance, but whoever has done much teaching in an out-patient department must many a time have seen a student at a loss to account for a number of apparently grave symptoms of which a patient complains, simply because he has not discovered by simple inquiry that these symptoms are almost all matters of the past; that the patient is steadily improving; that the symptoms at the time do not seem to him especially alarming, and that he consults the physician only because, although now disappearing, they seem to him to have lasted an undue length of time. How many patients with influenza or a slight bronchitis consult a physician when they are practically well, because some friend has commented upon the duration of a cough which has almost disappeared.

With regard to Dr. Cabot's question concerning the theories as to the origin of the respiratory murmur, it seems to me that one is bound to teach to the student that which seems to him to be on the whole the most satisfactory explanation, to lay before him in as brief a manner as possible the facts concerning our knowledge — and our ignorance. And I believe it is important to distinguish clearly in what we teach the student that which is theory from that which is proven fact.

A specimen of fracture of the radius from an Egyptian mummy was shown by Dr. Chase.

An announcement was made by the president, Dr. T. M. Rotch, that subject to any objection by members the calling of section meetings for the year would be left to the secretaries of sections to determine according to the amount of material presented. There was no objection.

A resolution passed by the Massachusetts legislature of 1902 was read, in which the State Board of Charity was requested to investigate and answer certain questions as to tuberculosis sanatoria — whether further accommodations are needed, etc.

The clerk of the State Board having requested the opinion of this society on the questions, the matter was opened for discussion.

Dr. F. I. Knight read and presented resolutions to the effect that sanatoria are highly useful; there is need of further accommodation of the kind. The Rutland Sanatorium should, first of all, be supported and maintained as a first-class institution, and further, that such funds as may be available after so providing for the Rutland Sanatorium would be well spent in erecting another institution to accommodate two hundred patients.

It would be desirable to reserve such an institution for one or the other sex, making, with Rutland, one place for women, another for men.

The patient should pay a moderate charge, if able, but if not, they should be treated without charge.

The new sanatorium should be within fifteen or twenty miles of Boston.

The general plan should be the pavilion plan, similar to that at Rutland, of one or two stories. The cottage plan is not recommended.

Drs. V. Y. Bowditch and E. O. Otis spoke in support of these resolutions; there was no opposition, and it was voted that the resolutions be accepted as the opinion of the society, and a copy forwarded to the State Board of Charity.

Dr. Robert B. Osgood read a paper, to be published later, on

LESIONS OF THE TIBIAL TUBERCLE OCCURRING IN ADOLESCENCE.

## Recent Literature.

*The Pharmacological Action and Therapeutic Uses of the Nitrites and Allied Compounds, including the Croonian Lectures for 1893.* By the late Daniel John Leach, M.D. (Lond.), D.S.C. (Vict.), F.R.C.P., Senior Physician to the Manchester Royal Infirmary and Professor of Materia Medica and Therapeutics in the Owens College. Edited by R. B. Wild, M.D. (Lond.), M.S.C. (Vict.), M.R.C.P. Leach Professor of Materia Medica and Therapeutics in the Owens College. Manchester: Sherratt & Hughes. 1902.

This book is a compilation by the present professor of materia medica in the Owens College of the various articles by the late Daniel John Leach, M.D., F.R.C.P., upon the action and uses of the

nitrites. It contains an introductory article upon the relation of pharmacology to therapeutics. This part is quite diffuse, and although the author presents some very good points, he lays too great stress upon the value of empiricism in therapeutics. The remainder of the book is composed of articles upon the nitrites published by the author in different journals, and also of the Croonian Lectures delivered by the author.

These articles were not the product of original work but compilations from the current literature. This work gives considerable information concerning the pharmacology of the nitrites. It is to be recommended to those who are especially interested in that subject. — *M. V. T.*

*The Diseases of Infancy and Childhood, for the Use of Students and Practitioners of Medicine.* By L. EMMETT HOLT, M.D., LL.D., Professor of Diseases of Children in the College of Physicians and Surgeons (Columbia University), New York; Attending Physician to the Babies' and Foundlings' Hospitals, New York; Consulting Physician to the New York Infant Asylum, Lying-in Hospital, Orthopedic, and Hospital for the Ruptured and Crippled. With 225 illustrations, including 9 colored plates. Second edition, revised and enlarged. xi, 1161. New York: D. Appleton & Co. 1902.

This admirable work, the first edition of which at once took a leading place among the best books on the subject, both in this country and abroad, has been thoroughly revised; rewritten and brought up to date. The chapters on milk and infant feeding have been much enlarged and much improved. A new and simpler method is given for the home modification of milk. A new feature in this edition is the introduction of illustrative weight charts. This second edition is even better than the first, and more than retains the high position taken by its predecessor. No one interested in the diseases of childhood can afford to be without it.

*A Guide to the Practical Examination of Urine for the Use of Physicians and Students.* By JAMES TYSON, M.D., Professor of Medicine in the University of Pennsylvania and Physician to the Hospital of the University. Tenth edition, revised and corrected, with a colored plate and wood engravings. Philadelphia: P. Blakiston's Son & Co., 1012 Walnut Street, 1902.

No book has been written in English which has surpassed or equalled this small guide book upon the practical examination of urine. It is brief, but it contains, accurately described, the common methods in use for the examination of urine. The book is especially commendable for the fact that the author adheres specifically to his subject and does not under the pretense of writing a book upon clinical urine analysis extend himself upon all fields of chemistry. — *M. V. T.*

*Text-Book of Medical Jurisprudence and Toxicology.* By JOHN J. REESE, M.D., Late Professor of Medical Jurisprudence and Toxicology in the University of Pennsylvania, etc. Sixth edition, revised by HENRY LEFFMANN, A.M., M.D., Professor of Chemistry and Toxicology in the Woman's Medical College of Pennsylvania, etc. Philadelphia: P. Blakiston's Son & Co. 1902.

This sixth edition of this compendious volume of 660 pages on medical jurisprudence and the allied subject of toxicology has incorporated the advances made since the previous edition. Attention is called to the fact that many cases of accidental and suicidal poisoning have arisen since the introduction of the numerous synthetic organic bodies, some of which are used as household remedies. Phenol is of this class.

The book is entertainingly written, and should have a continued reading.

AMERICAN EDITION OF NOTHNAGEL'S PRACTICE.

*Diseases of the Bronchi, Lungs and Pleura.*

*Diseases of the Bronchi.* By DR. F. A. HOFFMANN of Leipsic. *Diseases of the Pleura.* By DR. O. ROSENBACH of Berlin. *Pneumonia.* By DR. F. AUFRECHT of Magdeburg. Edited, with additions, by JOHN H. MUSSER, M.D., Professor of Clinical Medicine, University of Pennsylvania. Octavo volume of 1,030 pages, illustrated, including 7 full-page colored lithographic plates. Philadelphia and London: W. B. Saunders & Co., 1902.

This is the fourth volume of Saunders' American Edition of Nothnagel's Practice, and is edited, with additions, by Dr. John H. Musser. The authorized translation of the series from the German is, it will be remembered, under the general editorial supervision of Dr. Alfred Stengel. As has been said of a previous volume, the reader has, in the names of the authors of the original German and in those of American translators and editors, the strongest guaranty that a hasty prepossession will grow into firm favor by a more intimate acquaintance with the contents of this series. The present volume is fully on a par with its predecessors.

Dr. Musser has by his editorial additions and comments brought the subjects dealt with fully up to date, and in the matter of therapeutics, climatology and health resorts has adapted the text to the requirements of the American practitioner. In regard to most of the diseases treated of in the present volume, this is a very serviceable addition to its worth for our medical public. In the discussion of etiology, diagnosis, prognosis and pathology, the original German text is more self-sufficient; but even in the portions devoted to these questions the judicious hand of the American editor is apparent. With the more recent developments of the uses of the x-ray, and of staining and other laboratory processes, a brief lapse of time brings important changes in interpretations of phenomena and in points of view.

In the division on "Inflammations of the Lungs," by Aufrecht, the editor upholds the view "that pneumonia is the expression of a general pneumococcus infection, that the local pulmonary lesion is not a necessary part of the infectious process, and that the danger from this lesion is not as great as the danger from the toxemia."

The publishers' presentation of these volumes is all that could be desired.

THE BOSTON

# Medical and Surgical Journal

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## ANNUS MEDICUS MCMII.

THE past year has been characterized by further investigation along many lines of medical science rather than by the inauguration of new theories. The appearance of smallpox in epidemic form in various parts of the world has led to a renewed study of the disease and to many statistical inquiries regarding the prophylactic power of vaccination. The testimony of competent observers has unquestionably been wholly in favor of vaccination and revaccination as an adequate preventive of the disease. In fact, it would seem impossible that any evidence could now be adduced to controvert the scientifically established doctrine of the efficiency of vaccination. Many interesting questions have arisen regarding the relative efficiency of various commercial vaccines, and the question of the state manufactures of the virus has been agitated to ensure an absolute standard. Work of value in the clinical and pathological aspects of the disease has also been undertaken. Theories of the transmission of malaria and yellow fever by certain varieties of mosquitoes have been further substantiated by investigations carried on through the year. The situation regarding the parasitic origin of cancer remains essentially unchanged. Research laboratories for this study are being established in increasing numbers, and many points now in dispute should be settled within a few years. There has been no abatement in interest concerning tuberculosis and in providing adequate hospitals for its treatment. Many boards of health have included pulmonary tuberculosis among the contagious diseases requiring notification. The most important phase of scientific medicine to which particular attention has been drawn during the past year is the difficult and obscure subject of "immunity." The far-reaching importance of these investigations, prosecuted especially in Continental Europe cannot, at present, be estimated. That they will ultimately lead to more rational methods of combating and preventing disease is not open to doubt. The growing enthusiasm for medical work of a fundamental sort in this country, the establishment of medical schools on a better financial and educational plane, and the increasing attention to sanitation and preventive medicine may be regarded as the conspicuous features of the year.

### SMALLPOX.

This disease has been prevalent in the United States throughout the year. In Massachusetts, Boston had the largest epidemic, and by the middle of May 635 cases had been reported, with 105 deaths. In this city the disease was met with much promptness, various methods of treatment instituted and vaccination and revaccination pushed to the full by the State Board of Health.

Dr. S. H. Durgin, of the Boston Board of Health, says on this subject: —

"There is one thing which ought to be impressed upon the medical profession, and that is, that we do not vaccinate enough. We are having too many cases of smallpox among those who are supposed to be sufficiently vaccinated. I am fully persuaded that full vaccination will prevent smallpox. To secure this, I believe that a child should not only be vaccinated when very young, but that the physician should feel called upon to exhaust all susceptibility to smallpox by repeating the operation until it will no longer take effect. I think at the age of ten or twelve years this process should be repeated to the same extent. Later in life, on exposure, I think vaccination should be repeated. The data in our own city is evidence to us that, as a rule, the unvaccinated die and the vaccinated get well.

"With regard to Boston, I am sorry to say that she has been caught in a poorly vaccinated condition. We went through the city in the winter of 1872 and 1873 and gave thorough vaccination. Since that time we have experienced an unusual freedom from smallpox, much indifference and some misguided objection to vaccination, and are, in consequence, easy victims to smallpox."

In Minnesota, Colorado and Kansas, where the disease had been more or less severely epidemic the year before, there was a diminution in the number of cases to less than one half. In Indiana, North Carolina, Pennsylvania and Wisconsin, the epidemic was more extensive than in the other states. By the middle of March, Indiana had reported 1,155 cases with nine deaths, with only 62 cases the year before; North Carolina reported 836 cases with two deaths, with only 264 cases the year before; and

Pennsylvania reported 1,322 cases with 203 deaths, with but 114 cases the year before.

An effort in preventive medicine on a scale of considerable magnitude was inaugurated by the Chicago Health Department. Its field was an area of some 600,000 square miles of territory in the ten states of which Illinois is the southern center and the remotest boundaries of which are within a few hours' railway travel from Chicago. Among the 25,000,000 people living in this area, the number of cases of smallpox had increased more than 900% since the first of the year, over the number reported during the corresponding period of 1901. That is to say, between Dec. 28, 1900, and Jan. 24, 1901, there were only 1,070 smallpox cases reported in this territory, while during the similar period ended Jan. 24, 1902, there were 10,820 cases reported — an increase of 911%.

The plan contemplated wholesale vaccination and revaccination in every infected locality; the provision and maintenance of suitable isolation hospitals where necessary; thorough disinfection of smallpox premises and belongings; strict inspection of all persons offering to travel from infected localities, and refusal to carry those who do not comply with the requirements. This was the measure relied on to control the objectors, "conscientious" or otherwise, and was one fully within the power of the railways to enforce. Competent vaccinators and supplies of pure, tested vaccine lymph were furnished gratis in all proper cases.

The history of the beginning of the outbreak of smallpox in London is as follows[1]: "Beginning with last June it appears that some of the earliest cases were associated with the collection of dirty linen at certain laundries, and that the sorters and other persons engaged in handling linen on its receipt at the laundry are especially liable to infection, and that some of the sources of this linen were cases of unrecognized smallpox among persons from other countries staying at hotels, where linen was sent to the laundries to be washed. For the sixteen weeks following and including the first week in August the cases reported were as follows: 3, 5, 7, 22, 60, 27, 53, 37, 41, 44, 28, 48, 55, 173, 64 and 104.

"From then on the numberof new cases reported increased daily, and by the 1st of April there were under treatment in the city of London 1,522 cases of smallpox. After that period, the epidemic began to show signs of abatement. With the first appearance of the disease the most rigid search for the individuals who had not been vaccinated was instituted. The board of health interested itself at once with so-called "contacts," and recommended the following precautions:

[1] We are indebted to the *British Medical Journal* for many statistics contained in the following report.

"The removal of the actual patients to hospital, the disinfection of the dwelling and all articles in it that had been exposed to infection, including the clothes worn by the other inmates, and the immediate vaccination or revaccination of the latter. The persons exposed to infection were, further, to be kept under medical supervision for a fortnight, and were to be examined with especial care at the end of the second week with a view of detecting possible signs of the disease. An arrangement of this sort, which interfered with the liberty of the individual as little as was consistent with public safety was obviously the correct method to adopt. It would be practically impossible to enforce a prolonged detention in every case of exposure to contagion, and, moreover, the fear of such a restriction would do more harm than good by deterring people who thought they had incurred the danger from coming forward to avail themselves of the protection afforded by disinfection and vaccination. The value of these prophylactic measures was shown by the fact that during the four weeks covered by the report, 459 visits have been made to city firms and houses where employees suffering from smallpox, or having been in contact with such cases, are engaged. As a result of the recommendations of the medical officer of health, 5,410 persons have, during that period, availed themselves of the protection afforded.

"Compulsory vaccination of all children of thirteen or fourteen years of age was recommended, and in some districts a small pecuniary inducement was offered. The removal of smallpox patients from London to extra metropolitan hospitals proved a danger, and large numbers of cases of the disease spread in the regions about the city."

The Imperial Vaccination League issued the following letter, the suggestions contained in which show every sign of fulfillment: —

London has, within the last ten months, suffered from a severe epidemic of smallpox. It has cost the community more than 1,500 lives, 7,500 other people have been more or less seriously ill, and probably of these a large proportion remain permanently disfigured. The cost of attempting to isolate the sufferers has been over £500,000, the labor of the attempt enormous, and the success far from complete.

In the German Empire for the past twenty-five years there has been very little epidemic smallpox, though the disease has been frequently introduced into the frontier towns and districts. In 1899, for instance, in a population of 54,000,000, the deaths from smallpox were 28; they occurred in 21 separate districts, and 7 of the 28 were those of children below the age for vaccination. The absence of epidemics is the result of the population being, with very few exceptions, adequately protected by vaccination and revaccination at school age.

We desire to see this country protected as thoroughly against epidemic smallpox as Germany is; and with this

object in view the Imperial Vaccination League has been formed, with the Duke of Fife as its president, to promote the study of the laws regulating vaccination and to consider if in any way the vaccination law itself or its administration admits of improvement.

The Vaccination Act of 1898 will expire at the end of 1903, and legislation of some kind will be necessary next year. We admit, with much satisfaction, that the clause in the 1898 Act which allowed the "conscientious objector" to expose his children to the risk of taking smallpox in the presence of infection, has worked, on the whole, less disastrously than was expected. The number of children exempted from vaccination under this clause in the three years 1898, 1899, and 1900 was 275,593; but this represented the arrears of many years. The number of children, born in the three years, who have escaped vaccination from all causes, has diminished considerably as the result of the Act of 1898. We do not, therefore, propose to urge the abolition of the "conscientious objector" clause. We consider, however, that the clause should be worked in strict conformity with the spirit and letter of the law.

The league desires mainly to assist the community to study carefully certain other possible amendments of the Vaccination Act of 1898. Among them we place in the first rank the necessity for obligatory revaccination of school children at a specified age. It is to the universal practice of revaccination at school age, since the law of April 8, 1874, came into force, that the freedom of Germany in recent years from epidemic smallpox must be assigned.

The subject of the preparation of animal vaccine is of great interest to the profession in this country as well as in England. From a recent paper on this subject by Dr. Theobald Smith, we quote the following: —

The micro-organisms of variola and vaccinia have not yet been recognized by the microscope, and their presence can be determined only by their effects. This gap in our knowledge is largely responsible for the divergencies in the preparation of vaccine witnessed to-day. The micro-organism of vaccinia is present in the proliferated epithelium of the inoculated skin of the cow, as well as in the serum or lymph which exudes from the vesicle and its base after the overlying scab or crust has been removed. Two methods are based on these facts. In the one, now used throughout the continent of Europe, in England, and to a large extent in our own country, the proliferated epithelium along the line of inoculation is scraped away and it becomes the basis of the vaccine. It is the so-called pulp. The other method utilizes the fluid lymph or serum of the vesicle. This method is still used to a restricted degree in our own country.

In the preservation of the virus two methods are in vogue. In Europe, and to a considerable extent in our own country, the pulp is mixed with diluted glycerine and stored in sealed receptacles. Less used to-day is the method once universal in our country, of drying the vaccine on the ends of flattened slips of ivory or bone, the so-called vaccine points.

To prepare the glycerinized vaccine, calves are chiefly employed. The preferred areas for inoculation are the abdomen, the inner aspect of the thighs, the scrotum, or simply one side of the animal. The thoroughly inspected, cleansed animal is fastened upon a suitable table, and the areas to be inoculated are shaved and washed. Disinfection of the skin with alcohol, lysol and other well-known disinfectants is variously practised and omitted by different authorities.

After four to six days, according to temperature and individual variation, the calf is again placed upon the table. The vaccinated surface is thoroughly washed with sterile water, and any scabs or crusts removed. A curette is then used to scrape away the slightly elevated ridges of epidermis and subjacent layers which represent the confluent eruption following the linear inoculation. This scraped material, or pulp, is thoroughly ground and comminuted in a mortar or a special machine while being mixed with a definite amount of about 66% of glycerine. When the process of grinding and mixing with glycerine has been completed, the vaccine is, as a rule, stored for at least a month before it is sold or dispensed free, as is done, for instance, in the German Empire. The usual dilution of the pulp with diluted glycerine is one part of pulp to three or four parts of diluted glycerine. The German Commission has shown that a dilution of 1 to 10 is equally efficient and that a dilution of 1 to 20 is still satisfactory in primary vaccination.

It has been known for some years that the fresh vaccine contains large numbers of bacteria. Up to 700,000 per cc. have been found. When 50 to 70% glycerine is added, these bacteria are slowly destroyed. After one month the number is greatly reduced. After two or three months the vaccine may be regarded as sterile. In the meantime the vaccine virus remains intact up to six months after preparation, and even longer.

The micro-organisms are largely harmless saprophytes, which are in part inhabitants of the normal skin of the calf, in part extraneous invaders of the eruption. The intimate seat of the local disease remains free from bacteria, and none have been found in sections of the vesicles until the seventh day.

About seven years ago the German Commission undertook to determine what, if any, relation existed between them and the severer forms of inflammation associated with vaccination. The outcome of prolonged studies of the effect of various vaccines was, that the contained bacteria had little or no effect upon the reaction. A bacteria-free vaccine might in one case produce extensive erysipelatous inflammation, while a vaccine containing many bacteria, among them so-called staphylococci, might have no effect whatever. The examination of excised portions of erysipelatous skin failed to reveal the anticipated streptococci. The cause of these variations was the individual susceptibility or idiosyncrasy of the child, which reacted alike to vaccine, whether sterile or containing numerous bacteria.

In answer to the question "How can vaccine be safe-guarded?" Dr. Smith says: —

The national government might appoint inspectors for the private vaccine plants, under whose supervision the virus is prepared, tested and officially stamped, just as all antitoxin sold in Germany is tested beforehand in large lots by government experts. The place where vaccine is tested most easily and economically, and where such testing would go hand in hand with a corresponding improvement of the product, is at the source — where it is made.

In conclusion, I may say that the vaccine is but one of three factors which determine the success or failure of

vaccination. The others are a satisfactory inoculation technique and the proper care of the wound afterward.

In the treatment of the actual disease the method by light apparently remains the most useful. The principal objection to it seems to be that the red light is very trying for both patients and attendants, causing a curious mental excitement, not easy to understand. Green light also stops actinic rays and does not have the same annoying effects, so that it is being largely used in place of the red. The value of salol in the treatment of smallpox is firmly attested by those physicians who have met the disease in the East, where it is seen in its worst form. Extended experience, however, in the recent epidemic in London does not tend to confirm the fact that the drug avails. Sixty grains of salol is administered daily to each patient in China, and is said to prevent the pustular stage. Alcohol has been extensively used empirically.

### CANCER.

Cancer research has been carried forward during the last year in many countries, with results of much statistical and scientific value.

### CANCER IN HOLLAND.

A census was made of all the patients under treatment throughout the country. Unfortunately medical practitioners did not co-operate as much as they might have done, and the results are therefore to be accepted with caution. The percentage of cases to population was 0.0286; the proportion of males to females was 1 to 1.205. In regard to age, the largest number of cases occurred between 61 and 70, next came the periods 51 to 60, and then 71 to 80. In only 3.53% of the cases was the age of the patient over 80. The situation of the cancer was in 49.88% the intestinal tract; in 20.20% the breast, including one case in a man; in 12.74% the female genitals; in 7.15% the face; in 3.87% the under lip; in 5.58% other parts. Of 438 cases of cancer of the intestine 275 were in men, 163 in women. Among 372 male patients, in 73.9%, the disease affected the digestive organs; while in women the proportion was only 32.2%. As to the increase of cancer in recent times, no certain conclusions could be drawn. In 18.1% of cases cancer had occurred in several members of the family. The following example is given by Professor van Iterson: Among 14 members of two related families 8 certainly and 3 more probably were the subjects of cancer. Professor Korteweg saw cancer of the rectum in two sisters, and cancer of the breast in grandmother, mother and daughter. Professor J. Veit saw two sisters with cancer of the cervix. Similar observations were made by two other practitioners. On the whole, hereditary disposition was found in 19.7% of the cases. The coexistence of cancer in husband and wife was noticed in 11 cases, and the percentage of cases in which infection from person to person might be assumed was 10.92. As regards dwelling, Dr. Wostra in Anna Paulowna, from January, 1896, to February, 1901, among 3,030 inhabitants living in 500 houses, treated 28 cases of cancer, of which 26 were in the western part of the town with bad soil drainage as against two in the east where the soil drainage was good.

### CANCER IN GERMANY.

Through researches recently made under the auspices of the German Imperial Health Department it appears that in Germany, as in other European countries, there has been an increase in the prevalence of cancer in recent years.

At a meeting of the German Surgical Society, Professor von Leyden of Berlin read a paper on the "Parasitic Origin of Cancer." He said in part, "that the result of recent collective investigations tended to show that the present knowledge as to the causation of malignant disease could only be considered rudimentary. Of the many theories only two were considered to have a claim to serious consideration, namely, the histogenetic or cellular, the representatives of which were Hansemann and Ribbert, and the parasitic or biological. Leyden was distinctly in favor of the latter, which he also considered the most important to the clinical student. After a short consideration of the histogenetic theory, especially as upheld by Ribbert, he proceeded to discuss the biological view. In order to be intelligible, the germ must be situated in the cells. No continuous increase of a cell unaccompanied by a continuous irritation was known. This could only be explained by the existence of a parasite. This would refute Ribbert's objection to so small an organism producing such profound changes. Von Leyden referred to a disease of plants recognized by Russian botanists presenting certain resemblances with cancer. Thus an enlargement had been found on the roots of cabbages which had been proved to have a connection with an intracellular parasite. From this plasmodium groups of spores resulted whose change into amoebæ had been observed outside the plant. A further argument in favor of parasitism he considered the influence of cancer on metabolism, namely, increase of urea excretion, cachexia, etc. As regarded infectivity it had not been proved directly. Human experiments were naturally excluded, but in animals of the same species they had several times succeeded. He considered such a transfer-

ence possible in the human subject, as evidenced by the occurrence of cancer in a hospital attendant who had two years previously accidentally swallowed a cancerous fluid."

### CANCER IN ITALY.

Statistics covering the thirteen years 1887 to 1900, collected by Dr. O. Ruata, published in the *British Medical Journal* show that while other diseases tend to diminish, the prevalence of cancer is ever increasing in Italy. During the period in question the deaths from cancer showed an average increase of 1,681, so that the total mortality from that cause, which in 1887 was 12,631, had in 1899 risen to 16,680. Of these 16,680 deaths, the majority (4,613) were due to cancer of the stomach and esophagus; then followed next in order the liver, spleen, pancreas and intestine, with a total mortality of 3,240. Cancer of the breast caused 916 deaths, the patients in 19 of the cases being men; cancer of the female genitals was accountable for 2,578; of the male organs for only 213 deaths. Analysis of the figures is held to show that of all organs the uterus is the one most liable to the disease; next comes the stomach, then the liver. In regard to sex, of the 16,680 persons who died, 6,980 were males, and 9,700 females. Up to the age of 60 the mortality was, owing to the prevalence of uterine and mammary cancer, greater in the female than in the male sex. From 60 upwards there was very little difference between the two sexes. In respect of regional redistribution, the greatest mortality occurred in Romagna; next came Tuscany and Emilia; Lombardy also showed a high mortality from cancer, while Abruzzi and Sardinia showed the lowest of all. A remarkable fact brought out by these statistics is that while the prevalence of all infectious diseases is affected by the density of population, mountainous character of the country, etc., in the case of cancer these factors seemed to have no influence. The place which showed the highest mortality was Ravenna, with 120.4 deaths in every 100,000 of population; this is a province flat over almost the whole of its extent, without large towns, and therefore without agglomerations of people. The small province of Sondrio, which is very mountainous and contains only small centers of population, showed a fairly high cancer mortality (62 per 100,000), greater than that of Turin (59.7), Genoa (59), Rome (58), and Naples (47.6), all of which comprise the largest centers of population in Italy. On the other hand, Cheti, situated in the heart of the Apennines, and having, like Sondrio, a mountain population, has a low cancer mortality (26 per 100,000).

### CANCER IN FRANCE.

Professor R. de Bovis of the Reins School of Medicine has contributed an important study of cancer to *La Semaine Médicale*, in which he sets himself to answer the questions as to whether the increased frequency of this disease, its predominence in towns and its predilection for the female sex are real or apparent.

Professor de Bovis maintains that the statistics of the last twenty years alone are of value, and that the most trustworthy are those coming from England, Norway and Prussia. In discussing the recent alleged increase of the disease, it is pointed out that earlier statistics were notoriously incomplete, and that diagnosis, especially with the advent of bolder surgical measures, has markedly increased in accuracy. This would be particularly true of the recognition of malignant disease of internal organs, which formerly often went unnoticed. A classification of cancer of different parts of the body, as first carried out by King and Newsholme, has also done much toward bringing about increased statistical accuracy. Quoting the statistics of various countries, the following conclusions are drawn: Cancer of the rectum appears to be at least stationary; uterine cancer shows a sensible decline; cancer of the breast shows a still more marked decline; cancer of the mouth and its annexes is perhaps increasing; cancers of the extremities have diminished; the increase of cancer is consequently above all due to the increase in deaths from visceral cancer.

This analysis seems to show that external cancer is stationary and that visceral cancer appears to be increasing in frequency, but an investigation of all the facts leads to the assumption that this increase, as shown by statistics, is much greater than the reality. A careful study of the supposed excessive incidence of cancer in urbane communities indicates that here again the facts show a slightly greater proportion of cases in towns than in country districts, but by no means in the proportion usually supposed. Again, the supposed increase of cancer in males is thought to be due to the frequent greater inaccessibility of the growth in men than in women, hence an apparent rather than a real increase. The final conclusion from the whole investigation is that a careful study of statistics contradicts more than it confirms the supposed alarming increase of cancerous affections.

### CANCER IN INDIA.

The *British Medical Journal*, quoting from the *Indian Medical Gazette*, gives the following interesting statistics: —

"Capt. W. J. Niblock tabulates all the cases of carcinoma, sarcoma and rodent ulcer which have occurred in the Madras General Hospital during the last ten years. The number of cases of cancer alone in natives was 676, and this is sufficient to show that malignant disease is very far from being rare among the indigenous races of the tropics. A remarkable feature of these tables is the great frequency of cancer of the cheek. No fewer than one third of all the cases of carcinoma occupied this situation, while if cases affecting the cheeks, jaws and tongue be taken together, they formed over half of the total. This is attributed by the author to the common habit among the natives of chewing the betel nut. Epitheliomata of the same parts are also very common in Calcutta, and often involve most of one side of the face before the patients present themselves for treatment. On the other hand, epithelioma of the lip is rare in natives, constituting only about one case in fifty as against one in fourteen in Europeans and Eurasians, due, no doubt, to the former class not smoking pipes. Carcinoma of the alimentary canal is comparatively rare, except in the rectum, which is also the case in Calcutta, except that there the stomach is not infrequently affected. Another remarkable fact is that out of 201 cases of epithelioma of the penis every one occurred in Hindus, and not one in Mohammedans; circumcision among the latter, no doubt, saves them from chronic forms of irritation to a large extent. This fact has also been noted in Calcutta, where cancer of this organ in Hindus is the form of the disease most frequently met with. Further, sarcomata affect the lower extremity very much more frequently in Hindus, who often go about barefooted, than in Mohammedans, who more frequently wear shoes.

"Turning to the percentage of cases in proportion to the total admissions occurring in the different races, we find that both carcinoma and sarcoma are more frequently met with in Hindus (1.98 and 0.67% respectively) than in Mohammedans (1.76 and 0.49% respectively). Next come Europeans, wth 1.16 and 0.89, and, lastly, Eurasians, with 0.34 and 0.05% respectively. If, however, epithelioma of the penis be omitted, then Mohammedans are found to suffer in greater proportion than Hindus from cancerous disease. It was not found possible to classify the Hindus according to the different castes, and all that the author can say is that the highest class of Brahmins do undoubtedly suffer from cancer and other forms of malignant disease not at all rarely. Another curious point is that forty-six cases of cancer of the uterus and five of the vulva or vagina all occurred among Hindus, and none among Mohammedans."

### CANCER IN ENGLAND.

A cancer research fund has been established in England; the sum collected has thus far amounted to £45,000. The objects of the fund are stated as follows: —

To promote investigations into all matters connected with or bearing on the causes, prevention and treatment of cancer and malignant disease, steps shall be taken, —

1. To provide, extend, equip and maintain laboratories to be devoted exclusively to cancer research.

2. To encourage researches on the subject of cancer within the United Kingdom or in the British dominions beyond the seas.

3. To assist in the development of cancer research departments in various hospitals and institutions approved by the executive committee.

4. And generally to provide means for systematic investigation in various other directions into the causes, prevention and treatment of cancer.

Should the object of the fund be attained by the discovery of the cause and nature of cancer, and of an effective method of treatment, the Royal Colleges, with the consent of the trustees, shall be empowered to utilize the fund either (*a*) for equipping with the necessities for such treatment such hospitals as they may select, or (*b*) for forwarding research into other diseases.

The fund shall be administered by a president, vice-presidents, trustees, honorary treasurer, general committee and executive committee.

### CANCER IN AMERICA.

A number of well-known members of the medical profession of Western Pennsylvania, with Dr. Roswell Park of Buffalo, held a meeting during the year in Pittsburg to discuss the pathology and cure of cancer, and also to devise ways and means of raising funds for an international commission for the study of cancer.

In the second annual report of the cancer committee to the surgical department of the Harvard Medical School, Dr. E. H. Nichols gives the following summary: —

"It has been claimed by the adherents of the theory of the parasitic origin of cancer that (1) a proliferation of epithelial cells analogous to the lesions seen in cancerous tumors can be produced by certain well-known protozoa (nodules caused by the coccidium oviforme); (2) certain skin lesions characterized by epithelial cell proliferation are due to the action of a so-called protozoon (molluscum contagiosum); (3) blastomycetes are constantly present in human cancers, and are the cause of the lesion; (4) by experimental inoculations of ani-

mals with "blastomycetes," true epithelial or cancerous nodules can be produced; (5) finally, the well-known endocellular bodies seen in the protoplasm of cancer cells have a definite morphology, are parasites and the cause of cancer.

It has been the object of the investigators of the cancer committee to study both of these questions. As a result of the lines of work pursued by them (under the direction of the cancer commission) during the past year, it is concluded that,—

(1) The lesion produced by the coccidium oviforme is essentially a process of chronic inflammation and is not analogous to the lesion seen in cancer.

(2) The lesion in molluscum contagiosum is characterized by certain changes in the epidermis; is not due to the action of a protozoon, and is not analogous to cancer.

(3) The so-called "blastomycetes" ("saccharomycetes") of Sanfelice and Plimmer are torulæ.

(4) The lesions produced by these "blastomycetes" (torulæ) are essentially nodules of peculiar granulation tissue, are not cancerous, nor in any sense true tumors.

(5) Blastomycetes are not constantly present in human cancers.

(6) The peculiar bodies seen in the protoplasm of cancer cells are not parasites, nor the cause of the lesions, but probably are, in part, at least, atypical stages of the process of secretion by glandular epithelium.

### CHOLERA.

In March, 1902, the report came that cholera was epidemic in various parts of Asia.

The origin of the outbreak is entirely unknown. The earliest cases were observed among Indian pilgrims arriving in Medina from Mecca on March 1. They had sickened at a point on the road between the two cities, somewhere between Rebouk and Medina. Other caravans continued to arrive by the same road, and each reported that the disease had broken out after passing Rebouk. Among the infected caravans was the Holy Caravan with the sacred carpet (the Mahmel-i-Sherif) and another composed of Javanese pilgrims.

In Mecca cholera appeared at some uncertain date,—about the end of February. The mortality there increased slowly but steadily until March 21. The great festivals at Mecca, and the culminating point of the pilgrimage, take place on the three days of Courban Bairam. They began this year on Thursday, March 20. The effect of this great course of pilgrims, camped out for from one to three days under circumstances which render sanitary control almost impossible, was at once seen in a great rise in cholera deaths. On March 20 and 21 the reported deaths only amounted to 31 for the two days together. On March 22 the figures suddenly rose to 220, and on the 23d to 247. This festival was much more numerously attended than those of the last few years have been. This is largely due to the fact that Russia has this year, after several years of prohibition, permitted her subjects to undertake the pilgrimage. It is thought that the total number of pilgrims of all nationalities amounts this year to some 250,000.

The outgoing pilgrims were inspected in the most rigorous fashion and all these going by sea underwent quarantine of from five to ten days, but in spite of this the report soon came from Canton and the islands opposite Canton of the prevalence of cholera.

As to whether there was any real connection between these two outbreaks it would be difficult to hazard an opinion, but it reached alarming proportions by the last of August, extending from the Island of Java to Japan, and almost every city on the coast and many in the interior were affected. Europeans were victims as well as natives. In Hong Kong, from the first of the outbreak to Aug. 6 there were reported 523 cases, six of the patients being Europeans, and 511 deaths, of whom four were Europeans. In Tien-Tsin, the last report placed the number of cases for the year at 1,049 and 764 deaths within the city walls, and 1,015 cases and 593 deaths outside the city walls.

By the end of March there had been reported from Manila, Philippine Islands, but 100 cases and ten deaths. But a month later there had been 754 cases with 603 deaths in that city and from the provinces 1,583 deaths. In August the total number of cases had been for the city and provinces 28,000, although, as usual, the report of a large number had been suppressed. Forty-eight Americans and 18 Europeans died. The Manila correspondent of the *New York Medical Journal*, writing under date of Sept. 3, stated that the epidemic of cholera which had then existed for about six months appeared to be more firmly established than ever; over 32,000 cases with 23,000 deaths had been reported. Among Americans and Europeans there had been 170 cases with 95 deaths. In Egypt the epidemic had fairly set in by the last of March. The Sanitary Board conducted a most careful investigation, and the following history is as accurate as obtainable.

Seventeen pilgrims left Moucha for Mecca, and all returned. While at Tor, on the Gulf of Suez, it is stated that one of their number was ill with diarrhea and vomiting, but was never seen by the native doctor of their section, as he was hidden within the tent, into which the doctor never entered. The other pilgrims say that they stood at the door

of the tent, and stated they were all well. The sick man was nursed by a woman who went from Moucha with them. On their return to that village this woman's child died of diarrhea, and this was followed by a number of deaths in the omdeh's (mayor's) family, one of the members of which had been among the pilgrims. The deaths in this family and its connections, due to severe diarrhea, were going on throughout June, but were kept quiet. Meanwhile the returned pilgrims frequented the mosque in the center of the village, a mosque of which, as we stated in a previous note, the latrines are in the immediate vicinity of the village well. It is from this well that the earliest cases of the epidemic, which were first notified on July 14, are known to have taken their water.

By the end of September, 25,000 deaths had been reported and 1,200 towns and villages had been affected. By the end of October the epidemic had begun to disappear. It has been suggested that a conference of the Powers be held to suppress the Mohammedan pilgrimage to Mecca, which is evidently a most dangerous source of infection.

PLAGUE.

Early in January of 1902 the number of cases of plague was on the increase, and the returns from all India reported 10,368 deaths in one week. In February this was increased to 15,000, and by the middle of April 24,380 deaths were reported for one week. This was the climax, and a steady decrease thereafter is reported. The usual districts were affected, and although the Bombay, Bengal and Madras presidencies showed the greatest number of deaths, Punjab and the Mysore State reported a large number of cases.

The disease was also prevalent in Egypt, but in slight degree, and since the outbreak on April 7, 1901, to January, 1902, there have been reported but 295 cases, of which 178 have died. Later in the year a few more cases were reported.

A few cases were reported from Port Elizabeth, Cape of Good Hope, and also a few from Sydney, Australia.

Early in the year, when Hong Kong was reported to be free of plague, twenty-four fresh cases had appeared, with nineteen deaths. The number of deaths to cases in Hong Kong exceeds the returns from any other part of the world, and this has been a noticeable feature of the plague epidemics in Hong Kong since the disease appeared in 1894.

The Indian Plague Commission has presented a most valuable and exhaustive report on the subject, published in the *British Medical Journal*.

In speaking of the agencies by which the disease is disseminated, the commission states that no other agencies than man and rats are considered of importance. The result is summarized in the following conclusions:

1. In some places, where severe epidemics have occurred among men, rats have not been affected at all, and in many places where there have been plague epidemics among men the disease has not appeared among rats in epidemic form.
2. Occasionally, where there has been considerable mortality among rats there has been an absence of plague among men.
3. Even when there has been the largest amount of plague among rats, the risk to the persons who came in contact with these infected rats appears not to have approached that undergone by persons inhabiting houses in which there have been plague patients, or persons coming into contact with pneumonic plague. There are, however, cases, such, for instance, as the case of Mahlgahla and the case of Chak Kalal, where a very considerable number of plague cases in a village has been directly attributable to the dissemination of infection consequent on an epidemic of plague among rats.
4. Since the number of plague bacilli escaping from the infected human organism must be presumed to be greater than the number which escape from a plague-infected rat, *a priori* it would seem clear that a single infected man must constitute a greater danger than a single infected rat; but, on the other hand, seeing that the excreta of rats may be deposited anywhere throughout a house, and that the number of rats which are affected may many times exceed the number of men who are affected, a severe epidemic among rats must, we think, tend considerably to the spread of infection.
5. The chief importance of rats in the epidemiology of plague seems to us to arise in connection with the first outbreak of the disease in an infected place, for we have seen that in many instances rats become infected before men, and they scatter plague broadcast over an uninfected place.
6. When plague is once established in a place, we have no doubt that human agency is a more important factor in spreading the disease than the agency of rats.

In writing of circumstances which influence individual liability it is stated that the rate of attack among Europeans was very trifling, ranging from .08 to 3.6 per 1,000, while among natives of India it ranges from 2.4 to 42.5 per 1,000. The president of the commission regards the difference in sanitary conditions as of chief importance.

In answer to the question whether the weather conditions have anything to do with the increase or diminution of plague mortality, the following is stated:

"1. The temperature conditions are suitable for the epidemic appearance of plague at all seasons, and

"2. The amount of moisture in the atmosphere has little, if any, influence.

"In Bombay city the periods of highest mortality in the five years 1896 to 1901 are principally in the first three months of the year; there is a rapid fall to a minimum in June, and then a smaller rise, which in one year reached its acme in the beginning of August, in another near the end of August, and in another near the end of September. The mortality in October and November is very low, though not so low as in June.

"The plague bacillus itself can survive exposure

to the winter frosts of Russia and the heat of an Indian summer."

Considerable difference of opinion prevails as to the influence of unsanitary surroundings in the spread of the disease by those competent to judge. The president of the Royal Plague Commission regards plague as a disease especially favored by unsanitary conditions within houses, in contradistinction to imperfect drainage. The commissioners hold that, "If every case of plague should be isolated at once, and if the personal effects, clothes and house of a patient were disinfected, and further, if all plague-infected rats were removed and burnt, and the houses in which these had been found were disinfected, and, finally, all the healthy persons who are exposed to infection should be inoculated, the ravages of plague would be minimized." Yersin prophylactic serum receives the endorsement of the commission.

MOSQUITOES.

The mosquito has received a large share of attention during the past year, and knowledge has been advanced of its habits and relation to disease.

An eight months' study of the distribution of contagion-bearing mosquitoes in four military stations of Sierra Leone was made by Capt. F. Smith, R.A.M.C., during the latter part of last year and the first of this. It was found that higher hill stations are not always less unhealthy than the lower, owing to the relation of the breeding of *anopheles* to rains.

The campaign against mosquitoes in this much infested region, in Freetown, has gone forward under the direction of the Liverpool School of Tropical Medicine. The plan finally adopted was to provide immediate surface drainage, and also to effect a permanent improvement in the sanitary condition of the infested areas. The cost of the work was estimated at £460. This type of work must be generally undertaken in mosquito-infested regions if permanent relief is to be obtained. The local study of breeding places has also led to results of importance. For example, a study of the distribution of various species of mosquitoes in New Jersey has been undertaken by Prof. John B. Smith, in the hope that the legislature might be induced to appropriate funds for a systematic prosecution of the work of extermination.

"Dr. C. W. Daniels, in a report on the distribution and breeding grounds of *anopheles* in British Central Africa, has given a description of the main breeding places of the insects in that country. There there appear to be small valleys, in which permanent springs keep the surrounding ground marshy and swampy throughout the year. From these the insects are washed in numbers by heavy rains into irrigation channels and other cuttings where the stream was slack. But Dr. Daniels states that 'to a large extent not only each country and district, but even locality differs in details. The slope of the ground, its nature and permeability, will largely determine where water suitable for the breeding of these mosquitoes will be found, and whilst in British Central Africa a porous, rocky, or sandy soil, and low-level subsoil water, prevents puddles being an important breeding ground except under exceptional circumstances, under other local conditions, even with similar meteorological factors, they may be the leading ones.'"

In New York City a systematic attempt has been made to destroy mosquitoes, under the auspices of the health commissioner. Circulars of instruction have been issued and coöperation urged.

A report was presented during the year by a New Orleans Medical Society, embodying the results of the topographical and seasonal distribution of mosquitoes in and about that city. Screening was urged as the most effective means of prophylaxis against malarial and yellow fever infection. Various valuable researches in the mosquito in its relation to the carrying of disease and associated bacteriological investigations have been vigorously prosecuted throughout the year. The fact of the importance of the mosquito as a carrier of infection appears established, but many details remain to be worked out.

MALARIA.

Much detailed work has been done on malaria. A conference on the disease was held at Nágpur, India, early in the year, at which the entire subject was demonstrated and discussed. In Italy observation stations have been established in the most malarious regions of seventeen provinces. Experiments showed that various rational means of protection against mosquitoes practically prevented the occurrence of the disease, whereas in "central" regions, unprotected, its prevalence was unabated. At the fourth annual meeting of the Italian Society for the Study of Malaria, held in March, it was stated that more than forty thousand pamphlets describing the principles and methods of protection against malaria had been distributed among the people; and that the cost of the great amount of work which had been done amounted to only a little over 16,000 lire.

A commission of physicians reported from Corsica that *anopheles maculipennis* was found in all unhealthy localities and urged definite measures of prophylaxis, in which much stress was laid upon the free use of quinine. Metallic netting over windows, doors and other orifices was also recom-

mended. In Ceylon similar observations have been made where malaria has in the past been a large factor in disease and death-rates. The question has been taken up in all parts of the world where malaria is endemic, with results which undoubtedly justify an increasingly systematic effort to rid these regions of mosquitoes.

YELLOW FEVER.

In his pamphlet on "The Methods of the Conveyance of Yellow Fever Infection," Surgeon H. R. Carter suggests the following hypotheses:

(*a*) A change in physical condition of the excretion containing the micro-organism, rendering it able to reach the proper atrium for the infection of others, analogous to the drying and pulverization of tubercular sputum, etc.

(*b*) The infection of a host, by which host (or its offspring) the micro-organism is transmitted, analogous to the transmission of malarial fever or the Texas fever of cattle. This may involve no change in the organism itself. It may simply place the organism in a position to enter the human organism by the necessary atrium, as directly into the circulation or lymph spaces. Of course it does not negative such change.

(*c*) A change in the micro-organism itself, it undergoing development outside of the human body into some stage different from that in which it leaves the body. This last has been the theory accepted by most of the writers who have considered this subject, but there is no analogy with the propagation of any other disease, so far as is known to the writer.

The second of these hypotheses the author believes is the only one which is "not incompatible with the facts which we know of the propagation of yellow fever, and we have seen previously that it is *entirely compatible* with them."

In conclusion he says:

For the belief that yellow fever is conveyed in nature *only*, by a host, and doubtless by a mosquito host, we have, (1) the analogy of other diseases conveyed by insect hosts; (2) that all facts observed about the propagation of yellow fever agree with the necessary deductions of this theory; (3) no other theory explains all the facts observed of its propagation.

In general the "mosquito-theory" of yellow fever appears to be established. At the recent meeting of the Sanitary Congress held in Washington, the concensus of opinion on the part of the delegates was that this theory satisfactorily explains the facts regarding the dissemination of the disease.

THE ROENTGEN RAYS.

Systematic work has been done throughout the year in the treatment of various malignant growths by means of the x-rays. The results have, in general, been highly satisfactory as regards cutaneous disease, and far less so in deeper seated tumors, owing to obvious causes.

Early in the year E. A. Codman published a paper on accidental x-ray burns hitherto recorded, and from a study of these cases concludes that the frequency of x-ray injuries has been much exaggerated; that at a maximum estimate one patient in a thousand has been injured in the past five years by an x-ray examination, and in the past year not one in ten thousand; that the important factors which contribute to the production of burns are: the intensity of the current used to stimulate the tube, the quality of the tube, the distance and time of exposure, the idiosyncracy of the patient. Ten minutes at six inches from the platinum terminal is suggested as a standard therapeutic exposure.

At a meeting of the clinical staff of the Massachusetts General Hospital (Boston) a striking series of patients was demonstrated, in which, with some exceptions, marked improvement, and, in several cases, cures, had been effected of various superficial, malignant growths. A case of recurrent breast cancer had also been much improved. Similar cases have been reported from various sources, all of which go to show that in all probability we have in the x-ray an extremely valuable form of treatment for malignant disease. The occasional cases observed of an apparent production of epitheliomata in persons previously unaffected are suggestive that the treatment should be in the hands of well-qualified persons. Constitutional ill effects have also occasionally been observed. The treatment of various non-malignant skin affections has certainly been sufficiently encouraging to lead to further trials in properly selected cases. F. H. Williams reports three cases of Hodgkin's disease, in which no permanent improvement resulted from systematic x-ray treatment. William Rollins has contributed a number of valuable observations on the theory of x-light during the year, and several textbooks have appeared.

TUBERCULOSIS.

The work on tuberculosis, its prevention and treatment, has gone on steadily during the year. The provision of hospitals for late as well as incipient stages of the disease has met with favor as a general humanitarian measure, and also on the ground that such provision is a necessary corollary of compulsory notification.

The most important discussion of the subject during the year was at the meeting of the International Congress on Tuberculosis, in Berlin, in October. At that time Professor Koch reiterated his opinion expressed the year before in England, that the danger of transmission of tuberculosis from animal to man was practically nil, re-enforcing his position by numerous arguments drawn from the consumption of meat, milk and butter. Koch's position was strongly assailed by Professor Nocard of Paris, Professor Hueppe and others. America

was, unfortunately, very poorly represented at the congress.

D. E. Salmon, Chief of the Bureau of Animal Industry in Washington, concludes an article in the last number of the *Journal of the American Medical Association* as follows:

"It appears that there is now sufficient evidence to prove that tubercle bacilli of human origin may infect cattle and produce a progressive and fatal disease in them; also, that tubercle bacilli from bovine sources may infect man and produce a progressive and fatal disease. Ingestion tuberculosis may have its starting point in the glands of the neck or thorax, or even in the lungs, and the number of cases of human tuberculosis showing a primary intestinal lesion is no indication of the number of cases which occur from ingestion. We must depend largely on clinical evidence for a determination of the relative frequency with which man is infected by tubercular food."

## NECROLOGY: UNITED STATES.[1]

Benjamin Andrews, M.D., died June 26.

Morris J. Asch of New York died on Oct. 5.

Robert Trowbridge Atkinson, M.D., died at Portsmouth, Va., Nov. 10. In 1901 he was appointed assistant surgeon in the navy.

Moses Babcock, M.D., died March 31, at Hammondsport.

Henry Rutgers Baldwin, M.D., LL.D., died Feb. 3, in New Brunswick.

Charles H. Burnett, M.D., died Jan. 24, at Bryn Mawr. He was an eminent aurist.

Henry Balser, M.D., died Feb. 14, in New York.

Dominick G. Bodkin, M.D., died Jan. 26, in Brooklyn, N. Y.

Joseph Booth, M.D., died Feb. 26, in New York.

William H. Barton, M.D., died June 20, in New York.

John Byrne, M.D., died Oct. 1, in Montreux, Switzerland.

Charles W. Bowen, M.D., died Oct. 10.

Jesse Bradford, M.D., died at Conesus Center, N. Y., Aug. 5.

Frederick A. Castle, M.D., died April 28, in New York.

Meredith Clymer, M.D., died April 20, in New York.

Joseph Curran, M.D., died Jan. 27, in New York.

George W. Cushing, M.D., died March 21, in Brooklyn.

George F. Cary, M.D., died June 17, in New York.

Edmund H. Cook, M.D., died Sept. 14, in Flushing, N. Y.

Walker Curry, M.D., died Sept. 20, at Highlands, N. Y.

E. M. Cameron, M.D., died Sept. 28, in New York.

Henry Cox, M.D., died Nov. 7, in Washington, N. J.

John J. Dooley, M.D., died in New York, Dec. 10.

Robert Ellegood, M.D., died March 20.

J. T. Eskridge, M.D., of Denver, died Jan. 16.

John G. Elliott, M.D., died May 12.

Maurice B. Early, M.D., died June 21.

Nathaniel M. Freeman, M.D., died April 18, in New York.

Otis Freeman, M.D., died June 9, at Freehold, N. J.

David Fleming, M.D., died July 9, in New York.

Christian Fenger, M.D., died March 8, in Chicago.

J. W. Goodell, M.D., died in March.

Albert H. Gallatin, M.D., died March 25.

Joseph Gallagher, M.D., died April 9, in Brooklyn.

William H. Haynes died Nov. 15, in Brooklyn, N. Y.

Daniel E. Hughes, M.D., died Oct. 28, in Philadelphia.

Ernest Potter Jenks, M.D., died June 25.

Charles H. Johnson, M.D., died Sept. 18, in Brooklyn, N. Y.

Samuel Seabury Jones, M.D., died Jan. 21.

W. W. Johnston, M.D., died March 21, at Atlantic City.

Thomas J. Kearney, M.D., died Sept. 25, in New York.

Amos Lewis, M.D., died Dec. 28, in Fordham Heights.

Levi Cooper Lane, M.D., died in February, in San Francisco.

Albert Ripley Leeds, M.D., died March 13.

Obed Lusk, M.D., died June 20, in Long Island City.

Henry Longnecker, M.D., died Aug. 19, at Islip, L. I.

Louis Lewis, M.D., editor of *The Medical World*, died in New York, Feb. 19.

Frank Livermore, M.D., died in New York, Nov. 18.

Paul F. Mundé, M.D., died Feb. 7.

Conrad Mund, M.D., died March 2.

Arthur T. Muzzy, M.D., died March 4, in New York.

Sanford J. Murray, M.D., died in March, in Glen Falls, N. Y.

Charles H. Master, M.D., died May 1.

H. C. Mathews, M.D., died Oct. 23, in Brooklyn, N. Y.

Frank L. Martindale, M.D., died Oct. 26, at Port Richmond, N. Y.

Edward Mott Moore died March 4, in Rochester, N. Y.

John T. Metcalf, M.D., died Jan. 30, in Thomasville, Ga.

A. A. Nouel, M.D., died April 9.

William A. Nelson, M.D., died June 5, in New York.

W. A. Pierrepont, M.D., died Jan. 16, in Brooklyn.

Clayton Parkhill, M.D., died Jan. 16, in Denver.

Edwin Pyle, M.D., died Feb. 8, in Jersey City.

Charles A. Phelps, M.D., died in April.

Hubert F. Præger, M.D., died June 23.

M. F. Pultz, M. D., died Sept. 9.

Oren Day Pomeroy died March 18.

Frederick A. Packard, M.D., died in Philadelphia, Nov. 1.

Daniel Pearson Pease of New York died in Paris, Dec. 7.

John E. Richardson, M.D., died March 23, in Brooklyn.

R. R. Ricker, M.D., died in April, in Lewiston, Me.

Carlo de Renaldo, M.D., died July 26, in New York.

Lucretius D. Ross, M.D., died Aug. 25, in Poultney, Vt.

Walter Reed, M.D., died in Washington, Nov. 23.

Charles G. Sproull, M.D., died Jan. 24, in New York.

Morris Sutphen, M.D., died Sept. 3, at Short Hills, N. J. He was one of the oldest and most prominent physicians in New Jersey.

H. Melville Smith, M.D., died in South Orange, N. J., Nov. 28.

Lachlans Tyler, M.D., died Jan. 26.

F. H. Thompson, M.D., died in March, at Seattle, Wash.

Lyman Beecher Todd, M.D., died in May, in Lexington, Ky.

Frederick Thum, M.D., died June 27.

John N. Tilden, M.D., died July 10, in Peekskill, N. Y.

[1] With the exception of the Massachusetts Medical Society, the following lists of deaths are, of necessity, incomplete.

Ervin Alden Tucker, M.D., died March 3, in New York.

Charles A. von Urff, M.D., died July 16, in Brooklyn.

Julius Wise, M.D., died April 19, in Chicago.

Arthur Ward, M.D., died July 6, in Newark, N. J.

Nicholas Williamson, M.D., died Aug. 15, in New Brunswick, N. Y.

Mortimer Wilkie, M.D., died Aug. 31.

Claudius Webster, M.D., died Sept. 7, in Concord, N. H.

Thomas Wilde, M.D., died Oct. 16, in Brooklyn, N. Y.

William R. Whitehead, M.D., died Oct. 14, in Denver, Colo.

James D. Wade, M.D., died Oct. 19, in Brooklyn, N. Y.

Theodore Walser, M.D., died in New York, April 23.

William Young, M.D., died Oct. 26 at Cold Spring, N. Y.

Marie E. Zakrzewska, M.D., died in May, in Boston.

NECROLOGY: MASSACHUSETTS MEDICAL SOCIETY.

Zabdiel Boylston Adams, M.D., M.M.S.S., died May 1, in Framingham.

Oscar Dunreath Abbot, M.D., M.M.S.S., died Jan. 1, in Manchester, N. H.

William Henry Andrews, M.D., M.M.S.S., died May 19, in Springfield.

John Hamill Abbott, M.D., M.M.S.S., died Nov. 1, in Fall River.

Edwin Dana Boynton, M.D., M.M.S.S., died April 26.

Robert Bell, M.D., M.M.S.S., died in Roxbury, July 4.

John Milton Brewster, M.D., M.M.S.S., died Oct. 15, in Pittsfield.

Joseph A. Bubier, M.D., M.M.S.S., died Nov. 24, in Brookline.

Charles Wesley Bowen, M.D., M.M.S.S., died Oct. 10, in Westfield.

Lucius Willard Baker, M.D., M.M.S.S., died Dec. 7, in Baldwinsville.

Francis W. Chadbourne, M.D., M.M.S.S., died Aug. 21, in Lowell.

Charles Augustus Carlton, M.D., M.M.S.S., died June 12, in Salem.

Henry Joseph Cushing, M.D., M.M.S.S., died Nov. 18, in Merrimac.

Alberto Francis Fernald, M.D., M.M.S.S., died Feb. 17, in Shirley.

Jonathan W. Goodell, M.D., M.M.S.S., died March 12, in Lynn.

Joseph Garland, M.D., M.M.S.S., died Sept. 24, in Gloucester.

Silas Swift Gifford, M.D., M.M.S.S., died Sept. 18, in Avon.

George E. Harrison, M.D., M.M.S.S., died April 24.

Edwin A. Harlow, M.D., M.M.S.S., died in Wollaston, Oct. 6.

John Homans, 2d, M.D., M.M.S.S., died May 4, in Boston.

George King, M.D., M.M.S.S., died April 24, in Franklin.

John Clifford Lincoln, M.D., M.M.S.S., died June 18, in Hyde Park.

George Edward Mecuen, M.D., M.M.S.S., died Oct. 21, in Roxbury.

Scott Campbell Newcomb, M.D., M.M.S.S., died Dec. 31, in Walpole.

Royal Blood Prescott, M.D., M.M.S.S., died Jan. 9, in Nashua.

James Peirce, M.D., M.M.S.S., died Aug. 25, in Methuen.

Julia Maria Patten, M.D., M.M.S.S., died Sept. 9, in Holyoke.

John H. Richardson, M.D., M.M.S.S., died July 22, in Medfield.

Daniel Waldo Stearns, M.D., M.M.S.S., died Jan. 9, in Newton.

E. N. Whittier, M.D., M.M.S.S., died June 14, in Boston.

Joseph Winslow Winslow, M.D., M.M.S.S., died Feb. 24, in Enfield.

Peter D. Walsh, M.D., M.M.S.S., died Aug. 10, in Boston.

NECROLOGY: GREAT BRITAIN.

Col. Oswald Gillespie Wood, M.D., C.B., died in Kroonstad, Jan. 3.

Robert Peel Ritchie, M.D., F.R.C.P.E., F.R.S.E., died Feb. 10, in Edinburgh.

Seymour Graves Toller, M.D. (Lond.), M.R.C.P., died in Cairo, Feb. 19.

Sir Guyer Hunter, K.C.M.G., M.D., LL.D., F.R.C.P., died in Kent.

Edward Long Fox, M.D. (Oxon.), F.R.C.P., died March 28. President of the British Medical Association, 1894.

Bonville Bradley Fox, M.A., M.D. (Oxon.), died in April.

Alexander Maccregor, M.D., C.M., died April 12.

Lieut.-Col. William Moir, I.M.S., died April 10, in Edinburgh.

William Miller Ord, M.D., F.R.C.P. (Lond.), Lecturer on Physiology and later Medicine in the Royal College of Physicians, and sometime Dean of St. Thomas's Hospital, died May 14.

George Fowler Bodington, M.D., Durh., died in Paris, in June.

Arthur Strange, M.D., Edinburgh, died May 11.

John Barclay, M.D., Aberdeen, professor of Medical Jurisprudence in University of Aberdeen, died in March.

William Dale James, M.R.C.S., died June 16.

John Wichenford Washbourn, C.M.G., M.D., B.S. (Lond.), F.R.C.P., F.R.C.S., died June 20.

Wyatt Galt Johnston, M.D., Professor of Pathology in McGill University, Montreal, died July 12.

John Curnow, M.D. (Lond.), F.R.C.P., died July 5. He was Dean of the Medical Faculty of the University of London until 1896, when he became Professor of Clinical Medicine.

Thomas James Woodhouse, M.D. (Lond.), died June 11.

Edward William Fleming Steven, M.D., died July 12. He served in the Russo-Turkish War.

William Alexander, M.D., J.P., died in October in the village of Dundonald, in Ayrshire.

John Butler Hamilton, surgeon-general, A.M.S., died Oct. 25. His chief work was accomplished in India and South Africa.

Lennox Browne, F.R.C.S. (Edin.), specialist in diseases of the throat, died in November.

Edgar Beckit Trueman, M.D., M.R.C.S., L.S.A., died Oct. 31, at Carrington, England.

DEATHS ABROAD.

Dr. Axel Key, in Sweden, in January.

Dr. Gouguenheim, a pioneer in Laryngology, in Paris, in January.

Dr. Adolph Burggraen of Belgium, founder of "Dosimetric" system, in January.

Dr. Edward Cramer, in Heidelberg, in January.

Dr. Houes Y. Pascuet, in Barcelona, in January.

Dr. Eugenio Fazio, Professor of Hygiene in Naples, in February.

Dr. Elias Blix, Professor of Otology in the University of Christiania, in February.

Dr. Nil Felatoff, Professor of Children's Diseases in the University of Moscow, in February.

Dr. Julius Wolff, Professor of Surgery in the University of Berlin, in February.

Dr. Ranz de la Rubia, a well-known balneologist, in Spain, in March.

Dr. Moriz Kaposi, Professor of Dermatology in the University of Vienna, in March.

Dr. Hans Ritter, Professor of Dermatology in University of Vienna, April 13.

Dr. Ivan Balinsky, an authority on mental diseases in St. Petersburg, in April.

Dr. Florian Beely, a prominent orthopedic surgeon in Berlin, in May.

Dr. Fr. Frusci, Professor of Surgical Anatomy in University of Naples, in May.

Dr. Henri Filhol, Professor of Comparative Anatomy in the University of Paris, in May.

Dr. Leopold Goltz, Professor of Physiology in the University of Strassburg, in May.

Dr. Nichola Kalindero, Professor of Medicine in the University of Bucharest, in May.

Dr. Von Kiczmarzcki, Professor of Obstetrics and Gynecology in the University of Budapest, in May.

Dr. Skizeczka, Professor of Forensic Medicine in the University of Berlin, in May.

Dr. Adolf Kussmaul died on May 27. He had been Professor of Internal Medicine in Heidelberg, Erlangen, Freiburg and Strassburg.

Dr. Polaillon, surgeon to Hôtel Dieu, Professor Agrégé in Paris Faculty of Medicine, in Paris, in May.

Dr. M. Tichomoroff, Professor of Anatomy in the University of Kieff, in June.

Dr. Alexander Eberman, a leader in the movement for medical reform in Russia, in June.

Dr. Dheily, Professor of Pathology in the Amiens School of Medicine, in June.

Dr. Wilhelm Kiesselbach, Extraordinary Professor of Otology in the University of Erlangen, in July.

Dr. Richard Foster, Professor of Ophthalmology in the University of Breslau, in July.

Dr. Eduardo Porro, Professor of Obstetrics in the Universities of Pavia and Milan.

Dr. Karl Gerhardt, Professor of Medicine in the University of Berlin, in July.

Dr. Cesare Tarruffi, for many years Professor of Pathological Anatomy in the University of Bologna, in July. He was a recognized authority on teratology.

Dr. J. Accacio da Gama, at Goa, in July.

Professor Leopold Schenck, whose theory as to the determination of sex brought his name before the public, Aug. 17, in Steinmark.

Dr. Friedreich Reineboth, Lecturer on Medicine in the University of Halle.

Dr. Paul Plosz, Professor of Physiological and Pathological Chemistry in the University of Budapest, in August.

Dr. Alfred Graspe, a well-known ophthalmologist of Innsbruck, in August.

Dr. Nieto y Serrano, President of the Royal Academy of Medicine in Madrid.

Dr. Federico Rubio y Galli, for many years the acknowledged leader of the medical profession in Spain, in September.

Dr. Karl Ewald Hasse, sometime Professor of Medicine in the University of Göttingen, in September.

Rudolf Virchow, Sept. 5, in Berlin.

Dr. Barend Joseph S. Stokvis, Professor of Pathology in Amsterdam, in October.

Dr. Sensae Nagayo, Court Counselor and President of the Sanitary Board of Japan, in October, at Tokyo. To him is due the sanitary reform in Japan.

Dr. Eugen Hahn, in Berlin, in November.

Dr. Julius Spitz Müller, President of the Vienna Medical Association, in November.

Baron von Krafft-Ebing, Professor in the University of Vienna, at Graz-Styria, in December.

## SOCIETY MEETINGS: UNITED STATES.

The annual meeting of the Boston Society for Medical Improvement was held Jan. 6. The American Association of Pathologists and Bacteriologists held its second annual meeting in Cleveland, Ohio, March 28 and 29. The Association of Medical Officers of the Army and Navy of the Confederacy held its annual meeting on Tuesday, April 22. The seventh annual meeting of the Western Ophthalmologic and Otolaryngologic Association was held in Chicago, April 10, 11 and 12. The seventeenth annual meeting of the Association of American Physicians was held in Washington, D. C., April 29 and 30 and May 1. The third annual session of the American Congress of Tuberculosis was held on the 14th, 15th and 16th of May. The American Climatological Association, instead of its usual annual meeting, arranged a tour of the West from May 26 to July 3, in the course of which the scientific sessions were held. The forty-fifth annual session of the Medical Association of Missouri was held at St. Joseph, Mo., May 20, 21 and 22. The twenty-seventh annual meeting of the American Academy of Medicine was held at Saratoga, June 7 to June 9. The twenty-eighth annual meeting of the Mississippi Valley Medical Association was held in Kansas City, Mo., Oct. 15, 16, 17. The meeting of the Association of American Medical Colleges was held in Saratoga, Monday, June 9, at 10 A.M. The sixteenth annual meeting of the American Orthopedic Association was held in Philadelphia, June 5, 6 and 7. The fourth annual meeting of the American Proctologic Society was held in Saratoga Springs, N.Y., June 10 and 11. The one hundred and eleventh anniversary meeting of the New Hampshire Medical Society was held May 15 and 16, at Concord, N. H. The American Congress of Tuberculosis was held June 2, 3 and 4, instead of May 14, 15 and 16 as first announced, at the Hotel Majestic, New York City. The fourteenth annual meeting of the Tri-State Medical Society of Alabama, Georgia and Tennessee was held at Birmingham, Ala., Tuesday, Wednesday and Thursday, Oct. 7, 8 and 9. The Association of Military Surgeons of the United States held its eleventh annual meeting in Washington, D. C., June 5, 6 and 7. The Medical Association of Missouri held its forty-fifth annual meeting at St. Joseph, May 20, 21 and 22. The twenty-fourth

annual congress of the American Laryngological Association was held at Boston, Mass., May 26, 27 and 28. The one hundred and twenty-first annual meeting of the Massachusetts Medical Society was held June 11. The American Pediatric Society held its annual meeting in Boston on May 26, 27 and 28. The fiftieth annual meeting of the Maine Medical Association was held in Common Council Chamber, City Building, Portland, Me., Wednesday, Thursday and Friday, June 4, 5 and 6. The eighth annual meeting of the American Laryngological, Rhinological and Otological Society was held in Washington, D. C., June 2, 3 and 4. The twenty-seventh annual meeting of the American Gynecological Society was held at Atlantic City, N. J., May 27, 28 and 29. The annual meeting of the American Medical Association was held in Saratoga, N. Y., June 10–13. The annual meeting of the American Urological Association was held at Saratoga, N. Y., June 13 and 14. The fifty-eighth annual meeting of the American Medico-Psychological Association was held at Montreal, June 17, 18, 19 and 20. The annual meeting of the Massachusetts Medico-Legal Society was held June 10 in Boston. The American Electro-Therapeutic Association held their annual meeting at the Hotel Kaaterskill, Catskill Mountains, New York, on the 2d, 3d and 4th of September. The American Association of Obstetricians and Gynecologists held its fifteenth annual meeting in Washington, D. C., Tuesday, Wednesday and Thursday, Sept. 16, 17 and 18. The twenty-sixth annual meeting of the American Dermatological Association was held at Hotel Bellevue, Boston, Mass., Sept. 18, 19 and 20. The fifteenth annual meeting of the Southern Surgical and Gynecological Association was held at Cincinnati, Ohio, Nov. 11, 12 and 13. The seventeenth annual meeting of the Conference of State and Provincial Boards of Health of North America was held at New Haven, Conn., on Tuesday and Wednesday, Oct. 28 and 29. The thirtieth annual meeting of the American Public Health Association was held at New Orleans, La., beginning Dec. 8, and continuing five days.

### IMPORTANT SOCIETY MEETINGS: GREAT BRITAIN.

The annual meeting of the North of England Obstetrical and Gynecological Society was held at Manchester, Jan. 17, 1902. The annual meeting of the Harveian Society was held Jan. 16, in London. The seventh annual meeting of the British Orthopedic Society was held in London, Feb. 15. The International Congress for the Welfare and Protection of Children met in London on July 15, and subsequent days. The seventy-fourth session of the general Medical Council was opened on May 26. The seventieth annual meeting of the British Medical Association was held in Manchester, July 29, 30, 31, and Aug. 1. The nineteenth annual congress of the Sanitary Institute was opened at Manchester, Sept. 9.

### IMPORTANT SOCIETY MEETINGS ABROAD.

The fourth annual meeting of the Italian Society for the Study of Malaria was held on March 20, in Rome. The thirty first annual meeting of the German Surgical Society took place in Berlin, April 2–5. The President's address was delivered by Dr. Kocher of Berne. The German Medical Congress held its twentieth annual meeting in Wiesbaden, April 15, and subsequent days. The most important paper read was that of Professor von Leyden on "The Parasitic Origin of Cancer." The National Italian Congress on Pellagra took place in May. The annual congress of the Belgian Surgical Society was held in Brussels, Sept. 8, 9, 10. The twenty-seventh annual meeting of the German Congress of Hygiene was held in Munich, Sept. 17–20. The twelfth annual meeting of the Italian Congress for Internal Medicine took place Oct. 28–31. The International Congress on Tuberculosis was held at Berlin, Oct. 22–26.

### LECTURES AND ADDRESSES: UNITED STATES.

Dr. Frank Billings of Chicago delivered the Shattuck Lecture before the Massachusetts Medical Society, on "The Changes in the Spinal Cord and Medulla in Pernicious Anemia."

The Wesley M. Carpenter Lecture before the New York Academy of Medicine was delivered on Oct. 2 by Dr. John H. Huddleston, who took for his subject "The Relations of Physical Chemistry to Medicine."

The Mütter Lecture for 1902 was delivered in the Hall of the College of Physicians, Tuesday, Dec. 2, at 8 P.M., by Louis A. LaGarde, Major and Surgeon U. S. Army. Subject: "Poisoned Wounds by the Implements of Warfare."

The Cartwright Lectures of the Alumni Association of the College of Physicians and Surgeons, New York, were delivered Dec. 17, 29 and 30, by Dr. Richard C. Cabot of Boston.

### LECTURES AND ADDRESSES: GREAT BRITAIN.

The Hunterian Lectures were delivered before the Royal College of Surgeons on "The Anatomy, Physiology and Pathology of the Imperfectly Descended Testis," by W. McAdam Eccles, M.S. (Lond.), F.R.C.S. (Eng.).

The Croonian Lecture was delivered before the Royal Society on "Hemaglobin," by Dr. Arthur Grainger, F.R.S.

The Cavendish Lecture on "Some Phases of the Inflammation of the Appendix" was delivered June 20, by Sir Frederick Treves, K.C.V.O., C.B., F.R.C.S.

The Huxley Lecture on "Recent Studies in Immunity with Special Reference to Their Bearing on Pathology," was delivered by William H. Welch, M.D., LL.D.

The Harveian oration on "The Heart and Nervous System" was delivered before the Royal College of Physicians on Oct. 18 by David Ferrier, M.D., LL.D., F.R.S.

The Bradshaw Lecture on "Intraperitoneal Hemorrhage Incident to Ectopic Gestation" was delivered before the Royal College of Physicians Nov. 4, by Charles J. Cullingworth, M.D., D.C.L. (Durh.).

The Croonian Lectures on "The Natural History and Pathology of Pneumonia" were written by the late J. W. Washbourn, C.M.J., M.D., and delivered by W. Hale White, M.D., F.R.C.P., before the Royal College of Physicians and Surgeons, Nov. 11 and 18.

### HONORS TO MEDICAL MEN.

On Jan. 27, the Kaiser's birthday, the title of "Privy Councillor" was conferred on Prof. Ernst von Bergmann.

Professor Bottini celebrated this year the twenty-fifth anniversary of his appointment to the chair of surgery in the University of Pavia.

A complimentary dinner was given to Surgeon-General George M. Sternberg at Delmonico's, on June 13.

At the close of the last annual meeting of the American Pediatric Society, May 28, a loving cup was presented to Dr. T. M. Rotch.

On May 22, a complimentary dinner, at which over sixty physicians were present, was given by the Celtic Medical Society of New York to Dr. Thomas Addis Emmet.

The medical profession of St. Louis, under the auspices of the St. Louis Medical Society, gave a testimonial banquet in April to Dr. E. H. Gregory, who for fifty years has been an active teacher of medicine.

The honorary degree of Sc.D. was conferred by Oxford University upon Prof. Charles Sedgwick Minot.

It was voted by those in authority at Berlin to accord Professor Virchow a public funeral, the expenses to be borne by the municipality. Professor Waldeyer of the University of Berlin was one of those selected to deliver eulogies of Virchow on the day of the funeral, which took place Sept. 9.

On April 20, the celebration of the seventieth anniversary of E. von Leyden's birthday made an unusual stir in the world of medicine. Not only in Germany, nor yet in the German tongue alone, were congratulations extended to the great clinician, but everywhere where the progress of medical science has gone.

## BEQUESTS AND APPROPRIATIONS.

William C. Whitney has presented $6,000 to the Nassau County Hospital at Mineola, L. I.

Mrs. Susan Warren left by will $2,000 to the Home for Incurables, Boston.

A gift of $100,000 was anonymously offered toward the payment of the indebtedness of the New York Post-Graduate Medical School and Hospital.

The Norwegian Lutheran Deaconesses' Home of New York has received from the late Alfred Corning Clark $64,000.

It is reported that the Baroness Edmund de Rothschild has given $250,000 to establish a home for diseases of the lungs in the Taurus Mountains in Germany.

It is stated that William J. Palmer has announced his intention of giving one hundred acres of land and $50,000 to establish a semiphilanthropic sanitarium in Colorado Springs for consumptives.

By the will of the late Theodore G. Weil $2,000 is left to the Mount Sinai Hospital for a perpetual bed, $1,000 to St. Francis Hospital, and $500 each to the St. John's Guild Floating Hospital, the New York Skin and Cancer Hospital and the Montefiore Hospital for chronic diseases, all in New York.

Mr. J. Pierpont Morgan has given $25,000 to complete the payment of a debt of $74,800 on the Hartford Hospital, at Hartford, Conn., his native city.

An appropriation of $150,000 for the erection of a new state sanatorium for tuberculosis in Massachusetts has been made.

By the will of the late Mrs. Nathaniel Currier, $5,000 each is left to the Presbyterian Hospital, the New York Society for the Relief of the Ruptured and Crippled, and the "Babies' Ward" of the New York Post-Graduate Hospital.

Legislature has appropriated $500,000 for the establishment of a public hospital in the Borough of the Bronx, New York.

Mr. J. Pierpont Morgan has given $60,000 for a Deaconess' Home and Hospital, to occupy two city lots, in connection with St. George's Church.

*Harvard Medical School.* — Miss Ellen O. Proctor has given by will to Harvard College the sum of $50,000, to be known as the Proctor Fund, for the study of chronic diseases.

The conditions attached to Mr. John D. Rockefeller's gift of $1,000,000 to the Harvard Medical School have been met. Drs. Warren and Bowditch so successfully pursued the completion of the task which they took in hand that in four or five weeks not only was the sum of $765,000, called for by Mr. Rockefeller's stipulations, raised, but by the generosity of the contributors and the zeal of the solicitors this sum was exceeded by $56,000, and a total amount of $821,000 was promised in addition to the two preceding gifts of $1,000,000 each from Mr. Morgan and Mr. Rockefeller.

The largest single subscription to this sum of $821,000 came from Mrs. C. P. Huntington of New York, who offered $250,000 for the construction of the Pathological and Bacteriological Laboratory.

A list of contributors to the medical fund is appended:

Miss Mary S. Ames, $5,000. Oliver Ames, $5,000. C. W. Amory, $10,000. Anonymous, $100. Anonymous, $10,000. C. F. Ayer, $50. Robert Bacon, $25,000. Francis Bartlett, $10,000. Franklin H. Beebe, $1,000. Mrs. S. Parkman Blake, $10,000. John L. Bremer, $10,000. Mrs. John L. Bremer, $5,000. Miss Sarah Bremer, $5,000. George P. Brigham, $100. Shepherd Brooks, $1,000. Peter C. Brooks, $1,000. I. T. Burr, $1,000. Walter C. Cabot, $5,000. Mrs. Charles P. Cheney, $250. Mrs. E. S. Cheney, $1,000. W. Murray Crane, $5,000. George F. Fabyan, $25,000. Mrs. William H. Forbes, $5,000. Frederick Guild, Jr., $50. Charles Head, $1,000. Augustus Hemenway, $15,000. Francis L. Higginson, $60,000. George Higginson, $10,000. Henry L. Higginson, $10,000. James J. Higginson, $10,000. John Hogg, $1,000. H. S. Howe, $1,000. H. H. Hunnewell, $12,500. Walter Hunnewell, $2,000. Mrs. Collis P. Huntington, $250,000. C. C. Jackson, $1,000. Eben D. Jordan $5,000. Harris Kennedy, $100. David P. Kimball, $5,000. Gardiner M. Lane, $1,000. Amory A. Lawrence, $1,000. Elliott C. Lee, $25,000. Joseph Lee, $5,000. Arthur T. Lyman, $5,000. Mr. and Mrs. Charles Merriam, $2,000. G. H. Monks, $1,050. Mrs. Leopold Morse, $100. Parkinson & Burr, $1,000. F. H. Peabody, $1,000. Sumner B. Pearmain, $100. W. L. Richardson, $25,000. Stephen Salisbury, $1,000. Dr. and Mrs. Frederick C. Shattuck, $50,000. Mrs. G. H. Shaw, $1,000. David Sears, $25,000. Mrs Knyvet W. Sears, $200. Miss Mabel Simpkins, $200. Francis Skinner, $5,000. W. D. Sohier, $1,000. John T. Spaulding, $10,000. W. S. Spaulding, $10,000. James Stillman, $100,000. Moorfield Storey, $500. Nathaniel Thayer, $25,000. Mrs. Charles Van Brunt, $100. James C. White, $625. Mrs. Henry Whitman, $250.

The sum of £25,000 has been given by Mr. William Johnston, shipowner, of Liverpool, for furthering the university movement in that city. The money will be devoted, in accordance with the wishes of the donor, to promote research in pathology and physiology.

The sum of $12,000 has been given to the Elliot City Hospital at Keene, N. H., for the construction of a nurses' building, to be known as the Edward Joslin Home for Nurses.

It is planned to raise about $100,000 for a proposed Jewish Hospital in Brooklyn.

By the will of Mrs. Isadora Ritter, $5,000 is left to St. John's Hospital, Brooklyn, to endow a bed in memory of her sons, Joseph and Judson Dimock.

Mr. Charles M. Schwab, president of the United States Steel Corporation, has purchased the property known as Richmond Beach, Staten Island, for the purpose of making it a summer resort for the poor and sick children of New York

Among the bequests of Henry W. Maxwell, a well-

known financier and philanthropist of Brooklyn, who died on May 11, is $20,000 to the Long Island College Hospital. Some time ago he gave $60,000 to the hospital for the erection and equipment of an operating theater, and a like sum for a nurses' dormitory in connection with the institution.

Mrs. Collis P. Huntington has put at the disposition of the General Memorial Hospital in New York $100,000 in memory of her husband, to be used for pathological research.

The late Mrs. Mary J. Walker, who died on July 2, left charitable bequests which aggregate $500,000. Among the institutions benefited are the following: St. Luke's Hospital; the New York Association for improving the Condition of the Poor, $150,000, $50,000 of which is to be devoted to the purposes of the Fresh Air Fund; The Home for Incurables at Fordham, Borough of the Bronx, $25,000; the Colored Home and Hospital, $25,000; the New York Institution for the Blind, $25,000; the New York Society for the Relief of the Ruptured and Crippled, $15,000.

Mrs. Thomas G. Bennett is the donor to Yale University of the new clinic for the medical school, at a cost of $96,000.

King Edward is reported to have given to the English nation Osborne House on the Isle of Wight, to be used as a convalescent home for wounded and disabled army and navy officers.

Among other charitable bequests left by the late William Clark of Newark, N. J., is $6,000 to the Newark Eye and Ear Infirmary.

It is announced that Gen. H. W. Carpenter of New York is to build a hospital for Saratoga County at a cost of $10,000.

Mr. Cornelius Zabriskie, a well-known banker of Jersey City, has announced his intention to give $150,000 toward the erection of a new city hospital for that place.

Mr. Eben S. Draper has presented to the Milford, Mass., Hospital Association land valued at $3,000, upon which he proposes to erect a hospital at an estimated cost of $50,000, in case Milford and neighboring towns will provide for the running expenses.

Mrs. Abram A. Anderson, who ten years ago gave $350,000 to the Roosevelt Hospital, has ordered the construction of a free bath for the use of the poor of the East Side which, with the land, will cost $100,000.

At a meeting of the board of estimate, held June 6, $475,000 was appropriated for a contagious hospital and other new buildings for the Health Department of New York.

By the will of Mrs. Regine Bunzl, $1,000 each is bequeathed to the Mount Sinai Hospital, the German Hospital and the Montefiore Home and Hospital for Chronic invalids of New York.

A gift of $100,000 has recently been made the University of Pennsylvania to be added to the building fund of the new medical laboratories. It is to be devoted to the department of pathology.

A munificent bequest of $4,000,000 has been made to New York for charitable purposes by Mr. John M. Burke. One of the principal objects of this beneficence is to found a home for convalescents.

Meyer Guggenheim of New York has added $20,000 to a previous gift of $60,000 for the erection of a building for private patients on the grounds of the Jewish Hospital at Logan, a suburb of Philadelphia.

By the will of the late Samuel D. Babcock, among numerous other charitable bequests, $20,000 is left to St. Luke's Hospital.

By the will of the late Mr. George W. Weeks of Lancaster Mills, Clinton, Mass., $30,000 were given the Clinton Hospital.

By the will of the late Lamont G. Burnham, the sum of $150,000 is left to the Boston City Hospital for the purpose of erecting a new building, to be known as the Burnham Ward.

Among the items of the loan bill recently passed by the Boston City Government are the following: Ambulance station and equipment, East Boston, $18,000; furnishing of three new buildings, City Hospital, $35,500; completing, furnishing and fitting a hospital wing and nurses' home at the Long Island Hospital, $11,000; for a mortuary and receiving room at the same institution, $10,000. The hospital for epidemic diseases under the jurisdiction of the Board of Health also receives $4,000 for various improvements.

Among the bequests for charity of the late Susan J. White, the Massachusetts Eye and Ear Infirmary receives $10,000.

In his will the late Dr. John Homans, 2d, has left $1,000 to the Massachusetts Cremation Society, and $2,500 to the Boston Asylum and Farm School for Indigent Boys.

By the will of the late Mrs. Susan Warren $20,000 was left to the Massachusetts General Hospital.

By the will of the late Mary Louise Ruggles of Boston, $43,000 is given in public bequests in part as follows: Massachusetts General Hospital, Boston, $10,000; Home for Aged Men, Boston, $3,000; Home for Aged Women, Boston, $3,000; Home for Aged Couples, Boston, $3,000; Children's Mission to the Children of the Destitute, Boston, $3,000; Massachusetts Homeopathic Hospital, Boston, $3,000; Perkins Institution and Massachusetts School for the Blind, $3,000; Massachusetts Charitable Eye and Ear Infirmary, Boston, $3,000.

By the will of the late Mrs. Nancy E. Rust, various public bequests are made, most of them to take effect on the death of her husband. The Addison Gilbert Hospital of Gloucester, Mass., receives at once $10,000. Others bequests are: Children's Hospital, Boston, $5,000; Massachusetts Eye and Ear Infirmary, $2,000; Perkins Institute and Massachusetts Asylum for the Blind, $2,000; New England Hospital, $2,000; Industrial School for Crippled and Deformed Children, $2,000; West End Nursery and Infants' Hospital, $2,000; Home for Crippled Children, Weston, Mass., $2,000. In addition, $5,000 is given to the Perkins Institute and Massachusetts Asylum for the Blind, to be used in the kindergarten work. From the residue of the estate $15,000 is to be given to the Addison Gilbert Hospital, the income to be used for the general purposes of the hospital.

## MEDICAL NOTES.

THE LISTER JUBILEE. — The issue of the *British Medical Journal* of Dec. 13 is entitled, "A Lister Jubilee Number." Its contents consist of contributions from German, French, Italian and British surgeons in regard to Lord Lister and his work. With the editorial comments, and the por-

trait illustrations, the whole forms a most gratifying tribute to this noble benefactor of the human race, the fiftieth anniversary of whose entrance upon his chosen profession it celebrates. We shall take occasion later to refer more at length to these interesting papers.

The Nobel Prize in Medicine. — The Nobel prize in medicine for this year has been awarded, according to the *British Medical Journal*, to Major Ronald Ross, F.R.S., of the School of Tropical Medicine, Liverpool, who has, it is said, gone to Stockholm to receive the prize at the hands of the King of Sweden. This international recognition of the scientific importance and practical value of the work which Major Ross has done, and the share he has had in proving that malaria is communicated to man by the mosquito, which has itself derived the hæmatozoon from a previous case in man, is considered very appropriate. When his earliest researches were being carried on, Major Ross was an active member of the Indian Medical Service. The prize is stated to be of the value of between £8,000 and £10,000, and has been awarded on the recommendation of the Royal Carolinska Institute of Medicine and Surgery in Stockholm.

### BOSTON AND NEW ENGLAND.

Acute Infectious Diseases in Boston. — For the week ending at noon, Dec. 24, 1902, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: Diphtheria 33, scarlatina 26, measles 12, typhoid fever 16, smallpox 18.

Lectures to Medical Students. — Under the auspices of the student body of the Harvard Medical School, lectures are to be delivered by prominent men on "The Relation of the Physician to the Community." On Wednesday, Dec. 17, President C. W. Eliot addressed the students, and on Wednesday, Jan. 7, Dr. David W. Cheever will speak on another aspect of the same general subject. The lectures are to be held in Huntington Chambers, Huntington Avenue.

Professor Lorenz' Visit to Boston. — Professor Adolf Lorenz of Vienna spent Monday and Tuesday of this week in Boston. On Monday, shortly after his arrival in the city, he gave a demonstration of the reduction of congenital dislocation of the hip on three patients at the Children's Hospital. This demonstration was attended by a very large number of physicians, not only from Boston but from many distant places. Tuesday morning at the same hospital he gave a further demonstration of his methods which was likewise very largely attended. Later on the same day he was entertained at luncheon by the board of managers of the Children's Hospital at the Algonquin Club. This luncheon was largely attended by the physicians of Boston and vicinity. During the course of his remarks at the Children's Hospital, Professor Lorenz paid a deserved tribute to the surgical staff of the hospital, remarking that he could teach them nothing.

### NEW YORK.

Cases of Plague at New York Quarantine. — The steamship *Saxon Prince*, which arrived at quarantine on Dec. 16 was found to have three cases of bubonic plague on board, the patients being the first and second cooks and the second steward. The vessel came from Durban, South Africa, and the first patient, one of the cooks, was taken ill on Nov. 23, two weeks after the *Saxon Prince* left that port. The diagnosis has been confirmed by laboratory cultures. The health officer, Dr. Doty, states that he has for a considerable time been expecting the appearance of bubonic plague from South African ports. Ever since the presence of the disease was reported there, all steamers from such ports have been detained at quarantine. The crews have been taken aboard the disinfecting ship, stripped, bathed and examined for symptoms of plague, while their sleeping quarters have been thoroughly disinfected. This course has been strictly pursued, and has, at last, resulted in the detection of cases of the disease.

Dr. Lorenz in New York. — Dr. Adolf Lorenz was naturally the recipient of many attentions during his stay in New York. On December 18 he was given a dinner at the Yale Club, after which he was the guest of Auxiliary No. 2, of the Guild for the Relief of Crippled Children, at Tuxedo Hall. While there he made an address in which he paid a tribute to the skill of American surgeons, and said that in no other country had he seen hospitals supported by charity so well equipped as in the United States. Those for crippled children, it seemed to him, are even more generously provided for than the others. At a clinic held by him on Dec. 19, at the College of Physicians and Surgeons, he presented with evident gratification a little girl who had been operated upon by his method for congenital dislocation of the hip more than a year ago, by Dr. V. P. Gibney, and in whom a complete cure had been made. In the evening he was the guest of the orthopedic section of the New York Academy of Medicine, before which he delivered an address on tuberculous hip-joint disease.

## RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, DEC. 13, 1902.

| CITIES. | Population Estimated, 1902. | Reported deaths in each. | Deaths under five years. | Percentage of deaths from | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | Infectious diseases. | Acute lung diseases. | Diphtheria and croup. | Typhoid fever. | Whooping cough. |
| New York . . | 3,665,352 | 1,229 | 357 | 21.48 | 12.85 | 4.39 | 1.30 | .25 |
| Chicago . . . | 1,852,828 | 532 | 148 | 29.12 | 17.47 | 5.44 | 5.26 | .75 |
| Philadelphia. | 1,349,624 | 459 | 129 | 17.87 | 17.44 | 2.83 | 3.70 | .87 |
| St. Louis . . | 603,717 | — | — | — | — | — | — | — |
| Baltimore . . | 525,330 | 196 | 61 | 24.48 | 13.26 | 2.55 | 1.02 | 1.02 |
| Cleveland . . | 411,826 | — | — | — | — | — | — | — |
| Buffalo . . . | 375,742 | — | — | — | — | — | — | — |
| Pittsburg . . | 341,401 | 149 | 59 | 24.15 | 20.13 | 3.35 | 2.68 | 2.68 |
| Cincinnati . . | 332,032 | — | — | — | — | — | — | — |
| Milwaukee . . | 304,975 | — | — | — | — | — | — | — |
| Washington . | 289,537 | — | — | — | — | — | — | — |
| Providence . | 185,870 | 72 | 22 | 26.39 | 10.71 | 5.55 | 1.38 | 2.68 |
| Boston . . . | 588,730 | 220 | 57 | 20.00 | 17.27 | 1.82 | .96 | 1.36 |
| Worcester . . | 127,337 | 43 | 16 | 13.95 | 9.30 | — | — | — |
| Fall River . . | 111,872 | 56 | 31 | 14.28 | 26.77 | 1.78 | — | — |
| Lowell . . . | 99,574 | 52 | 18 | 15.38 | 26.92 | 3.84 | — | 3.84 |
| Cambridge . | 96,334 | 35 | 10 | 20.00 | 25.71 | 2.85 | — | 2.85 |
| Lynn . . . . | 71,144 | 22 | 4 | — | — | — | — | — |
| Lawrence . . | 67,275 | 34 | 16 | 8.82 | 14.70 | 2.94 | — | — |
| Springfield . | 66,854 | 10 | — | — | — | — | — | — |
| Somerville . | 65,882 | 17 | 7 | 11.76 | 41.17 | — | — | — |
| New Bedford | 65,574 | 25 | 7 | 28.00 | 16.00 | 4 00 | 4.00 | — |
| Holyoke . . . | 48,065 | — | — | — | — | — | — | — |
| Brockton . . | 43,208 | — | — | — | — | — | — | — |
| Haverhill . . | 40,392 | 9 | 4 | 11.11 | 22 22 | — | — | 11.11 |
| Salem . . . . | 36,567 | 23 | 6 | 17.39 | 4.34 | 4.34 | — | — |
| Newton . . . | 36,336 | 11 | 2 | 18.18 | 27.27 | — | 9.09 | — |
| Malden . . . | 35,390 | 13 | 4 | 23.10 | — | — | 7.70 | 7.70 |
| Chelsea . . . | 35,264 | 13 | 0 | — | 7.70 | — | — | — |
| Fitchburg . . | 33,848 | 11 | 5 | 9.09 | 9.09 | — | — | — |
| Taunton . . . | 32,759 | 17 | 5 | 11.76 | 17.64 | — | — | 5.88 |
| Everett . . . | 27,114 | 9 | 4 | 22.22 | — | 11.11 | 11.11 | — |
| North Adams | 26,583 | 4 | — | 25.00 | 25.00 | — | — | — |
| Gloucester . | 26,121 | 7 | 3 | 28.60 | — | 28.60 | — | — |
| Quincy . . . | 25,307 | 12 | 4 | 16.67 | 16.67 | 8.33 | 8.33 | — |
| Waltham . . | 24,612 | 3 | 2 | — | 33.33 | — | — | — |
| Pittsfield . . | 22,311 | 2 | 2 | — | — | — | — | — |
| Brookline . . | 21,679 | 5 | 5 | — | — | — | — | — |
| Chicopee . . | 20,390 | 1 | 1 | 100.00 | — | 100.00 | — | — |
| Medford . . | 20,014 | 3 | 1 | — | — | — | — | — |
| Northampton | 19,460 | 4 | 1 | — | — | — | — | — |
| Beverly . . . | 14,814 | 4 | — | 25.00 | — | — | — | — |
| Clinton . . . | 14,645 | 8 | 3 | 25.00 | 37.50 | — | — | — |
| Newburyport | 14,478 | 6 | 3 | 16.67 | — | 16.67 | — | — |
| Woburn . . . | 14,285 | — | — | — | — | — | — | — |
| Leominster . | 13,953 | — | — | — | — | — | — | — |
| Hyde Park . | 13,858 | — | — | — | — | — | — | — |
| Marlboro . . | 13,609 | 2 | 1 | — | — | — | — | — |
| Melrose . . . | 13,384 | 4 | 1 | — | 75.00 | — | — | — |
| Westfield . . | 13,038 | 2 | — | 50.00 | — | — | — | — |
| Attleboro . . | 12,846 | — | — | — | — | — | — | — |
| Adams . . . | 12,813 | — | — | — | — | — | — | — |
| Milford . . . | 12,516 | — | — | — | — | — | — | — |
| Framingham | 12,109 | 4 | — | 25.00 | 25.00 | — | — | — |
| Peabody . . | 11,957 | — | — | — | — | — | — | — |
| Revere . . . | 11,894 | — | — | — | — | — | — | — |
| Gardner . . . | 11,544 | — | — | — | — | — | — | — |
| Weymouth . | 11,337 | 5 | 2 | 20.00 | — | — | 20.00 | — |
| Southbridge . | 10,838 | 4 | 2 | — | — | — | — | — |
| Watertown . | 10,600 | 2 | 1 | 50.00 | — | — | — | — |
| Plymouth . . | 10,336 | — | — | — | — | — | — | — |

Deaths reported, 3,339; under five years of age, 1,004; principal infectious diseases (smallpox, measles, scarlet fever, cerebrospinal meningitis, diphtheria and croup, diarrheal diseases, whooping cough, erysipelas, fevers and consumption) 718, acute lung diseases 513, consumption 330, scarlet fever 29, whooping cough 28, cerebrospinal meningitis 7, smallpox 14, erysipelas 9, measles 16, typhoid fever 76, diarrheal diseases 76, diphtheria and croup 127.

From whooping cough, New York 3, Chicago 4, Philadelphia 4, Baltimore 2, Pittsburg 1, Providence 2, Boston 3, Lowell 2, Cambridge, Haverhill, Malden, and Taunton 1 each. From measles, New York 4, Chicago 5, Baltimore 4, Pittsburg 1, Providence 1, Fitchburg 1. From erysipelas, New York 5, Chicago 1, Boston 2, Lowell 1. From smallpox, Philadelphia 2, Pittsburg 9, Boston 2, Newton 1.

In the seventy-six great towns of England and Wales, with an estimated population of 14,862,258, for the week ending Nov. 29, the death-rate was 19.1. Deaths reported 5,433; acute diseases of the respiratory organs (London) 426, whooping cough 68, diphtheria 92, measles 186, smallpox 1, scarlet fever 63.

The death-rate ranged from 7.7 in Ipswich to 29.2 in Hanley; London 19.4, West Ham 20.6, Brighton 15.5, Portsmouth 18.7, Southampton 16.9, Plymouth 22.3, Bristol 19.8, Birmingham 21.4, Leicester 15.4, Nottingham 20.4, Bolton 17.1, Liverpool 25.5, Manchester 20.7, Salford 19.6, Bradford 12.8, Leeds 19.6, Hull 17.8, Newcastle-on-Tyne 22.1, Cardiff 19.8, Rhondda 23.6, Sheffield 16.3.

## METEOROLOGICAL RECORD

For the week ending Dec. 13, in Boston, according to observations furnished by Sergeant J. W. Smith of the United States Signal Corps:

| DATE | Barometer. | Thermometer. | | | Relative humidity. | | | Direction of wind. | | Velocity of wind. | | We'th'r * | | Rainfall in inches. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Daily mean. | Daily mean. | Maximum. | Minimum. | 8.00 A.M. | 8.00 P.M. | Daily mean. | 8.00 A.M. | 8.00 P.M. | 8.00 A.M. | 8.00 P.M. | 8.00 A.M. | 8.00 P.M. | |
| S. 7 | 30.12 | 20 | 27 | 12 | 97 | 92 | 94 | W | N W | 2 | 6 | O. | C. | .18 |
| M. 8 | 29.93 | 14 | 31 | —4 | 78 | 46 | 62 | W | N W | 10 | 24 | C. | C. | T. |
| T. 9 | 30.36 | —2 | —4 | —8 | 91 | 62 | 78 | N W | N W | 21 | 18 | F. | C. | O. |
| W. 10 | 30.09 | 18 | 36 | —1 | 91 | 72 | 82 | S | S W | 9 | 18 | N. | O. | .01 |
| T. 11 | 30.23 | 27 | 36 | 18 | 56 | 84 | 70 | N | N | 12 | 9 | O. | N. | T. |
| F. 12 | 30.33 | 20 | 23 | 18 | 93 | 90 | 92 | N | N | 18 | 10 | O. | O. | .08 |
| S. 13 | 30.23 | 14 | 21 | 8 | 100 | 100 | 100 | N | N | 14 | 25 | N. | N. | .36 |
| ☞ | 30.18 | | 25 | 8 | | | 83 | | | | | | | .63 |

*O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow. † Indicates trace of rainfall. ☞ Mean for week.

## CHANGES IN THE MEDICAL CORPS OF THE NAVY FOR THE WEEK ENDING DEC. 20, 1902.

T. D. MYERS, passed assistant surgeon, retired. Detached from special duty at Naval Hospital, Philadelphia, and ordered to the Navy Yard, League Island, Pa.

E. THOMPSON, passed assistant surgeon. Detached from the "Montgomery," and ordered to duty with the marines at Culebra, W. I.

H. H. HAAS, passed assistant surgeon. Detached from duty at Culebra, and ordered to the "Montgomery."

S. S. RODMAN, assistant surgeon. Unexpired leave revoked, and ordered to the "Pensacola."

N. J. BLACKWOOD, surgeon. Detached from the "Alliance" and ordered to the "Chicago," via steamer sailing Dec. 27.

C. DEW. BROWNELL, passed assistant surgeon. Detached from the "Panther" and ordered to the "Alliance."

## OFFICIAL LIST OF THE CHANGES OF STATION AND DUTIES OF COMMISSIONED AND NON-COMMISSIONED OFFICERS OF THE PUBLIC HEALTH AND MARINE HOSPITAL SERVICE FOR THE SEVEN DAYS ENDING DEC. 18, 1902.

PEEKHAM, C. T., surgeon. Granted leave of absence for fourteen days from Dec. 23. Dec. 17, 1902.

BARNESBY, P. N., acting assistant surgeon. Granted leave of absence, on account of sickness, for thirty days from Dec. 10. Dec. 13, 1902.

## CASUALTIES.

JOHN VANSANT, surgeon, died Dec. 12, 1902.

JOSEPH CHARLES, acting assistant surgeon, died Dec. 11, 1902.

## ERRATUM.

In the issue of the JOURNAL for Dec. 18, on page 664, second column, in the fifteenth line from the top, for *epidemic* read *endemic*.

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